

TMI_897-MW(2)-01

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response	
TMI_897-MW(2)-01	MW(2)-01	1	CEA Agency	Reference to EIS Guidelines:	Part 2, Sections 9.1.2 and 10.
				Reference to EIS / Appendix	Appendix JJ, Sections 1.2.3, 2.0, 5.2; Appendix KK, Sections 1.4.2, 3.4 and 4.2.
				Cross-reference to Round 1 IRs	MW(1)-15
				<p><u>Context and Rationale:</u></p> <ul style="list-style-type: none"> The revised EIS proposes two cover options for the closure of tailings storage facility (TSF). Appendix JJ, Section 1.2.3 mentions that for both options, the tailings will be physically isolated by applying a layer of granular material. For the wet cover option, “the tailings will then be isolated from oxygen by adding a cover of non-process water”, while for the dry cover option, the tailings will be isolated from oxygen by the application of “a low permeability dry cover” (Appendix JJ, Section 2.0). In order to implement either cover option, during the decommissioning phase water will need to be deliberately drained from the tailings to allow for tailings consolidation, before any heavy machinery can operate to emplace the granular material. The time required to consolidate the tailings and then emplace the covers could conceivably require several years. During that time, acid rock drainage (ARD) could occur and this possibility has not been assessed, nor has there been an assessment of the effect this scenario would have on seepage quality. This is important for the Agency to understand the changes in surface water quality due to seepage and the corresponding effects on fish and fish habitat during decommissioning and abandonment phases. 	
<p><u>Specific Question / Request for Information:</u></p> <ol style="list-style-type: none"> For both dry and wet TSF cover options, provide an estimate of the length of time required to consolidate the tailings and implement the cover. Include experiences at other mine sites with similar features and characteristics to support the time estimates. Assess the potential for acid rock drainage for the time it would take to consolidate the tailings and emplace the cover on the TSF, as requested in Question A. Describe the changes in surface water quality due to seepage from the TSF taking the responses from Questions A and B into consideration; 					

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				<p>D. Describe the effects on fish and fish habitat taking the responses from Questions A to C into consideration;</p> <p>E. Describe mitigation measures to prevent adverse effects to fish and fish habitat, if necessary;</p> <p>F. Characterize residual effects, if any, after the mitigation measures have been implemented;</p> <p>G. Update the follow-up program for potential effects to fish and fish habitat, including objectives and any monitoring measures that will be implemented to verify the predictions of effects and evaluate the effectiveness of the proposed mitigation measures. If follow-up is not required, provide a rationale.</p> <p>H. Incorporate the findings of this IR, if applicable, into the revision of seepage water quality assessment requested in IR# MW(2)-06, and revision of groundwater model requested in IR# GW(2)-01.</p> <p>Response:</p> <p><u>PART A:</u></p> <p>To clarify, the revised EIS (April 2018) provided predictions of TSF seepage quality, pit lake water quality, and surface water quality in the receiving environment likely to result from two cover options for closure of the tailings storage facility (TSF), namely; a dry cover and a wet cover option. The two sets of predictions provided in the revised EIS allowed for the comparison of predicted effects on the receiving environment (surface water quality and fish and fish habitat), from both the dry and wet cover options. This comparison identified that predicted surface water quality effects, and thus those on fish and fish habitat would be less with the wet cover option versus the dry cover option. Therefore, the wet cover closure option for the TSF was selected as an appropriate mitigation measure for lessening the potential effects with respect to surface water quality and fish and fish habitat. As a result, the residual adverse effects presented in the revised EIS (April 2018) for surface water quality and fish and fish habitat are based on the application of the wet cover option. Treasury Metals is committed to implement the wet cover closure option for the TSF, and recognize that this will likely be a condition of the environmental assessment process. At this time Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. As such, the Round 2 responses related to mine waste, groundwater, surface water quality, and fish and fish habitat presented in MW(2)-01 through MW(2)-12 focus on responding to the requested information relevant to the wet cover option only.</p> <p>The placement of a wet cover option for closure of the TSF is anticipated to take approximately 1 year which is less than the predicted time of ARD onset. The wet cover will be implemented in 3 main phases, a detailed discussion and justification of timelines for each are provided below:</p> <ul style="list-style-type: none"> • Withdrawal and treatment of supernatant water: Following the end of mining operations, the supernatant water present in the tailings storage facility (TSF) at closure will be withdrawn, treated, and used to help fill the open pit. The estimated amount of supernatant water present in the TSF at closure is predicted to be 970,000 m³ (TMI_887-SW(2)-04_Table 3). Treasury Metals is confident that the volume of water present in the TSF at closure can be withdrawn and treated to a level suitable for discharge to the open pit as it is filling within a period of 4-6 months. If required, Treasury Metals will bring in commercially available packaged treatment units to augment the existing water treatment capacity.

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				<ul style="list-style-type: none"> Placement of granular material: For the wet cover option, granular material will be placed around the perimeter of the tailings during the first winter, to physically isolate the tailings at the edge of the TSF and reduce potential disturbance and entrainment of the tailings due to wave action. Perimeter granular covers have been successfully placed at other mine sites in Ontario. Experience on other mine sites, shows that placement of a full granular cover over saturated tailings may not be practicable, and should not be necessary to ensure the protection of the environment. Surfaces along the perimeter TSF should be sufficiently trafficable for the placement of the granular material using a low ground pressure (LGP) wide track bulldozer once the water is withdrawn. The trafficability will be further enhanced by placing the granular material during the winter months when the upper 0.3–0.6 m thickness is frozen. The volume of granular material required for closure of the TSF is 55,671 m³ (30% coverage of the total TSF area of 618,569 m²; thickness of 0.3 m [TMI_040-MW(1)-02]). It would take less than 2 months to deliver this material using standard highway haul trucks (capacity of 17 m³; 100 trucks per day; 5 days per week). Placement of water cover: In the wet cover scenario, the TSF will be covered with a layer of non-process water of sufficient depth to ensure a water cover is maintained during drought conditions. The volume of non-process water required to close the TSF is 300,000 m³ (Attachment JJ-1 to Appendix JJ of the revised EIS [April 2018]). At closure, there will be 320,000 m³ of water available in the minewater pond and collection ponds (Section 3.8.11 of the revised EIS [April 2018]) to be used as water cover for closure of the TSF. Treasury Metals would augment their available pumping capacity, as required, to transfer the required water to the TSF within 4 months. <p>Therefore, the wet cover for closure of the TSF will be implemented within 1 year.</p> <p><u>PART B:</u></p> <p>The placement of a wet cover option for closure of the TSF is anticipated to take approximately 1 year, which is less than the predicted time of ARD onset (TMI_902-MW(2)-06). The three phases required for placing a wet cover include: withdrawal and treatment of supernatant water (4 to 6 months); placement of granular material (2 months); and placement of water cover (< 4 months). The justification for these timelines is provided in the response to Part A. The time for ARD onset has been conservatively determined to be a minimum of 2 years, as described in the response to TMI_902-MW(2)-06.</p> <p>In addition to the tailings for the wet cover closure option being exposed to oxidation for a period of approximately 1 year, which is less than the calculated time to ARD onset of 2 years (TMI_902-MW(2)-06), which includes consideration that chemical reactions associated with ARD onset would be slowed during the colder, winter months. Therefore, it is confirmed that ARD will not occur within the TSF during the closure process as the closure will be completed long before the calculated ARD onset time of 2 years.</p> <p><u>PART C:</u></p> <p>The placement of a wet cover option for closure of the TSF is anticipated to take approximately 1 year which is less than the predicted time of ARD onset. Given that the water cover would be placed before ARD onset, the seepage</p>

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				<p>from the TSF will not be impacted by ARD during closure activities. Therefore, there are no predicted effects on surface water quality due to concerns with respect to the time it takes to implement the wet cover closure of the TSF and its effect on seepage quality.</p> <p><u>PART D:</u> The placement of a wet cover option for closure of the TSF is anticipated to take approximately 1 year which is less than the predicted time of ARD onset. Given that the water cover would be placed before ARD could begin, the seepage from the TSF will not be impacted by ARD during closure activities. Therefore, there are no predicted effects on surface water quality and subsequently fish and fish habitat due to concerns with respect to the time it takes to implement the wet cover closure of the TSF and its effect on seepage quality.</p> <p><u>PART E:</u> As described in the responses to Parts A through D, there will be no changes to the effects predicted to fish and fish habitat arising from issues and concerns raised in this information request, therefore there are no additional mitigation measures required regarding the time it takes to implement the wet cover closure of the TSF.</p> <p><u>PART F:</u> There are no changes to the characterization of residual adverse effects from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from Round 2 issues or concerns regarding the time to implement the wet cover closure of the TSF.</p> <p><u>PART G:</u> No specific modifications to the Follow-Up Program were identified as a result of the time to implement the wet cover closure of the TSF. An updated Follow-Up Program which supersedes Section 13 of the revised EIS (April 2018) has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <p><u>PART H:</u> The placement of a wet cover option for closure of the TSF is anticipated to take approximately 1 year which is less than the predicted time of ARD onset. Given that the water cover would be placed before ARD onset, the seepage from the TSF will not be impacted by ARD during closure activities. There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The models relied to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model: The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and

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				<p>underground mine workings. As described in Parts A through D, the groundwater model was not relied on directly to estimate the volume of seepage from the WRSA and TSF, as the volume of seepage from the WRSA and TSF was determined by physical properties of these features as described below:</p> <ul style="list-style-type: none"> ○ The uncapped WRSA is a function of the infiltration from the WRSA into the underlying overburden and bedrock capped; ○ The capped WRSA is a function of the infiltration through the multi-layer, low permeability cover place over the WRSA at closure; and ○ The TSF is determined by the characteristics and performance of the liner. <p>The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05.</p> <ul style="list-style-type: none"> ● Geochemical Models: The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. ● Surface Water Model: The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. Effectively, the outputs from the groundwater and geochemical models are inputs to the surface water model. Given the number of Round 2 information requests regarding changes to the groundwater and mine waste (as well as surface water) technical disciplines, the surface water quality model has been revised to capture those changes. All of the changes, as well as a revised prediction on surface water quality, have been incorporated in the revised surface water quality model described in detail in the Goliath Gold Project Water Addendum. <p>While the responses to this information request do not lead to the requirement of updating the effects of seepage on the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Part A.</p>

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				<p>To be confirmed: Perimeter granular covers have been successfully placed at other mine sites in Ontario. Experience on other mine sites, shows that placement of a full granular cover over saturated tailings may not be practicable, and should not be necessary to ensure the protection of the environment. Additional details on analogous sites were provided at the meeting on December 18th, 2018, and are subject to provision of further information.</p> <p>Part B.</p> <p>No. NRCan’s technical expert reviewed the detailed justification provided by the Proponent. However, specific gaps in the characterization and test work for tailings, as identified in MEND Report 1.20.1 “Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials “, Version 0 – December 2009, are indicated below. Where the Proponent has information to address these gaps, please provide that information. Where such information is not available, identify and address resulting uncertainties for the purposes of the federal environmental assessment. The Proponent should provide the following information :</p> <ul style="list-style-type: none"> - Description of central tendency and variability of the geology, mineralogy, elemental and ABA characteristics of the ore. No information or data was provided on the composition of the ore; this information is needed to characterize potential composition and variability in composition of the tailings and to determine if the one tailings sample is representative of central tendency and variability. - Subaqueous Disposal: <ul style="list-style-type: none"> o Characterization of variability in rate of onset, drainage chemistry and solute loads o Determine if thiosalts would be an issue. o What is the range in water depth? When and where will the water depth be 1.2 m? Note the beach, the highest and first exposed location may have preferential deposition and therefore elevated sulphides o Feasibility of measures to reduce the volume of the water cover and extent of water release in the event of a breach including supplemental water sources in the event of a drought o Clarify extent and role of granular cover placed after consolidation and prior to flooding <p>What types of changes are envisioned by the statement <i>Provides ability to refine design and construction methodologies as experience is gained with local conditions and constraints, and also allows for monitoring and collection of field data on the deposited tailings to optimize tailings parameters for use in design and provides ability to adjust plans at a future date to remain current with state-of-the-art engineering and environmental practices (Appendix K, P3-45 Dam Waste Rock Shell)</i></p> <p>Part C. Defer to ECCC and DFO</p> <p>Part D. Defer to ECCC and DFO</p> <p>Part E. Defer to ECCC and DFO</p>

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				<p>Part F. No. Discuss feasibility of measures to reduce the volume of the water cover and extent of water release in the event of a breach, and include supplemental water sources in the event of a drought.</p> <p>Part G. No. Additional information (requested above) would need to be determined before this IR can be addressed.</p> <hr/> <p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p><u>Part A</u> Treasury Metals will be providing a detailed cover design for the closure of the TSF as part of the MENDM Closure Plan under O.Reg. 240/00. Currently, Treasury Metals is looking at the possibility of implementing a fine grained inert granular material over the tailings as part of the closure cover. This process would utilize the existing mill infrastructure to slurry the granular material over the tailings to provide physical protection of the tailings. There are a number of sites that have implemented similar closure covers within Ontario (e.g., Glencore’s Geco Mine and Goldcorp’s Coniaurum Mine) as well as Canada (Glencore’s Brunswick Mine). Treasury Metals and their consultants are confident that they can implement a fine-grained granular material over the tailings as part of the TSF closure cover, if required, and will provide further details of this as part of the detailed MENDM Closure Plan process under O.Reg. 240/00.</p> <p>As discussed in both the December 18, 2018, and the January 10, 2019 meetings with the Agency and their technical reviewers, Treasury Metals are still confident that they can successfully implement a wet cover closure option for the TSF (see response to TMI_898-MW(2)-02), and that the wet cover option will continue to result in lower predicted effects on both surface water quality and fish and fish habitat.</p> <p>However, the revised EIS (April 2018) included predictions for both the wet and dry cover options. In light of concerns raised by the Agency and their technical reviewers in both the December 18, 2018, and the January 10, 2019 meetings, the following discussions provide detailing timelines for both the placement of a wet and a dry cover for the closure of the TSF.</p> <p>The original plan for the closure of the TSF involved the withdrawal and treatment of the supernatant, placement of a granular layer to physically isolate the tailings and closure with either a wet cover of dry, low-permeability cover. As indicated in the draft response, experience on other mine sites has shown that placement of a full granular cover over saturated tailings using heavy equipment may not be practicable. However, the design engineers for Goliath Gold Project have indicated that the tailings can also be physically isolated by placing a layer of sand and silt over the tailings using the existing mill infrastructure. This layer would be placed prior to the withdrawal of the supernatant water and would not require the tailings to be trafficable. The following provides details of the times required to place both the wet and dry cover options for the closure of the TSF.</p> <p>The placement of a dry cover closure option for the TSF will be implemented in 4 main phases, a detailed discussion and justification of timelines for each are provided below:</p>

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				<ul style="list-style-type: none"> Placement of Isolating Layer: Prior to removal of the operating pond a layer of material (silt and sand) will be deposited over the tailings surface to physically isolate the tailings. It is anticipated that this layer will be deposited utilizing the existing mill infrastructure and tailings deposition pipeline. An initial layer thickness of at least 1 m is considered reasonable to protect against the potential onset of ARD during cover construction. Total volume of this layer will be approximately 618,000 m³ (475,000 tonnes) and will take approximately 200 days to deposit at the planned mill throughput. Withdrawal and Treatment of Supernatant Water: Following the end of mining operations, the supernatant water present in the tailings storage facility (TSF) at closure will be withdrawn, treated, and used to help fill the open pit. The estimated amount of supernatant water present in the TSF at closure is predicted to be 970,000 m³ (TMI_887 SW(2)-04_Table_3). Treasury Metals is confident that the volume of water present in the TSF at closure can be withdrawn and treated to a level suitable for discharge to the open pit as it is filling within a period of 4-6 months. The water removal would be planned so that the drawdown is completed immediately prior to winter (i.e., October 31). If required, Treasury Metals will bring in commercially available packaged treatment units to augment the existing water treatment capacity. Placement of Granular Material and Consolidation of the Tailings: A pioneering layer of granular free draining fill (approximately 0.5 m thick) would be spread over the impoundment surface once the water pond has been removed and the isolating layer allowed to partially consolidate, dry and/or freeze. The placement would be planned to take place during the winter season in order to take advantage of freezing conditions. It is expected that the 0.5 m thick layer (approximately 309,000 m³) can be completed within a single winter construction window of January 1 through March 31 at a rate 3,400 m³/day for 90 days. However, should the central portion area not be sufficiently trafficable, a second construction season may be required. Placement of the Final Dry Cover Layer: Placement of the final dry cover layer would take place the following summer (June through August) and include placement of a 0.5 m thick layer of low permeability clay layer. Following the placement of the low-permeability clay layer, a 0.5 m thick layer of overburden would be placed to protect the underlying clay. These layers would be placed at a rate of approximately 3,400 m³/day. <p>It is understood that the schedule provided above is contingent on normal weather conditions and could be negatively impacted by an abnormally warm winter or wet summer. The placement of a dry cover is anticipated to take approximately 20 to 34 months, depending largely on the trafficability of the isolating layer. It should be noted that the first step (placement of the isolating layer) will occur while the TSF is still flooded and ARD not possible. Additionally, the TSF will be covered with water for much of the second step (withdrawal and treatment of supernatant water). Once the low-permeability clay layer is placed, the potential for ARD will be largely eliminated. Therefore, the period of time when the TSF is susceptible to the onset of ARD during closure ranges from 8 to 21 months, which is less than the predicted time of 2 years required for the onset of ARD (see response to TMI_902-MW(2)-06). An analysis of the effects on surface water quality the dry cover closure option of the TSF is provided in the Goliath Gold Project Water Addendum provided in support of the Round 2 process.</p>

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				<p>The wet cover will be implemented in 3 main phases. A detailed discussion and justification of timelines for each are provided below:</p> <ul style="list-style-type: none"> Placement of Isolating Layer: Prior to removal of the operating pond a layer of material (silt and sand) will be deposited over the tailings surface to physically isolate the tailings. It is anticipated that this layer will be deposited utilizing the existing mill infrastructure and tailings deposition pipeline. An initial layer thickness of at least 1 m is considered reasonable to protect against the potential onset of ARD during cover construction. Total volume of this layer will be approximately 618,000 m³ (475,000 tonnes) and will take approximately 200 days to deposit at the planned mill throughput. Withdrawal and Treatment of Supernatant Water: Following the end of mining operations, the supernatant water present in the tailings storage facility (TSF) at closure will be withdrawn, treated, and used to help fill the open pit. The estimated amount of supernatant water present in the TSF at closure is predicted to be 970,000 m³ (TMI_887 SW(2)-04_Table 3). Treasury Metals is confident that the volume of water present in the TSF at closure can be withdrawn and treated to a level suitable for discharge to the open pit as it is filling within a period of 4-6 months. If required, Treasury Metals will bring in commercially available packaged treatment units to augment the existing water treatment capacity. Placement of Water Cover: In the wet cover scenario, the TSF will be covered with a layer of non-process water of sufficient depth to ensure a water cover is maintained during drought conditions. The volume of non-process water required to close the TSF is 300,000 m³ (Attachment JJ-1 to Appendix JJ of the revised EIS [April 2018]). At closure, there will be 320,000 m³ of water available in the minewater pond and collection ponds (Section 3.8.11 of the revised EIS [April 2018]) to be used as water cover for closure of the TSF. Treasury Metals would augment their available pumping capacity, as required, to transfer the required water to the TSF within 4 months. <p>The placement of a wet cover option for closure of the TSF is anticipated to take approximately 17 months. However, the first step (placement of the isolating cover material) will occur while the TSF is still flooded and ARD not possible. Additionally, the TSF will be covered with water for much of the second step (withdrawal and treatment of supernatant water). Therefore, the period of time when the TSF is not fully covered by water and thus has susceptible to the onset of ARD is approximately 6 months, which is less than the predicted time of 2 years required for the onset of ARD (see response to TMI_902-MW(2)-06). Therefore, the wet cover closure option can be completed prior to the onset of ARD.</p> <p>During the meetings with the Agency and their technical reviewers on December 18, 2018 and the January 10, 2019, concerns were raised regarding the potential for rapid onset of ARD during the closure of the TSF. During those meetings, Treasury Metals indicated they would consider placing a benign layer of tailings during the final year or two of operations to help delay the onset of ARD during closure, if required. There are a number of options for the benign tailings layer, including the addition of lime to the tailings, de-sulphurizing the tailings or mixing a caustic material with the tailings. Final details with regards to the placement of this benign tailings layer will be established as part of the final closure plan process in accordance with MENDM O.Reg. 240/00. With the implementation of a benign tailings layer, the onset of ARD should be delayed sufficiently to allow the construction of both the dry and wet cover closure options, prior to the early onset of ARD in the tailings.</p>

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				<p><u>Part B</u></p> <p>As discussed in both the December 18, 2018, and the January 10, 2019 meetings with the Agency and their technical reviewers, much of the detailed information requested regarding the geochemical characterization work completed is not required as part of the EIS process. The level of detailed information requested, as identified in MEND Report 1.20.1 "Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials ", Version 0 – December 2009, would be used as part of the formal final closure plan process in accordance with MENDM O.Reg. 240/00. As part of the revised responses to the Round 2 information requests, additional details have been provided in the Goliath Gold Project Geochemistry Memo, including discussions regarding the variability of the geology and mineralogy of the site, as well as the elemental and ABA characteristics of the ore. The Goliath Gold Project Geochemistry Memo also provides additional details regarding the use of subaqueous tailings placement during operations, characterization of the onset times for ARD and the expansion of the follow-up program to include the analysis for thiosalts.</p> <ul style="list-style-type: none"> • <u>What is the range in water depth?</u> As discussed in the January 10, 2019 meetings with the Agency and their technical reviewers, the range of water depths within the operating TSF is not required to support the EIS. As described in Section 3.8.5 of the revised EIS (April 2018), Treasury Metals has committed to maintaining a water cover over the majority of the TSF with an average water cover depth of 1.2 m. Beach areas would be kept to a minimum, and spigotting will be used in a fashion that surrounds the TSF to deposit material in an evenly distributed manner. While Treasury Metals realizes that tailings material will not be deposited in a strictly uniform and/or flat manner it is reasonable to assume that 1.2 m of water on top of the bulk of the TSF would be achievable. • <u>When and where will the water depth be 1.2 m?</u> As described in Section 3.8.5 of the revised EIS (April 2018), Treasury Metals has committed to maintaining a water cover over the majority of the TSF with an average water cover depth of 1.2 m. Spigotting will be used in a fashion that surrounds the TSF to deposit material in an evenly distributed manner. While Treasury Metals realizes that tailings material will not be deposited in a strictly uniform and/or flat manner it is reasonable to assume that 1.2 m of water on top of the bulk of the TSF would be achievable. • <u>Note the beach, the highest and first exposed location may have preferential deposition and therefore elevated sulphides:</u> Spigotting will be used in a fashion that surrounds the TSF to deposit material in an evenly distributed manner. While Treasury Metals realizes that tailings material will not be deposited in a strictly uniform and/or flat manner it is reasonable to assume that 1.2 m of water on top of the bulk of the TSF would be achievable. There would be some areas near the tailings discharge locations where tailings would be exposed (i.e., 0 m of water cover) for a relatively short period of time. The discharge location for tailings will be relocated frequently through the implementation of spigotting. There was no evidence or discussion during the January 10, 2019 meetings that suggest the suggestion that preferential deposition of elevated sulphides would occur at any particular location. • <u>Feasibility of measures to reduce the volume of the water cover and extent of water release in the event of a breach including supplemental water sources in the event of a drought:</u> As described in Section 3.8.5 of

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				<p>the revised EIS (April 2018), Treasury Metals intend to maintain a water cover with average depth of 1.2 m during operations. This depth will be used during operations to minimize the potential for exposed tailings due to uneven deposition and wave action. Following closure, a minimum water cover of 300,000 m³ would be placed over the tailings to ensure they would remain saturated and isolated from the atmosphere even in the event of a 1:100 dry year occurring the first year after closure. This volume of water was identified based on the climatology of the region, and to ensure the water cover would function without the intervention by Treasury Metals. As discussed in the January 10, 2019 meetings with the Agency and their technical reviewers, it is possible to for Treasury Metals to pump of water from the pit lake to ensure that the water cover over TSF the can be maintained during post-closure. However, this would not be feasible until the pit lake is fully formed (between 5 and 8 years following closure). Details regarding the level of water cover maintained over the TSF during post-closure would be appropriately addressed as part of the formal closure planning process.</p> <ul style="list-style-type: none"> • <u>Clarify the extent and role of granular cover placed after consolidation and prior to flooding:</u> As discussed in both the December 18, 2018, and the January 10, 2019 meetings with the Agency and their technical reviewers, the original plan for the closure of the TSF involved the withdrawal and treatment of the supernatant, placement of a granular layer to physically isolate the tailings and closure with either a wet cover of dry, low-permeability cover. As indicated in the draft response, experience on other mine sites has shown that placement of a full granular cover over saturated tailings using heavy equipment may not be practicable. However, the design engineers for Goliath Gold Project have indicated that the tailings can also be physically isolated by placing a 1 m thick layer of sand and silt over the entire surface of the tailings using the existing mill infrastructure. This layer would be placed prior to the withdrawal of the supernatant water and would not require the tailings to be trafficable. • <u>What types of changes are envisioned by the statement “Provides ability to refine design and construction methodologies as experience is gained with local conditions and constraints, and also allows for monitoring and collection of field data on the deposited tailings to optimize tailings parameters for use in design and provides ability to adjust plans at a future date to remain current with state-of-the-art engineering and environmental practices (Appendix K, P3-45 Dam Waste Rock Shell)”.</u> To clarify, there were no discussions regarding the construction of the TSF dam included in Appendix K to the revised EIS (April 2018). As described in the note to readers at the beginning of Appendix K to the revised EIS (April 2018), this appendix presents the results of geochemical testing on mined materials. The information provided in this appendix was used to describe existing geological conditions presented in Section 5.4 of the revised EIS (April 2018). The information provided in Appendix K was also used to support the revised analysis of geochemical effects, including the onset times for ARD, presented in Section 5 of Appendix JJ (Water Report), as well as in describing the potential geochemistry effects likely over the Project life presented in Section 6.3 of the revised EIS (April 2018). <p>It appears that the quotation listed in this question is in fact an excerpt from page 19 of the document prepared by the NRCAN reviewers. It should be noted that the NRCAN document did not include This section of the NRCAN document is discussing the information provided in Section 3.7 of the revised EIS</p>

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				<p>(April 2018). Although the NRCAN document did not provide any questions associated with these statements, these statements relate to the advantages identified by Treasury Metals in constructing the TSF in stages, rather than all at once. Staging the construction of the TSF would allow for “future, state-of-the-art engineering and environmental practices” to be implemented in the construction of subsequent stages of the TSF. However, it is not possible today to indicate the changes that would be likely as a result of “future, state-of-the-art engineering and environmental practices”.</p> <p><u>Part C</u> <u>Wet Cover</u> The placement of a wet cover option for closure of the TSF is anticipated to take approximately 1 year which is less than the predicted time of ARD onset. Given that the water cover would be placed before ARD onset, the seepage from the TSF will not be impacted by ARD during closure activities. Therefore, there are no predicted effects on surface water quality due to concerns with respect to the time it takes to implement the wet cover closure of the TSF and its effect on seepage quality.</p> <p><u>Dry Cover</u> The placement of a dry cover option for closure of the TSF is anticipated to take approximately XX years, which is greater than the predicted time to ARD onset. There are several mitigation measures that can be implemented to combat the onset of ARD in the tailings prior to the dry cover being placed. These mitigation measures could include the addition to lime in the tailings in the final years of operation or desulphurizing the upper layer of tailings. It is therefore predicted that with these mitigation measures, the seepage from the TSF will not be impacted by ARD during closure activities. Therefore, there are no predicted effects on surface water quality due to concerns with respect to the time it takes to implement the dry cover closure of the TSF and its effect on seepage quality.</p> <p><u>Part D.</u> <u>Wet Cover</u> The placement of a wet cover option for closure of the TSF is anticipated to take approximately 1 year which is less than the predicted time of ARD onset. Given that the water cover would be placed before ARD could begin, the seepage from the TSF will not be impacted by ARD during closure activities. Therefore, there are no predicted effects on surface water quality and subsequently fish and fish habitat due to concerns with respect to the time it takes to implement the wet cover closure of the TSF and its effect on seepage quality.</p> <p><u>Dry Cover</u> The placement of a dry cover option for closure of the TSF is anticipated to take approximately XX years, which is greater than the predicted time to ARD onset. There are several mitigation measures that can be implemented to combat the onset of ARD in the tailings prior to the dry cover being placed. These mitigation measures could include the addition to lime in the tailings in the final years of operation or desulphurizing the upper layer of tailings. It is therefore predicted that with these mitigation measures, the seepage from the TSF will not be impacted by ARD</p>

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				<p>during closure activities. Therefore, there are no predicted effects on surface water quality and subsequently fish and fish habitat due to concerns with respect to the time it takes to implement the dry cover closure of the TSF and its effect on seepage quality.</p> <p><u>Part E.</u> As described in the responses to Parts A through D, there will be no changes to the effects predicted to fish and fish habitat arising from issues and concerns raised in this information request, therefore there are no additional mitigation measures required regarding the time it takes to implement the wet or dry cover closure of the TSF.</p> <p><u>Part F.</u> There are no changes to the characterization of residual adverse effects from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from Round 2 issues or concerns regarding the time to implement the wet or dry cover closure of the TSF.</p> <p><u>Part G.</u> No specific modifications to the Follow-Up Program were identified as a result of the time to implement the wet or dry cover closure of the TSF. An updated Follow-Up Program which supersedes Section 13 of the revised EIS (April 2018) has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <p><u>Part H.</u> With mitigation measures in place, the placement of a wet or dry cover option for closure of the TSF is anticipated to take less than the predicted time of ARD onset. Given that the TSF cover would be placed before ARD onset, the seepage from the TSF will not be impacted by ARD during closure activities. There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The models relied to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model: The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. As described in Parts A through D, the groundwater model was not relied on directly to estimate the volume of seepage from the WRSA and TSF, as the volume of seepage from the WRSA and TSF was determined by physical properties of these features as described below: <ul style="list-style-type: none"> ○ The uncapped WRSA is a function of the infiltration from the WRSA into the underlying overburden and bedrock capped; ○ The capped WRSA is a function of the infiltration through the multi-layer, low permeability cover placed over the WRSA at closure; and

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				<p>○ The TSF is determined by the characteristics and performance of the liner.</p> <p>The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05.</p> <ul style="list-style-type: none"> ● Geochemical Models: The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. ● Surface Water Model: The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. Effectively, the outputs from the groundwater and geochemical models are inputs to the surface water model. Given the number of Round 2 information requests regarding changes to the groundwater and mine waste (as well as surface water) technical disciplines, the surface water quality model has been revised to capture those changes. All of the changes, as well as a revised prediction on surface water quality, have been incorporated in the revised surface water quality model described in detail in the Goliath Gold Project Water Addendum. <p>While the responses to this information request do not lead to the requirement of updating the effects of seepage on the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p><u>Final Response:</u></p> <p><u>Part A</u></p> <p>Treasury Metals will be providing a detailed cover design for the closure of the TSF as part of the MENDM Closure Plan under O.Reg. 240/00. Currently, Treasury Metals is looking at the possibility of implementing a fine grained inert granular material over the tailings as part of the closure cover. This process would utilize the existing mill infrastructure to slurry the granular material over the tailings to provide physical protection of the tailings. There are a number of sites that have implemented similar closure covers within Ontario (e.g., Glencore’s Geco Mine and Goldcorp’s Coniaurum Mine) as well as Canada (Glencore’s Brunswick Mine). Treasury Metals and their consultants are confident that they can implement a fine-grained granular material over the tailings as part of the TSF closure cover, if required, and will provide further details of this as part of the detailed MENDM Closure Plan process under O.Reg. 240/00.</p>

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				<p>As discussed in both the December 18, 2018, and the January 10, 2019 meetings with the Agency and their technical reviewers, Treasury Metals are still confident that they can successfully implement a wet cover closure option for the TSF (see response to TMI_898-MW(2)-02), and that the wet cover option will continue to result in lower predicted effects on both surface water quality and fish and fish habitat.</p> <p>However, the revised EIS (April 2018) included predictions for both the wet and dry cover options. In light of concerns raised by the Agency and their technical reviewers in both the December 18, 2018, and the January 10, 2019 meetings, the following discussions provide detailing timelines for both the placement of a wet and a dry cover for the closure of the TSF.</p> <p>The original plan for the closure of the TSF involved the withdrawal and treatment of the supernatant, placement of a granular layer to physically isolate the tailings and closure with either a wet cover or dry, low-permeability cover. As indicated in the draft response, experience on other mine sites has shown that placement of a full granular cover over saturated tailings using heavy equipment may not be practicable. However, the design engineers for Goliath Gold Project have indicated that the tailings can also be physically isolated by placing a layer of sand and silt over the tailings using the existing mill infrastructure. This layer would be placed prior to the withdrawal of the supernatant water and would not require the tailings to be trafficable. The following provides details of the times required to place both the wet and dry cover options for the closure of the TSF.</p> <p>The placement of a dry cover closure option for the TSF will be implemented in 4 main phases, a detailed discussion and justification of timelines for each are provided below:</p> <ul style="list-style-type: none"> <p>Placement of Isolating Layer: Prior to removal of the operating pond a layer of material (silt and sand) will be deposited over the tailings surface to physically isolate the tailings. It is anticipated that this layer will be deposited utilizing the existing mill infrastructure and tailings deposition pipeline. An initial layer thickness of at least 1 m is considered reasonable to protect against the potential onset of ARD during cover construction. Total volume of this layer will be approximately 618,000 m³ (475,000 tonnes) and will take approximately 200 days to deposit at the planned mill throughput.</p> <p>Withdrawal and Treatment of Supernatant Water: Following the end of mining operations, the supernatant water present in the tailings storage facility (TSF) at closure will be withdrawn, treated, and used to help fill the open pit. The estimated amount of supernatant water present in the TSF at closure is predicted to be 970,000 m³ (TMI_887 SW(2)-04_Table_3). Treasury Metals is confident that the volume of water present in the TSF at closure can be withdrawn and treated to a level suitable for discharge to the open pit as it is filling within a period of 4-6 months. The water removal would be planned so that the drawdown is completed immediately prior to winter (i.e., October 31). If required, Treasury Metals will bring in commercially available packaged treatment units to augment the existing water treatment capacity.</p> <p>Placement of Granular Material and Consolidation of the Tailings: A pioneering layer of granular free draining fill (approximately 0.5 m thick) would be spread over the impoundment surface once the water pond has been removed and the isolating layer allowed to partially consolidate, dry and/or freeze. The placement would be planned to take place during the winter season in order to take advantage of freezing conditions. It is expected that the 0.5 m thick layer (approximately 309,000 m³) can be completed within a</p>

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				<p>single winter construction window of January 1 through March 31 at a rate 3,400 m³/day for 90 days. However, should the central portion area not be sufficiently trafficable, a second construction season may be required.</p> <ul style="list-style-type: none"> Placement of the Final Dry Cover Layer: Placement of the final dry cover layer would take place the following summer (June through August) and include placement of a 0.5 m thick layer of low permeability clay layer. Following the placement of the low-permeability clay layer, a 0.5 m thick layer of overburden would be placed to protect the underlying clay. These layers would be placed at a rate of approximately 3,400 m³/day. <p>It is understood that the schedule provided above is contingent on normal weather conditions and could be negatively impacted by an abnormally warm winter or wet summer. The placement of a dry cover is anticipated to take approximately 20 to 34 months, depending largely on the trafficability of the isolating layer. It should be noted that the first step (placement of the isolating layer) will occur while the TSF is still flooded and ARD not possible. Additionally, the TSF will be covered with water for much of the second step (withdrawal and treatment of supernatant water). Once the low-permeability clay layer is placed, the potential for ARD will be largely eliminated. Therefore, the period of time when the TSF is susceptible to the onset of ARD during closure ranges from 8 to 21 months, which is less than the predicted time of 2 years required for the onset of ARD (see response to TMI_902-MW(2)-06). An analysis of the effects on surface water quality the dry cover closure option of the TSF is provided in the Goliath Gold Project Water Addendum provided in support of the Round 2 process.</p> <p>The wet cover will be implemented in 3 main phases. A detailed discussion and justification of timelines for each are provided below:</p> <ul style="list-style-type: none"> Placement of Isolating Layer: Prior to removal of the operating pond a layer of material (silt and sand) will be deposited over the tailings surface to physically isolate the tailings. It is anticipated that this layer will be deposited utilizing the existing mill infrastructure and tailings deposition pipeline. An initial layer thickness of at least 1 m is considered reasonable to protect against the potential onset of ARD during cover construction. Total volume of this layer will be approximately 618,000 m³ (475,000 tonnes) and will take approximately 7 months to deposit at the planned mill throughput. Withdrawal and Treatment of Supernatant Water: Following the end of mining operations, the supernatant water present in the tailings storage facility (TSF) at closure will be withdrawn, treated, and used to help fill the open pit. The estimated amount of supernatant water present in the TSF at closure is predicted to be 970,000 m³ (TMI_887 SW(2)-04_Table 3). Treasury Metals is confident that the volume of water present in the TSF at closure can be withdrawn and treated to a level suitable for discharge to the open pit as it is filling within a period of 4-6 months. If required, Treasury Metals will bring in commercially available packaged treatment units to augment the existing water treatment capacity. Placement of Water Cover: In the wet cover scenario, the TSF will be covered with a layer of non-process water of sufficient depth to ensure a water cover is maintained during drought conditions. The volume of non-process water required to close the TSF is 300,000 m³ (Attachment JJ-1 to Appendix JJ of the revised EIS [April 2018]). At closure, there will be 320,000 m³ of water available in the minewater pond

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				<p>and collection ponds (Section 3.8.11 of the revised EIS [April 2018]) to be used as water cover for closure of the TSF. Treasury Metals would augment their available pumping capacity, as required, to transfer the required water to the TSF within 4 months.</p> <p>The placement of a wet cover option for closure of the TSF is anticipated to take approximately 17 months. However, the first step (placement of the isolating cover material) will occur while the TSF is still flooded and ARD not possible. Additionally, the TSF will be covered with water for much of the second step (withdrawal and treatment of supernatant water). Therefore, the period of time when the TSF is not fully covered by water and thus has susceptible to the onset of ARD is approximately 6 months, which is less than the predicted time of 2 years required for the onset of ARD (see response to TMI_902-MW(2)-06). Therefore, the wet cover closure option can be completed prior the onset of ARD.</p> <p>During the meetings with the Agency and their technical reviewers on December 18, 2018 and the January 10, 2019, concerns were raised regarding the potential for rapid onset of ARD during the closure of the TSF. During those meetings, Treasury Metals indicated they would consider placing a benign layer of tailings during the final year or two of operations to help delay the onset of ARD during closure, if required. There are a number of options for the benign tailings layer, including the addition of lime to the tailings, de-sulphurizing the tailings or mixing a caustic material with the tailings. Final details with regards to the placement of this benign tailings layer will be established as part of the final closure plan process in accordance with MENDM O.Reg. 240/00. With the implementation of a benign tailings layer, the onset of ARD should be delayed sufficiently to allow the construction of both the dry and wet cover closure options, prior to the early onset of ARD in the tailings.</p> <p><u>Part B:</u></p> <p>On September 17, 2018 Treasury Metals submitted this response in draft which was updated and submitted on November 2, 2018 without having Agency feedback received. On December 19, 2018 and January 10, 2019 technical meetings were held with the Agency and their technical reviewers to discuss the Round 2 mine waste Information Requests. Treasury Metals was provided official feedback from the Agency and their reviewers on January 4, 2019. The information provided in the “response to Agency comment” incorporates the official feedback received on January 4, 2019 as well as the information requested during the discussions held on December 18, 2018 and January 10, 2019. Given that in many cases the requested information did not tie directly back to the original information request, the final response to this IR is simply the original response (November 2, 2018) plus the supplemental information requested that has been provided under the Specific Response to Natural Resources Canada Comments.</p> <p><u>Part C</u></p> <p><u>Wet Cover</u></p> <p>The placement of a wet cover option for closure of the TSF is anticipated to take approximately 1 year which is less than the predicted time of ARD onset. Given that the water cover would be placed before ARD onset, the seepage from the TSF will not be impacted by ARD during closure activities. Therefore, there are no predicted effects on</p>

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				<p>surface water quality due to concerns with respect to the time it takes to implement the wet cover closure of the TSF and its effect on seepage quality.</p> <p><u>Dry Cover</u></p> <p>The placement of a dry cover option for closure of the TSF is anticipated to take approximately 20 to 34 months, which is greater than the predicted time to ARD onset. There are several mitigation measures that can be implemented to combat the onset of ARD in the tailings prior to the dry cover being placed. These mitigation measures could include the addition to lime in the tailings in the final years of operation or desulphurizing the upper layer of tailings. It is therefore predicted that with these mitigation measures, the seepage from the TSF will not be impacted by ARD during closure activities. Therefore, there are no predicted effects on surface water quality due to concerns with respect to the time it takes to implement the dry cover closure of the TSF and its effect on seepage quality.</p> <p>Part D.</p> <p><u>Wet Cover</u></p> <p>The placement of a wet cover option for closure of the TSF is anticipated to take approximately 1 year which is less than the predicted time of ARD onset. Given that the water cover would be placed before ARD could begin, the seepage from the TSF will not be impacted by ARD during closure activities. Therefore, there are no predicted effects on surface water quality and subsequently fish and fish habitat due to concerns with respect to the time it takes to implement the wet cover closure of the TSF and its effect on seepage quality.</p> <p><u>Dry Cover</u></p> <p>The placement of a dry cover option for closure of the TSF is anticipated to take approximately 20 to 34 months, which is greater than the predicted time to ARD onset. There are several mitigation measures that can be implemented to combat the onset of ARD in the tailings prior to the dry cover being placed. These mitigation measures could include the addition to lime in the tailings in the final years of operation or desulphurizing the upper layer of tailings. It is therefore predicted that with these mitigation measures, the seepage from the TSF will not be impacted by ARD during closure activities. Therefore, there are no predicted effects on surface water quality and subsequently fish and fish habitat due to concerns with respect to the time it takes to implement the dry cover closure of the TSF and its effect on seepage quality.</p> <p>Part E.</p> <p>As described in the responses to Parts A through D, there will be no changes to the effects predicted to fish and fish habitat arising from issues and concerns raised in this information request, therefore there are no additional mitigation measures required regarding the time it takes to implement the wet or dry cover closure of the TSF.</p> <p>Part F.</p>

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				<p>There are no changes to the characterization of residual adverse effects from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from Round 2 issues or concerns regarding the time to implement the wet or dry cover closure of the TSF.</p> <p><u>Part G.</u> No specific modifications to the Follow-Up Program were identified as a result of the time to implement the wet or dry cover closure of the TSF. An updated Follow-Up Program which supersedes Section 13 of the revised EIS (April 2018) has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <p><u>Part H.</u> With mitigation measures in place, the placement of a wet or dry cover option for closure of the TSF is anticipated to take less than the predicted time of ARD onset. Given that the TSF cover would be placed before ARD onset, the seepage from the TSF will not be impacted by ARD during closure activities. There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The models relied to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model: The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. As described in Parts A through D, the groundwater model was not relied on directly to estimate the volume of seepage from the WRSA and TSF, as the volume of seepage from the WRSA and TSF was determined by physical properties of these features as described below: <ul style="list-style-type: none"> ○ The uncapped WRSA is a function of the infiltration from the WRSA into the underlying overburden and bedrock capped; ○ The capped WRSA is a function of the infiltration through the multi-layer, low permeability cover placed over the WRSA at closure; and ○ The TSF is determined by the characteristics and performance of the liner. <p>The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05.</p> <ul style="list-style-type: none"> • Geochemical Models: The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model: The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. Effectively, the

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				<p>outputs from the groundwater and geochemical models are inputs to the surface water model. Given the number of Round 2 information requests regarding changes to the groundwater and mine waste (as well as surface water) technical disciplines, the surface water quality model has been revised to capture those changes. All of the changes, as well as a revised prediction on surface water quality, have been incorporated in the revised surface water quality model described in detail in the Goliath Gold Project Water Addendum.</p> <p>While the responses to this information request do not lead to the requirement of updating the effects of seepage on the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p>

TMI_898-MW(2)-02

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				Reference to EIS / Appendix	Section 3.5.3; Section 5.1.4; Appendix JJ; Appendix JJ-1
				Cross-reference to Round 1 IRs	n/a
				<p>Context and Rationale:</p> <ul style="list-style-type: none"> The assessment of changes in water quality from tailings storage facility (TSF) seepage is predicated upon complete success in preventing acid rock drainage (ARD) from occurring in the tailings in perpetuity. However, the long-term viability of maintaining the wet cover option, without human intervention, has not been adequately demonstrated. Appendix JJ-1 of the revised EIS provides a “Water Cover Analysis on the Tailings Storage Facility at Closure”, which appears to be conducted over one year and does not demonstrate long-term viability. The ARD potential of the tailings does not diminish through time, and will continue to pose the same risk to the environment at any point in time should failure of the wet cover occur. Considering that the water cover needs to be maintained in perpetuity, a water cover model needs to be run for a period longer than one year to support the viability of the cover and substantiate the conclusions made in the revised EIS regarding changes in surface water quality. In addition, it is stated in Section 5.1.4 that “There are various climate change assessments that have been developed for northern Ontario, most of which generally predict that the temperatures will increase in the future, while precipitation will remain stable, or increase. The assessments also theorize that precipitation will become more episodic [...]”. These changes in climate can have important implications for the long-term viability of maintaining a wet cover over the tailings. The potential effects of climate change upon the long-term viability of maintaining a water cover need to be assessed and incorporated into the water cover modelling. A sensitivity analysis to test the robustness of the system to maintain a wet cover on the TSF was not conducted or reported in the revised EIS. Hence, it is unclear whether certain conditions or combination of conditions could cause a wet cover over TSF to fail. This information is important for the Agency to understand the changes in water quality caused by seepage from the TSF, which could adversely affect fish and fish habitat. 	

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				<p><u>Specific Question / Request for Information:</u></p> <p>A. Indicate whether the intent of the wet cover on the TSF is to completely prevent any ARD, or to reduce the rate of ARD formation.</p> <p>B. Provide a multi-year water cover modelling analysis to substantiate the viability of the wet cover on the TSF using appropriate climate data. All water inputs (e.g. direct precipitation into the TSF) and outputs (e.g. evaporation, snow sublimation, transpiration, seepage) should be clearly identified, quantified and appropriately modelled;</p> <p>C. Assess the potential effects of climate change on long-term viability of the wet cover on the TSF and factor that into the response to Question B;</p> <p>D. Provide a sensitivity analysis that examines the robustness of the system to maintain the water cover in perpetuity. The sensitivity analysis should also examine what conditions, or combination of conditions, will cause the wet cover to fail;</p> <p>E. Update the water quality assessment, if needed, taking the responses from Questions A to D into consideration;</p> <p>F. Describe the effects on fish and fish habitat, if any, taking the response from Question E into consideration;</p> <p>G. Describe additional mitigation measures, including contingency measures that would be in place to mitigate any effects on fish and fish habitat if the wet cover on the TSF is unsuccessful;</p> <p>H. Characterize residual effects, if any, after the mitigation measures have been implemented;</p> <p>I. Update the follow-up program for potential effects to fish and fish habitat, including objectives and any monitoring measures that will be implemented to verify the predictions of effects and evaluate the effectiveness of the proposed mitigation measures. If follow-up is not required, provide a rationale.</p> <p>J. Incorporate the findings of this IR, if applicable, into the revision of seepage water quality assessment requested in IR# MW(2)-06, and revision of groundwater model requested in IR# GW(2)-01.</p> <p><u>Response:</u></p> <p><u>Part A.</u> The intent of the wet cover is to ensure tailings are in a saturated condition in perpetuity, thus effectively preventing ARD. Water covers are a well-proven method of limiting ARD formation in tailings that is accepted as the best means of preventing ARD.</p> <p><u>Part B:</u> A multi-year water cover model has been prepared. The results of the analysis, along with a breakdown of all inputs (direct precipitation) and outputs (evaporation and seepage) used in completing the analysis of the wet cover is provided in TMI_898-MW(2)-02_Table_B1. Figure TMI_898-MW(2)-02_Figure 1 shows the resulting surface elevation of the water cover. The results of the multi-year model are unchanged from the single year model presented in Appendix JJ-1 to the revised EIS (April 2018). The water cover analysis indicates that there is an annual surplus of approximately 78,500 m³ in the TSF during an average year. This implies that the annual runoff exceeds the</p>

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				<p>evaporation and seepage losses, indicating that a water cover is feasible on a long-term basis, and that there will be a surplus of water released through the spillway from the TSF under average climate conditions. The multi-year water cover modelling analysis shows the variation in water level in the TSF during the year, and that the TSF water level would always revert to the spillway invert elevation as the average climate condition shows an annual surplus of water. During a 1:100 dry year, the water cover analysis estimates that the TSF volume will be drawn down approximately 237,000 m³. In order to prepare for this unlikely event during the years immediately following closure, 300,000 m³ will be deposited in the TSF as part of the closure activities, water will be sourced from non-process water or process water that has been treated to meet PWQO. As shown in Section 3.11 of the revised EIS (April 2018), there would be a sufficient volume of water present in the ponds at closure to provide this required volume of water. Should a 1:100 dry year occur at any point during closure, it is estimated that it would take 3.4 years (under average climate conditions) to recover to the water level prior to the 1:100 dry year (see TMI_898-MW(2)-02_Figure B1). The likelihood of another 1:100 dry year occurring within this time frame is extremely low. However, should two consecutive 1:100 dry years occur, the water cover analysis indicates that the drawdown volume would be approximately 527,650 m³ (see TMI_898-MW(2)-02_Figure B1). If this occurred after an average year in the long-term, the resulting minimum water level would be approximately 417.8 m, which still maintains a 1.2 m water cover above the maximum tailings elevation (416.4 m).</p> <p><u>Part C:</u></p> <p>An assessment of potential effects of climate change on long-term viability of the wet cover on the TSF was undertaken as part of the Round 2 responses. As detailed below, precipitation rates in the area are expected to increase significantly in the future. However, temperatures are also expected to increase, suggesting increases in the rate of evaporation. These two changes in climate are expected to largely offset each other. As demonstrated in the sensitivity analysis presented in Part D of this response, a long-term water cover over the TSF would remain viable, even with projected changes in the future.</p> <p>Additional details are documented within Section 5.1 of the revised EIS (April 2018), which presents a summary of the baseline climate data applicable for the Project area and includes a specific discussion (Section 5.1.4) on how the climate in the region is projected to change in the future. Based on the latest summary of climate information (McDermid et al, 2015), precipitation in the region is expected to increase significantly in the future. As shown in Section 5.1.4 (reproduced below as Table 1), the future annual precipitation rates are expected to increase by: between 18–32 mm for the 2011–2040 time horizon; between 37–54 mm for the 2041–2070 time horizon; and between 41–64 mm for the 2071–2100 time horizon.</p> <p>Table 1: Projections for Mean Changes in Climate (relative to 1971 to 2000)</p> <table border="1"> <thead> <tr> <th rowspan="2">Period</th> <th rowspan="2">Scenario</th> <th colspan="3">Temperatures (°C)</th> <th colspan="3">Precipitation (mm)</th> </tr> <tr> <th>Annual</th> <th>Summer</th> <th>Winter</th> <th>Annual</th> <th>Summer</th> <th>Winter</th> </tr> </thead> <tbody> <tr> <td rowspan="3">2011 to 2040</td> <td>RCP 2.6</td> <td>+2.3</td> <td>+2.2</td> <td>+2.3</td> <td>+18.1</td> <td>-18.6</td> <td>+21.7</td> </tr> <tr> <td>RCP 4.5</td> <td>+2.2</td> <td>+2.1</td> <td>+2.1</td> <td>+28.7</td> <td>-19.1</td> <td>+19.4</td> </tr> <tr> <td>RCP 8.5</td> <td>+2.4</td> <td>+2.3</td> <td>+2.7</td> <td>+32.8</td> <td>-20.8</td> <td>+18.8</td> </tr> </tbody> </table>	Period	Scenario	Temperatures (°C)			Precipitation (mm)			Annual	Summer	Winter	Annual	Summer	Winter	2011 to 2040	RCP 2.6	+2.3	+2.2	+2.3	+18.1	-18.6	+21.7	RCP 4.5	+2.2	+2.1	+2.1	+28.7	-19.1	+19.4	RCP 8.5	+2.4	+2.3	+2.7	+32.8	-20.8	+18.8
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				2041 to 2070	RCP 2.6	+3.0	+2.7	+3.2	+51.8	-7.4	+24.0
					RCP 4.5	+4.0	+3.4	+4.7	+37.5	-19.8	+21.6
					RCP 8.5	+4.8	+4.6	+5.6	+54.3	-27.7	+30.6
				2071 to 2100	RCP 2.6	+3.1	+2.9	+3.6	+57.5	-2.9	+21.9
					RCP 4.5	+5.0	+4.4	+5.6	+40.6	-24.1	+30.6
					RCP 8.5	+8.3	+7.8	+9.3	+64.0	-43.6	+39.7
<p>Notes: Data derived from McDermid et al, 2015, as per table 5.4.1-2 of the revised EIS (April 2018).</p>											
<p>While the data in Table 1 shows an increase in the annual precipitation, the climate models show that changes in precipitation are not uniform, showing projected decreases in the summer precipitation rates into the future, while showing significant increases in precipitation for the year as a whole. This means that precipitation rates in the other seasons will be higher, to offset the decrease during the summer. As a result, it is likely there will be greater fluctuation within each year in the future.</p>											
<p>In addition to the predicted future precipitation rates in the region, McDermid et al. (2015) also predicts that the temperatures in the region will increase, with the greatest increases expected during the winter months and slightly lower increases during the summer. This projected increase in temperature can be expected to contribute to higher evaporation rates. Using the historic seasonal relationship between the evaporation rates in the region and the average temperatures, the projected increases in temperature would be expected to result in annual increases in evaporation rates that are of the same order of magnitude but are greater than the projected increases in precipitation. The sensitivity analyses presented in Part D indicate that the water cover can be maintained despite the projected change in climate for all time horizons.</p>											
<p>Furthermore, evaporation also relies on the amount of solar radiation, with higher rates of radiation resulting in higher evaporation. Given that the annual precipitation rates are projected to increase, it is reasonable to assume that there would also be an increase in the amount of cloud cover, which would tend to decrease the overall solar radiation. This would, in part, offset some of the increase evaporation expected with increased temperatures.</p>											
<p><u>Part D:</u></p>											
<p>A sensitivity analysis to examine the robustness of the system to maintain the post-closure water cover for the TSF was completed as part of the round 2 responses, and relies on the following factors:</p>											
<ul style="list-style-type: none"> • Precipitation Rates — Precipitation is the only factor that adds to the TSF water cover after the initial filling at closure. Annual precipitation rates are projected to increase in the future (see response Part C). • Runoff Coefficients — Changes to the runoff coefficients can affect how much of the precipitation that falls on the catchment area for the TSF contributes to the water cover. However, the water cover of the TSF represents more than 98% of the catchment area. As a result, changes to the runoff coefficients would have limited effects on the water cover model. 											

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				<ul style="list-style-type: none"> • Evaporation rates — The evaporation of the open water within the TSF is the largest factor reducing the amount of water within the TSF. As discussed in the response to Part C, projected changes in temperature due to changes in climate change will affect the results of the water cover model. Forecast changes in evaporation rates used in this analysis have been derived on the existing relationships between temperature and evaporation. This conservative approach ignores the possible mitigating effects that increased cloud cover (associated with increased precipitation) could have on future rates of evaporation. • Seepage Rates — As described in Section 3.7.2.1 of the revised EIS (April 2018), the TSF will be constructed with a HPDE liner, which is expected to allow 2.4 m³/day of seepage to escape the TSF. As described in the response to TMI_901-MW(2)-04, the estimated TSF liner seepage rate of 2.4 m³/day represents a realistic estimate using published literature. The following sensitivity analysis looks at higher seepage rates that might be possible with time. Specifically, a degraded liner seepage rate was evaluated to include an order of magnitude higher seepage rate (24 m³/d) than suggested in literature. In addition, the analysis looks at a scenario where there is no benefit derived from the liner. This would represent the situation if no liner is placed beneath the TSF. <p>The sensitivity analysis looks at the following six (6) reasonable future scenarios:</p> <ul style="list-style-type: none"> • <u>2011–2040 Forecast</u> — This scenario considers the effects of the ensemble changes in precipitation and temperature forecast for the region during the 2011–2040 time horizon. This time horizon corresponds with the active life of the Project, and the initial years of post-closure. The climate predictions are as per McDermid et al. (2015) described in the response to Part C. Changes in evaporation rates for this forecast horizon were derived from the forecast changes in temperature only. • <u>Degraded 2011–2040 Forecast</u> — This scenario considers the same climate change effects as the “2011–2040 Forecast” scenario, and includes an order of magnitude degradation in the liner performance derived from literature. • <u>2041–2070 Forecast</u> — This scenario considers the effects of the ensemble changes in precipitation and temperature forecast for the region during the 2041–2070 time horizon. This time horizon corresponds with the post-closure phase of the Project following institutional controls. The climate predictions are as per McDermid et al. (2015) described in the response to Part C. Changes in evaporation rates for this forecast horizon were derived from the forecast changes in temperature only • <u>Degraded 2041–2070 Forecast</u> — This scenario considers the same climate change effects as the “2041–2070 Forecast” scenario, and includes an order of magnitude degradation in the liner performance derived from literature. • <u>2071–2100 Forecast</u> — This scenario considers the effects of the ensemble changes in precipitation and temperature forecast for the region during the 2071–2100 time horizon. This time horizon corresponds to period from 40 to 60 years following the closure of the Project, and the end of institutional controls at the site. The climate predictions are as per McDermid et al. (2015) described in the response to Part C. Changes in evaporation rates for this forecast horizon were derived from the forecast changes in temperature only.

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				<ul style="list-style-type: none"> <p><u>Degraded 2071–2100 Forecast</u> — This scenario considers the same climate change effects as the “2071–2100 Forecast” scenario, and includes an order of magnitude degradation in the liner performance derived from literature.</p> <p>The results of the sensitivity analysis (provided in TMI_898-MW(2)-02_Figure_D1) show that the water cover over the TSF can be maintained in perpetuity for both the expected liner performance, and an hypothetical degraded liner performance.</p> <p>At the request of the reviewers, the sensitivity analysis also identified the following extreme future scenario that could, over time, represent a situation where the wet cover on the TSF would not be maintained:</p> <p><u>No Liner 2071–2100 Forecast</u> — This scenario considers the effects of the ensemble changes in precipitation and temperature forecast for the region during the 2071–2100 time horizon. This time horizon corresponds to period from 40 to 60 years following the closure of the Project, and the end of institutional controls at the site. This scenario also includes seepage rates that correspond to no liner beneath the TSF.</p> <p>The results of the sensitivity analysis demonstrated the robustness of the system to maintain the water cover over the TSF in perpetuity. The only scenario identified where a water cover could not be maintained was the one where there was no liner constructed beneath the TSF. The long-term behavior and viability of the wet cover is provided in provided in TMI_898-MW(2)-02_Figure_D2, with the figure including a forecast for the expected upper bound seepage rates from literature (2.4 m³/d), a degraded case with seepage rates ten times higher than the upper bound seepage rates from literature (24 m³/d), and seepage for a case with no liner beneath the TSF (200 m³/d).</p> <p><u>Part E.</u></p> <p>As described in the responses to Parts A through D, the wet cover option will remain a viable closure option in the long-term, and therefore no changes are required to the predictions presented in the revised EIS (April 2018). While the responses to Parts A through D do not lead to the requirement of updating the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements. The information presented in this Round 2 response, has been incorporated into W7.1 TSF Seepage Quality of the Water Addendum. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality.</p> <p><u>Part F.</u></p> <p>There will be no changes to the effects predicted to fish and fish habitat arising from the issues and concerns raised in Parts A through D of this information request because there are no changes to surface water quality arising from the issues and concerns raised in Parts A through D of this information request.</p> <p><u>Part G.</u></p>

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				<p>As described in the responses to Parts A through F, there will be no changes to the effects predicted to fish and fish habitat arising from issues and concerns raised in this information request, therefore there are no additional mitigation measures required regarding the viability of the wet cover long-term.</p> <p><u>Part H.</u> There are no changes to the characterization of residual adverse effects from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from Round 2 issues or concerns regarding the viability of the wet cover long-term.</p> <p><u>Part I.</u> No specific modifications to the Follow-Up Program were identified as a result of issues with regards to the long-term viability of the wet cover option for closure of the TSF. An updated Follow-Up Program, which supersedes Section 13 of the revised EIS (April 2018) has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <p><u>Part J.</u> The wet cover option will remain a viable closure option in the long-term, and therefore no changes are required to the predictions with respect to seepage from those presented in the revised EIS (April 2018). There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p>While the responses to this information request do not lead to the requirement of updating the effects of seepage on the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water</p>

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				<p>Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p><u>Agency Comment on Draft Response:</u></p> <p>Part A – D</p> <p>The viability of maintaining a water cover over the tailings in perpetuity is an important measure for avoiding serious adverse effects to the environment. The information provided in this response, including Table TMI_989-MW(2)-02 which provides the data that was used to run the water cover model, is insufficient for a proper evaluation.</p> <ul style="list-style-type: none"> • Clarify why the average precipitation and evaporation data is used to run the model when, in reality, there can be large variations from year to year? • Clarify why actual climate data for a much longer time period was not used. • Further, clarify why separate model runs using such data has not been modified to reflect climate change. • Provide the potential losses arising from sublimation during winter months? • With respect to Table TMI_989-MW(2)-02, clarify what the “Restored Operations Area” data columns represent. • How was the evaporation rate for the climate change scenarios adjusted? • Provide the assumptions and data tables for the climate change scenarios. <p>The proponent mentions in the Water Addendum there are three scenarios for the TSF including a TSF with a liner, degraded liner, and no-liner. However only the no-liner scenario (seepage rate of 240 m³/d) is when the wet cover failed to function.</p> <p>Clarify the conditions (liner and/or climate) where the wet cover at closure may fail and what mechanisms you will have in place to ensure the cover is functioning.</p> <p>Seepage losses and precipitation are an important elements in the water balance and assume a properly run model with appropriate climate inputs.</p> <p>Clarify the climate input assumptions and climate data for the scenarios represented in TMI_989-MW(2)-02_Figure_D2 because there are no descriptions or data tables provided</p> <p>Part E – J.</p> <p>Recommend that these sections be evaluated once inter-related comments from other IRs are addressed.</p>

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				<p><u>Specific Response to the Agency Comments:</u></p> <p><u>Parts A through D:</u></p> <p>Extensive discussions regarding the long-term viability of the wet cover closure option were had during the December 18, 2018 meeting with the Agency and their technical reviewers. The following provides specific responses to those comments forwarded to Treasury Metals:</p> <ul style="list-style-type: none"> • <u>Clarify why the average precipitation and evaporation data is used to run the model when, in reality, there can be large variations from year to year?</u> Average, or normal, climate conditions are the conditions that are expected to occur over time. When looking forward in time, the normal conditions are the conditions that are expected to occur. As noted by the reviewer, actual conditions in the past vary from year-to-year, with some years being drier than average and a comparable number being wetter than average. However, we do not know what those future year-to-year variations will be, only what the average conditions are expected to be, or the average conditions when climate change is considered. In order to help the Agency and their reviewers gain confidence in the predictions of the multi-year water cover model, the model has been updated to include forecasts using both expected and actual historic climate data. Details regarding the revised multi-year water cover model are provided in TMI_898-MW(2)-02_Addendum_1 to this response. • <u>Clarify why actual climate data for a much longer time period was not used.</u> The multi-year water cover model provided in the draft responses was used to provide predictions of the expected climate conditions in the future. At this point in time it is not possible to acquire actual forecasts of future climate. Available future climate forecasts are currently based on expected changes in the average, or normal, conditions. In order to help the Agency and their reviewers gain confidence in the predictions of the multi-year water cover model, the model has been updated to include forecasts using both expected and actual historic climate data. Details regarding the revised multi-year water cover model are provided later in this response. • <u>Further, clarify why separate model runs using such data has not been modified to reflect climate change.</u> The multi-year water cover model results presented in the draft response included consideration of climate change. In the case of the draft results, the expected changes in climate put forward by the Ministry of Natural Resources and Forestry (McDermid et al., 2015) were applied to the average climate conditions. As described in detail in TMI_898-MW(2)-02_Addendum_1 to this response, the multi-year water cover model has been updated. Aspects incorporated into the update were discussed in the during the December 18, 2018 meeting with the Agency and their technical reviewers, and include the following: <ul style="list-style-type: none"> ○ Forecasts that extend 400 years from the closure of the Project; ○ Consideration of climate change into the future; ○ Inclusion of increased future evaporation to reflect projected increases in temperature; and ○ Consideration of losses through snow sublimation and wind drift. • <u>Provide the potential losses arising from sublimation during winter months?</u> During the December 18, 2018 meeting with the Agency and their technical reviewers, it was requested that the model be configured to

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				<p>include consideration of losses due to snow sublimation during the winter months. Most of the literature regarding sublimation rates (Pomeroy et al., 1998; Gelfan et al., 2004; Hedstrom and Pomeroy, 1998; Essary et al., 2003) have focused on calculating the rates of snow sublimation for the snow intercepted by the forest canopy, which would not be relevant for the evaluating the water cover over the TSF. However, Jones and Pomeroy (1996), noted that daily sublimation rates for the prairies ranged from 0.01–0.3 mm/d, with an average value of 0.1 mm/d. Jones and Pomeroy (1996) also noted that most sublimation during the day is offset by frost accumulation in the evenings. As described in detail TMI_898-MW(2)-02_Addendum_1 to this response, the multi-year water cover model has been updated to incorporate consideration of snow sublimation losses.</p> <ul style="list-style-type: none"> • <u>With respect to Table TMI_989-MW(2)-02, clarify what the “Restored Operations Area” data columns represent.</u> The restored operations area term refers to the portion of the TSF basin that is not covered with open water. Specifically, these are restored portions of the TSF basin above the surface of the water cover, which drain inwards towards the TSF. The outer slopes of the TSF were not included as the runoff from those areas would not be captured within the TSF and would not affect the water levels within the TSF. • <u>How was the evaporation rate for the climate change scenarios adjusted?</u> Although not explicitly provided in the MNRF updated summary for policymakers (McDermid et al, 2015), the predicted increases of temperature in the future can be expected to result in increased evaporation. In preparing the draft responses, future evaporation rates were derived from the seasonal relationships between historic monthly temperatures in Dryden and historic monthly lake evaporation rates for the closest station where lake evaporation data are available (Rawson Lake). During the December 18, 2018 meeting with the Agency and their technical reviewers, discussions regarding the approach for calculating future evaporation were discussed and have been updated as part of the work to update the multi-year water cover model. As described in detail in TMI_898-MW(2)-02_Addendum_1 to this response, the likely changes in evaporation rates, the following formulation from the Handbook of Hydrology (1992) was used to calculate daily potential evaporation: $E_p = \frac{\Delta}{\Delta + \gamma} \times (R_n + A_h) + \left(\frac{\gamma}{\Delta + \gamma} \right) \times \frac{6.43 \times (1 + 0.536 \times U_2) \times D}{\lambda}$ <p>where:</p> <ul style="list-style-type: none"> E_p = potential evaporation (mm/d) Δ = gradient of the saturation vapour pressure (kPa/°C), and $\Delta = \frac{4098 \times e_s}{(237.3 + T)^2}$ γ = psychrometric constant (kPa/°C), and $\gamma = \frac{c_p \times P}{\epsilon \times \lambda}$ R_n = net radiation at the water surface (mm/d) A_h = energy advection at the water surface (assumed to be insignificant) U_2 = wind speed at 2 m (m/s), and can be calculated from the available 10 m wind speeds using the following relationship:

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				$U_2 = U_{10} \times \left(\frac{\ln\left(\frac{2}{z_0}\right)}{\ln\left(\frac{10}{z_0}\right)} \right)$ <p> <i>D</i> = vapour pressure deficit (kPa), and $D = e_s - e$ <i>e_s</i> = the saturation vapour pressure (kPa), and $e_s = 0.6108 \times \exp\left(\frac{17.27 \times T}{237.3 + T}\right)$ <i>T</i> = temperature (°) <i>C_p</i> = specific heat of moist air (1.013 kJ×kg/°C) <i>P</i> = atmospheric pressure (kPa) ϵ = ratio of the molecular weight of water to dry air (0.622) λ = latent heat of vaporization of water (MJ/kg), and $\lambda = 2.501 - 0.002361 \times T$ </p> <ul style="list-style-type: none"> • Provide the assumptions and data tables for the climate change scenarios. The multi-year climate model provided in the draft responses included Table 1, which listed the climate change scenarios considered in the evaluation and the specific changes projected based on the data provided by MNR (McDermid et al, 2015). The MNR report provided the projected changes in climate relative to the 1971 to 2000 climate normal. In preparing the plots presented in TMI_989-MW(2)-02_Figure_D2, an ensemble average of the three climate scenarios provided by the MNR (McDermid et al, 2015) was applied to the 1979–2000 climate normal. As described in detail in TMI_898-MW(2)-02_Addendum_1 to this response, the multi-year water cover model has been updated to individually present each of the climate scenario projections provided by the MNR (McDermid et al, 2015). • The proponent mentions in the Water Addendum there are three scenarios for the TSF including a TSF with a liner, degraded liner, and no-liner. However only the no-liner scenario (seepage rate of 240 m³/d) is when the wet cover failed to function. Clarify the conditions (liner and/or climate) where the wet cover at closure may fail and what mechanisms you will have in place to ensure the cover is functioning. To clarify, the Goliath Gold Project Water Addendum provides predictions of surface water quality that reflects the responses to the Round 2 information requests. As part of the Water Addendum, a series of sensitivity runs have been provided to explore the sensitivity of the surface water quality predictions to various changes in inputs. One of aspects evaluated in the Water Addendum was the long-term viability of the wet cover closure option. A multi-year water cover model was used to determine the long-term viability of the wet cover closure option and considered the following three separate scenarios: <ul style="list-style-type: none"> ○ A “base case” with seepage through the floor and walls of the TSF of 3.13 m³/d, which represents the upper bound estimate from literature for a properly installed HPDE liner, which is expected to have a service life of approximately 400 years. ○ A “degraded liner case” with seepage through the floor and walls of the TSF liner of 31.3 m³/d. This unrealistic estimate of potential seepage through the TSF liner, uses a seepage rate that is an order

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				<p>of magnitude higher than the upper bound seepage rate identified from literature. This seepage rate is not expected to occur for a properly installed liner, and has been included to test the sensitivity of surface water quality predictions to changes in the liner performance. Degradation of the TSF liner is not expected to occur until after the service life of approximately 400 years.</p> <ul style="list-style-type: none"> ○ A “no liner case” with seepage through the floor and walls of the TSF of 200 m³/d. This seepage rate is expected through the floor of the TSF in the absence of any liner, as predicted by the groundwater model presented in Appendix M to the revised EIS (April 2018). It should be restated that, the TSF will be constructed with a liner (geosynthetic liner or equivalent). For seepage rates to reach a levels of 200 m³/d, the HPDE liner will have to have completely disappeared, which based on evidence from landfill sites could be between 1,000 and 10,000 years. <ul style="list-style-type: none"> ● As the multi-year water cover model was used to forecast future conditions, considerations for changes in climate were incorporated into the model. The climate data relied on was compiled by the Ontario Ministry of Natural Resources (MNRF) document entitled “Climate change projections for Ontario: An updated synthesis for policymakers and planners” (McDermid et al., 2015), also referred to as CCRR-44. This updated summary for policymakers (McDermid et al, 2015) made use from the Fifth Assessment Report (AR5) from the IPCC (2013), which replaces the socio-economic emission scenarios relied on in Fourth Assessment Report (AR4) from the IPCC (2007) with new emission scenarios. Specifically, the updated summary for policymakers (McDermid et al, 2015) presents predictions for the following three emission scenarios: <ul style="list-style-type: none"> ○ RCP 2.6 (W/m²): This scenario is described as a medium-low emission scenario with aggressive mitigation. ○ RCP 4.5 (W/m²): This emission scenario represents a medium stabilization emission scenario where radiative forcing stabilizes by 2100. ○ RCP 8.5 (W/m²): This emission scenario represents a very high emission scenario and a failure to curb warming by 2100. <p>In preparing the draft responses, an "ensemble forecast" calculated as the average of the RCP 2.6, RCP 4.5 and RCP 8.5 forecasts was included. The results of the analysis indicated the wet cover closure option for the TSF would be viable in the long-term for both “base case” and “degraded case” scenarios. The multi-year water cover model presented in the draft responses indicated that wet cover closure option for the “no liner case” scenario would fail over the long-term, without mitigation measures.</p> <p>As part of the Round 2 process, including the as well as during the meetings with the Agency and their technical reviewers on December 18, 2018 and the January 10, 2019, a number of technical questions were raised regarding the long-term viability of the wet cover closure option for the TSF, and the analysis provided in the draft responses. Specifically, Environment and Climate Change Canada (ECCC) requested the multi-year water cover model be updated to include the following:</p> <ul style="list-style-type: none"> ○ The use of actual climate data for a long-period instead of the average precipitation and evaporation data so as to capture potential large variations from year to year;

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				<ul style="list-style-type: none"> ○ Modify the actual climate data for a long-period to reflect climate change, including the effects of higher evaporation rates in the future associated with increased temperatures; and ○ Include potential losses arising from snow sublimation during winter months. <p>A detailed description of the updated multi-year water cover model has been included as an attachment to this response (TMI_989-MW(2)-02_Addendum_1). The results of the updated multi-year water cover model indicated the following:</p> <ul style="list-style-type: none"> ○ For the “base case” seepage rates (seepage rates of 3.13 m³/d through the floor and walls of the TSF), the water cover over the TSF could be maintained in perpetuity without the need of mitigation to supplement the water cover. ○ For the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF), the water cover over the TSF could be maintained in perpetuity without the need of mitigation to supplement the water cover for the “ensemble forecast”, the RCP 2.6 forecast, and the RCP 4.5 forecasts. For the RCP 8.5, high carbon future forecasts, the water cover for the “degraded liner case” could be maintained over the long-term with the addition of 89 m³/d (61.8 L/min) of supplemental water pumped from the flooded pit lake (see the green line on Figure 4). The multi-year water cover model indicates that pumping of supplemental water would not be required to maintain the water cover until approximately 2223 (see Figure 3d), assuming that the initial installation of the liner was performing at the degraded rate of 31.3 m³/d, and the rate of climate changes is consistent with the high carbon (RCP 8,5) scenario identified by the IPCC. However, literature (Robert M. Koerner et al., 2011) suggests that unexposed HDPE geomembranes will have an expected service life in excess of 400 years; therefore, it is expected that the liner will have a seepage rate of 3.13 m³/d (the upper bound estimate from literature), for the expected service life of 400 years. At that point, the HPDE liner is expected to undergo a gradual degradation given it will be placed beneath the TSF, where it will be isolated from the degrading effects of sunlight and high temperatures. The actual time when pumping of supplemental water could be required to maintain the water cover will be sometime around 500 years after the closure of the TSF. ○ For the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF), supplemental water pumped from the pit lake would be required for all of the future climate scenarios. The rate of supplemental water requirements to maintain the water cover over the TSF varies by scenario to as much as 301 m³/d (208 L/min) for the high carbon (RCP 8,5) scenario, as shown in Table 9 and on Figure 5. It should be noted that the TSF will be constructed with a geosynthetic liner (HPDE or equivalent), and the seepage rates from the floor and walls of the TSF would not reach a levels of 200 m³/d until the HPDE liner has completely disintegrated with time. Based on evidence from landfill sites, it would take between 1,000 and 10,000 years for the HPDE liner to completed degrade to the point where it provided no mitigation to the rates of seepage from the TSF.

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				<ul style="list-style-type: none"> Seepage losses and precipitation are important elements in the water balance and assume a properly run model with appropriate climate inputs. Clarify the climate input assumptions and climate data for the scenarios represented in TMI_989-MW(2)-02_Figure_D2 because there are no descriptions or data tables provided. The multi-year climate model provided in the draft responses included Table 1, which listed the climate change scenarios considered in the evaluation and the specific changes projected based on the data provided by MNRF (McDermid et al, 2015). The MNRF report provided the projected changes in climate relative to the 1971 to 2000 climate normal. In preparing the plots presented in TMI_989-MW(2)-02_Figure_D2, an ensemble average of the three climate scenarios provided by the MNRF (McDermid et al, 2015) was applied to the 1979–2000 climate normal. <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Part A. Yes (Satisfactory)</p> <p>Part B. No. The Proponent should provide a description of the cover design principles including plan for clean water diversion (separation of clean and contact drainage), mitigation mechanism (barrier cover), cover materials and their characteristics, source of materials and assumed leakage and deterioration and the degree to which it is expected to reduce infiltration of incident precipitation with supporting evidence from existing cover examples.</p> <p>Part C. DEFER TO ECCC. NRCan notes that the projected increases in temperature would be expected to result in annual increases in evaporation rates that are of the same order of magnitude but are greater than the projected increases in precipitation. The sensitivity analysis presented in Part D indicate that the water cover can be maintained despite the projected change in climate for all time horizons.</p> <p>Part D. To be confirmed after changes in B are addressed</p> <p>Part E to J. DEFER TO ECCC and DFO. In the absence of more comprehensive data showing variability in tailings and time to onset, detailed contingency plans for treatment of acidic drainage is needed.</p> <p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p>Part A. None required.</p> <p>Part B.</p>

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				<p>The questions raised in the NRCAN comments relate to a dry cover rather than the wet cover discussed in this question. A description of the dry cover closure design was conceptually provided in the revised EIS (April 2018) as well as the response to TMI_899-MW(2)-03. It is also noted that the comments attributed to NRCAN are referring to specific details regarding the closure design. During the January 10, 2019 technical meeting with the Agency and their technical reviewers, it was agreed that the final decision regarding the selection of the closure cover option and the details related to the closure design is part of the final closure planning process (MENDM O.Reg. 240/00), which is independent and separate to the federal EA process.</p> <p><u>Part C.</u></p> <p>As part of the process to responds to feedback regarding the draft responses related to the long-term viability of the wet cover closure option, it was requested that the multi-year water cover model be updated to include the following:</p> <ul style="list-style-type: none"> • The use of actual climate data for a long-period instead of the average precipitation and evaporation data so as to capture potential large variations from year to year; • Modify the actual climate data for a long-period to reflect climate change, including the effects of higher evaporation rates in the future associated with increased temperatures; and • Include potential losses arising from snow sublimation during winter months. <p>During the December 10, 2018 meeting with the Agency and their technical reviewers, it was indicated that the multi-year water cover model incorporated enhanced evaporation in the future to reflect the projected increases in temperature. In preparing the draft responses, future evaporation rates were derived from the seasonal relationships between historic monthly temperatures in Dryden and historic monthly lake evaporation rates for the closest station where lake evaporation data are available (Rawson Lake). During the December 18, 2018 meeting with the Agency and their technical reviewers, discussions regarding the approach for calculating future evaporation were discussed and have been updated as part of the work to update the multi-year water cover model. As described in detail in TMI_898-MW(2)-02_Addendum_1 to this response, the likely changes in evaporation rates, the following formulation from the Handbook of Hydrology (1992) was used to calculate daily potential evaporation:</p> $E_p = \frac{\Delta}{\Delta + \gamma} \times (R_n + A_h) + \left(\frac{\gamma}{\Delta + \gamma} \right) \times \frac{6.43 \times (1 + 0.536 \times U_2) \times D}{\lambda}$ <p>where:</p> <p>E_p = potential evaporation (mm/d)</p> <p>Δ = gradient of the saturation vapour pressure (kPa/°C), and $\Delta = \frac{4098 \times e_s}{(237.3 + T)^2}$</p> <p>$\gamma$ = psychrometric constant (kPa/°C), and $\gamma = \frac{c_p \times P}{\epsilon \times \lambda}$</p> <p>$R_n$ = net radiation at the water surface (mm/d)</p> <p>A_h = energy advection at the water surface (assumed to be insignificant)</p>

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				<p>U_2 = wind speed at 2 m (m/s), and can be calculated from the available 10 m wind speeds using the following relationship:</p> $U_2 = U_{10} \times \left(\frac{\ln\left(\frac{2}{z_0}\right)}{\ln\left(\frac{10}{z_0}\right)} \right)$ <p>D = vapour pressure deficit (kPa), and $D = e_s - e$ e_s = the saturation vapour pressure (kPa), and $e_s = 0.6108 \times \exp\left(\frac{17.27 \times T}{237.3 + T}\right)$ T = temperature (°) C_p = specific heat of moist air (1.013 kJ×kg/°C) P = atmospheric pressure (kPa) ϵ = ratio of the molecular weight of water to dry air (0.622) λ = latent heat of vaporization of water (MJ/kg), and $\lambda = 2.501 - 0.002361 \times T$</p> <p><u>Part D.</u> None required.</p> <p><u>Part E</u> None required.</p> <p><u>Part F.</u> None required.</p> <p><u>Part G.</u> None required.</p> <p><u>Part H.</u> None required.</p> <p><u>Part I.</u> None required.</p>

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				<p><u>Part J.</u> None required.</p> <p><u>Final Response:</u></p> <p><u>Part A.</u> The intent of the wet cover is to ensure tailings are in a saturated condition in perpetuity, thus effectively preventing ARD. Water covers are a well-proven method of limiting ARD formation in tailings that is accepted as the best means of preventing ARD.</p> <p><u>Part B.</u> The questions raised in the NRCAN comments relate to a dry cover rather than the wet cover discussed in this question. A description of the dry cover closure design was conceptually provided in the revised EIS (April 2018) as well as the response to TMI_899-MW(2)-03. It is also noted that the comments attributed to NRCAN are referring to specific details regarding the closure design. During the January 10, 2019 technical meeting with the Agency and their technical reviewers, it was agreed that the final decision regarding the selection of the closure cover option and the details related to the closure design is part of the final closure planning process (MENDM O.Reg. 240/00), which is independent and separate to the federal EA process.</p> <p><u>Part C.</u> As part of the process to respond to feedback regarding the draft responses related to the long-term viability of the wet cover closure option, it was requested that the multi-year water cover model be updated to include the following:</p> <ul style="list-style-type: none"> • The use of actual climate data for a long-period instead of the average precipitation and evaporation data so as to capture potential large variations from year to year; • Modify the actual climate data for a long-period to reflect climate change, including the effects of higher evaporation rates in the future associated with increased temperatures; and • Include potential losses arising from snow sublimation during winter months. <p>During the December 10, 2018 meeting with the Agency and their technical reviewers, it was indicated that the multi-year water cover model incorporated enhanced evaporation in the future to reflect the projected increases in temperature. In preparing the draft responses, future evaporation rates were derived from the seasonal relationships between historic monthly temperatures in Dryden and historic monthly lake evaporation rates for the closest station where lake evaporation data are available (Rawson Lake). During the December 18, 2018 meeting with the Agency and their technical reviewers, discussions regarding the approach for calculating future evaporation were discussed and have been updated as part of the work to update the multi-year water cover model. As described in detail in TMI_898-MW(2)-02_Addendum_1 to this response, the likely changes in evaporation rates, the following formulation from the Handbook of Hydrology (1992) was used to calculate daily potential evaporation:</p>

$$E_p = \frac{\Delta}{\Delta + \gamma} \times (R_n + A_h) + \left(\frac{\gamma}{\Delta + \gamma} \right) \times \frac{6.43 \times (1 + 0.536 \times U_2) \times D}{\lambda}$$

where:

E_p = potential evaporation (mm/d)

Δ = gradient of the saturation vapour pressure (kPa/°C), and $\Delta = \frac{4098 \times e_s}{(237.3 + T)^2}$

γ = psychrometric constant (kPa/°C), and $\gamma = \frac{c_p \times P}{\epsilon \times \lambda}$

R_n = net radiation at the water surface (mm/d)

A_h = energy advection at the water surface (assumed to be insignificant)

U_2 = wind speed at 2 m (m/s), and can be calculated from the available 10 m wind speeds using the following relationship:

$$U_2 = U_{10} \times \left(\frac{\ln\left(\frac{2}{z_0}\right)}{\ln\left(\frac{10}{z_0}\right)} \right)$$

D = vapour pressure deficit (kPa), and $D = e_s - e$

e_s = the saturation vapour pressure (kPa), and $e_s = 0.6108 \times \exp\left(\frac{17.27 \times T}{237.3 + T}\right)$

T = temperature (°)

C_p = specific heat of moist air (1.013 kJ/kg/°C)

P = atmospheric pressure (kPa)

ϵ = ratio of the molecular weight of water to dry air (0.622)

λ = latent heat of vaporization of water (MJ/kg), and $\lambda = 2.501 - 0.002361 \times T$

Part D:

A sensitivity analysis to examine the robustness of the system to maintain the post-closure water cover for the TSF was completed as part of the round 2 responses, and relies on the following factors:

- Precipitation Rates — Precipitation is the only factor that adds to the TSF water cover after the initial filling at closure. Annual precipitation rates are projected to increase in the future (see response Part C).
- Runoff Coefficients — Changes to the runoff coefficients can affect how much of the precipitation that falls on the catchment area for the TSF contributes to the water cover. However, the water cover of the TSF represents more than 98% of the catchment area. As a result, changes to the runoff coefficients would have limited effects on the water cover model.
- Evaporation rates — The evaporation of the open water within the TSF is the largest factor reducing the amount of water within the TSF. As discussed in the response to Part C, projected changes in temperature due to changes in climate change will affect the results of the water cover model. Forecast changes in evaporation rates used in this analysis have been derived on the existing relationships between temperature and evaporation. This conservative

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				<p>approach ignores the possible mitigating effects that increased cloud cover (associated with increased precipitation) could have on future rates of evaporation.</p> <ul style="list-style-type: none"> • Seepage Rates — As described in Section 3.7.2.1 of the revised EIS (April 2018), the TSF will be constructed with a HPDE liner, which is expected to allow 2.4 m³/day of seepage to escape the TSF. As described in the response to TMI_901-MW(2)-04, the estimated TSF liner seepage rate of 2.4 m³/day represents a realistic estimate using published literature. The following sensitivity analysis looks at higher seepage rates that might be possible with time. Specifically, a degraded liner seepage rate was evaluated to include an order of magnitude higher seepage rate (24 m³/d) than suggested in literature. In addition, the analysis looks at a scenario where there is no benefit derived from the liner. This would represent the situation if no liner is placed beneath the TSF. <p>The sensitivity analysis looks at the following six (6) reasonable future scenarios:</p> <ul style="list-style-type: none"> • <u>2011–2040 Forecast</u> — This scenario considers the effects of the ensemble changes in precipitation and temperature forecast for the region during the 2011–2040 time horizon. This time horizon corresponds with the active life of the Project, and the initial years of post-closure. The climate predictions are as per McDermid et al. (2015) described in the response to Part C. Changes in evaporation rates for this forecast horizon were derived from the forecast changes in temperature only. • <u>Degraded 2011–2040 Forecast</u> — This scenario considers the same climate change effects as the “2011–2040 Forecast” scenario, and includes an order of magnitude degradation in the liner performance derived from literature. • <u>2041–2070 Forecast</u> — This scenario considers the effects of the ensemble changes in precipitation and temperature forecast for the region during the 2041–2070 time horizon. This time horizon corresponds with the post-closure phase of the Project following institutional controls. The climate predictions are as per McDermid et al. (2015) described in the response to Part C. Changes in evaporation rates for this forecast horizon were derived from the forecast changes in temperature only • <u>Degraded 2041–2070 Forecast</u> — This scenario considers the same climate change effects as the “2041–2070 Forecast” scenario, and includes an order of magnitude degradation in the liner performance derived from literature. • <u>2071–2100 Forecast</u> — This scenario considers the effects of the ensemble changes in precipitation and temperature forecast for the region during the 2071–2100 time horizon. This time horizon corresponds to period from 40 to 60 years following the closure of the Project, and the end of institutional controls at the site. The climate predictions are as per McDermid et al. (2015) described in the response to Part C. Changes in evaporation rates for this forecast horizon were derived from the forecast changes in temperature only. • <u>Degraded 2071–2100 Forecast</u> — This scenario considers the same climate change effects as the “2071–2100 Forecast” scenario, and includes an order of magnitude degradation in the liner performance derived from literature.

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				<p>The results of the sensitivity analysis (provided in TMI_898-MW(2)-02_Figure_D1) show that the water cover over the TSF can be maintained in perpetuity for both the expected liner performance, and a hypothetical degraded liner performance.</p> <p>At the request of the reviewers, the sensitivity analysis also identified the following extreme future scenario that could, over time, represent a situation where the wet cover on the TSF would not be maintained:</p> <ul style="list-style-type: none"> • <u>No Liner 2071–2100 Forecast</u>— This scenario considers the effects of the ensemble changes in precipitation and temperature forecast for the region during the 2071–2100 time horizon. This time horizon corresponds to period from 40 to 60 years following the closure of the Project, and the end of institutional controls at the site. This scenario also includes seepage rates that correspond to no liner beneath the TSF. <p>The results of the sensitivity analysis demonstrated the robustness of the system to maintain the water cover over the TSF in perpetuity. The only scenario identified where a water cover could not be maintained was the one where there was no liner constructed beneath the TSF. The long-term behavior and viability of the wet cover is provided in provided in TMI_898-MW(2)-02_Figure_D2, with the figure including a forecast for the expected upper bound seepage rates from literature (2.4 m³/d), a degraded case with seepage rates ten times higher than the upper bound seepage rates from literature (24 m³/d), and seepage for a case with no liner beneath the TSF (200 m³/d).</p> <p><u>Part E.</u></p> <p>As described in the responses to Parts A through D, the wet cover option will remain a viable closure option in the long-term, and therefore no changes are required to the predictions presented in the revised EIS (April 2018). While the responses to Parts A through D do not lead to the requirement of updating the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements. The information presented in this Round 2 response, has been incorporated into W7.1 TSF Seepage Quality of the Water Addendum. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality.</p> <p><u>Part F.</u></p> <p>There will be no changes to the effects predicted to fish and fish habitat arising from the issues and concerns raised in Parts A through D of this information request because there are no changes to surface water quality arising from the issues and concerns raised in Parts A through D of this information request.</p> <p><u>Part G.</u></p> <p>As described in the responses to Parts A through F, there will be no changes to the effects predicted to fish and fish habitat arising from issues and concerns raised in this information request, therefore there are no additional mitigation measures required regarding the viability of the wet cover long-term.</p>

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				<p><u>Part H.</u></p> <p>There are no changes to the characterization of residual adverse effects from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from Round 2 issues or concerns regarding the viability of the wet cover long-term.</p> <p><u>Part I.</u></p> <p>No specific modifications to the Follow-Up Program were identified as a result of issues with regards to the long-term viability of the wet cover option for closure of the TSF. An updated Follow-Up Program, which supersedes Section 13 of the revised EIS (April 2018) has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <p><u>Part J.</u></p> <p>The wet cover option will remain a viable closure option in the long-term, and therefore no changes are required to the predictions with respect to seepage from those presented in the revised EIS (April 2018). There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p>While the responses to this information request do not lead to the requirement of updating the effects of seepage on the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most</p>

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				parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.

TMI_899-MW(2)-03

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response	
TMI_899-MW(2)-03	MW(2)-03	1	CEA Agency	Reference to EIS Guidelines:	Part 2, Sections 9.1.2 and 10.
				Reference to EIS / Appendix	Appendix JJ, Section 3.4.2
				Cross-reference to Round 1 IRs	n/a
				<p><u>Context and Rationale:</u></p> <ul style="list-style-type: none"> • Similar to the assessment conducted for a wet cover on top of the tailings storage facility (TSF) discussed in MW(2)-02, the revised EIS does not demonstrate the ability and long-term viability of dry cover over the TSF to prevent acid rock drainage (ARD). • The ARD potential of the tailings does not diminish through time, and will pose the same risk to the environment at any point in time should failure of the dry cover occur. Additional information is needed to support the viability of the dry cover, such as composition and design of the cover and the availability of cover materials at the Project site. • Further, it is unclear whether the intent of the dry cover is to completely prevent any ARD, or to reduce the rate of ARD. It is also unclear whether factors such as erosion, tree root penetration, settling, slumping and frost heaves were considered as potential challenges for the dry cover option. In case the dry cover on the TSF is unsuccessful, there are no contingency measures in place to protect the seepage from leading into the surrounding waterbodies. • Additionally, the revised EIS does not provide real-life examples of dry covers used elsewhere in high potential acid generating situations, particularly in Canada, that have climate and geographic conditions that are similar to the Project site. • This information is important for the Agency to understand the changes in water quality caused by seepage from the TSF, which can adversely affect the fish and fish habitat. 	
<p><u>Specific Question / Request for Information:</u></p> <ol style="list-style-type: none"> I. Indicate whether the intent of the dry cover on the TSF is to completely prevent any ARD, or to reduce the rate of ARD formation. J. Provide additional details about the design of the dry cover and its potential for long-term success in preventing ARD, including the composition and thickness of the various layers that would be emplaced over the TSF and whether appropriate cover materials are readily available at the Project site. 					

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				<p>K. Examine all possible causes that may contribute to the failure of the dry cover over the TSF, including erosion, tree root penetration, settling, slumping, frost heave. Discuss the robustness of the dry cover design to those failure modes.</p> <p>L. Update the water quality assessment, if needed, taking the responses from Questions A to C into consideration;</p> <p>M. Describe the effects on fish and fish habitat, if any, taking the response from Question D into consideration;</p> <p>N. Describe additional mitigation measures, including contingency measures that would be in place to mitigate any effects on fish and fish habitat if the dry cover on the TSF is unsuccessful;</p> <p>O. Characterize residual effects, if any, after the mitigation measures have been implemented;</p> <p>P. Update the follow-up program for potential effects to fish and fish habitat, including objectives and any monitoring measures that will be implemented to verify the predictions of effects and evaluate the effectiveness of the proposed mitigation measures. If follow-up is not required, provide a rationale.</p> <p>Q. Incorporate the findings of this IR, if applicable, into the revision of seepage water quality assessment requested in IR# MW(2)-06, and revision of groundwater model requested in IR# GW(2)-01.</p> <p><u>Response:</u></p> <p><u>Part A.</u> At this time Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. The wet cover option was shown to mitigate the effects of the Project on surface water quality, and thus those on fish and fish habitat, relative to the dry cover option. The intent of the wet cover is to ensure tailings are in a saturated condition in perpetuity, thus effectively preventing ARD (TMI_898-MW(2)-02). Treasury Metals is committed to implement the wet cover closure option for the TSF, and recognize that this will likely be a condition of the environmental assessment process. As such, the Round 2 responses related to mine waste, groundwater, surface water quality, and fish and fish habitat presented in MW(2)-01 through MW(2)-12 focus on responding to the requested information relevant to the wet cover option only.</p> <p><u>Part B.</u> As described in the response to Part A, Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. Therefore, additional details have not been provided.</p> <p><u>Part C.</u> As described in the response to Part A, Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. Therefore, additional details regarding the robustness of the dry cover have not been provided. However, details regarding the robustness of the wet cover closure option have been provided in TMI_898-MW(2)-02.</p>

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				<p><u>Part D.</u> As described in the response to Part A, Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. A discussion regarding updates to the water quality assessment for the wet cover option are provided in the response to TMI_898-MW(2)-02.</p> <p><u>Part E.</u> As described in the response to Part A, Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. A discussion regarding updates to the assessment of effects to fish and fish habitat for the wet cover option are provided in the response to TMI_898-MW(2)-02.</p> <p><u>Part F.</u> As described in the response to Part A, Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. No additional mitigation measures, including contingency measures are required.</p> <p><u>Part G.</u> As described in the response to Part A, Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. Therefore, there is no need to characterize the residual adverse effects associated with a dry cover.</p> <p><u>Part H.</u> As described in the response to Part A, Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. Therefore, there is no need to update the follow-up program for the dry cover.</p> <p><u>Part I.</u> As described in the response to Part A, Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. Therefore, there is no need to update the seepage assessment for the dry cover.</p> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Not applicable. Proponent has chosen to proceed with the wet cover option.</p> <p><u>Specific Response to the Agency Comments:</u></p> <p>None Required</p> <p><u>Final Response:</u></p> <p>Treasury Metals is confident that a wet cover closure for the TSF can be viable in the long term, with the incorporation of mitigation as required. However, given the concerns raised through the Round 2 information request process regarding the viability of the wet close, and the stated preference of some Indigenous Groups for the dry cover closure options, the Goliath Gold Project Water Addendum has been expanded to include predictions for both the wet</p>

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				<p>and dry cover closure options. At this time, Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF, but have provided the relevant information to address this information request.</p> <p><u>Part A.</u> With the dry cover closure options for the TSF, there will be tailings within the TSF that are not fully saturated and thus susceptible to the onset of ARD. The intent of the low-permeability dry cover for the closure of the TSF is to limit the infiltration of water and oxygen into the tailings and thus slow the rate of ARD onset and limit the quantity of tailings that would be subject to the onset of ARD. The analysis of pit lake water quality (Section W6 of the Goliath Gold Project Water Addendum), seepage quality (Section W8 of the Goliath Gold Project Water Addendum) and ultimately surface water quality (Section W9 of the Goliath Gold Project Water Addendum) associated with the dry cover closure option include acidic loads from an active layer of unsaturated tailings located beneath the dry cover, as described in Section 6.3.2.2 of the revised EIS (April 2018).</p> <p><u>Part B.</u> Through the Round 2 process, as well as during both the December 18, 2018, and the January 10, 2019 meetings with the Agency and their technical reviewers, a number of technical questions and issues have been raised regarding the selection of the closure cover options for the TSF. During the January 10, 2019 technical meeting with the Agency and their technical reviewers, it was agreed that the final decision regarding the selection of the closure cover option is part of the final closure planning process (MENDM O.Reg. 240/00), which is independent and separate to the federal EA process. To provide confidence to the regulators regarding the viability and potential effects associated with both closure cover options, this addendum has included predictions for both the wet and dry cover closure options.</p> <p><u>Part C.</u> With the dry cover closure options for the TSF, there will be tailings within the TSF that are not fully saturated and thus susceptible to the onset of ARD. The intent of the low-permeability dry cover for the closure of the TSF is to limit the infiltration of water and oxygen into the tailings and thus slow the rate of ARD onset and limit the quantity of tailings that would be subject to the onset of ARD. The analysis of pit lake water quality (Section W6 of the Goliath Gold Project Water Addendum), seepage quality (Section W8 of the Goliath Gold Project Water Addendum) and ultimately surface water quality (Section W9 of the Goliath Gold Project Water Addendum) associated with the dry cover closure option include acidic loads from an active layer of unsaturated tailings located beneath the dry cover, as described in Section 6.3.2.2 of the revised EIS (April 2018). By including the top layer of tailings as being acid generating in the assessment of seepage water quality, surface water quality and fish and fish habitat, the assessment has effectively captured the minimal degradation that would occur to the dry cover over the TSF.</p> <p>It is important to note that additional mitigation measures are being considered since this assessment was completed, including the addition of a caustic material to the tailings in the last few years of operations or the desulphurization of the tailings in the final year of operations.</p>

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				<p><u>Part D.</u> There are no changes to the water quality model for a dry cover scenario required as a result of the responses to Parts A to C.</p> <p><u>Part E.</u> There are no changes to the assessment of fish and fish habitat required as a result of the responses to Parts A to C.</p> <p><u>Part F.</u> As described in Part C, additional mitigation measures that are being considered for the management of seepage is the addition of a caustic material to the tailings in the last few years of operations or the desulphurization of tailings in the final year of operations.</p> <p><u>Part G.</u> There are no changes to the characterization of residual adverse effects from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from the concerns raised in Parts A to C.</p> <p><u>Part H.</u> No specific modifications to the Follow-Up Program were identified as a result of the issues and concerns raised in this information request. An updated Follow-Up Program has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <p><u>Part I.</u> There are no changes to the seepage water quality assessment from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from the concerns raised in Parts A to C.</p>

TMI_900-MW(2)-04

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response	
TMI_900-MW(2)-04	MW(2)-04	1	CEA Agency	Reference to EIS Guidelines:	Part 2, Sections 9.1.2 and 10.
				Reference to EIS / Appendix	Sections 3.16.5 and 3.7.2.
				Cross-reference to Round 1 IRs	n/a
				<p>Context and Rationale:</p> <ul style="list-style-type: none"> • It is stated in Section 3.16.5 of the revised EIS that “the floor of the tailings storage facility (TSF) will be low permeability” and clay will be used from “[...] open pit stripping and from beneath the WRSA. [...] if the volume of clay is insufficient, a synthetic liner will be used to ensure a low-permeability floor for the TSF”. It is further stated in Section 3.7.2.1 that “Although it was initially hoped that there was a sufficiently thick low-permeability horizon beneath the TSF to contain the tailings, Treasury Metals are now planning to line the TSF”. It is unclear whether the option of a clay layer underneath the TSF is still being considered, despite the TSF liner. There is also uncertainty in whether there is enough suitable clay available near the Project site to be able to meet project demands as the use of clay has been identified for various components of the Project. For example, section 3.7.2 mentions the use of clay for construction of TSF embankments. • The Agency is unclear about how clay would be determined to be suitable for use in constructing a clay layer. The ability of the clay to reduce seepage needs to be substantiated based on the condition of the clay and the manner in which the clay will be emplaced, noting that: <ul style="list-style-type: none"> ○ Clay will likely be in a disturbed state; ○ There is a high probability of silts and sands being mixed into clay during open pit stripping and placement into the overburden stockpile; ○ It is not mentioned whether clay will be emplaced in lifts and compacted; and ○ Factors such as hydraulic conductivity and thickness are not provided. • These factors are important in determining the suitability of a clay layer underneath the TSF, and are important for the Agency to understand as they have implications on seepage calculations and hydrogeological modelling. • The Agency requires this information to verify that seepage from the TSF would not cause adverse effects to the surrounding fish-bearing water bodies. 	

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				<p><u>Specific Question / Request for Information:</u></p> <p>A. Clarify whether clay would be used underneath the TSF despite the application of a HDPE liner.</p> <p>B. If a clay layer would be used underneath the TSF, indicate how the suitability of the clay to be used for construction of the base of TSF and other project components would be determined. Include details on considerations such as disturbance of the clay, mixing with sands and silts, compaction of the clay, thickness of the clay layer and target hydraulic conductivity to support the analysis.</p> <p>C. If a clay layer would not be used underneath the TSF, describe the efficacy of the HDPE liner in preventing seepage from the TSF leading into the surrounding waterbodies. Assess the potential for degradation of the liner over time, as requested in MW(2)-05, and the implications on seepage should it occur.</p> <p>D. Update the water quality assessment, if needed, taking the responses from Questions A to C into consideration.</p> <p>E. Revise the effects on fish and fish habitat, if needed, taking the response from Question D into consideration.</p> <p>F. Describe additional mitigation measures to prevent adverse effects to fish and fish habitat, if necessary;</p> <p>G. Characterize residual effects, if any, after the mitigation measures have been implemented;</p> <p>H. Update the follow-up program for potential effects to fish and fish habitat, including objectives and any monitoring measures that will be implemented to verify the predictions of effects and evaluate the effectiveness of the proposed mitigation measures. If follow-up is not required, provide a rationale.</p> <p>I. Incorporate the findings of this IR, if applicable, into the revision of seepage water quality assessment requested in IR# MW(2)-06, and revision of groundwater model requested in IR# GW(2)-01.</p> <p><u>Response:</u></p> <p><u>Part A.</u></p> <p>At this point in time, Treasury Metals intends to line the entire TSF basin with a geosynthetic liner (HDPE). Clay would not be required underneath the HPDE liner, as and the underlying soils will not be relied upon for seepage control. As described in Part B, Treasury Metals would investigate the potential for using a clay liner beneath the TSF should a suitable clay source be identified, and studies indicate the clay liner could achieve the design criteria.</p> <p><u>Part B.</u> As described in the response to Part A, Treasury Metals intends to line the entire TSF basin with a geosynthetic liner (HDPE) and that the underlying soils will not be relied upon for seepage control. If future studies identify that there is a suitable clay source available to line the base of the TSF then further evaluation of the clay and liner requirements would be completed. The evaluation will include site investigations, laboratory testing, and seepage analyses to confirm the hydraulic conductivity of the materials as well as the required thickness of the clay liner. If studies determine that clay lining system may be used then a construction management plan with detailed technical specifications will be prepared for the excavation, placement, and compaction of the clay materials to achieve the design criteria.</p>

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				<p><u>Part C.</u></p> <p>The estimated seepage rate from the lined TSF of 2.4 m³/day (40L/ha/day × 60 ha) is based on current industry research presented by Kerry Rowe et al. (2016), “Leakage Through Holes in Geomembrane Below Saturated Tailings”. This estimate assumes that the TSF basin will be lined with an HDPE liner, filled with saturated tailings, and is independent of the soil characteristics underneath the TSF liner. Therefore, seepage rate of 2.4 m³/day can be achieved without a clay layer beneath the TSF. The primary cause of accelerated HDPE degradation is exposure to UV and high temperatures as documented in “GRI White Paper #6 on Geomembrane Lifetime Prediction: Unexposed and Exposed Conditions” (Robert M. Koerner et al., 2011) The paper documents that HDPE geomembranes exposed to UV have an expected service life in excess of 30 years and unexposed HDPE geomembranes will have an expected service life in excess of 400 years. Given the proposed TSF liner will only be exposed for a short timeframe (3 to 5 years) during operations while tailings are being placed, and then will remain covered with tailings in perpetuity, it can be reasonably expected that the liner will achieve a service life in excess of 400 years as it will not be exposed to UV or high temperatures.</p> <p>As described above, the seepage through the TSF liner will remain at the rate of 2.4 m³/d, as assessed in the revised EIS (April 2018), for the expected service life of the liner (~400 years), and this rate represented the upper bound estimate from literature. To address concerns raised regarding effects of possible degradation of the HPDE liner, the revised surface water quality model was run for the following three (3) separate sensitivity scenarios:</p> <ul style="list-style-type: none"> • A base scenario with seepage through the TSF liner of 2.4 m³/d, which represents the upper bound estimate from literature for a properly installed HPDE liner, which is expected to have a service life of approximately 400 years. • A degraded liner case with seepage through the TSF liner of 24 m³/d. This unrealistic estimate of potential seepage through the TSF liner, uses a seepage rate that is an order of magnitude higher than the upper bound seepage rate identified from literature. This seepage rate is not expected to occur for a properly installed liner, and has been included to test the sensitivity of surface water quality predictions to changes in the liner performance. • A no liner case with seepage through the floor of the TSF of 200 m³/d. This seepage rate is expected through the floor of the TSF in the absence of any liner, as predicted by the groundwater model presented in Appendix M to the revised EIS (April 2018). As described TMI_898-MW(2)-02, this is the only scenario identified where a wet cover option for the TSF would not be viable for a closure option for the TSF in perpetuity. It should be restated that, the TSF will be constructed with a liner (geosynthetic liner or equivalent). <p>The results of the Base Scenario are discussed in Section W8 of the Goliath Gold Water Addendum. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. Section W10 of the Water Addendum, provides the results for the degraded liner and no liner sensitivity cases. While the results of the sensitivity modelling show that changes in the TSF seepage rates will affect the number of residual</p>

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				<p>effects and where those effects occur, all of the predicted residual effects for the degraded liner case, and even the case without a liner beneath the TSF, remained below the respective water quality criteria. Therefore, the results of the sensitivity analysis confirm the robustness of the surface water model predictions to changes in the rate of seepage from the TSF.</p> <p><u>Part D.</u> As described in the responses to Parts A through C, the performance of the TSF liner is expected to be consistent with the values used for assessment of surface water quality effects presented in the revised EIS (April 2018). While the responses to Parts A through C do not lead to the requirement of updating the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements. The updated water quality assessment is provided in the Goliath Gold Water Addendum.</p> <p><u>Part E.</u> There will be no changes to the effects predicted to fish and fish habitat arising from the issues and concerns raised in Parts A through D of this information request because there are no changes to surface water quality arising from the issues and concerns raised in Parts A through D of this information request.</p> <p><u>Part F.</u> As described in the responses to Parts A through E, there will be no changes to the effects predicted to fish and fish habitat arising from issues and concerns raised in this information request, therefore there are no additional mitigation measures required regarding liner performance</p> <p><u>Part G.</u> There are no changes to the characterization of residual adverse effects from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from Round 2 issues or concerns regarding performance of the liner.</p> <p><u>Part H.</u> No specific modifications to the Follow-Up Program were identified as a result of issues with regards to the performance of the TSF liner. An updated Follow-Up Program, which supersedes Section 13 of the revised EIS (April 2018) has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <p><u>Part I.</u></p>

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				<p>The performance of the liner long-term was confirmed in Parts A through C and therefore no changes are required to the predictions with respect to seepage from those presented in the revised EIS (April 2018). There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p>While the responses to this information request do not lead to the requirement of updating the effects of seepage on the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p>References: Rowe, R. Kerry, et al. "Leakage through holes in geomembranes below saturated tailings." <i>Journal of Geotechnical and Geoenvironmental Engineering</i> 143.2 (2016): 04016099.</p> <p><u>Agency Comment on Draft Response:</u></p> <p>Part A - B.</p> <p>The response indicated the proponent might still consider using a clay liner, in the future, instead of the HDPE liner. If a clay liner is used, the seepage rates from the TSF would not be the same as the rates used to evaluate potential effects in the EIS. Furthermore, the seepage rate could potentially affect the viability of maintaining a water cover over the tailings in perpetuity. These issues should be evaluated during the EA, not after the fact.</p>

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				<p>Clarify whether you are still considering the clay liner alternative and if so how this alternative would be evaluated.</p> <p>Part C. Please refer to the sufficiency review for TMI_951-GW(2)-01B.</p> <p>Part D - I.</p> <p>Recommend that these sections be evaluated once inter-related comments from other IRs are addressed.</p> <hr/> <p><u>Specific Response to the Agency Comments:</u></p> <p><u>Part A and B.</u> Treasury Metals is committed to line the TSF with an HDPE liner or another material that can achieve a similar performance (i.e., seepage rate of ~3.1 m³/d), if available. If future studies identify that there is a suitable clay source available to line the base of the TSF, then further evaluation of the clay and liner requirements would be completed. Clay would not be used if it cannot achieve a similar performance of an HDPE liner. Therefore, the evaluation of potential effects presented in the EIS do not need to be updated and the viability of maintaining a wet cover over the tailings in perpetuity does not change from what has been presented with an HDPE liner.</p> <p>As discussed in the January 10, 2019 meeting with the Agency and their technical reviewers, Treasury Metals has committed to maintain a water cover over the TSF. In the event that the water cover depletes to a point that the tailings would be exposed to oxidation, water would be pumped from the open pit to the TSF to replenish the water cover. Further details of the TSF closure will be provided in the MENDM Closure Plan under O.Reg. 204/00 and the appropriate financial assurance provided.</p> <p><u>Part C.</u> Response provided in TMI_951-GW(2)-01B</p> <p><u>Part D – I.</u> No update to the surface water quality or fish and fish habitat assessments as a result of this question.</p> <hr/> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Part A. Yes (Satisfactory)</p> <p>Part B. Yes (Satisfactory)</p> <p>Part C.</p>

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				<p>No. The Proponent states: the TSF Liner will only be exposed for a short timeframe during operations while tailings are being placed and then will remain covered with tailings in perpetuity it can be reasonably expected that the liner will achieve a service life in excess of 400 years as it will not be exposed to UV or high temperatures. The time of exposure before tailings deposition will result in considerable expansion and contraction resulting in greater creases and increased rates of seepage loss (Rowe, K. et al. 2016). NRCan suggests that the Proponent should commit to acceptable practice of liner installation and protection and outline what that commitment entails.</p> <ul style="list-style-type: none"> - Supplementation mitigation if the geomembrane degrades before 400 years should be discussed (e.g. additional drainage inputs to counter increased drainage loss). <p>Part D. Yes (Satisfactory)</p> <p>Part E. Defer to ECCC</p> <p>Part F. Defer to ECCC</p> <p>Part G. Defer to ECCC</p> <p>Part H. Defer to ECCC</p> <p>Part I. Needs to be re-evaluated after the issues in MW(2)-06 are addressed</p> <hr/> <p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p>Part A. None Required</p> <p>Part B. None Required</p> <p>Part C. Treasury Metals commits to acceptable practice of liner installation and protection as per the manufacture specifications. It is noted that should an HDPE liner be used a soil cover needs to be placed as soon as possible to prevent wrinkles due to changes in temperature throughout the day resulting in increased leakage. Once there is about 0.5 m of cover (more or less depending on the cover material) the wrinkles should not expand due to changes in normal climate related thermal effects.</p> <p>Part D.</p>

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				<p>None Required <u>Part E – I.</u> No update to the surface water quality or fish and fish habitat assessments as a result of this question.</p> <p><u>Final Response:</u></p> <p><u>Part A</u> At this point in time, Treasury Metals intends to line the entire TSF basin with a geosynthetic liner (HDPE). Treasury Metals is committed to line the TSF with an HDPE liner or another material that can achieve a similar performance (i.e., seepage rate of ~3.1 m³/d), if available. If future studies identify that there is a suitable clay source available to line the base of the TSF, then further evaluation of the clay and liner requirements would be completed. Clay would not be used if it cannot achieve a similar performance of an HDPE liner. Therefore, the evaluation of potential effects presented in the EIS do not need to be updated and the viability of maintaining a wet cover over the tailings in perpetuity does not change from what has been presented with an HDPE liner.</p> <p>As discussed in the January 10, 2019 meeting with the Agency and their technical reviewers, Treasury Metals has committed to maintain a water cover over the TSF. In the event that the water cover depletes to a point that the tailings would be exposed to oxidation, water would be pumped from the open pit to the TSF to replenish the water cover. Further details of the TSF closure will be provided in the MENDM Closure Plan under O.Reg. 204/00 and the appropriate financial assurance provided.</p> <p><u>Part B.</u> As described in the response to Part A, Treasury Metals intends to line the entire TSF basin with a geosynthetic liner (HDPE) or equivalent and that the underlying soils will not be relied upon for seepage control. If future studies identify that there is a suitable clay source available to line the base of the TSF then further evaluation of the clay and liner requirements would be completed. The evaluation will include site investigations, laboratory testing, and seepage analyses to confirm the hydraulic conductivity of the materials as well as the required thickness of the clay liner. If studies determine that clay lining system may be used then a construction management plan with detailed technical specifications will be prepared for the excavation, placement, and compaction of the clay materials to achieve the design criteria.</p> <p><u>Part C.</u> Treasury Metals commits to acceptable practice of liner installation and protection as per the manufacture specifications. It is noted that should an HDPE liner be used a soil cover needs to be placed as soon as possible to prevent wrinkles due to changes in temperature throughout the day resulting in increased leakage. Once there is about 0.5 m of cover (more or less depending on the cover material) the wrinkles should not expand due to changes in normal climate related thermal effects.</p> <p>The estimated seepage rate from the lined TSF of 2.4 m³/day (40L/ha/day × 60 ha) is based on current industry research presented by Kerry Rowe et al. (2016), “Leakage Through Holes in Geomembrane Below Saturated</p>

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				<p>Tailings”. This estimate assumes that the TSF basin will be lined with an HDPE liner, filled with saturated tailings, and is independent of the soil characteristics underneath the TSF liner. Therefore, seepage rate of 2.4 m³/day can be achieved without a clay layer beneath the TSF. The primary cause of accelerated HDPE degradation is exposure to UV and high temperatures as documented in “GRI White Paper #6 on Geomembrane Lifetime Prediction: Unexposed and Exposed Conditions” (Robert M. Koerner et al., 2011) The paper documents that HDPE geomembranes exposed to UV have an expected service life in excess of 30 years and unexposed HDPE geomembranes will have an expected service life in excess of 400 years. Given the proposed TSF liner will only be exposed for a short timeframe (3 to 5 years) during operations while tailings are being placed, and then will remain covered with tailings in perpetuity, it can be reasonably expected that the liner will achieve a service life in excess of 400 years as it will not be exposed to UV or high temperatures.</p> <p>As indicated in TMI_951-GW(2)-01B, the seepage rate from the TSF has been increased to 3.13 m³/d to account for the seams in the different HDPE liners used in the dam lifts throughout the Project. To address concerns raised regarding effects of possible degradation of the HPDE liner, the revised surface water quality model included three (3) separate sensitivity scenarios: a base scenario; a degraded liner case; and a no liner case, as described in Section W6.1 of the Goliath Gold Project Water Addendum (Seepage from the TSF and TSF Liner).</p> <ul style="list-style-type: none"> • A base scenario with seepage through the TSF liner of 3.13 m³/d, which represents the upper bound estimate from literature for a properly installed HPDE liner, which is expected to have a service life of approximately 400 years. • A degraded liner case with seepage through the TSF liner of 31.3 m³/d. This unrealistic estimate of potential seepage through the TSF liner, uses a seepage rate that is an order of magnitude higher than the upper bound seepage rate identified from literature. This seepage rate is not expected to occur for a properly installed liner, and has been included to test the sensitivity of surface water quality predictions to changes in the liner performance. • A no liner case with seepage through the floor of the TSF of 200 m³/d. This seepage rate is expected through the floor of the TSF in the absence of any liner, as predicted by the groundwater model presented in Appendix M to the revised EIS (April 2018). As described TMI_898-MW(2)-02, this is the only scenario identified where a wet cover option for the TSF would not be viable for a closure option for the TSF in perpetuity. It should be restated that, the TSF will be constructed with a liner (geosynthetic liner or equivalent). <p>The results of the Base Scenario are discussed in Section W8 of the Goliath Gold Water Addendum. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. Section W10 of the Water Addendum, provides the results for the degraded liner and no liner sensitivity cases. While the results of the sensitivity modelling show that changes in the TSF seepage rates will affect the number of residual effects and where those effects occur, all of the predicted residual effects for the degraded liner case, and even the case without a liner beneath the TSF, remained below the respective water quality criteria. Therefore, the results of</p>

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				<p>the sensitivity analysis confirm the robustness of the surface water model predictions to changes in the rate of seepage from the TSF.</p> <p><u>Part D.</u> As described in the responses to Parts A through C, the performance of the TSF liner has been changed from 2.4 m³/d to 3.13 m³/d of seepage out the base of the TSF to account for the seams in the different HDPE liners used in the dam lifts throughout the Project. To address concerns raised regarding effects of possible degradation of the HPDE liner, the revised surface water quality model included three (3) separate sensitivity scenarios: a base scenario; a degraded liner case; and a no liner case, as described in Section W6.1 of the Goliath Gold Project Water Addendum (Seepage from the TSF and TSF Liner).</p> <p><u>Part E.</u> There will be no changes to the effects predicted to fish and fish habitat arising from the issues and concerns raised in Parts A through D of this information request because there are no changes to surface water quality arising from the issues and concerns raised in Parts A through D of this information request.</p> <p><u>Part F.</u> As described in the responses to Parts A through E, there will be no changes to the effects predicted to fish and fish habitat arising from issues and concerns raised in this information request, therefore there are no additional mitigation measures required regarding liner performance</p> <p><u>Part G.</u> There are no changes to the characterization of residual adverse effects from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from Round 2 issues or concerns regarding performance of the liner.</p> <p><u>Part H.</u> No specific modifications to the Follow-Up Program were identified as a result of issues with regards to the performance of the TSF liner. An updated Follow-Up Program, which supersedes Section 13 of the revised EIS (April 2018) has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <p><u>Part I.</u> The performance of the liner long-term was confirmed in Parts A though C and therefore no changes are required to the predictions with respect to seepage from those presented in the revised EIS (April 2018). There is no individual</p>

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				<p>seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p>While the responses to this information request do not lead to the requirement of updating the effects of seepage on the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p>References: Rowe, R. Kerry, et al. "Leakage through holes in geomembranes below saturated tailings." <i>Journal of Geotechnical and Geoenvironmental Engineering</i> 143.2 (2016): 04016099.</p>

TMI_901-MW(2)-05

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TMI_901-MW(2)-05	MW(2)-05	1	CEA Agency	Reference to EIS Guidelines:	Part 2, Sections 9.1.2 and 10.
				Reference to EIS / Appendix	Sections 3.5.3, 3.16.5 and 4.0; Appendix M; Appendix M-2
				Cross-reference to Round 1 IRs	n/a
				<p><u>Context and Rationale:</u></p> <ul style="list-style-type: none"> The Agency has uncertainties with the liner proposed for the tailings storage facility (TSF). Appendix JJ, Section 3.5.3 states that “For the 60 hectare TSF area, typical leakage with an HDPE basal liner installed is considered to be less than 5 m3/d”. Section 4.0 of Appendix JJ further states that “Seepage through the base of the TSF was estimated to be 2.4 m3/d, assuming that the basin has been lined with a synthetic liner”. This seepage estimate is unsubstantiated in the revised EIS, as it unclear if this was tailored to the design of the TSF for this project, or based on the most conservative assumptions associated with the range of options that were considered. For example, the volumes of seepage that will emanate from the TSF will be directly affected by the base of the TMF and the liner that is ultimately installed (MW(2)-04). The effects assessment needs to reflect the range of seepage that is possible based on the choice of liner used at the TSF. As such, more conservative assumptions about the long-term performance of these liners is needed. For example, synthetic liners can degrade over time, causing larger amounts of seepage to flow into the surrounding waterbodies. The Agency requires this information to verify that seepage from the TSF would not cause adverse effects to the surrounding fish-bearing water bodies. 	
<p><u>Specific Question / Request for Information:</u></p> <p>A. Reassess the rate of seepage emanating from the TSF based on the design of the TSF for this project, or based on most conservative assumptions (i.e. highest seepage rates). Include in this assessment, a consideration of:</p> <ul style="list-style-type: none"> Progressive degradation of the TSF liner; Base of the TSF; and Wet or dry cover for the TSF. <p>B. Re-run the models, including the groundwater model and the multi-year water cover model (MW(2)-02), based on the assumptions revised in the response to Question A;</p>					

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				<p>C. Update the water quality assessment, if needed, taking the responses from Questions A and B into consideration. D. Provide the effects on fish and fish habitat, if any, taking the response from Question C into consideration. E. Describe mitigation measures to prevent adverse effects to fish and fish habitat, if necessary; F. Characterize residual effects, if any, after the mitigation measures have been implemented; G. Update the follow-up program for potential effects to fish and fish habitat, including objectives and any monitoring measures that will be implemented to verify the predictions of effects and evaluate the effectiveness of the proposed mitigation measures. If follow-up is not required, provide a rationale. H. Incorporate the findings of this IR, if applicable, into the revision of seepage water quality assessment requested in IR# MW(2)-06, and revision of groundwater model requested in IR# GW(2)-01.</p> <p><u>Response:</u></p> <p><u>Part A.</u></p> <p>To clarify, the estimated seepage rate for the TSF liner of 2.4 m³/day (Section 3.7.2.1 of the revised EIS [April 2018]), which is less than 5 m³/d. This estimate assumes that the TSF basin will be lined with an HDPE liner. The seepage rate of 2.4 m³/day (40L/ha/day × 60 ha) is based on current industry research presented by Kerry Rowe et al. (2016) “Leakage Through Holes in Geomembrane Below Saturated Tailings”. As part of the reassessment of seepage from the TSF completed to support the Round 2 responses, consideration was given to the following:</p> <ul style="list-style-type: none"> • <u>Degradation of the liner:</u> The primary cause of accelerated HDPE degradation is exposure to UV and high temperatures (Robert M. Koerner et al., 2011). Geomembranes that are not exposed to UV or high temperatures are expected to have a service life in excess of 400 years. Given the proposed TSF liner will only be exposed for a short timeframe (3 to 5 years) during operations, and then covered with tailings in perpetuity, it can be reasonably expected that the liner will achieve a service life in excess of 400 years as it will not be exposed to UV or high temperatures. Therefore, it is expected that the liner will have a seepage rate of 2.4 m³/d (the upper bound estimate from literature) for the service life of the liner. To address concerns raised regarding effects of possible degradation of the HPDE liner, the revised surface water quality model included three (3) separate sensitivity scenarios: a base scenario; a degraded liner case; and a no liner case, as described in Section W6.1 of the Goliath Gold Project Water Addendum (Seepage from the TSF and TSF Liner). • <u>Base of the TSF:</u> The entire TSF basin will be lined with a geosynthetic liner (HDPE). As described by Kerry Rowe et al. (2016), the estimated seepage rate of 2.4 m³/day is based on current industry research, and is independent of the soil characteristics underneath the TSF liner. Therefore, seepage rate of 2.4 m³/day can be achieved without a clay layer beneath the TSF. • <u>Wet or dry cover for closure of the TSF:</u> At this time Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. The intent of the wet cover is to ensure tailings are in a saturated condition in perpetuity, thus effectively preventing ARD (TMI_898 MW(2) 02). Treasury Metals is committed to implement the wet cover closure option for the TSF and recognize that this will likely be a condition of the

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				<p>environmental assessment process. As described in the responses to TMI_898-MW(2)-02, the wet cover option will remain a viable closure option in the long-term, and therefore no changes are required to the quality of seepage from the lined TSF from the wet cover values presented in the revised EIS (April 2018).</p> <p>The results of the reassessment of seepage rates from the TSF completed to support the Round 2 responses confirmed that the seepage through the TSF liner will remain at the rate of 2.4 m³/d, as assessed in the revised EIS (April 2018).</p> <p><u>Part B.</u></p> <p>The reassessment of seepage rates from the TSF (see response to Part A) confirmed that the seepage through the TSF liner will remain at the rate of 2.4 m³/d, as assessed in the revised EIS (April 2018). Therefore, no changes are required to the predictions with respect to seepage from those presented in the revised EIS (April 2018). There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p>These models were used in an integrated manner. Effectively, the outputs from the groundwater and geochemical models are inputs to the surface water model. Given the number of Round 2 information requests regarding changes to the groundwater and mine waste (as well as surface water) technical disciplines, the surface water quality model has been revised to capture those changes. All of the changes, as well as a revised prediction on surface water quality, have been incorporated in the revised surface water quality model described in detail in the Goliath Gold Project Water Addendum.</p> <p>To address concerns raised regarding effects of possible degradation of the HPDE liner, and its effects on surface water quality and thus fish and fish habitat, the revised surface water quality model was also run to include both a degraded liner and no liner sensitivity scenario. The results of the degraded liner and no liner sensitivity scenarios are presented in the Water Addendum Section W10 and showed that the predicted residual effects for the degraded liner case, and even the case without a liner beneath the TSF, remained below the respective water quality criteria.</p>

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				<p>The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p><u>Part C.</u> As described in the responses to Parts A and B, the rate of seepage from the lined TSF is confirmed to be 2.4 m³/day, which is consistent with the value used for assessment of surface water quality effects presented in the revised EIS (April 2018). While the responses to Parts A and B do not lead to the requirement of updating the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements. The information presented in this Round 2 response, has been incorporated into Section W6.1 of the Water Addendum. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality.</p> <p><u>Part D.</u> There will be no changes to the effects predicted to fish and fish habitat arising from the issues and concerns raised in Parts A through C of this information request because there are no changes to surface water quality arising from the issues and concerns raised in Parts A through C of this information request.</p> <p><u>Part E.</u> As described in the responses to Parts A through D, the rate of seepage emanating from the TSF is expected to be consistent with the values used for assessing the fish and fish habitat effects presented in the revised EIS (April 2018). As a result, no additional mitigation measures have been identified as being required to prevent effects to fish and habitat as a result of changes to rates of seepage through the TSF liner discussed in Parts A through C.</p> <p><u>Part F.</u> As described in the responses to Parts A through E, no adverse effects to fish and habitat were identified as a result of changes to rates of seepage through the TSF liner, as discussed in Part A. Therefore, no residual adverse effects were identified to fish or fish habitat as a result of changes to rates of seepage through the TSF liner discussed in Parts A through C.</p> <p><u>Part G.</u> No specific modifications to the Follow-Up Program were identified as a result of changes in seepage emanating from the TSF. An updated Follow-Up Program, which superseded Section 13 of the revised EIS (April 2018), has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p>

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				<p>Part H.</p> <p>The seepage rate through the liner beneath the TSF was confirmed in Parts A and B, and therefore no changes are required to the predictions with respect to seepage from the lined TSF presented in the revised EIS (April 2018). There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p><u>Agency Comment on Draft Response:</u></p> <p>Part C – I. Recommend that these sections be evaluated once inter-related comments from other IRs are addressed.</p> <p><u>Specific Response to the Agency Comments:</u></p> <p>Parts C – I. None Required - There are no changes to the assessment of effects to surface water quality, the assessment of effects to fish and fish habitat, mitigation measures, residual effects assessment and follow-up program as a result of Parts A and B.</p> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Response was satisfactory</p>

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				<p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p>None Required.</p> <p><u>Final Response:</u></p> <p>Part A.</p> <p>To clarify, the estimated seepage rate for the TSF liner of 2.4 m³/day (Section 3.7.2.1 of the revised EIS [April 2018]), which is less than 5 m³/d. This estimate assumes that the TSF basin will be lined with an HDPE liner. The seepage rate of 2.4 m³/day (40L/ha/day × 60 ha) is based on current industry research presented by Kerry Rowe et al. (2016) “Leakage Through Holes in Geomembrane Below Saturated Tailings”. As part of the reassessment of seepage from the TSF completed to support the Round 2 responses, consideration was given to the following:</p> <ul style="list-style-type: none"> • <u>Degradation of the liner:</u> The primary cause of accelerated HDPE degradation is exposure to UV and high temperatures (Robert M. Koerner et al., 2011). Geomembranes that are not exposed to UV or high temperatures are expected to have a service life in excess of 400 years. Given the proposed TSF liner will only be exposed for a short timeframe (3 to 5 years) during operations, and then covered with tailings in perpetuity, it can be reasonably expected that the liner will achieve a service life in excess of 400 years as it will not be exposed to UV or high temperatures. Therefore, it is expected that the liner will have a seepage rate of 2.4 m³/d (the upper bound estimate from literature) for the service life of the liner. As indicated in TMI_951-GW(2)-01B, the seepage rate from the TSF has been increased to 3.13 m³/d to account for the seams in the different HDPE liners used in the dam lifts throughout the Project. To address concerns raised regarding effects of possible degradation of the HPDE liner, the revised surface water quality model included three (3) separate sensitivity scenarios: a base scenario; a degraded liner case; and a no liner case, as described in Section W6.1 of the Goliath Gold Project Water Addendum (Seepage from the TSF and TSF Liner). • <u>Base of the TSF:</u> The entire TSF basin will be lined with a geosynthetic liner (HDPE) or material with equivalent performance (i.e., seepage rate of approximately 3.13 m³/d). As described by Kerry Rowe et al. (2016), the estimated seepage rate of 2.4 m³/day is based on current industry research, and is independent of the soil characteristics underneath the TSF liner. As indicated in TMI_951-GW(2)-01B, the seepage rate from the TSF has been increased to 3.13 m³/d to account for the seams in the different HDPE liners used in the dam lifts throughout the Project. Therefore, seepage rate of 3.13 m³/day can be achieved without a clay layer beneath the TSF. • <u>Wet or dry cover for closure of the TSF:</u> At this time Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. The intent of the wet cover is to ensure tailings are in a saturated condition in perpetuity, thus effectively preventing ARD (TMI_898 MW(2) 02). As described in the responses to TMI_898-MW(2)-02, the wet cover option will remain a viable closure option in the long-term, and therefore no changes are required to the quality of seepage from the lined TSF from the wet cover values presented in the revised EIS (April 2018).

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response
				<p>The results of the reassessment of seepage rates from the TSF completed to support the Round 2 responses confirmed that the seepage through the TSF liner will remain at the rate of 2.4 m³/d, as assessed in the revised EIS (April 2018).</p> <p><u>Part B.</u></p> <p>The reassessment of seepage rates from the TSF (see response to Part A) confirmed that the seepage through the TSF liner will remain at the rate of 3.13 m³/d, as assessed in the revised EIS (April 2018). Therefore, no changes are required to the predictions with respect to seepage from those presented in the revised EIS (April 2018). There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p>These models were used in an integrated manner. Effectively, the outputs from the groundwater and geochemical models are inputs to the surface water model. Given the number of Round 2 information requests regarding changes to the groundwater and mine waste (as well as surface water) technical disciplines, the surface water quality model has been revised to capture those changes. All of the changes, as well as a revised prediction on surface water quality, have been incorporated in the revised surface water quality model described in detail in the Goliath Gold Project Water Addendum.</p> <p>To address concerns raised regarding effects of possible degradation of the HPDE liner, and its effects on surface water quality and thus fish and fish habitat, the revised surface water quality model was also run to include both a degraded liner and no liner sensitivity scenario. The results of the degraded liner and no liner sensitivity scenarios are presented in the Water Addendum Section W10 and showed that the predicted residual effects for the degraded liner case, and even the case without a liner beneath the TSF, remained below the respective water quality criteria.</p> <p>The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing</p>

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				<p>condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p><u>Part C.</u> As described in the responses to Parts A and B, the rate of seepage from the lined TSF is confirmed to be 2.4 m³/day, which is consistent with the value used for assessment of surface water quality effects presented in the revised EIS (April 2018). While the responses to Parts A and B do not lead to the requirement of updating the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements. The information presented in this Round 2 response, has been incorporated into Section W6.1 of the Water Addendum. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality.</p> <p><u>Part D.</u> There will be no changes to the effects predicted to fish and fish habitat arising from the issues and concerns raised in Parts A through C of this information request because there are no changes to surface water quality arising from the issues and concerns raised in Parts A through C of this information request.</p> <p><u>Part E.</u> As described in the responses to Parts A through D, the rate of seepage emanating from the TSF is expected to be consistent with the values used for assessing the fish and fish habitat effects presented in the revised EIS (April 2018). As a result, no additional mitigation measures have been identified as being required to prevent effects to fish and habitat as a result of changes to rates of seepage through the TSF liner discussed in Parts A through C.</p> <p><u>Part F.</u> As described in the responses to Parts A through E, no adverse effects to fish and habitat were identified as a result of changes to rates of seepage through the TSF liner, as discussed in Part A. Therefore, no residual adverse effects were identified to fish or fish habitat as a result of changes to rates of seepage through the TSF liner discussed in Parts A through C.</p> <p><u>Part G.</u> No specific modifications to the Follow-Up Program were identified as a result of changes in seepage emanating from the TSF. An updated Follow-Up Program, which superseded Section 13 of the revised EIS (April 2018), has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <p><u>Part H.</u></p>

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				<p>The seepage rate through the liner beneath the TSF was confirmed in Parts A and B, and therefore no changes are required to the predictions with respect to seepage from the lined TSF presented in the revised EIS (April 2018). There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project.

TMI_902-MW(2)-06

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TMI_902-MW(2)-06	MW(2)-06	1	CEA Agency	Reference to EIS Guidelines:	Part 2, Sections 9.1.2 and 10.
				Reference to EIS / Appendix	Appendix K; Appendix M; Appendix JJ, Section 5
				Cross-reference to Round 1 IRs	TMI_53-MW(1)-15, TMI_54-MW(1)-16
				<p><u>Context and Rationale:</u></p> <ul style="list-style-type: none"> • There are a number of uncertainties with the kinetic and static testing conducted to characterize the geochemistry of mine rock and ore on site. Due to these uncertainties, the Agency has identified a number of concerns related to management of mine rock and tailings on site, including the assumptions made in the revised EIS. • The Agency notes that these concerns are also tied with the groundwater modelling (See IR# GW(2)-01, GW(2)-03 and GW(2)-04), the TSF base and liner (See IR# MW(2)-04 and MW(2)-05) and cover options for the TSF and the WRSA (See IR# MW(2)-01 to 03 and GW(2)-02). • A summary of these uncertainties is presented below and a detailed account of each is presented in the subsequent IRs. <p><u>1) Waste rock and ore sampling:</u></p> <ul style="list-style-type: none"> • It is unclear if the mine rock used for geochemistry tests included parameters required for testing of onset of acidic drainage. Also, there appears to be no ore analysis. Therefore the information provided in the revised EIS is insufficient to determine whether the tailings sample used for modelling is representative of tailings that will be produced during the Project (See IR# MW(2)-07). <p><u>2) Humidity Cell Tests:</u></p> <ul style="list-style-type: none"> • The revised EIS indicates that the onset time of acid drainage in tailings in the Humidity Cell Tests (HCTs) was about 60 weeks. However, HCTs were discontinued earlier and prior to the cells reaching equilibrium. Yet the onset time for ARD was assumed to be two years for the water quality assessment. It is unclear how this assumption was drawn (See IR# MW(2)-08). 	

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				<p><u>3) Sulphur Block Model:</u></p> <ul style="list-style-type: none"> The sulphur block model was not provided in the revised EIS and it is unclear how it was used to determine mine rock cut-off criteria and to assess the potential for acid rock drainage (See IR# MW(2)-09). <p><u>4) Acid base accounting:</u></p> <ul style="list-style-type: none"> It is unclear how the high sulphide zones identified in the acid-base accounting (ABA) analysis were considered in the calculation for ARD onset time (See IR# MW(2)-10). Given the concerns raised above, it was also noted that there is no evidence to suggest that a geochemical characterization program would be used throughout the life of the Project. The purpose of such a program would be to detect changes in geochemical behavior through time in advance, while the mine is still operating, which would allow adjustments to be made in the management of mine rock and tailings, including planning for decommissioning and abandonment. The information requested above is important for the Agency to understand the quality of seepage that will be produced from the mine rock and tailings generated as part of the Project, and understand how they can cause changes to water quality of the surrounding waterbodies, and affect fish and fish habitat. <p><u>Specific Question / Request for Information:</u></p> <p>R. Update the geochemical characterizations of mine rock and tailings based on the responses to IRs MW(2)-07 to MW(2)-10 and the four areas of uncertainty raised in the “Context and Rationale” column. As these concerns are addressed, consider how they interplay with other IRs related to groundwater modelling (IR# GW(2)-01, GW(2)- 03 and GW(2)- 04), TSF base and liner (IR# MW(2)-04 and MW(2)-05) and cover options for the TSF and WRSA (IR# MW(2)-01 to 03 and GW(2)-02).</p> <p>S. Provide a reassessment of acid rock drainage, and its onset time, based on the revisions requested in Question A. Any assumptions made in the revised assessments should be conservative and tailored to the characteristics of the Project site conditions. Where uncertainties and assumptions are unavoidable, use worst- case scenario for seepage and runoff.</p> <p>T. Describe the changes in water quality from runoff and seepage from the TSF and WRSA that may include acidic water, taking the responses from Questions A and B into consideration.</p> <p>U. Revise the effects on fish and fish habitat taking the response from Question C into consideration;</p> <p>V. Describe additional mitigation measures to prevent adverse effects to fish and fish habitat, if necessary, taking the response to Question D into consideration.</p> <p>W. Characterize residual effects, if any, after the mitigation measures described in Question E have been implemented;</p> <p>X. Update the follow-up program for potential effects to fish and fish habitat, including conceptual details for any further geochemistry testing programs that are planned throughout the life of the Project to address</p>

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				<p>uncertainties, verify previous results and refine options for management of waste rock and tailings. Also provide any monitoring measures that will be implemented to verify the predictions of effects and evaluate the effectiveness of the proposed mitigation measures. If follow-up is not required, provide a rationale.</p> <p>Y. Provide contingency plans for prevention and treatment of runoff and seepage using worst case scenarios, particularly as it relates to acid rock drainage.</p> <p>Response:</p> <p><u>Part A.</u></p> <p>Treasury Metals had undertaken a review of the geochemical characterization of waste rock and tailings in response to the four (4) areas of uncertainty raised in the “Context and Rationale” and in MW(2)-07 through MW(2)-10. As detailed below, the review did not identify deficiencies in the analysis of the geochemical data that would require an update to the geochemical characterizations presented in the revised EIS (April 2018). This review also considered the interplay with other information requests related to groundwater modelling, the HPDE liner beneath the TSF, and cover options for the closure of the TSF and WRSA. None of these other information requests were found to require updates to the geochemical characterizations presented in the revised EIS (April 2018). As a result of the review of areas of uncertainty raised in the “Context and Rationale” and in MW(2)-07 through MW(2)-10, the ARD onset time of 2 years used in the revised EIS (April 2018) is confirmed as being valid, and conservative.</p> <p>Detailed Justification</p> <p><u>1) Waste rock and ore sampling</u></p> <p>The time to onset of ARD/ML was calculated conservatively based on the humidity cells progressing to a pH of < 6 (indicating the onset of ARD), as adjusted for real-world temperatures. Appendix K to the revised EIS (April 2018) provides the information necessary to calculate all parameters required for the calculation of onset of ARD/ML, as shown in TMI_904-MW(2)-08_Table_3. The carbonate neutralizing potential was not relied on for determining the time for onset of ARD/ML as the humidity cells turned acidic before the carbonate material was depleted, indicating that the remaining carbonate material was not available.</p> <p>The geochemical testing program for ML/ARD of the ore materials relied on the tailings produced during the metallurgical testing program. The nature of metallurgical testing is to critically assess the economics of gold extraction and by its nature the simulated tailings produced in these tests are expected to be representative of overall future project tailings. This is considered appropriate as the ore materials will be present in the form of tailings only, as all of ore mined at the Project is expected to be processed through the mill.</p> <p><u>2) Humidity Cell Tests</u></p> <p>The time to ARD on-set in tailings and waste rock is derived using not only the humidity cell data, but also consideration of how the tailings and waste rock is deposited in the real world, along with the real-world conditions, which at times will be dramatically different than laboratory settings. As detailed in the response to TMI_904-MW(2)-</p>

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				<p>08, the ARD onset time of 2 years used in the revised EIS (April 2018) was confirmed as being valid, and conservative.</p> <p>The humidity cells for tailings progressed to a pH of < 6 (indicating the onset of ARD) within a period of 41 to 44 weeks. However, the progression of sulphide oxidation (the primary driver for ARD) under field conditions is expected to be prolonged by lower flushing rates and lower temperatures. While it difficult to estimate the effect of lower flushing rates on the time to ARD onset, literature (MEND 2006), provides the Arrhenius Equation $\left(\ln \left(\frac{k_1}{k_2} \right) = \frac{E_a(T_1 - T_2)}{(RT_1 T_2)} \right)$ that allows us to numerically estimate the effects of lower temperature in the field on sulfide oxidation rates. By applying the Arrhenius Equation to the actual monthly temperatures from Dryden, the relative field oxidation rates for each month were calculated and show relative reaction rates that sum to 4.7, meaning that a full year (12 months) in the field is effectively equal to just 4.7 months at laboratory conditions (i.e., 20 °C). Based on this ratio alone, the time to acid onset for tailings was estimated to be 105 weeks, or roughly 2 years.</p> <p>For waste rock, the humidity cells were shown to progress to a pH of < 6 (indicating the onset of ARD) within a period of 62–65 weeks. Considering the adjustments to the rate of ARD onset to reflect actual temperatures in the field as described with the Arrhenius Equation (MEND, 2006), the time to acid onset for waste rock was estimated to be 158 weeks, but conservatively assumed to be 2 years. In addition, the physical characteristics of the waste rock (i.e. large chunks/ boulders with less surface area) are likely to further result a slower rate of ARD onset, further confirming the conservatism of using the humidity cell results for determining the ARD onset time.</p> <p><u>3) Sulphur Block Model</u></p> <p>The sulphur block model results provided in Appendix K to the revised EIS (April 2018) indicated a high proportion of PAG rock (93%) was present at the Goliath Gold Project. This value (93%), was used in the development of models for seepage quality from the uncapped and capped WRSA, and pit lake water quality post-closure.</p> <p>Based on currently available data (93% PAG rock), no segregation of mine rock is planned and thus a mine rock cut-off criterion for PAG rock has not been developed. Furthermore, the current management plan for waste rock materials at the Goliath Gold Project is to treat it all as PAG material.</p> <p><u>4) Acid base accounting</u></p> <p>Section 2.1 of Appendix K provides the range of chemical sulphide content (sulphur by mass) for the waste rock, which range from 0.1%–1.2% S with a geometric mean value of 0.5% S. As shown in Table 1, the sulphide contents (% S by mass) for the waste rock humidity cell tests ranged from 0.13% to 1.58% S in the waste rock. For each BMS, BS, and MSS lithologies, a low, medium, and high sulphide cell was run, with the high sulphide cells representing the 98th percentile, 91st percentile, and 88th percentile, respectively of the available samples. Therefore, high sulphide values were accounted for in the humidity cells used for determining ARD onset times for waste rock.</p>

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				<p>Table 1: Summary of Waste Rock Humidity Cell Results</p> <table border="1"> <thead> <tr> <th data-bbox="806 310 1035 407">Humidity Cell ID</th> <th data-bbox="1035 310 1266 407">Lithology</th> <th colspan="2" data-bbox="1266 310 1724 370">Sulphide Content</th> <th data-bbox="1724 310 1950 370">Weeks to steady decline in pH < 6</th> </tr> <tr> <td></td> <td></td> <th data-bbox="1266 370 1493 407">%</th> <th data-bbox="1493 370 1724 407">Percentile of Data</th> <th data-bbox="1724 370 1950 407">Weeks</th> </tr> </thead> <tbody> <tr> <td>BMS-A</td> <td rowspan="3">BMS</td> <td>0.13</td> <td>9%</td> <td>51⁽¹⁾</td> </tr> <tr> <td>BMS-B</td> <td>0.33</td> <td>47%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>BMS-C</td> <td>1.54</td> <td>98%</td> <td>65</td> </tr> <tr> <td>BS-A</td> <td rowspan="3">BS</td> <td>0.12</td> <td>42%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>BS-B</td> <td>0.28</td> <td>53%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>BS-C</td> <td>0.90</td> <td>91%</td> <td>65</td> </tr> <tr> <td>MSS-A</td> <td rowspan="3">MSS</td> <td>0.27</td> <td>34%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>MSS-B</td> <td>1.50</td> <td>88%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>MSS-C</td> <td>1.58</td> <td>88%</td> <td>62</td> </tr> <tr> <td>MSED-A</td> <td rowspan="2">MSED</td> <td>0.67</td> <td>80%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>MSED-B</td> <td>0.91</td> <td>83%</td> <td>85⁽¹⁾</td> </tr> </tbody> </table> <p>Source: Appendix K Note: (1) For these tests the numbers indicate the weeks when the cell was terminated, as no steady decline in pH observed at the time of cell termination.</p> <p>Localized high sulphide zones are not expected within the tailings as any high sulphide ore will be mixed into the greater volume of lower sulphide ore material and then processed through the mill. This process will result in the production of a blended tailing material that will be similar in ML/ARD characteristics to the tailings sample derived from the metallurgical program. The mixed ore will have a lower sulphide content than the relatively small volume of high sulphide ore. The ABA data for the Project suggests that the average sulphide concentration of the tailings will be 1.2% S (by mass), which is lower than 1.5 %S (by mass) tailings composite used in the humidity cell analysis as described in Appendix K. Therefore, the humidity cell data relied upon for the ARD onset time calculation of tailings, also represented a higher than average sulphide content. In the unlikely event that a pulse of high sulphide tailings are produced during operations, and deposited within the TSF, enhanced ML/ARD is not expected as the tailings within the TSF will be kept a saturated condition, and largely under a water cover to prevent oxidation.</p> <p>Section 13.3 of the revised EIS (April 2018) included a framework for ongoing geochemical follow-up and monitoring. As part of the Round 2 responses, Treasury Metals has also issued the Goliath Gold Project Follow-up Addendum, which superseded Section 13 of the revised EIS (April 2018), and the Goliath Gold Project Preliminary Environmental Monitoring Addendum, both of which included sections specific to geochemical characterization over the life of the Project.</p>	Humidity Cell ID	Lithology	Sulphide Content		Weeks to steady decline in pH < 6			%	Percentile of Data	Weeks	BMS-A	BMS	0.13	9%	51 ⁽¹⁾	BMS-B	0.33	47%	63 ⁽¹⁾	BMS-C	1.54	98%	65	BS-A	BS	0.12	42%	63 ⁽¹⁾	BS-B	0.28	53%	63 ⁽¹⁾	BS-C	0.90	91%	65	MSS-A	MSS	0.27	34%	63 ⁽¹⁾	MSS-B	1.50	88%	63 ⁽¹⁾	MSS-C	1.58	88%	62	MSED-A	MSED	0.67	80%	63 ⁽¹⁾	MSED-B	0.91	83%	85 ⁽¹⁾
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MSED-B		0.91	83%	85 ⁽¹⁾																																																										

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				<p><u>Part B.</u></p> <p>As described in the response to Part A, the result of the review of areas of uncertainty raised in the “Context and Rationale” and in MW(2)-01 through MW(2)-12 confirmed the geochemical characterizations presented in the revised EIS (April 2018) as being valid and conservative. The review did not identify deficiencies in the analysis of the geochemical data that would require an update to the geochemical characterizations for either waste rock or tailings. Therefore, the assessment of acid rock drainage, as well as the onset time for ARD used in the revised EIS (April 2018) have been confirmed.</p> <p>The following assumptions regarding waste rock and ARD/ML were used in the revised EIS (April 2018) have been confirmed as part of the Round 2 responses:</p> <ul style="list-style-type: none"> • Amount of PAG rock present: The revised EIS was based on the assumption that 93% of the waste rock was assumed to be PAG, and no segregation of mine rock is planned. The current management plan for waste rock materials at the Goliath Gold Project is to treat it all as PAG material. This value (93%), was used in the development of models for seepage quality from the uncapped and capped WRSA, and pit lake water quality. • ARD onset time for waste rock: For waste rock, the humidity cells reached a pH of < 6 (indicating the onset of ARD) within a period of 62–65 weeks. Considering the adjustments to the rate of ARD onset to reflect actual temperatures in the field as described with the Arrhenius Equation (MEND, 2006), the time to acid onset for waste rock was estimated to be 158 weeks, but conservatively assumed to be 2 years. • Potential for ARD in waste rock: Waste rock from the open pit mining operations will be placed in either the WRSA, or in the mined-out areas of the open pit. Much of the material present in the WRSA at closure will have been there since the early stages of mining activities (i.e., for longer than 10 years). Given 93% of the waste rock is assumed to be PAG, and the rate of ARD was conservatively predicted to be 2 years the analysis of seepage from the WRSA is based upon the assumption that ARD has occurred, and will continue to occur, and the seepage/runoff from the WRSA will be managed accordingly. • Cover to the WRSA: During operations, the WRSA will remain uncapped from a geochemical perspective. At closure, a multi-layer, low-permeability dry cover will be constructed over the WSRSA. The purpose of the cover over the WRSA is to reduce the rate of infiltration into the WRSA and thus the rate of seepage from the WRSA. The analysis of seepage from the WRSA assumed no reduction in the rate of ARD generation as a result of the cover. • Seepage from the WRSA: The rate of seepage from the WRSA will be different depending on whether the WRSA is uncapped or capped. The seepage from the uncapped WRSA (100–200 m³/d) is a function of relative hydraulic resistances of infiltration that enters the underlying overburden and bedrock, to the infiltration that travels laterally to the perimeter of the WRSA. Based on refined modelling, all of the seepage from the uncapped WRSA will report to the open pit where it will be incorporated into the water management system and treated as required. The seepage from the capped WRSA (30 m³/d) is a function of the infiltration through the multi-layer, low permeability cover placed over the WRSA at closure. Based on refined modelling, the seepage from the capped WRSA reports to the pit lake (20 m³/d) and Thunder Lake

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				<p>(10 m³/d). This seepage, which is assumed to be impacted by ARD/ML, was incorporated into the surface water quality and model for pit lake quality.</p> <p>The following assumptions regarding tailings and ARD/ML were used in the revised EIS (April 2018) have been confirmed as part of the Round 2 responses:</p> <ul style="list-style-type: none"> <p>ARD onset time for tailings: The tailings, the humidity cells reached a pH of < 6 (indicating the onset of ARD) within a period of 41 to 44 weeks. Considering the adjustments to the rate of ARD onset to reflect actual temperatures in the field as described with the Arrhenius Equation (MEND, 2006), the time to acid onset for tailings estimated to be 105 weeks, but conservatively assumed to be 2 years.</p> <p>Placement and tailings during operations: During operations, atmospheric exposure of tailings is not expected as the tailings within the TSF will be kept a saturated condition, and largely under a water cover to limit the onset of oxidation. Water covers are a well-proven method of preventing ARD formation in tailings via limiting exposure of tailings to the atmosphere, and is accepted as the best means of preventing ARD. Therefore, ARD/ML is not expected within the TSF during operations.</p> <p>Closure options for TSF: At this time, Treasury Metals do not intend to move forward using the dry cover for the closure of the TSF. The wet cover option was shown to mitigate the effects of the Project on surface water quality, and thus those on fish and fish habitat, relative to the dry cover option. The intent of the wet cover is to ensure tailings are in a saturated condition in perpetuity, thus effectively preventing ARD/ML. Treasury Metals is committed to implement the wet cover closure option for the TSF, and recognize that this will likely be a condition of the environmental assessment process.</p> <p>Placement of wet cover for closure of the TSF: The placement of a wet cover option for closure of the TSF is anticipated to take approximately 1 year, which is less than the predicted time of ARD onset of 2 years. The three phases required for placing a wet cover include: withdrawal and treatment of supernatant water (4 to 6 months); placement of granular material (2 months); and placement of water cover (< 4 months).</p> <p>Long-term viability of wet cover for closure of the TSF: A water cover analysis indicates that annual runoff exceeds the evaporation and seepage losses from the TSF, indicating that a water cover is feasible on a long-term basis. By placing a sufficient volume (300,000 m³) of water for the cover, the wet cover would be maintained even during two consecutive 1:100 dry years. Finally, an analysis of future climate in the region confirms that a long-term water cover over the TSF would remain viable, even with projected changes of climate in the future.</p> <p>TSF Liner: At this point in time, Treasury Metals intends to line the entire TSF basin with a geosynthetic liner (HDPE). The estimated seepage rate for the TSF liner is 2.4 m³/day. This is based on current industry research presented by Kerry Rowe et al. (2016), which suggests that this rate is an approximate upper bound estimate for a properly installed HDPE geomembrane underlying mine tailings, and is independent of the soil characteristics underneath the TSF liner. It can be reasonably expected that the liner will achieve a</p>

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				<p>service life in excess of 400 years as it will not be exposed to UV or high temperatures, the primary causes of accelerated HDPE degradation (Robert M. Koerner et al., 2011).</p> <ul style="list-style-type: none"> • Seepage from the TSF: The rate of seepage from the TSF (2.4 m³/d) will be the same during operations and post-closure, and is a function of the performance of the liner. <ul style="list-style-type: none"> ○ During operations, updated groundwater modelling identified that the majority (94%) of the seepage through the TSF will be collectively captured by the open pit, perimeter ditches and minewater pond. The remaining 6% (0.1 m³/d) of the seepage from the TSF during operations would report to Blackwater Creek. Because the tailings will be kept in a saturated condition, and largely under a water cover, the seepage from the TSF during operations is not expected to be affected by ARD/ML. The seepage that reaches Blackwater Creek during operations has been incorporated into the updated surface water quality modelling presented in the Water Addendum included as part of the Round 2 responses. ○ During post-closure, when groundwater recovers to near pre-development levels, updated groundwater modelling confirms that 0.8 m³/d of seepage from the TSF is estimated to leave the Project and reach Blackwater Creek. The remaining 1.6 m³/d of seepage from the TSF during post-closure is estimated to report to the open pit. Additionally, trace quantities of post-closure seepage from the TSF may also reach Thunder Lake Tributary 3, Hoffstrom's Bay Tributary, and Thunder Lake. Because the wet cover closure options will maintain a perpetual water cover over the tailings ensuring they remain in a saturated condition, the post-closure seepage from the TSF is not expected to be affected by ARD/ML. The seepage that reaches receiving waterbodies during post-closure has been incorporated into the updated surface water quality modelling presented in the Water Addendum included as part of the Round 2 responses. <p><u>Part C.</u></p> <p>The geochemical testing program was determined to be suitable for characterizing the composition and ARD/ML potential of waste rock and tailings, to support the evaluation of quality of seepage from the WRSA and TSF, and the resulting post-closure pit lake water quality presented in the revised EIS (April 2018). There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the

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				<p>revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12.</p> <ul style="list-style-type: none"> Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p>While the responses to Parts A and B do not lead to the requirement of updating the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p><u>Part D.</u> There are no changes to surface water quality arising from the issues and concerns raised in Parts A and B, and Part C confirms that water quality will either remain at or below existing condition, or the resulting water quality will be below the PWQO for the protection of aquatic life. Therefore, there will be no changes to the effects predicted to fish and fish habitat arising from the issues and concerns raised in Parts A and B.</p> <p><u>Part E.</u> As described in the responses to Parts A through D, there will be no changes to the effects predicted to fish and fish habitat arising from issues and concerns raised in this information request, therefore there are no additional mitigation measures required to the issues raised in this information request.</p> <p><u>Part F.</u> There are no changes to the characterization of residual adverse effects from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from Round 2 issues or concerns raised in Parts A and B.</p> <p><u>Part G.</u> No specific modifications to the Follow-Up Program were identified as a result of the issues and concerns raised in this information request. Section 13.3 of the revised EIS (April 2018) included a framework for ongoing geochemical follow-up and monitoring. As part of the Round 2 responses, Treasury Metals has also issued the Goliath Gold Project</p>

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				<p>Follow-up Addendum, which superseded Section 13 of the revised EIS (April 2018), and the Goliath Gold Project Preliminary Environmental Monitoring Addendum, both of which included sections specific to geochemical characterization over the life of the Project.</p> <p><u>Part H.</u></p> <p>Treasury Metals has designed the Goliath Gold Project to prevent seepage and runoff from impacting the receiving environment. For example, Treasury Metals has committed to lining the TSF basin with an HPDE liner, demonstrated to be capable of virtually eliminating seepage from the TSF. The assessment of potential effects presented in the revised EIS (April 2018) considered realistic worst-case scenarios to ensure that the effects were not underestimated. For example, Treasury Metals assumed that waste rock stored at the surface will experience ARD/ML conditions, even when covered following closure. In addition, Treasury Metals assumed a seepage rate of 2.4 m³/day through the TSF liner, which represents the worst-case upper-bound from literature. The following paragraphs provide additional details on runoff, seepage, and contingency plans.</p> <p>With respect to waste rock, ABA identified that 93% of the material is PAG, therefore Treasury Metals plans to manage all waste rock as if it is PAG and is not planning to segregate at this time. Based on the time that waste rock will be exposure (i.e. >10 years), it is assumed that ARD is occurring and that the seepage and runoff from the WRSA and mined out areas of the open pit are impacted with ARD. During operations all seepage from the WRSA will report to the open pit, where it will be incorporated into the water management system. All runoff from the WRSA, and waste rock in the mined-out areas of the open pit will be collected and used in the water management system. A perimeter ditch and seepage collection system, will be constructed around the entire operations area to prevent any contact water from reaching the environment directly. The water management system for the Project will maximize the use of collected runoff in the process in the process to help minimize the needs for fresh water. Excess water, not required in the process, will be treated to meet PWQO, or background if background is larger than PWQO before being released to the environment. Following closure, waste rock stored in the WRSA will be capped with a multi-layer, low permeability cover to reduce the rate of infiltration and thus minimize seepage from the WRSA. Seepage from the capped WRSA is assumed to be affected by ARD/ML. Waste rock stored in the mined-out areas of the open pit will be chemically isolated under water once the open pit floods, thereby preventing additional ARD. Of the seepage from the capped WRSA, only a small amount (10 m³/day) will leave the site and reach the receiving environment (Thunder Lake). The remaining seepage will represent a small fraction of the groundwater inflow to the open pit.</p> <p>With respect to tailings, Treasury Metals will endeavor to prevent ARD throughout the life of the Project. During operations, tailings in the TSF will be maintained in a saturated condition and largely under a water cover. Treasury Metals has identified that a wet cover option is the preferred TSF closure option to mitigate effects on surface water quality and fish and fish habitat. Experience on similar projects suggests that this closure option can be implemented within 1 year, which is less than the onset time predicted for ARD. Following closure, the wet cover will serve to chemically isolate the tailings in perpetuity and prevent ARD. Analysis has confirmed that the wet cover will be viable long term. Therefore, seepage from the TSF is not expected to be affected by ARD/ML. To minimize the amount of seepage leaving the TSF, Treasury Metals intends to full line to basin of the TSF with a HPDE liner capable of limiting the seepage rate to less than 2.4 m³/d. Of the seepage from the TSF only a very small amount (0.8 m³/d) will leave</p>

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				<p>the site and reach the receiving environment. The remaining seepage will represent a small fraction of the groundwater inflow to the open pit.</p> <hr/> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Part A.</p> <p>No. NRCan’s technical expert reviewed the detailed justification provided by the Proponent. However, specific gaps in the characterization and test work, as identified in MEND Report 1.20.1 “Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials “, Version 0 – December 2009, are indicated below. Where the Proponent has information to address these gaps, please provide that information. Where such information is not available, identify and address resulting uncertainties for the purposes of the federal environmental assessment (see MW(2)-06 Item S). The Proponent should provide the following information:</p> <p>Deposit Geology and Mineralogy</p> <ul style="list-style-type: none"> • Estimated spatial distribution within the mine workings (map) and relative timing of excavation of different rock types • Quantitative mineralogy for different rock types (median and variability) – Rietsveld XRD or SEM-EDS. Uses of this information include selecting AP and NP analyses, interpretation of the results and speciation and concentration of carbonate and potentially neutralizing silicate minerals. • Petrographic and visual description providing information about the spatial distribution of sulphides and carbonates in different rock types that may affect selective reporting and increased or decreased concentration in waste rock fines. • Physical characteristics of rock that may affect % fines for waste rock. <p>Sample Collection</p> <ul style="list-style-type: none"> • Geological description for each sample • Cross sections through the deposit showing the sample locations overlaid with boundaries of proposed mine workings, rock units, types of alteration and the boundary between waste rock and ore. Cross sections through the deposit are needed to demonstrate that the degree to which sampling is spatially and geologically comprehensive and indicate where sampling was not conducted and assumptions are required • Mine proposals typically have gaps in the sampling at the perimeter and deepest parts of the proposed mine workings. Identify areas of proposed mine workings and rock units where sampling was not conducted, and outline the assumptions with respect to geology, mine rock characterization and mine drainage prediction, and the effects assessment and mitigation plan • Characteristics of rock that may affect the % fines for waste rock and the relative concentrations of sulphides and carbonates in the fines compared to the whole rock. <p>Bulk Sample</p>

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				<ul style="list-style-type: none"> Information collected from the bulk sample and the associated underground decline regarding the following: Relative concentrations of sulphides and carbonates in the fines compared to the whole rock for different rock types and whether corrections are needed should whole rock analysis be used to predict waste rock composition of for waste rock segregation. Percent fines of the waste rock from different rock types. <p>Acid Base Accounting</p> <ul style="list-style-type: none"> Cross sections through the deposit showing the spatial distribution of rock with ABA characteristics of concern with regards to drainage chemistry and onset of acidic drainage (e.g., sulphide-S, CO3-NP and CO3-NPR overlaid with boundaries of proposed mine workings, rock units, and the boundary between waste rock and ore. Identify spatial distribution of rock with ABA characteristics of concern with regards to drainage chemistry and onset of acidic drainage (e.g., sulphide-S > 1%, CO3-NP < 2 kg/t and CO3-NPR < 0.1 and 0.01 and) and where proportion is significant estimate the tonnage and timing of excavation. Describe the potential for ML/ARD for areas of proposed mine workings and rock units where sampling was not conducted, and outline the assumptions with respect to mine rock characterization and mine drainage prediction, and the effects assessment and mitigation plan, as well as measures that would be taken to address and manage the uncertainty. P1-4 Provide data on the high sulphide zones (Section 1.4.2 - up to 15 % by volume) mentioned in the ABA analysis, what is the CO3-NP and CO3-NPR and how does this material compare to the high sulphide humidity cell samples with regards to CO3-NP, CO3-NPR and elevated metals? <p>Shake Flask Extractions (SFE)</p> <ul style="list-style-type: none"> Does dilution of shake flask and humidity cells mask elemental such as Se discharge which is present in elevated concentrations? Note detection limit was > 10 x crustal abundance screening value. This may be an even greater concern in the tailings which geology report suggests may have higher sulphide concentrations than waste rock. <p>Humidity Cell Tests</p> <ul style="list-style-type: none"> Post-test analysis results for composition of test materials including characterization for fines and coarse fraction. Calculation for %sulphide-S of rates per year for sulphide oxidation and CO3-NP depletion rates for H2CO3 and HCO3- reactions for CO3-NP depletion and compare with observed onset of ARD. Prediction of time to onset of acidic drainage for samples with the lowest and 5th and 10th percentile CO3-NPR values. <p>Barrel Tests</p> <ul style="list-style-type: none"> Provide characterization for fines and coarse fraction.

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				<ul style="list-style-type: none"> What is the explanation for such low sulphate production concentrations (20-100 mg/L)? Were the drill core segments not crushed to some particle size like < 1 inch? <p>Scaling and Loading Rates</p> <ul style="list-style-type: none"> The scaling factor for temperature may be too large due the elevated temperatures within the dump due to insulation by the snow cover and at mineral grains due to the exothermic nature of sulphide oxidation. P2-7 It was assumed that approximately 5 % of the material comprising the expected Goliath mine rock material will be of similar size to the material tested in the humidity cells (less than 1 inch to silt/clay size). As such, a scaling factor of 0.05 was applied to the calculated laboratory loading rates. This scaling factor was not applied to the tailings HCT results. The scaling factor for particle size of the waste rock may be too large because waste rock may contain a larger proportion of fines. No analysis of bulk sample and the material from associated underground decline to measure the percent fines of the waste rock from different rock types. P3.11 Concentrations for many COPC were below method detection limit. P3-11/13 No assessment of rank in terms of CO3-NPR. Unable to determine if waste rock includes materials of concern with regards to onset of acidic drainage. Testwork was prematurely stopped. No data on composition of worst case water quality for different rock types and geochemistry's to use in estimation of mitigation requirements. P3-13 No ore analysis, therefore no way to tell whether humidity cell tailings sample is representative of tailings that will produce better, median or poorer drainage chemistry. <p>Open Pit</p> <ul style="list-style-type: none"> Prediction: Geologic and geochemical composition of pit mine walls, the time to onset of acidic drainage and what materials will be above the height of flooding and if any, the resulting mass of talus on exposed benches. For pit wall above height of flooding, what is impact on water quality of the pit when mine closes? Bedrock elevation around pit rim shown on P3-23 is lower than maximum elevation of in-pit waste rock 387. Provide evidence that the overburden will hold water? Evaluate release of weathering products from backfilled waste rock, such as metals and acidity dissolved by water flooding the pit, and the resulting water quality. Evaluate the potential impact on pit water quality if LGO is not processed prior to mine closure and is backfilled into the pits. Mitigation:

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				<ul style="list-style-type: none"> The delay taken to flood the open pit will allow acidic weathering conditions and potentially high solute concentrations to build up in the waste rock within the pit. Backfilled waste rock may require supplemental mitigation measures to prevent avoidable adverse effects on pit water quality from solute release laterally into the east arm of the pit or from the surface when the waste rock floods. Evaluate the need for supplemental mitigation measures to attenuate and minimize release. Supplemental mitigation measures may include soil cover, surface addition of lime and injection of carbon source to create anoxic condition in the pore water. <p>Underground Mine</p> <ul style="list-style-type: none"> Prediction: Geologic and geochemical composition of underground mine walls, the time to onset of acidic drainage and what materials will be above the height of flooding and if any the resulting mass of talus on exposed benches. Mitigation measures to attenuate and prevent solute release <p>Waste Rock Dumps</p> <ul style="list-style-type: none"> Prior to waste rock covering large load of acidic drainage. How will drainage from surface and in-pit backfilled waste rock be treated during the operation and for the surface waste rock dump prior to covering after closure? Identify analogous site and site specific adjustments, and explain why waste rock at this site is analogous, including ABA data, and why site-specific adjustments, and details of distribution to show why 50th and 75th percentile should be lower and upper boundaries. How will acidic, iron and aluminium rich drainage from waste rock dump be kept separate from clean water and collected and treated when mine is operating? Description of the cover design principles including plan for clean water diversion (separation of clean and contact drainage), mitigation mechanism (barrier cover), cover materials and their characteristics, source of materials, and assumed leakage and deterioration, and the degree to which it is expected to reduce infiltration of incident precipitation with supporting evidence from existing cover examples. Demonstrate why there will be no leaching by ground water. How will deterioration in cover performance due to dump settlement and pedogenic alteration be identified and repaired? How was the pedogenic alteration due to processes, such as freeze thaw, wetting and drying and root penetration, observed in soil covers considered in the evaluation of the future performance of the soil cover planned to be placed on the surface of the waste rock dump at closure? Note clays are particularly susceptible. Solute release from LGO if it is placed on the waste rock dump and resulting impact on the waste rock dump solute release and drainage chemistry.

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				<p>Part B.</p> <p>No. Proponent states that the assumptions regarding waste rock, tailings and ARD/ML are confirmed and therefore did not provide a reassessment of ARD and onset time. NRCan notes that the onset of acidic drainage may potentially be faster than the predicted year for tailings and 2 years for waste rock. Information on the gaps in the characterization and test work is required to safely manage the mined material, especially the tailings and LGO, but also the waste rock.</p> <ul style="list-style-type: none"> The Proponent states : The ABA data for the Project suggests that the average sulphide concentration of the tailings will be 1.2%S (by mass), which is lower than 1.5 %S(by mass) tailings composite used in the humidity cell analysis as described in Appendix K. NRCan requests that data to substantiate that claim be provided. Also, the time to onset of acidic drainage also depends on magnitude of CO3-NP. <p>Part C.</p> <p>See response A above</p> <hr/> <p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p><u>Parts A and B.</u></p> <p>As discussed in the January 10th, 2019 meeting with the Agency and their technical reviewers, the comments received from the Agency as part of the Round 2 information request process on January 4th, 2019 included information required as part of the formal Closure Plan and information that would be nice-to-have if it were readily available. Only some of the information requested was required for the EA process. The specific items that were identified in the January 10, 2019th meeting as being required for the EA process are:</p> <ol style="list-style-type: none"> 1. What are supplemental mitigation for ARD onset and seepage / runoff 2. Provide additional details on the mineralogy of ore and waste rock (to extent available) 3. Tailings operation details to be provided specifically on beaches 4. What is the plan for collection of new data. Add additional description to follow up programs and studies planned related to geochemistry. 5. Provide description of analogue sites including links to ore genetic models. 6. Cross sections indicating sampling locations and sulphur content to be provided. 7. Review and provide additional discussion on potential for selenium leaching. 8. Review and provide additional discussion on potential for thiosalts in tailings effluent. 9. Provide statistics on Carbonate NPR as they relate to humidity cells. 10. <blank> 11. Provide further description of scaling used in water quality modelling. 12. additional water details for water treatments from December meeting Regarding RO – more information about pre-treatment of acid waters

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				<p>13. Confirm importance of pit high-walls on long-term pit drainage water quality.</p> <p>14. Commitment in the ongoing management by Treasury Metals to consider covering and perhaps placement of limestone with the WRSA to slow or mitigate ARD onset post closure</p> <p>15. Clarify the time to flood underground and highlight where that was mentioned</p> <p>16. include sensitive run in the water addendum to incorporate TSF liner degradation- increase infiltration rate into and thus acid loading from the WRSA post closure</p> <p>17. Mitigation by pumping post closure to ensure that weather cover is maintained if climate model shows at risk- if commitment is made what are the financial assurances.</p> <p>18. Talk more about mitigative measures during operations for WRSA, supplemental mitigation</p> <p>Each of these specific requests has been addressed in the Goliath Gold Project Geochemistry Memo, which accompanies the responses to the Round 2 information requests. Any of the Round 2 information request comments not included in these 18 items listed above will be addressed in the formal Closure Plan (O.Reg. 240/00).</p> <p><u>Part C.</u></p> <p>There are no changes to the seepage quality presented in the revised EIS (April 2018) as a result of the responses to Parts A and B.</p> <hr/> <p><u>Revised Response:</u></p> <p>On September 17, 2018 Treasury Metals submitted this response in draft which was updated and submitted on November 2, 2018 without having Agency feedback received. On December 19, 2018 and January 10, 2019 technical meetings were held with the Agency and their technical reviewers to discuss the Round 2 mine waste Information Requests. Treasury Metals was provided official feedback from the Agency and their reviewers on January 4, 2019. The information provided in the “response to Agency comment” incorporates the official feedback received on January 4, 2019 as well as the information requested during the discussions held on December 18, 2018 and January 10, 2019. Given that in many cases the requested information did not tie directly back to the original information request, the final response to this IR is simply the updated response (November 2, 2018) plus the supplemental information requested that has been provided in the Goliath Gold Project Geochemistry Memo.</p>

TMI_903-MW(2)-07

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TMI_903-MW(2)-07	MW(2)-07	1	CEA Agency	Reference to EIS Guidelines:	Part 2, Sections 9.1.2 and 10.
				Reference to EIS / Appendix	Appendix K, Section 2.2; Table 2.1.
				Cross-reference to Round 1 IRs	n/a
				<p><u>Context and Rationale:</u></p> <ul style="list-style-type: none"> Section 2.2 of Appendix K states that “Various rock types in the geological complex include: Biotite Muscovite Schist (BMS), Biotite Schist (BS), Muscovite Sericite Schist (MSS), and Meta-Sediment (MSED). The composition, expected amount in the mine rock, and relative percentage of the total anticipated mine rock for each rock type is summarized in Table 2.1.” Table 2.1 of Appendix K of the revised EIS is incomplete as the columns for estimated amount and percent of mine rock for each of the different rock types state “value req.” It is further stated in Appendix K, Section 2.2 that “The selection of additional samples was based on the estimated distribution of major rock units and included a total of 112 samples analyzed, of which 52 were BMS, 16 were BS, 35 were MSS and 9 were MSED. The samples were selected to represent potential mine rock only and no ore containing samples were included.” It is unclear why ore containing samples were not included in this assessment as ore characterization is required in order to evaluate the potential composition and variability in composition of the tailings. This information is required by the Agency to understand and validate the geochemical testing conducted for the Project and to evaluate the efficacy of the proposed management options for ore, mine rock and tailings that can potentially affect the water quality of fish-bearing waterbodies. 	
<p><u>Specific Question / Request for Information:</u></p> <p>Z. Provide the missing information in Table 2.1 of Appendix K. Include in the table, spatial distribution and timing of excavation of different rock types and distribution of sulphides and carbonates that may affect proportional exposure in waste rock fines.</p> <p>AA. Explain how the geochemical testing was used to characterize ore in order to understand the composition and variability in the tailings, and determine if the tailings samples are representative of the site conditions.</p> <p>BB. Incorporate the findings from Questions A and B into the revision of seepage water quality assessment requested in IR# MW(2)-06.</p>					

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response																	
				<p>Response:</p> <p><u>Part A.</u></p> <p>To clarify, Appendix K to the revised EIS (Geochemistry [April 2018]) presents the results of testing on mined materials for potential acid generation. The information provided in this appendix was used to describe existing geological conditions in Section 5.4 of the revised EIS (April 2018). No changes have been made to this appendix from the original EIS issued in April 2015. However, as part of the revised EIS (April 2018), the kinetic rates developed in Appendix K were re-evaluated and superseded by the kinetic rates presented in Section 5 of Appendix JJ (Water Report). Section 5 of Appendix JJ provides a re-evaluation of the geochemical data provided in Appendix K, along with seepage quality estimates from the WRSA and TSF and pit lake water quality. The predictions provided in Section 5 of Appendix JJ were relied upon for describing the geochemistry effects likely over the Project life (Section 6.3 of the revised EIS [April 2018]).</p> <p>The information missing from Table 2.1 of Appendix K for the rock types has been provided in Table 5.4.3.3-2 of the revised EIS (April 2018), and reproduced below.</p> <p style="text-align: center;">Table 5.4.3.3-2: Estimated Volumes of Mine Waste Rock</p> <table border="1" data-bbox="816 816 1885 1044"> <thead> <tr> <th rowspan="2">Waste Rock Type</th> <th colspan="2">Relative Proportions of each Waste Rock Type</th> </tr> <tr> <th>Tonnage (millions of metric tonnes)</th> <th>Proportion of Total (%)</th> </tr> </thead> <tbody> <tr> <td>Biotite Muscovite Schist (BMS) and Biotite Schist (BS)</td> <td>17.5</td> <td>70%</td> </tr> <tr> <td>Muscovite Sericite Schist (MSS)</td> <td>3.75</td> <td>15%</td> </tr> <tr> <td>Meta-Sediment (MSED)</td> <td>3.75</td> <td>15%</td> </tr> <tr> <td>Total</td> <td>25</td> <td>100%</td> </tr> </tbody> </table> <p>The proportions of waste rock by lithology provided in Table 5.4.3.3-2 of the revised EIS (April 2018), were applied to total mine rock tonnages in preparing the estimates of seepage quality and resulting pit lake water quality (post-closure) presented in the revised EIS (April 2018). Information on the specific timing of materials placed in the WRSA and the mined-out areas of the open pit are not yet available as detailed mining schedules have not been developed. However, the specific timing for the placement of this material is not considered essential for understanding of the effects of ARD on the quality of seepage from the WRSA and the resulting post-closure pit lake water quality presented in the revised EIS (April 2018) as the analysis relied on the total mine rock tonnages, and the assumption that this material will have been exposed for sufficient time for ARD to have occurred. In the initial stages of mining, the only location suitable for the placement of waste rock is the WRSA; therefore, the material present in the WRSA at closure will have been exposed since the early stages of mining activities (i.e., for 10 years, or longer). Waste rock placed in the mined-out areas of the open pit will have been exposed for slightly less time (i.e., about 8 years) than the material in the WRSA.</p>	Waste Rock Type	Relative Proportions of each Waste Rock Type		Tonnage (millions of metric tonnes)	Proportion of Total (%)	Biotite Muscovite Schist (BMS) and Biotite Schist (BS)	17.5	70%	Muscovite Sericite Schist (MSS)	3.75	15%	Meta-Sediment (MSED)	3.75	15%	Total	25	100%
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				<p>The average sulphide-sulphur contents amongst all the samples ranged between 0.01 and 8.6 percent sulphur (%S), whereas the average sulphate-sulphur contents ranged between 0.01 and 1.0 %S. The geomean sulphide-sulfur contents of BMS, BS, MSS, and MSED were 0.44, 0.40, 0.78, and 0.52 %S, respectively, while sulphate-sulphur values were 0.24, 0.22, 0.23, and 0.16%S, respectively. For all four mine rock types, the high sulphide-sulphur content standard deviation (0.43, 0.38, 1.24 and 0.53 %S) relative to the geomean values demonstrates the broad range of sulphide contents.</p> <p>The total carbonate values for all four rock types, measured as percent carbon (%C), ranged between 0.01 and 0.71 %C. Total carbonate values were higher in BS and MSED samples with geomean values of 0.09 and 0.08 %C. Conversely, BMS and MSS samples both had geomean values of 0.03%C.</p> <p><u>Part B.</u></p> <p>The geochemical testing program for ML/ARD of the ore materials relied on the tailings produced during the metallurgical testing program. The nature of metallurgical testing is to critically assess the economics of gold extraction and by its nature the simulated tailings produced in these tests are expected to be representative of overall future project tailings. As such, the composite sample used for the generation of tailings used in the humidity cells was representative of the mineralized rock from across the resource area. This is considered appropriate as the ore materials will be present in the form of tailings only, as all of ore mined at the Project is expected to be processed through the mill.</p> <p><u>Part C.</u></p> <p>The geochemical testing program was determined to be suitable for characterizing the composition and ML/ARD potential of waste rock and tailings, to support the evaluation of quality of seepage from the WRSA and TSF, and the resulting post-closure pit lake water quality presented in the revised EIS (April 2018). There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12.

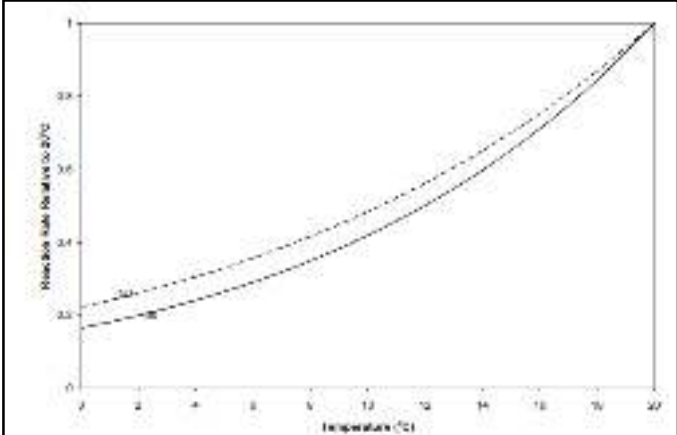
Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response
				<ul style="list-style-type: none"> Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p>While the responses to this information request do not lead to the requirement of updating the effects of seepage on the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Part A. No. The Proponent did not provide information about spatial distribution of sampling. Potential gaps and lateral extent of non-PAG samples make it impossible for NRCan to assess the safety of segregating waste rock material for construction. The Proponent should provide:</p> <ul style="list-style-type: none"> Estimated spatial distribution within the mine workings (map) and relative timing of excavation of different rock types Quantitative mineralogy for different rock types (median and variability) – Rietveld XRD or SEM-EDS. Uses of this information include selecting AP and NP analyses, interpretation of the results and speciation and concentration of carbonate and potentially neutralizing silicate minerals. Petrographic and visual description providing information about the spatial distribution of sulphides and carbonates in different rock types that may affect selective reporting and increased or decreased concentration in waste rock fines. Physical characteristics of rock that may affect % fines for waste rock. <p>Part B. No. The Proponent did not provide sufficient information to support the rationale.</p> <p>Part C. See MW(2)-06</p> <p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p>Parts A and B.</p>

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response
				<p>As discussed in the January 10th, 2019 meeting with the Agency and their technical reviewers, the comments received from the Agency as part of the Round 2 information request process on January 4th, 2019 included information required as part of the formal Closure Plan and information that would be nice-to-have if it were readily available. Only some of the information requested was required for the EA process. The specific items that were identified in the January 10, 2019th meeting as being required for the EA process are:</p> <ol style="list-style-type: none"> 1. What are supplemental mitigation for ARD onset and seepage / runoff 2. Provide additional details on the minerology of ore and waste rock (to extent available) 3. Tailings operation details to be provided specifically on beaches 4. What is the plan for collection of new data. Add additional description to follow up programs and studies planned related to geochemistry. 5. Provide description of analogue sites including links to ore genetic models. 6. Cross sections indicating sampling locations and sulphur content to be provided. 7. Review and provide additional discussion on potential for selenium leaching. 8. Review and provide additional discussion on potential for thiosalts in tailings effluent. 9. Provide statistics on Carbonate NPR as they relate to humidity cells. 10. <blank> 11. Provide further description of scaling used in water quality modelling. 12. additional water details for water treatments from December meeting Regarding RO – more information about pre-treatment of acid waters 13. Confirm importance of pit high-walls on long-term pit drainage water quality. 14. Commitment in the ongoing management by Treasury Metals to consider covering and perhaps placement of limestone with the WRSA to slow or mitigate ARD onset post closure 15. Clarify the time to flood underground and highlight where that was mentioned 16. include sensitive run in the water addendum to incorporate TSF liner degradation- increase infiltration rate into and thus acid loading from the WRSA post closure 17. Mitigation by pumping post closure to ensure that weather cover is maintained if climate model shows at risk- if commitment is made what are the financial assurances. 18. Talk more about mitigative measures during operations for WRSA, supplemental mitigation <p>Each of these specific requests has been addressed in the Goliath Gold Project Geochemistry Memo, which accompanies the responses to the Round 2 information requests. Any of the Round 2 information request comments not included in these 18 items listed above will be addressed in the formal Closure Plan (O.Reg. 240/00).</p> <p><u>Part C.</u></p>

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				<p>There are no changes to the seepage quality presented in the revised EIS (April 2018) as a result of the responses to Parts A and B.</p> <p><u>Revised Response:</u></p> <p><u>Parts A and B.</u> On September 17, 2018 Treasury Metals submitted this response in draft which was updated and submitted on November 2, 2018 without having Agency feedback received. On December 19, 2018 and January 10, 2019 technical meetings were held with the Agency and their technical reviewers to discuss the Round 2 mine waste Information Requests. Treasury Metals was provided official feedback from the Agency and their reviewers on January 4, 2019. The information provided in the "response to Agency comment" incorporates the official feedback received on January 4, 2019 as well as the information requested during the discussions held on December 18, 2018 and January 10, 2019. Given that in many cases the requested information did not tie directly back to the original information request, the final response to this IR is simply the updated response (November 2, 2018) plus the supplemental information requested that has been provided in the Goliath Gold Project Geochemistry Memo.</p> <p><u>Part C.</u> There are no changes to the seepage quality presented in the revised EIS (April 2018) as a result of the responses to Parts A and B.</p>

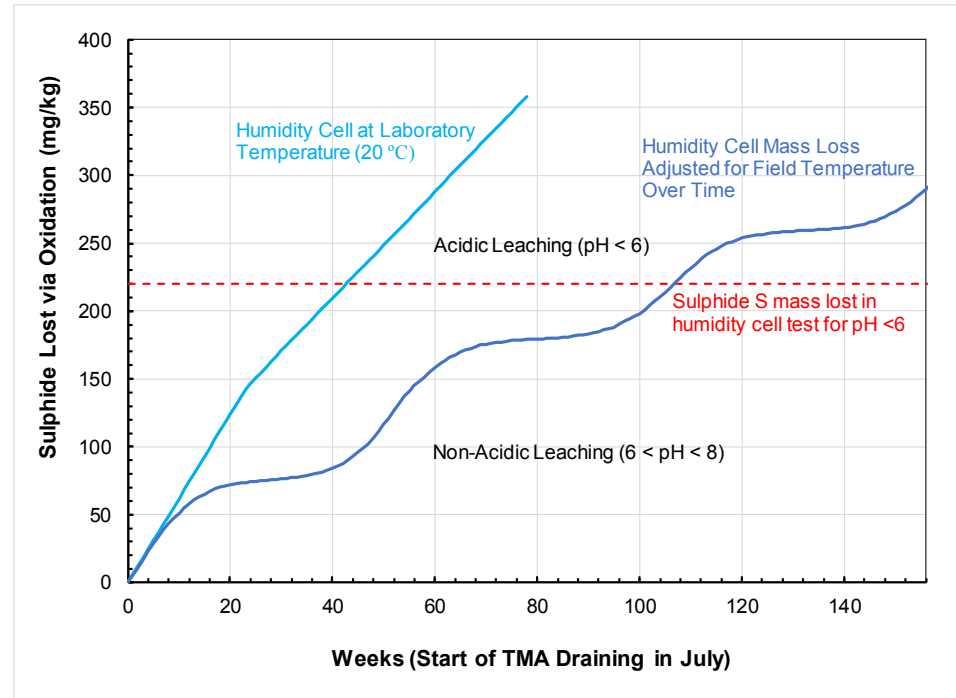
TMI_904-MW(2)-08

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response	
TMI_904-MW(2)-08	MW(2)-08	1	CEA Agency	Reference to EIS Guidelines:	Sections 9.1.2 and 10.
				Reference to EIS / Appendix	Appendix K, Sections 2.4.1 and 2.4.3.
				Cross-reference to Round 1 IRs	TMI_53-MW(1)-15
				<p><u>Context and Rationale:</u></p> <p>It is stated in response to MW(1)-15 and Section 6.3.2.3 of the revised EIS that “The time to acid on-set for waste rock and pit walls in the model was conservatively assumed to be only two years.” It is unclear how the onset time of two years can be considered conservative considering that mine rock used for the Humidity Cell Tests (HCTs) “reached acidic conditions (pH values less than 5.5) after approximately 60 weeks” (Appendix K, Section 4.2).</p> <p>Considering that acid rock drainage (ARD) onset took a shorter time in the HCTs than the assumed two years in the revised EIS, the length of time required to implement the cover options, as described in MW(2)-01, becomes a point of consideration.</p> <p>Furthermore, according to Natural Resources Canada (NRCAN), the HCTs were not designed in a manner appropriate to evaluate the Carbonate-Neutralization Potential (CO3-NP) and Carbonate-Neutralization Potential Ratio (CO3-NPR). These values are of importance with regards to their effect on acid rock drainage onset time.”</p> <p>According to NRCAN, the humidity cells were often not at equilibrium when discontinued and approximate time to CO3-NP depletion was also not calculated. The rationale for discontinuation of humidity cells prior to reaching equilibrium was not provided in Appendix K.</p> <p>This information is important for the Agency to validate the predictions made for ARD and ARD onset time, and the management options for mine rock and tailings to prevent adverse changes in water quality of fish-bearing waterbodies.</p>	
<p><u>Specific Question / Request for Information:</u></p> <ul style="list-style-type: none"> CC. Revise the assumption made in the revised EIS for the ARD onset time to match the data collected in kinetic testing; DD. Provide a rationale for discontinuation of humidity cell tests prior to equilibrium being reached in the cells; EE. Incorporate the findings from Questions A and B into the revision of seepage water quality assessment requested in IR# MW(2)-06, and groundwater model requested in IR# GW(2)-01. 					

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response
				<p>Response:</p> <p><u>Part A.</u></p> <p>The time to ARD on-set in tailings and waste rock is derived using not only the humidity cell data, but also consideration of how the tailings and waste rock is deposited in the real world, along with the real-world conditions, which at times will be dramatically different than laboratory settings. As detailed below, the ARD onset time of 2 years used in the revised EIS (April 2018) is confirmed as being valid, and conservative.</p> <p>The humidity cells for tailings progressed to a pH of < 6 (indicating the onset of ARD) within a period of 41 to 44 weeks. However, the progression of sulphide oxidation (the primary driver for ARD) under field conditions is expected to be prolonged by lower flushing rates and lower temperatures. While it difficult to estimate the effect of lower flushing rates on the time to ARD onset, literature (MEND 2006), provides the Arrhenius Equation $\left(\ln \left(\frac{k_1}{k_2} \right) = \frac{E_a(T_1 - T_2)}{(RT_1T_2)} \right)$ that allows us to numerically estimate the effects of lower temperature in the field on sulfide oxidation rates. The following figure from MEND Report 1.61.6 (2006) shows the effects of decreased temperatures on oxidation rates. By applying the Arrhenius Equation to the actual monthly temperatures from Dryden, the relative field oxidation rates for each month shown in Table 1 are calculated. The sum of the relative reaction rates in Table 1 equals 4.7, meaning that a full year in the field is effectively equal to just 4.7 at laboratory conditions (i.e., 20 °C). Based on this ratio alone $\left(\frac{4.7}{12} = 0.39 \right)$, the time to acid onset can be estimated to be 105 weeks, or roughly 2 years $\left(\frac{41 \text{ weeks}}{0.39} = 105 \text{ weeks} \right)$. This estimate for the time to ARD only accounts for temperature adjustments, and is therefore conservative relative to real word conditions.</p>  <p>Figure 2. Decrease in oxidation rate predicted by the Arrhenius equation for activation energies of 50 and 80 kJ/mol</p>

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				<p>Source: MEND Report 1.61.6 (2006)</p> <table border="1"> <thead> <tr> <th colspan="4" data-bbox="806 316 1948 365">Table 1: Calculate Monthly Oxidation Rates Using Dryden Climate Normals</th> </tr> <tr> <th data-bbox="806 365 1129 492">Month</th> <th data-bbox="1129 365 1402 492">Days</th> <th data-bbox="1402 365 1675 492">Average Temperature (°C)</th> <th data-bbox="1675 365 1948 492">Relative Reaction Rate⁽¹⁾</th> </tr> </thead> <tbody> <tr><td>January</td><td>31</td><td>-16.8</td><td>0.05</td></tr> <tr><td>February</td><td>28</td><td>-12.7</td><td>0.08</td></tr> <tr><td>March</td><td>31</td><td>-5.8</td><td>0.14</td></tr> <tr><td>April</td><td>30</td><td>3</td><td>0.28</td></tr> <tr><td>May</td><td>31</td><td>10.8</td><td>0.51</td></tr> <tr><td>June</td><td>30</td><td>16.2</td><td>0.76</td></tr> <tr><td>July</td><td>31</td><td>18.9</td><td>0.93</td></tr> <tr><td>August</td><td>31</td><td>17.8</td><td>0.86</td></tr> <tr><td>September</td><td>30</td><td>11.7</td><td>0.55</td></tr> <tr><td>October</td><td>31</td><td>4.2</td><td>0.31</td></tr> <tr><td>November</td><td>30</td><td>-5.2</td><td>0.15</td></tr> <tr><td>December</td><td>31</td><td>-13.5</td><td>0.07</td></tr> </tbody> </table> <p>Note: (1) Calculated using the Arrhenius Equation per MEND (2006), using an activation energy (E_a) of 50 KJ/mol.</p> <p>By applying the temperature adjustment suggested by the Arrhenius Equation (MEND 2006), to adjust the humidity cell sulphide oxidation rates, the time for the tailings to reach the onset of acidification (i.e., pH < 6) under field conditions would be in the range of 105–107 weeks (about two years). The progression of sulphide oxidation in the laboratory and field conditions (estimated using the Arrhenius Equation) are shown in Figure 1.</p>	Table 1: Calculate Monthly Oxidation Rates Using Dryden Climate Normals				Month	Days	Average Temperature (°C)	Relative Reaction Rate ⁽¹⁾	January	31	-16.8	0.05	February	28	-12.7	0.08	March	31	-5.8	0.14	April	30	3	0.28	May	31	10.8	0.51	June	30	16.2	0.76	July	31	18.9	0.93	August	31	17.8	0.86	September	30	11.7	0.55	October	31	4.2	0.31	November	30	-5.2	0.15	December	31	-13.5	0.07
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Figure 1: Comparison of Laboratory to Temperature Adjusted Sulphide Oxidation Rates for Tailings



The humidity cells for waste rock (see Table 2) were shown to progress to a pH of < 6 (indicating the onset of ARD) within a period of 62–65 weeks. Considering the adjustments to the rate of ARD onset to reflect actual temperatures in the field as described with the Arrhenius Equation provided in MEND Report 1.61.6 (2006). Based on the ratio described above ($\frac{4.7}{12} = 0.39$), the time to acid onset for waste rock can be estimated to be in excess of 158 weeks ($\frac{62 \text{ weeks}}{0.39} = 158 \text{ weeks}$). Therefore, assuming a time to ARD onset for waste rock and the pit walls of 2 years (104 weeks) is confirmed to be conservative as it accounts for just 2/3 of the calculated temperature adjusted onset times of 158 weeks.

Table 2: Summary of Waste Rock Humidity Cell Results			
Humidity Cell ID	Lithology	Sulphide Content	Weeks to steady decline in pH < 6
		%	Weeks
BMS-A	BMS	0.13	51 ⁽¹⁾

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				BMS-B		0.33	63 ⁽¹⁾
				BMS-C		1.54	65
				BS-A	BS	0.12	63 ⁽¹⁾
				BS-B		0.28	63 ⁽¹⁾
				BS-C		0.90	65
				MSS-A	MSS	0.27	63 ⁽¹⁾
				MSS-B		1.50	63 ⁽¹⁾
				MSS-C		1.58	62
				MSED-A	MSED	0.67	63 ⁽¹⁾
				MSED-B		0.91	85 ⁽¹⁾
<p>Source: Appendix K</p> <p>Note: (1) For these tests the numbers indicate the weeks when the cell was terminated, as no steady decline in pH observed at the time of cell termination.</p> <p>Although the time to onset of ARD/ML was calculated conservatively based on the humidity cells progressing to a pH of < 6 (indicating the onset of ARD), as adjusted for temperature using the Arrhenius Equation (MEND 2006), Appendix K to the revised EIS provided the information necessary to calculate additional parameters related to carbonate neutralizing potential as shown in TMI_904-MW(2)-08_Table_3. The carbonate neutralizing potential was not relied on for determining the time for onset of ARD/ML as the cells turned acidic before the carbonate material was depleted, indicating that the remaining carbonate material was not available.</p> <p><u>Part B.</u></p> <p>As identified in Appendix JJ (page 73) of the revised EIS (April 2018), it would have been preferred that the sampling for the humidity cells would have continued to equilibrium. Though specifically stated for waste rock, the value of continuation of the tailings humidity cells was also recognized. Based on discussions with the team conducting the earlier humidity cell tests, the termination of the humidity cell(s) was considered warranted due to the observed onset of acidic conditions, and other Project considerations at the time. Notwithstanding, those cells that were terminated prior to reach equilibrium were for the samples with the lower sulfide contents (see Table 2) and therefore, could be expected to have longer ARD onset times than the high sulfide cells that were continued through to equilibrium. It should be noted that only data from the humidity cells that reached equilibrium were relied upon for determining ARD onset time.</p> <p><u>Part C.</u></p> <p>The response to Part A confirms the 2-year time to acid onset used in the revised EIS (April 2018), and demonstrates it was reasonable and conservative. Therefore, there is no requirement to update the assessment of seepage and water quality, as the time to acid onset is unchanged from the revised EIS (April 2018). There is no individual seepage</p>							

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				<p>water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p>While the responses to this information request do not lead to the requirement of updating the effects of seepage on the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Part A.</p> <p>No. Information gaps in the characterization and test work need to be addressed. Onset of acidic drainage may potentially be faster than predicted 2 years for waste rock and pit walls. Proponent needs to provide a rationale to explain why onset of ARD was faster than predicted by decline in NP (Table 2). Also, NRCan notes that the humidity cell tests were not designed to evaluate CO3-NPR and CO3-NPR values of greatest concern with regards to onset of acidic drainage. The Proponent should:</p> <ul style="list-style-type: none"> • Provide prediction of time to onset of acidic drainages for samples with the lowest and 5th and 10th percentile of CO3-NPR values. • Calculate for % sulphide-S of rates per year for sulphide oxidation and CO3-NP depletion rates for H2CO3 and HCO3- reactions for CO3-NP depletion and compare with observed onset of ARD

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				<ul style="list-style-type: none"> Provide post-test analysis results for composition of test materials including characterization for fines and coarse fraction In Appendix JJ, Proponent should calculate worst case rate of carbonate depletion with the calcite neutralization reactions consuming one acid (H+) per mole of CaCO₃ <p>Part B. Yes (Satisfactory) Part C. See MW(2)-06</p> <hr/> <p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p>Part A. As discussed in the January 10th, 2019 meeting with the Agency and their technical reviewers, the comments received from the Agency as part of the Round 2 information request process on January 4th, 2019 included information required as part of the formal Closure Plan and information that would be nice-to-have if it were readily available. Only some of the information requested was required for the EA process. The specific items that were identified in the January 10, 2019th meeting as being required for the EA process are:</p> <ol style="list-style-type: none"> 1. What are supplemental mitigation for ARD onset and seepage / runoff 2. Provide additional details on the mineralogy of ore and waste rock (to extent available) 3. Tailings operation details to be provided specifically on beaches 4. What is the plan for collection of new data. Add additional description to follow up programs and studies planned related to geochemistry. 5. Provide description of analogue sites including links to ore genetic models. 6. Cross sections indicating sampling locations and sulphur content to be provided. 7. Review and provide additional discussion on potential for selenium leaching. 8. Review and provide additional discussion on potential for thiosalts in tailings effluent. 9. Provide statistics on Carbonate NPR as they relate to humidity cells. 10. <blank> 11. Provide further description of scaling used in water quality modelling. 12. additional water details for water treatments from December meeting Regarding RO – more information about pre-treatment of acid waters 13. Confirm importance of pit high-walls on long-term pit drainage water quality. 14. Commitment in the ongoing management by Treasury Metals to consider covering and perhaps placement of limestone with the WRSA to slow or mitigate ARD onset post closure

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				<p>15. Clarify the time to flood underground and highlight where that was mentioned</p> <p>16. include sensitive run in the water addendum to incorporate TSF liner degradation- increase infiltration rate into and thus acid loading from the WRSA post closure</p> <p>17. Mitigation by pumping post closure to ensure that weather cover is maintained if climate model shows at risk- if commitment is made what are the financial assurances.</p> <p>18. Talk more about mitigative measures during operations for WRSA, supplemental mitigation</p> <p>Each of these specific requests has been addressed in the Goliath Gold Project Geochemistry Memo, which accompanies the responses to the Round 2 information requests. Any of the Round 2 information request comments not included in these 18 items listed above will be addressed in the formal Closure Plan (O.Reg. 240/00).</p> <p><u>Part B.</u> None Required (Satisfactory Response)</p> <p><u>Part C.</u> There are no changes to the seepage quality presented in the revised EIS (April 2018) as a result of the responses to Parts A and B.</p> <p><u>Final Response:</u></p> <p>On September 17 2018, Treasury Metals submitted this response in draft which was updated and submitted on November 2, 2018 without having Agency feedback received. On December 19, 2018 and January 10, 2019 technical meetings were held with the Agency and their technical reviewers to discuss the Round 2 mine waste information requests. Treasury Metals was provided official feedback from the Agency and their reviewers on January 4, 2019. The information provided in the “response to Agency comment” incorporates the official feedback received on January 4, 2019 as well as the information requested during the discussions held on December 18, 2018 and January 10, 2019. Given that in many cases the requested information did not tie directly back to the original information request, the final response to this IR is simply the updated response (November 2, 2018) plus the supplemental information requested that has been provided in the Goliath Gold Project Geochemistry Memo.</p>

TMI_905-MW(2)-09

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response	
TMI_905-MW(2)-09	MW(2)-09	1	CEA Agency	Reference to EIS Guidelines:	Part 2, Sections 9.1.2 and 10.
				Reference to EIS / Appendix	Appendix K, Section 2.4.4
				Cross-reference to Round 1 IRs	n/a
				<p><u>Context and Rationale:</u></p> <ul style="list-style-type: none"> Section 2.4.4 of Appendix K of the revised EIS mentions that a Sulphur Block Model was developed “in order to develop an understanding of the distribution of sulphur within the deposit. All available data from exploration drilling between 2008 and 2014 were used in the sulphur block model” to evaluate the “[...] rock volumes with various sulphur contents for use in assessment of mine rock cut-off criteria and water quality assessment, and to refine mine rock management options”. However, the details of this model are not provided in Appendix K of the revised EIS. It is also unclear how this model was used in the assessment of mine rock cut-off criteria, water quality assessment and mine rock management options. This information is important for the Agency to gain confidence in the geochemical studies conducted for the Project, and validate the management options considered for mine rock in order to prevent adverse effects on fish-bearing waterbodies. 	
<p><u>Specific Question / Request for Information:</u></p> <p>A. Provide the Sulphur Block Model, and describe how it was used in the revised EIS to determine mine rock cut-off criteria and management plans.</p> <p>B. Incorporate the findings from this IR into the revision of seepage water quality assessment requested in IR# MW(2)-06.</p>					
<p><u>Response:</u></p> <p><u>Part A:</u></p> <p>To clarify, Appendix K to the revised EIS (Geochemistry [April 2018]) presents the results of testing on mined materials for potential acid generation. The information provided in this appendix was used to describe existing geological conditions in Section 5.4 of the revised EIS (April 2018). No changes have been made to this appendix from the original EIS issued in April 2015. However, as part of the revised EIS (April 2018), the kinetic rates developed in Appendix K re-evaluated and superseded by the kinetic rates presented in Section 5 of Appendix JJ</p>					

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				<p>(Water Report). Section 5 of Appendix JJ provides a reevaluation of the geochemical data provided in Appendix K, along with seepage quality estimates from the WRSA and TSF and pit lake water quality. The predictions provided in Section 5 of Appendix JJ were relied upon for describing the geochemistry effects likely over the Project life (Section 6.3 of the revised EIS [April 2018]).</p> <p>The sulphur block model results provided in Appendix K (Section 3.1.1.2) indicated a high proportion of PAG rock (93%). This value (93%), was used in the development of models for seepage quality from the uncapped and capped WRSA, and pit lake water quality post-closure. Based on currently available data (93% PAG rock), no segregation of mine rock is planned and thus a mine rock cut-off criterion for PAG rock has not been developed. Furthermore, the current management plan for waste rock materials at the Goliath Gold Project is to treat it all as PAG material.</p> <p><u>Part B:</u></p> <p>The proportion of PAG material (93%) determined using the sulfur block model described in Appendix K, was relied on to support the evaluation of quality of seepage from the WRSA and TSF, and the resulting post-closure pit lake water quality presented in the revised EIS (April 2018). There is no individual seepage water quality model used to evaluate the effects of the Project on groundwater, seepage, surface water quality, and ultimately the effects on fish and fish habitat from changes to surface water quality. The following models were relied on to evaluate the effects of seepage on the receiving environment are summarized as follows:</p> <ul style="list-style-type: none"> • Groundwater Model; The groundwater model used for the Goliath Gold Project was used to characterize the transport of seepage from the WRSA and TSF, as well as the rate of inflow into the open pit and underground mine workings. The current groundwater model was reviewed in support of the Round 2 process, and is consistent with the responses to the issues raised in GW(2)-01B through GW(2)-05. • Geochemical Models; The quality of seepage from the WRSA and TSF as well as the resulting water quality in the pit lake was determined as part of the geochemical analyses presented in Section 6.3 of the revised EIS (April 2018), Section 5 of Appendix JJ (The Water Report) of the revised EIS, as modified by any changes required in support of the Round 2 process as described in MW(2)-01 through MW(2)-12. • Surface Water Model; The model used for evaluating the effects of the Project on surface water quality is an integrated model that combines existing conditions, releases and discharges from the Project, seepage from the WRSA and TSF, and changes in surface water flow as a result of the Project. <p>While the responses to this information request do not lead to the requirement of updating the effects of seepage on the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for</p>

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				<p>most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Part A. No. The Sulphur Block Model was not provided. NRCan's comments : Descriptive statistics should include median and 10th and 90th percentile.</p> <ul style="list-style-type: none"> • Why was Total Carbon < carbonate-C in Tables 3.2 and 3.4? Check calculation of CO3-NP in Tables 3.2 and 3.4 • Why was the geometric mean used? • It is mathematically incorrect to average pH and NPR. Use the median as a measure of the central tendency. • Why did Ecometrix samples have lower CO3-NPR than KCB? • NRCan also highlights the fact that the low % in non-PAG rock and no information to show their location suggests that finding reliable sources of suitable construction material may be a major challenge for the project. See response in MW(2)-10 A <p>Part B. See MW(2)-06. In addition, for the Water Quality Modelling, the proponent should provide a spreadsheet of the schedule of loads from different sources through operation and closure.</p> <p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p><u>Part A and B.</u> As discussed in the January 10th, 2019 meeting with the Agency and their technical reviewers, the comments received from the Agency as part of the Round 2 information request process on January 4th, 2019 included information required as part of the formal Closure Plan and information that would be nice-to-have if it were readily available. Only some of the information requested was required for the EA process. The specific items that were identified in the January 10, 2019th meeting as being required for the EA process are:</p> <ol style="list-style-type: none"> 1. What are supplemental mitigation for ARD onset and seepage / runoff 2. Provide additional details on the mineralogy of ore and waste rock (to extent available) 3. Tailings operation details to be provided specifically on beaches 4. What is the plan for collection of new data. Add additional description to follow up programs and studies planned related to geochemistry.

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				<p>5. Provide description of analogue sites including links to ore genetic models.</p> <p>6. Cross sections indicating sampling locations and sulphur content to be provided.</p> <p>7. Review and provide additional discussion on potential for selenium leaching.</p> <p>8. Review and provide additional discussion on potential for thiosalts in tailings effluent.</p> <p>9. Provide statistics on Carbonate NPR as they relate to humidity cells.</p> <p>10. <blank></p> <p>11. Provide further description of scaling used in water quality modelling.</p> <p>12. additional water details for water treatments from December meeting Regarding RO – more information about pre-treatment of acid waters</p> <p>13. Confirm importance of pit high-walls on long-term pit drainage water quality.</p> <p>14. Commitment in the ongoing management by Treasury Metals to consider covering and perhaps placement of limestone with the WRSA to slow or mitigate ARD onset post closure</p> <p>15. Clarify the time to flood underground and highlight where that was mentioned</p> <p>16. include sensitive run in the water addendum to incorporate TSF liner degradation- increase infiltration rate into and thus acid loading from the WRSA post closure</p> <p>17. Mitigation by pumping post closure to ensure that weather cover is maintained if climate model shows at risk- if commitment is made what are the financial assurances.</p> <p>18. Talk more about mitigative measures during operations for WRSA, supplemental mitigation</p> <p>Each of these specific requests has been addressed in the Goliath Gold Project Geochemistry Memo, which accompanies the responses to the Round 2 information requests. Any of the Round 2 information request comments not included in these 18 items listed above will be addressed in the formal Closure Plan (O.Reg. 240/00).</p> <p><u>Final Response:</u></p> <p><u>Parts A and B.</u></p> <p>On September 17, 2018 Treasury Metals submitted this response in draft which was updated and submitted on November 2, 2018 without having Agency feedback received. On December 19, 2018 and January 10, 2019 technical meetings were held with the Agency and their technical reviewers to discuss the Round 2 mine waste Information Requests. Treasury Metals was provided official feedback from the Agency and their reviewers on January 4, 2019. The information provided in the “response to Agency comment” incorporates the official feedback received on January 4, 2019 as well as the information requested during the discussions held on December 18, 2018 and January 10, 2019. Given that in many cases the requested information did not tie directly back to the original information request, the final response to this IR is simply the updated response (November 2, 2018) plus the supplemental information requested that has been provided in the Goliath Gold Project Geochemistry Memo.</p>

TMI_906-MW(2)-10

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response	
TMI_906-MW(2)-10	MW(2)-10	1	CEA Agency	Reference to EIS Guidelines:	Part 2, Sections 9.1.2 and 10.
				Reference to EIS / Appendix	Appendix K, Section 1.4.2
				Cross-reference to Round 1 IRs	n/a
				<p><u>Context and Rationale:</u></p> <ul style="list-style-type: none"> Section 1.4.2 of Appendix K of the revised EIS states that “The Main Zone is composed of well-defined pyritic quartz- sericite schist (MSS) separated by less-altered biotite- feldspar schist (BMS). Sulphide mineralisation and local visible gold occurs mainly within the leucocratic bands but occasionally it is localized in the melanocratic bands enriched with biotite and chlorite. The sulphide (mineral) content of the mineralised zone is generally 3 to 5 % but locally is up to 15 % (by volume)”. According to Natural Resources Canada (NRCAN), high sulphide zones within the deposit that would be processed and subsequently deposited as tailings could lead to rapid unpredicted onset of acidic weathering conditions, reducing the predicted time of onset of acid drainage. It is unclear whether or how this was factored into the assessment of Acid rock drainage (ARD) onset time. This information is important for the Agency to gain confidence in the geochemical studies conducted for the Project, and validate the management options considered for mine rock in order to prevent adverse effects on fish-bearing waterbodies. 	
<p><u>Specific Question / Request for Information:</u></p> <p>A. Describe how the high sulphide zones identified in the acid-base accounting (ABA) analysis were considered in the calculation of ARD onset time.</p> <p>B. Incorporate the findings from this IR into the revision of seepage water quality assessment requested in IR# MW(2)-06.</p>					
<p><u>Response:</u></p> <p><u>Part A:</u></p> <p>High sulphide materials, as identified in the ABA analysis were included in the humidity cells used as the basis for determining the onset time for ARD/ML. Therefore, no changes were required to the calculated 2 year time to</p>					

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				<p>ARD onset used in the revised EIS (April 2018). The 2 year time to acid onset was demonstrated to be reasonable and conservative in the response to TMI_904MW(2)-08.</p> <p>To clarify, the sulphide (e.g. pyrite [FeS₂]) mineral content (by volume) presented in Section 1.4.2 of Appendix K represents a geological description based on field observations. Section 2.1 of Appendix K provides the range of chemical sulphide content (sulphur by mass), more appropriate for discussing issues related to ARD, which range from 0.1%–1.2% S with a geometric mean value of 0.5% S. As shown in Table 1, the sulphide contents (% S by mass) ranged from 0.13% to 1.58% S in the waste rock. For each BMS, BS, and MSS lithologies, a low, medium, and high sulphide cell was run, with the high sulphide cells representing the 98th percentile, 91st percentile, and 88th percentile, respectively of the available samples. Therefore, high sulphide values were accounted for in the humidity cells used for determining ARD onset times for waste rock.</p> <table border="1" data-bbox="806 634 1948 1143"> <caption>Table 1: Summary of Waste Rock Humidity Cell Results</caption> <thead> <tr> <th rowspan="2">Humidity Cell ID</th> <th rowspan="2">Lithology</th> <th colspan="2">Sulphide Content</th> <th>Weeks to steady decline in pH < 6</th> </tr> <tr> <th>%</th> <th>Percentile of Data</th> <th>Weeks</th> </tr> </thead> <tbody> <tr> <td>BMS-A</td> <td rowspan="3">BMS</td> <td>0.13</td> <td>9%</td> <td>51⁽¹⁾</td> </tr> <tr> <td>BMS-B</td> <td>0.33</td> <td>47%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>BMS-C</td> <td>1.54</td> <td>98%</td> <td>65</td> </tr> <tr> <td>BS-A</td> <td rowspan="3">BS</td> <td>0.12</td> <td>42%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>BS-B</td> <td>0.28</td> <td>53%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>BS-C</td> <td>0.90</td> <td>91%</td> <td>65</td> </tr> <tr> <td>MSS-A</td> <td rowspan="3">MSS</td> <td>0.27</td> <td>34%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>MSS-B</td> <td>1.50</td> <td>88%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>MSS-C</td> <td>1.58</td> <td>88%</td> <td>62</td> </tr> <tr> <td>MSED-A</td> <td rowspan="2">MSED</td> <td>0.67</td> <td>80%</td> <td>63⁽¹⁾</td> </tr> <tr> <td>MSED-B</td> <td>0.91</td> <td>83%</td> <td>85⁽¹⁾</td> </tr> </tbody> </table> <p>Source: Appendix K Note: (1) For these tests the numbers indicate the weeks when the cell was terminated, as no steady decline in pH observed at the time of cell termination.</p> <p>High sulphide zones are not expected within the tailings as any high sulphide ore will be mixed into the greater volume of lower sulphide ore material and then processed through the mill. This process will result in the production of a blended tailing material that will be similar in ML/ARD characteristics to the tailings sample derived from the metallurgical program. The mixed ore will have a lower sulphide content than the relatively small volume of high sulphide ore. The ABA data for the Project suggests that the average sulphide concentration of the tailings will be 1.2% S (by mass), which is lower than 1.5 %S (by mass) tailings composite used in the humidity cell analysis as described in Appendix K. Therefore, the humidity cell data relied upon for the ARD onset time calculation of tailings,</p>	Humidity Cell ID	Lithology	Sulphide Content		Weeks to steady decline in pH < 6	%	Percentile of Data	Weeks	BMS-A	BMS	0.13	9%	51 ⁽¹⁾	BMS-B	0.33	47%	63 ⁽¹⁾	BMS-C	1.54	98%	65	BS-A	BS	0.12	42%	63 ⁽¹⁾	BS-B	0.28	53%	63 ⁽¹⁾	BS-C	0.90	91%	65	MSS-A	MSS	0.27	34%	63 ⁽¹⁾	MSS-B	1.50	88%	63 ⁽¹⁾	MSS-C	1.58	88%	62	MSED-A	MSED	0.67	80%	63 ⁽¹⁾	MSED-B	0.91	83%	85 ⁽¹⁾
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				<p>also represented a higher than average sulphide content. In the unlikely event that a pulse of high sulphide tailings are produced during operations, and deposited within the TSF, enhanced ML/ARD is not expected as the tailings within the TSF will be kept a saturated condition, and largely under a water cover to prevent oxidation.</p> <p><u>Part B:</u> As described in the response to Part A, no changes were required to the 2-year time to acid onset used in the revised EIS (April 2018) as high sulphide material were included in the humidity cells. Therefore, there is no requirement to update the assessment of seepage and water quality, as the time to acid onset is unchanged from the revised EIS (April 2018).</p> <hr/> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Part A.</p> <p>No.</p> <ul style="list-style-type: none"> • No mineralogical data for humidity cells were provided to demonstrate that sulphides were pyrite • How was 1.2% calculated? The ABA data for the Project suggests lower than 1.5% S(by mass) tailings composite used in the humidity cell analysis as described in Appendix K • p. 3-13 based on central tendency and variability of the ore analysis, estimate how representative humidity cell tailings sample is of expected range (e.g, best, median or poor) drainage chemistry and range in time to onset of acidic drainage and solute release <p>Information that is typically part of the minimum information required in mine rock characterization and mine drainage prediction at the EA stage and recommended by Price 2009 and that should be provided by the Proponent to provide regarding the elemental concentration and ABA results (Tables 3-1 and 3.2):</p> <ul style="list-style-type: none"> • Cross sections through the deposit showing the spatial distribution of rock with ABA characteristics of concern with regards to drainage chemistry and onset of acidic drainage (e.g., sulphide-S, CO3-NP and CO3-NPR overlaid with boundaries of proposed mine workings, rock units, and the boundary between waste rock and ore. • Identify spatial distribution of rock with ABA characteristics of concern with regards to drainage chemistry and onset of acidic drainage (e.g., sulphide-S > 1%, CO3-NP < 2 kg/t and CO3-NPR < 0.1 and 0.01 and) and where proportion is significant estimate the tonnage and timing of excavation. • Describe the potential for ML/ARD for areas of proposed mine workings and rock units where sampling was not conducted, and outline the assumptions with respect to mine rock characterization and mine drainage prediction, and the effects assessment and mitigation plan, as well as measures that would be taken to address and manage the uncertainty.

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				<ul style="list-style-type: none"> P1-4 Where are the high sulphide zones (Section 1.4.2 - up to 15 % by volume) mentioned in the ABA analysis, what is the CO3-NP and CO3-NPR and how does this material compare to the high sulphide humidity cell samples with regards to CO3-NP, CO3-NPR and elevated metals? NRCan noted that dilution of shake flask and humidity cells could mask elemental, such as Se, discharge which is present in elevated concentrations (detection limit was greater than 10 x crustal abundance screening value). This may be a greater concern in the tailings as the geology report suggests they have higher sulphide concentrations than waste rock. <p>Part B. See MW(2)-06</p> <hr/> <p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p>Part A.</p> <p>As discussed in the January 10th, 2019 meeting with the Agency and their technical reviewers, the comments received from the Agency as part of the Round 2 information request process on January 4th, 2019 included information required as part of the formal Closure Plan and information that would be nice-to-have if it were readily available. Only some of the information requested was required for the EA process. The specific items that were identified in the January 10, 2019th meeting as being required for the EA process are:</p> <ol style="list-style-type: none"> 1. What are supplemental mitigation for ARD onset and seepage / runoff 2. Provide additional details on the minerology of ore and waste rock (to extent available) 3. Tailings operation details to be provided specifically on beaches 4. What is the plan for collection of new data. Add additional description to follow up programs and studies planned related to geochemistry. 5. Provide description of analogue sites including links to ore genetic models. 6. Cross sections indicating sampling locations and sulphur content to be provided. 7. Review and provide additional discussion on potential for selenium leaching. 8. Review and provide additional discussion on potential for thiosalts in tailings effluent. 9. Provide statistics on Carbonate NPR as they relate to humidity cells. 10. <blank> 11. Provide further description of scaling used in water quality modelling. 12. additional water details for water treatments from December meeting Regarding RO – more information about pre-treatment of acid waters 13. Confirm importance of pit high-walls on long-term pit drainage water quality. 14. Commitment in the ongoing management by Treasury Metals to consider covering and perhaps placement of limestone with the WRSA to slow or mitigate ARD onset post closure

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				<p>15. Clarify the time to flood underground and highlight where that was mentioned</p> <p>16. include sensitive run in the water addendum to incorporate TSF liner degradation- increase infiltration rate into and thus acid loading from the WRSA post closure</p> <p>17. Mitigation by pumping post closure to ensure that weather cover is maintained if climate model shows at risk- if commitment is made what are the financial assurances.</p> <p>18. Talk more about mitigative measures during operations for WRSA, supplemental mitigation</p> <p>Each of these specific requests has been addressed in the Goliath Gold Project Geochemistry Memo, which accompanies the responses to the Round 2 information requests. Any of the Round 2 information request comments not included in these 18 items listed above will be addressed in the formal Closure Plan (O.Reg. 240/00).</p> <p><u>Part B.</u></p> <p>There are no changes to the seepage quality presented in the revised EIS (April 2018) as a result of the responses to Parts A.</p> <p><u>Final Response:</u></p> <p>On September 17, 2018 Treasury Metals submitted this response in draft which was updated and submitted on November 2, 2018 without having Agency feedback received. On December 19, 2018 and January 10, 2019 technical meetings were held with the Agency and their technical reviewers to discuss the Round 2 mine waste Information Requests. Treasury Metals was provided official feedback from the Agency and their reviewers on January 4, 2019. The information provided in the "response to Agency comment" incorporates the official feedback received on January 4, 2019 as well as the information requested during the discussions held on December 18, 2018 and January 10, 2019. Given that in many cases the requested information did not tie directly back to the original information request, the final response to this IR is simply the updated response (November 2, 2018) plus the supplemental information requested that has been provided in the Goliath Gold Project Geochemistry Memo.</p>

TMI_907-MW(2)-11

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response	
TMI_907-MW(2)-11	MW(2)-11	1	CEA Agency	Reference to EIS Guidelines:	Part 2, Sections 9.1.2 and 10.
				Reference to EIS / Appendix	Appendix JJ, Section 3.5.3, Tables 6-5 to 6-14.
				Cross-reference to Round 1 IRs	n/a
				<p><u>Context and Rationale:</u></p> <ul style="list-style-type: none"> The Agency is unclear on the proponent’s approach to managing runoff and seepage in collection ditches during decommissioning and abandonment. Appendix JJ, Section 3.5.3 mentions that approximately 90 m³/day of seepage from the TSF with a wet cover, 50 m³/day of seepage from the TSF with a dry cover, and 30 m³/day of seepage from the capped WRSA “will bypass collection ditches and report to various waterbodies during the post-closure”. Tables 6-5 to 6-14 of Appendix JJ provides the concentrations of parameters in receiving waterbodies, including the seepage that will bypass the runoff and seepage collection ditches during abandonment. The Agency understands that runoff and seepage from the TSF and WRSA would continue to be collected in the collection ditches during abandonment, and directed to the open pit (upon treatment) to accelerate the filling of the pit lake. However, once the pit lake is full, it is unclear where the collected runoff and seepage would be directed to. Additionally, if there is a plan for eventual decommissioning of runoff and seepage collection ditches, the Agency needs to understand the conditions (i.e. water quality) that are expected to be achieved in the collection ditches before they can be decommissioned. It is important for the Agency to understand how contact water collected in runoff and seepage collection ditches would be managed during decommissioning and abandonment such that surface water quality of fish-bearing waterbodies is not affected. 	
<p><u>Specific Question / Request for Information:</u></p> <p>A. Confirm that the runoff and seepage collection ditches would remain in place during decommissioning and abandonment. If runoff and seepage collection ditches would continue to exist after filling of the open pit, describe where the water collected in these ditches would report to.</p> <p>B. Describe the water quality criteria in the runoff and seepage collection ditches that are expected to be achieved before the ditches are decommissioned.</p>					

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				<p>C. Update the changes in water quality expected from runoff and seepage from the TSF and WRSA during decommissioning and abandonment, if necessary, taking the responses from Questions A and B into account.</p> <p>D. Revise the effects on fish and fish habitat taking responses from Questions A to C into consideration.</p> <p>E. Describe additional mitigation measures to prevent adverse effects to fish and fish habitat, if necessary.</p> <p>F. Characterize residual effects, if any, after the mitigation measures have been implemented.</p> <p>G. Update the follow-up program for potential effects to fish and fish habitat, including objectives and any monitoring measures that will be implemented to verify the predictions for water quality during decommissioning and abandonment. In addition, evaluate the effectiveness of the proposed mitigation measures and provide contingency measures, if necessary. If follow-up is not required, provide a rationale.</p> <p>Response:</p> <p>To clarify, the seepage rates presented in Table 3-1 of Appendix JJ (Water Report), as cited in the context and rationale, correspond to an unlined TSF, and were erroneously not updated in Table 3-1 of Appendix JJ to the revised EIS (April 2018). However, Table 6-5 of Appendix JJ (Water Report), includes the updated seepage rates from the TSF that correctly reflect the inclusion of HPDE liner. Table 1 of this response provides that an updated listing of the post-closure seepage rates that reflect the use of an HPDE liner beneath the TSF (this table superseded Table 3-1 of Appendix JJ, and has the same seepage rates as listed in Table 6-5 of Appendix JJ). As shown in Table 1 of this response, the total seepage from the TSF for both the wet and dry cover scenarios was modelled as 2.7 m³/d. As noted in the footnote to the table, a nominal amount of seepage was conservatively included in the modelling to capture the potential effects to Thunder Lake (0.1 m³/d), Thunder Lake Tributary 3 (0.1 m³/d) and Hoffstrom’s Bay Tributary (0.1 m³/d) from the trace amounts identified as reaching those waterbodies with the groundwater model. This conservatively increased the total seepage modelled from the 2.4 m³/d of seepage expected to leave the TSF through the liner. As noted in the response to TMI_901-MW(2)-05, a seepage rate of 2.4 m³/d represents a conservatively high seepage rates for a properly installed HPDE liner, and an HPDE liner that will be permanently overlain by saturated tailings would be expected to not experience appreciable degradation over the full service life of the liner (i.e., 400 years). The surface water modelling rates presented in Tables 6-6 through 6-14 of Appendix JJ (as cited in the context and rationale) represent the concentrations predicted in receiving waterbodies, including the seepage that will bypass the runoff and seepage collection ditches during the post-closure phase (i.e., 2.7 m³/d from the TSF and 30 m³/from the WRSA).</p> <table border="1" data-bbox="800 1247 1940 1469"> <caption>Table 1: Seepage Quantities during Post-Closure (supersedes Table 3-1 of Appendix JJ)</caption> <thead> <tr> <th rowspan="2">Waterbody Receiver</th> <th colspan="3">Volume of Discharge (m³/day)</th> </tr> <tr> <th>Capped WRSA ⁽¹⁾</th> <th>Capped TSF (dry cover)</th> <th>Uncapped TSF (wet cover)</th> </tr> </thead> <tbody> <tr> <td>Thunder Lake</td> <td>10</td> <td>0.1 ⁽²⁾</td> <td>0.1 ⁽²⁾</td> </tr> <tr> <td>Thunder Lake Tributary 3</td> <td>—</td> <td>0.1 ⁽²⁾</td> <td>0.1 ⁽²⁾</td> </tr> <tr> <td>Hoffstrom’s Bay Tributary</td> <td>—</td> <td>0.1 ⁽²⁾</td> <td>0.1 ⁽²⁾</td> </tr> </tbody> </table>	Waterbody Receiver	Volume of Discharge (m ³ /day)			Capped WRSA ⁽¹⁾	Capped TSF (dry cover)	Uncapped TSF (wet cover)	Thunder Lake	10	0.1 ⁽²⁾	0.1 ⁽²⁾	Thunder Lake Tributary 3	—	0.1 ⁽²⁾	0.1 ⁽²⁾	Hoffstrom’s Bay Tributary	—	0.1 ⁽²⁾	0.1 ⁽²⁾
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				<table border="1" data-bbox="800 272 1938 370"> <tr> <td>Blackwater Creek</td> <td>—</td> <td>0.8</td> <td>0.8</td> </tr> <tr> <td>Open Pit</td> <td>20</td> <td>1.6</td> <td>1.6</td> </tr> <tr> <td>Total Seepage</td> <td>30</td> <td>2.7</td> <td>2.7</td> </tr> </table> <p>Notes:</p> <ol style="list-style-type: none"> (1) Seepage quantity for capped WRSA from Figure 25 of Appendix M-1. (2) Seepage quantities for the wet and dry cover TSF are based on the design of the HDPE liner, as described in Appendix M-2. The distributed from Figures 24 and 22 of Appendix M-1. Although the HDPE liner is only expected to allow 2.4 m³/d of seepage to leave the TSF, a nominal amount of seepage was conservatively included to capture the potential effects to Thunder Lake, Thunder Lake Tributary 3 and Hoffstrom's Bay Tributary. <p>Although Table 1 to this response includes seepage values for both the wet and dry cover options, Treasury Metals do not intend to move forward at this time using the dry cover for the closure of the TSF. The wet cover option was shown to mitigate the effects of the Project on surface water quality, and thus those on fish and fish habitat, relative to the dry cover option. The intent of the wet cover is to ensure tailings are in a saturated condition in perpetuity, thus effectively preventing ARD (TMI_898-MW(2)-02). Treasury Metals is committed to implement the wet cover closure option for the TSF, and recognize that this will likely be a condition of the environmental assessment process. As such, the Round 2 responses related to mine waste, groundwater, surface water quality, and fish and fish habitat presented in MW(2)-01 through MW(2)-12 focus on responding to the requested information relevant to the wet cover option only.</p> <p><u>Part A.</u></p> <p>To confirm, as part of the closure activities, the remaining portions of the operations area will be graded to drain towards the open pit, with perimeter ditches left in place to aid in the collection, and direction of runoff towards the open pit. Once the open pit is full, the perimeter ditches will continue to help direct runoff and seepage toward the open pit.</p> <p><u>Part B.</u></p> <p>The water in the seepage collection ditches would be comparable to the baseline water quality in Blackwater Creek. The water in the seepage collection ditches around the TSF will be a combination of runoff from the reclaimed areas on the outer slopes of the TSF and the small volume of seepage through the liner of the TSF. The volume of runoff in the seepage collection ditches around the TSF is 935.8 m³/d on average, given annual precipitation in the area of 719.7 mm/yr, and a catchment area of 47.5 ha: $\left(719.7 \frac{\text{mm}}{\text{yr}} \times \frac{1 \text{ m}}{1000 \text{ mm}} \times 47.5 \text{ ha} \times \frac{10000 \text{ m}^2}{1 \text{ ha}} \times \frac{1 \text{ yr}}{365 \text{ d}} = 935.8 \frac{\text{m}^3}{\text{d}}\right)$. The volume of seepage in the seepage collection ditches around the TSF is 0.82 m³/d, given a total of 2.4 m³/d of seepage is expected through the liner of the TSF, and approximately 34% of the seepage (see response to TMI_911-GW(2)-04) will be captured by the perimeter ditches and ultimately report to the open pit $\left(2.4 \frac{\text{m}^3}{\text{d}} \times 34\% = 0.82 \frac{\text{m}^3}{\text{d}}\right)$.</p>	Blackwater Creek	—	0.8	0.8	Open Pit	20	1.6	1.6	Total Seepage	30	2.7	2.7
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				<p>Therefore, 99.91% of the water in the perimeter ditches around the TSF will be comprised of runoff from the reclaimed areas $\left(\frac{935.8 \frac{m^3}{d}}{935.8 \frac{m^3}{d} + 0.82 \frac{m^3}{d}} = 99.91\% \right)$, while the remaining 0.09% will be seepage through the liner of the TSF.</p> <p>Therefore, the water conveyed to the open pit through the perimeter seepage collection ditches would not be distinguishable from the runoff in any of the other reclaimed areas of the site. The quality of runoff would have comparable characteristics to the background runoff in the region, which would be equivalent to the baseline water quality in Blackwater Creek. The small volume of seepage captured in the seepage and runoff collection ditches would have the same quality as the “TSF Seepage Wet Cover” listed in Table 5-10 of Appendix JJ (Water Report), or the wet cover option, TSF values in Table 6.3.4.1-1 of the revised EIS (April 2018).</p> <p><u>Part C.</u></p> <p>As described in the responses to Parts A and B, there are no changes expected with respect to runoff and seepage from those used in the surface water quality modelling presented in the revised EIS (April 2018). While the responses to Parts A and B do not lead to the requirement of updating the surface water quality model, the surface water quality assessment has been updated as part of the Round 2 process, to reflect other required changes and refinements requested in MW(2)-01 through MW(2)-12. The Water Addendum presents the updated water quality assessment that consolidates all of the identified Round 2 changes and concerns including those changes to groundwater and mine waste that would affect surface water quality. The updated surface water quality modelling continues to indicate that surface water quality will be largely unchanged as a result of the Project, with resulting water quality being the same as, or slightly improved from the existing condition for most parameters. In the situation where the water quality is predicted to be higher than existing condition, the resulting water quality remains below the PWQO for the protection of aquatic life.</p> <p><u>Part D.</u></p> <p>There are no changes to surface water quality arising from the issues and concerns raised in Parts A and B, and Part C confirms that water quality will either remain at or below existing condition, or the resulting water quality will be below the PWQO for the protection of aquatic life. Therefore, there will be no changes to the effects predicted to fish and fish habitat arising from the issues and concerns raised in Parts A and B.</p> <p><u>Part E.</u></p> <p>As described in the responses to Parts A through D, there will be no changes to the effects predicted to fish and fish habitat arising from issues and concerns raised in this information request, therefore there are no additional mitigation measures required regarding seepage and runoff.</p> <p><u>Part F.</u></p>

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				<p>There are no changes to the characterization of residual adverse effects from those presented in the revised EIS (April 2018), as there are no changes to the predicted effects, or the required mitigation measures from Round 2 issues or concerns raised in Parts A and B.</p> <p><u>Part G.</u> No specific modifications to the Follow-Up Program were identified as a result of the issues and concerns raised in this information request. An updated Follow-Up Program has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Part A. Yes Parts B to G.</p> <p>DEFER TO DFO and ECCC. NRCan notes that the proponent has not confirmed that the proposed mine and mitigation plan accounts for long term (i.e. indefinite) management actions, including maintenance and monitoring of the spillway and dams of the TSF, cover on the waste rock dump, and ditches and ponds for water management and operation of the drainage treatment system. NRCan suggests that the Proponent provides the following information:</p> <ul style="list-style-type: none"> • Prior to waste rock covering large load of acidic drainage are expected. Describe how acidic, iron and aluminium rich drainage from surface and in-pit backfilled waste rock will be kept separate from clean water and collected and treated during the operation and for the surface waste rock dump prior to covering after closure? • Assess the sufficiency and feasibility of treating acidic drainage with RO from waste rock without prior lime treatment • Confirm if use of the pit as collection pond for acidic waste rock seepage is the best reclamation scenario for the site. Where will acidic drainage be collected prior to treatment during operation when pit is not available? • Where will treated reject stream from RO and if necessary lime treatment be stored once mine closed and tailings are no longer produced? • What is proposed treatment for acidic, iron and aluminium rich drainage from waste rock. RO is not suited for treating acidic, iron and aluminium rich drainage • Section 3.0 P1-2 Three collection ponds are proposed to collect contact water and seepage from site that will be treated at the processing plant and discharged to the environment. How will treatment be done during the operation if the processing plant is in use?

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				<p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p>To clarify, the seepage rates presented in Table 3-1 of Appendix JJ (Water Report), as cited in the context and rationale, correspond to an unlined TSF, and were erroneously not updated in Table 3-1 of Appendix JJ to the revised EIS (April 2018). However, Table 6-5 of Appendix JJ (Water Report), includes the updated seepage rates from the TSF that correctly reflect the inclusion of HPDE liner. Table 1 of this response provides that an updated listing of the post-closure seepage rates that reflect the use of an HPDE liner beneath the TSF (this table superseded Table 3-1 of Appendix JJ, and has the same seepage rates as listed in Table 6-5 of Appendix JJ). As shown in Table 1 of this response, the total seepage from the TSF for both the wet and dry cover scenarios was modelled as 3.13 m³/d. As noted in the footnote to the table, a nominal amount of seepage was conservatively included in the modelling to capture the potential effects to Thunder Lake (0.1 m³/d), Thunder Lake Tributary 3 (0.1 m³/d) and Hoffstrom's Bay Tributary (0.1 m³/d) from the trace amounts identified as reaching those waterbodies with the groundwater model. This conservatively increased the total seepage modelled from the 3.13 m³/d of seepage expected to leave the TSF through the liner. As noted in the response to TMI_901-MW(2)-05, a seepage rate of 2.4 m³/d represents a conservatively high seepage rates for a properly installed HPDE liner, and an HPDE liner that will be permanently overlain by saturated tailings would be expected to not experience appreciable degradation over the full service life of the liner (i.e., 400 years). As indicated in TMI_951-GW(2)-01B, the seepage rate from the TSF has been increased to 3.13 m³/d to account for the seams in the different HDPE liners used in the dam lifts throughout the Project. The surface water modelling rates presented in Tables 6-6 through 6-14 of Appendix JJ (as cited in the context and rationale) represent the concentrations predicted in receiving waterbodies, including the seepage that will bypass the runoff and seepage collection ditches during the post-closure phase (i.e., 3.13 m³/d from the TSF and 30 m³/d from the WRSA).</p> <table border="1" data-bbox="800 992 1944 1317"> <caption>Table 1: Seepage Quantities during Post-Closure (supersedes Table 3-1 of Appendix JJ)</caption> <thead> <tr> <th rowspan="2">Waterbody Receiver</th> <th colspan="3">Volume of Discharge (m³/day)</th> </tr> <tr> <th>Capped WRSA ⁽¹⁾</th> <th>Capped TSF (dry cover)</th> <th>Uncapped TSF (wet cover)</th> </tr> </thead> <tbody> <tr> <td>Thunder Lake</td> <td>10</td> <td>0.1 ⁽²⁾</td> <td>0.1 ⁽²⁾</td> </tr> <tr> <td>Thunder Lake Tributary 3</td> <td>—</td> <td>0.1 ⁽²⁾</td> <td>0.1 ⁽²⁾</td> </tr> <tr> <td>Hoffstrom's Bay Tributary</td> <td>—</td> <td>0.1 ⁽²⁾</td> <td>0.1 ⁽²⁾</td> </tr> <tr> <td>Blackwater Creek</td> <td>—</td> <td>0.89</td> <td>0.89</td> </tr> <tr> <td>Open Pit</td> <td>20</td> <td>1.94</td> <td>1.94</td> </tr> <tr> <td>Total Seepage</td> <td>30</td> <td>3.13</td> <td>3.13</td> </tr> </tbody> </table> <p>Notes:</p> <p>(1) Seepage quantity for capped WRSA from Figure 25 of Appendix M-1.</p> <p>(2) Seepage quantities for the wet and dry cover TSF are based on the design of the HDPE liner, as described in Appendix M-2. The distributed from Figures 24 and 22 of Appendix M-1. Although the HDPE liner is only expected to allow 3.13 m³/d of seepage to</p>	Waterbody Receiver	Volume of Discharge (m ³ /day)			Capped WRSA ⁽¹⁾	Capped TSF (dry cover)	Uncapped TSF (wet cover)	Thunder Lake	10	0.1 ⁽²⁾	0.1 ⁽²⁾	Thunder Lake Tributary 3	—	0.1 ⁽²⁾	0.1 ⁽²⁾	Hoffstrom's Bay Tributary	—	0.1 ⁽²⁾	0.1 ⁽²⁾	Blackwater Creek	—	0.89	0.89	Open Pit	20	1.94	1.94	Total Seepage	30	3.13	3.13
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Total Seepage	30	3.13	3.13																																

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				<p>leave the TSF, a nominal amount of seepage was conservatively included to capture the potential effects to Thunder Lake, Thunder Lake Tributary 3 and Hoffstrom's Bay Tributary.</p> <p>Although Table 1 to this response includes seepage values for both the wet and dry cover options. As requested within the IR process, Treasury has committed to continue the evaluation of the dry cover as well as the wet for the purposes of the EA. It is noted however that the decision between wet and dry cover designs will be part of the final closure design in Provincial Permitting. The wet cover option was shown to provide slightly better water quality than the dry cover; however, in both cases the modelling indicates the water quality will meet PWQO or background. The intent of the wet cover is to ensure tailings are in a saturated condition in perpetuity, thus effectively preventing ARD (TMI_898-MW(2)-02). As such, the Round 2 responses related to mine waste, groundwater, surface water quality, and fish and fish habitat presented in MW(2)-01 through MW(2)-12 focus on responding to the requested information relevant to both the wet and dry cover options.</p> <p><u>Part A.</u> To confirm, as part of the closure activities, the remaining portions of the operations area will be graded to drain towards the open pit, with perimeter ditches left in place to aid in the collection, and direction of runoff towards the open pit. Once the open pit is full, the perimeter ditches will continue to help direct runoff and seepage toward the open pit.</p> <p><u>Parts B to G.</u> 1. As discussed in the January 10th, 2019 meeting with the Agency and their technical reviewers, Treasury Metals is committed to determine and evaluate the prevention of ARD onset within the WRSA and will consider all viable options to ensure its long-term viability. That stated, in the event that ARD onset occurs within the WRSA prior to the multi-year, low-permeability layer being implemented in the closure phase, mitigation measures have been included in the Project design to limit or prevent ARD affected water from leaving site. As discussed in the January 10th, 2019 meeting with the Agency and their technical reviewers, Treasury Metals will construct a perimeter ditch around the WRSA to capture runoff that contacts the WRSA, which will then be diverted to a separate collection pond from the other contact water on site. The water that contacts the waste rock in the open pit will be captured within the open pit and pumped to the same collection pond as the runoff from the WRSA. Based on the manufacturers specifications for the water treatment system, if water being collected from the WRSA does not meet the requirements of the water treatment system, this water would be pre-treated prior to going to the water treatment system. This would likely involve batch treatment to neutralize the pH and precipitate out the majority of the suspended metals. 2. Based on the manufacturers specifications that Treasury Metals have been in contact with, these specifications indicated that the RO plant would be able to treat acidic drainage without the use of additional treatment. That stated, Treasury Metals understands and appreciates the skepticism of this from the technical reviewer and has slightly modified the design of the water management system to accommodate this concern. A perimeter ditch with be</p>

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				<p>constructed around the entire WRSA to capture precipitation that comes into contact with the waste rock. This water will be directed to a separate collection pond from the other contact water on site and will be monitoring for water quality. If water quality in this collection pond is such that it may not be treatable directly by the RO plant, additional treatment will be implemented on the pond prior to the water going to the RO plant. This would likely involve batch treatment to neutralize the pH and precipitate out the majority of the suspended metals.</p> <p>3. During operations, precipitation that comes into contact with the WRSA will be collected in a perimeter ditch surrounding the WRSA and will be diverted to a collection pond that is separate from the other contact water on-site. This water will be monitoring and, if required, treated prior to it being pumped to the final water treatment plant and discharged from the site. During closure, prior to the WRSA being capped, precipitation that comes into contact with the WRSA will still be diverted to a separate collection pond and monitoring prior to being discharged into the open pit. Depending on the water quality of this pond, treatment may be implemented (batch treatment) prior to the collection pond being directed to the open pit.</p> <p>Once the WRSA has been capped with a multi-year, low-permeability cover, it is anticipated that a very small quantity of water will infiltrate through the cap and the waste rock (30 m³/d). This small quantity of water compared to the overall quantity of relatively clean water filling the open pit would not alter the overall water quality of the open pit to the point where it would have a negative effect on the environment. Once the multi-year, low-permeability cover is placed over the WRSA, water will be directed to the open pit.</p> <p>4. There are a number of options available to Treasury Metals to manage the brines produced from the RO plant. Disposal within the tailings is one option during operations, as will be the transport of the relatively small volumes generated to a licensed offsite facility. Any residual materials generated during the closure process would either be disposed of at the base of the open pit where it will be isolated by a water cover, or shipped to an offsite licensed facility. For lime being used in the closure and post-closure phase, Treasury Metals will store the lime in the lime silo located just outside the processing plant. Once it is determined that the addition of lime at the site is no longer required, the lime silo will be decommissioned.</p> <p>5. In the event that the water quality from the WRSA and waste rock from the open pit is such that it cannot be directly treated by the RO plant, batch treatment would be implemented to treat acidic, iron and aluminum rich drainage prior to it being treated at the RO plant.</p> <p>6. Contact water that is collected within the perimeter ditches and collection ponds will be held in the three collection ponds for use in the process. Excess water not required for the process will be treated at the water treatment plant and then released from the site into Blackwater Creek through an engineered discharge structure. There would never be an instance where water is treated at the processing plant nor would the processing of ore interfere with water treatment.</p>

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				<p><u>Final Response:</u></p> <p>On September 17, 2018 Treasury Metals submitted this response in draft which was updated and submitted on November 2, 2018 without having Agency feedback received. On December 19, 2018 and January 10, 2019 technical meetings were held with the Agency and their technical reviewers to discuss the Round 2 mine waste Information Requests. Treasury Metals was provided official feedback from the Agency and their reviewers on January 4, 2019. The information provided in the "response to Agency comment" incorporates the official feedback received on January 4, 2019 as well as the information requested during the discussions held on December 18, 2018 and January 10, 2019. Given that in many cases the requested information did not tie directly back to the original information request, the final response to this IR is simply the original response (November 2, 2018) plus the supplemental information requested that has been provided under the Specific Response to Natural Resources Canada Comments.</p>

TMI_947-MW(2)-12

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response	
TMI_947-MW(2)-12	MW(2)-12	4	Eagle Lake First Nation	Reference to EIS Guidelines:	Part 2, Sections 9.1.2 and 10
				Reference to EIS / Appendix	Sections 6.2.4.1 and 6.2.5.
				Cross-reference to Round 1 IRs	TMI_902-MW(2)-06
				<p><u>Context and Rationale:</u></p> <p>The Agency noted concerns raised by Eagle Lake First Nation about the changes in water quality that could result from runoff and seepage from low-grade ore stockpile pile.</p> <p>It is stated in Section 6.2.4.1 that “The low-grade ore (LGO) stockpile will be constructed adjacent to the crusher, and will have a maximum height of 15 m above grade and an area of approximately 9 ha”. It is further stated in Section 6.2.5 that material will be removed “[...] from the low- grade ore (LGO) stockpile during closure”.</p> <p>Although it is noted in Section 6.2.5 that LGO stockpile “will be lined and equipped with runoff collection system and perimeter ditching”, it appears that a cover is not proposed for the LGO stockpile during the time it remains on the surface. The Agency has uncertainties with the assessment of acid rock drainage and metal leaching, particularly as it relates to the onset time for production of acidic water. In the absence of cover placement on LGO stockpile, it is reasonable to assume that acid rock drainage and metal leaching can occur in the ore exposed to the atmosphere.</p> <p>This information is important for the Agency to understand as uncaptured seepage and runoff from the low-grade ore stockpile can lead into the surrounding waterbodies and affect the fish and fish habitat and the health of Indigenous groups through the consumption of fish.</p>	
<p><u>Specific Question / Request for Information:</u></p> <p>A. Provide an estimate of the maximum time that the ore in low-grade ore stockpile may be exposed to the atmosphere.</p> <p>B. Assess the potential for acid rock drainage and metal leaching from exposure of ore in low-grade ore stockpile to the atmosphere taking the response from Question A and MW(2)-06 from the Agency’s IR-2 into consideration.</p> <p>C. Assess the feasibility of placing a cover on low-grade ore stockpile during the time that ore is not used.</p> <p>D. Update the changes in water quality from the seepage and runoff that may escape the seepage and runoff collection ditches planned around the low-grade ore stockpile, taking responses from Questions A to C into consideration.</p>					

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				<p>E. Provide the effects on fish and fish habitat and health of Indigenous peoples, taking the response from Question D into consideration.</p> <p>F. Describe mitigation measures to prevent adverse effects on fish and fish habitat and health of Indigenous peoples.</p> <p>G. Characterize residual effects, if any, after the mitigation measures have been implemented.</p> <p>H. Update the follow-up program for potential effects to fish and fish habitat and health of Indigenous peoples, including objectives and any monitoring measures that will be implemented to verify the predictions of effects and evaluate the effectiveness of the proposed mitigation measures. If follow-up is not required, provide a rationale.</p> <p>Response:</p> <p><u>Part A.</u> During operations, material will be placed in the low grade ore (LGO) stockpile during open pit mining (years 1 through 4), and will gradually be depleted over the remaining operating mine life (years 4 through 12) as material from the LGO stockpile is used to supplement the underground mineralized rock once the open pit has been completed. At closure, any material remaining in the LGO stockpile will be removed and placed in the mined-out sections of the open pit where it will be covered with water once the open pit is allowed to flood. However, it should be noted that the material exposed to the atmosphere at the surface of the LGO stockpile will be in a constant state of turnover, with rock constantly being used throughout the mining process to supplement the feed for the mill processing. Although material may be present in the LGO stockpile for a maximum of 12 years, it is unlikely to be exposed to the atmosphere and oxidizing conditions for much of that time.</p> <p><u>Part B.</u> Based on the responses to TMI_902-MW(2)-06, and TMI_904-MW(2)-08, a conservative estimate of 2 years has been identified and confirmed for the time to onset of acid conditions. Given that some material in the LGO stockpile may be there for as long as 12 years, it is reasonable to assume that ARD/ML conditions will occur within the LGO stockpile. However, the LGO stockpile will be lined and equipped with runoff collection system to capture water affected by ARD/ML during operations. This water will be used in the water management system and treated appropriately. Therefore, runoff and seepage from the LGO stockpile during operations will not reach the receiving environment, and thus will not affect surface water quality or subsequently fish and fish habitat, and the health of Indigenous groups. At closure, any material remaining in the LGO stockpile will be removed and placed in the mined-out sections of the open pit where it will be covered with water once the open pit is allowed to flood.</p> <p><u>Part C.</u> In order to prevent ARD from occurring in the LGO stockpile, a cover would need to physically and chemically isolate the material from both water and oxygen. Considering the current strategy of continuing turnover within the LGO stockpile, as described in the response in Part A, it would not be practical or feasible to maintain a cover over capable of preventing ARD/ML conditions during the operational period that the low-grade stockpile is in use.</p>

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				<p><u>Part D.</u></p> <p>As described in Section 10 the revised EIS (April 2018) the LGO stockpile area will be lined and equipped with runoff collections system and perimeter ditching to protect the soil beneath and adjacent from effects (Mit_016). The LGO stockpile is located within the operations area, which will be surrounded by a perimeter ditch and seepage collection to ensure effects are isolated within the operations area. During operations, dewatering of the open pit and underground mine workings will create a drawdown zone that will collect virtually all of the seepage from the operations area, and direct it towards the open pit where it will be pumped and used in the water management system and undergo treatment. TMI_911-GW(2)-04 confirmed that the only seepage escaping the effects of drawdown during operations would be 6% of the seepage from the liner of the TSF. At the end of operations, the LGO stockpile will be decommissioned. Any materials that remain in the LGO stockpile at closure will be re-located to the mined out areas of the open pit and isolated once the pit lake forms. Therefore, no changes to the water quality effects presented in the revised EIS (April 2018) are warranted to address the issues raised in Parts A to C.</p> <p><u>Part E.</u></p> <p>As per the responses to Parts A through D, there would be no changes to the water quality predictions presented in the revised EIS (April 2018) to reflect the issues raised in the context and rationale, and Parts A through D, and thus there are no changes to the effects to fish and fish habitat and health of Indigenous peoples associated with the issues raised regarding the LGO stockpile.</p> <p><u>Part F.</u></p> <p>As described in the responses to Parts A to E, issues related ARD/ML with respect to the LGO stockpile will not change the evaluation of fish and fish habitat presented in the revised EIS (April 2018), and thus there will be no changes to the mitigation measures required to prevent adverse effects on fish and fish habitat and the health of Indigenous peoples. The mitigation measures for the LGO stockpile as described in the revised EIS (April 2018) are:</p> <ul style="list-style-type: none"> • The LGO stockpile area will be lined and equipped with runoff collections system and perimeter ditching to protect the soil beneath and adjacent from effects (Mit_016). • During operations, the drawdown zone of the dewatering process will capture all seepage that bypasses the seepage collection systems and will report to the open pit (Mit_052). • Decommission the low-grade ore (LGO) stockpile at the end of operations (Mit_006). <p><u>Part G.</u></p> <p>As described in the responses to Parts A to F, issues related ARD/ML with respect to the LGO stockpile will not change the evaluation of fish and fish habitat presented in the revised EIS (April 2018). Therefore, there would be no change to the residual adverse effects identified in the revised EIS for fish or fish habitat, and the health of Indigenous peoples, as a result of the issues raised in Part A through C.</p>

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				<p>Part H. No specific modifications to the Follow-Up Program were identified as a result of the issues and concerns raised in this information request. An updated Follow-Up Program has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p> <hr/> <p><u>Natural Resources Canada Comment on Draft Response:</u></p> <p>Part A. No. There is no characterization of the low grade ore and the potential for onset of acidic weathering conditions and subsequent mitigation if left in place if commodity prices decrease or the LGO cannot be processed. The Proponent should provide:</p> <ul style="list-style-type: none"> • Geological and geochemical composition of the LGO and the time to onset and chemistry of acidic drainage if not processed: solute release under trickle leach conditions (waste rock dump) and with flooding (backfill into pit) and the resulting impact on pit water quality and treatment requirements and costs • Composition of the resulting tailings, if processed: geochemical composition and drainage chemistry and solute release with flooding and resulting impact on water quality of the TSF <p>Part B. No. See response in A. Also, the sulphide content of the LGO may be higher than that of the waste rock and as a result the drainage chemistry and solute release may be higher than that of the waste rock. Although waste rock is predicted to be at least partially acidic at closure, deposition of the LGO may adversely affect the overall solute loadings and release. NRCan also notes that unlike tailings produced from the ore, tailings produced from LGO that has been stockpiled for many years may be partially oxidized and as a result solute release when flooded may be significantly higher.</p> <p>Part C. Yes (Satisfactory)</p> <p>Part D. No updates have been made</p> <p>Part E. Defer to ECCC and DFO</p> <p>Part F. No The Proponent should provide contingency measures to attenuate and prevent solute release in the events that:</p> <ul style="list-style-type: none"> • the LGO is not processed and the solute release needs to be minimized • The LGO is processed and the solute release from the resulting tailings needs to be minimized

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				<p><u>Specific Response to Natural Resources Canada Comments:</u></p> <p><u>Part A.</u></p> <p>During operations, 2.5×10⁶ tonnes (see Figure 3.5.1-1 of the revised EIS [April 2018]) of low grade, gold-containing material will be placed in the low grade ore (LGO) stockpile during open pit mining (years 1 through 4), and will gradually be depleted over the remaining operating mine life (years 4 through 12) as material from the LGO stockpile will be blended with the high-grade ore from the underground mineralized rock to provide a consistent feed to the mill. Given the material is gold-containing, it is expected that all of the material in the LGO stockpile will be processed through the mill prior to the end of operations; therefore, no material is expected to remain in the LGO stockpile at closure. At the end of operations, the LGO stockpile will be decommissioned. Any materials that remain in the LGO stockpile at closure will be re-located to the mined-out areas of the open pit and isolated once the pit lake forms. As the pit lake fills the water quality will be monitored and treated (as required) with batch lime addition.</p> <p>Since the LGO will be in the stockpile for a maximum of 12 years, and 93% of the material on the site has been characterized as PAG, there is a risk of ARD onset. Given there is a risk of ARD developing in the LGO stockpile, the LGO stockpile area will be lined and equipped with runoff collections system and perimeter ditching to protect the soil beneath and adjacent from effects (Mit_016). The runoff collection system will be directed to a small collection pond where the water will be tested and treated (if required) with batch lime addition before incorporation into the water management system. The LGO stockpile is located within the operations area, which will be surrounded by a perimeter ditch and seepage collection to ensure effects are isolated within the operations area. During operations, dewatering of the open pit and underground mine workings will create a drawdown zone that will collect virtually all of the seepage from the operations area, and direct it towards the open pit where it will be pumped and used in the water management system and undergo treatment.,</p> <p>In the event that the LGO in the LGO stockpile goes acidic, processing of the ore could impact the gold recovery and could produce acid generating tailings. To avoid this, Treasury Metals would implement one of two options. The first would be to remove the acidic ore from being processed and dispose of it in the open pit, where it will be submerged by the pit lake in the post-closure phase. The second option would be to add a caustic material (likely lime) to the ore prior to the addition of cyanide to help with gold extraction and to deposit non-ARD tailings in the TSF. With the implementation of either option, there would be no acid generating tailings being deposited in the TSF.</p> <p>It is important to note, as part of the closure plan under O.Reg 240/00, financial assurance will be set aside to ensure that no LGO is left in the LGO stockpile at closure.</p> <p><u>Part B.</u></p> <p>Based on the responses to TMI_902-MW(2)-06, and TMI_904-MW(2)-08, a conservative estimate of 2 years has been identified and confirmed for the time to onset of acid conditions. Given that some material in the LGO stockpile may be there for as long as 12 years, it is reasonable to assume that ARD/ML conditions will occur within the LGO stockpile. However, the LGO stockpile will be lined and equipped with runoff collection system to capture water affected by ARD/ML during operations. This water will be used in the water management system and treated</p>

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				<p>appropriately. Therefore, runoff and seepage from the LGO stockpile during operations will not reach the receiving environment, and thus will not affect surface water quality or subsequently fish and fish habitat, and the health of Indigenous groups.</p> <p>It is understood that LGO at the end of mine life may be acidic and have legacy load that would be added to initial pit lake water during recovery. The maximum quantity of LGO is currently assumed (if none is processed) to be 2.5 Mt, which represents about 20% of the waste rock placed in the open pit. It is also reasonable to assume that a substantial portion of this material will have been processed at the end of mine life so the amount may be substantially less. As with the waste rock, a portion of the load generated during open storage will have been flushed and managed by water treatment during operations. For a scenario where all of this LGO were to be placed in the open pit at the end of mine life, it is also assumed that it would be placed at the base (deepest region) of the open pit and under water cover within a very short period of time. Therefore, it is considered that the incremental load added by placement of this material would be relatively small and certainly manageable in terms of the batch water treatment planned for the open pit. Once the pit has filled and in-pit treatment has effectively managed this legacy load, the submerged LGO will no longer be available to oxidize generate additional acidic inputs.</p> <p>Further, it is recognized that minimizing ARD development in LGO and waste rock during operations will be beneficial to the project by reducing overall operations and closure water treatment costs. As such, further work is planned to understand and minimize ARD by exploring management opportunities in future phases of project planning.</p> <p><u>Part C.</u> No further comments from the Agency on this response (satisfactory)</p> <p><u>Part D.</u> As described in Section 10 the revised EIS (April 2018) the LGO stockpile area will be lined and equipped with runoff collections system and perimeter ditching to protect the soil beneath and adjacent from effects (Mit_016). The LGO stockpile is located within the operations area, which will be surrounded by a perimeter ditch and seepage collection to ensure effects are isolated within the operations area. During operations, dewatering of the open pit and underground mine workings will create a drawdown zone that will collect virtually all of the seepage from the operations area, and direct it towards the open pit where it will be pumped and used in the water management system and undergo treatment. TMI_911-GW(2)-04 confirmed that the only seepage escaping the effects of drawdown during operations would be 6% of the seepage from the liner of the TSF. At the end of operations, the LGO stockpile will be decommissioned. Any materials that remain in the LGO stockpile at closure will be re-located to the mined out areas of the open pit and isolated once the pit lake forms. Therefore, no changes to the water quality effects presented in the revised EIS (April 2018) are warranted to address the issues raised in Parts A to C.</p> <p><u>Part E.</u></p>

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				<p>As per the responses to Parts A through D, there would be no changes to the water quality predictions presented in the revised EIS (April 2018) to reflect the issues raised in the context and rationale, and Parts A through D, and thus there are no changes to the effects to fish and fish habitat and health of Indigenous peoples associated with the issues raised regarding the LGO stockpile.</p> <p><u>Part F.</u> As per the response to Parts A and B, any LGO that is not processed once operations has ceased will be deposited into the open pit, where it will be submerged by the pit lake. No LGO will be left on the surface following operations. Additionally, in the event that the LGO in the LGO stockpile goes acidic, processing of the LGO could substantially impact the gold recovery and could produce acid generating tailings. To avoid this, Treasury Metals would implement one of two options. The first would be to remove the acidic ore from being process and dispose of it in the open pit, where it will be submerged by the pit lake in the post-closure phase. The second option would be to add a caustic material (likely lime) to the ore prior to the addition of cyanide to help with gold extraction and to deposit non-ARD tailings in the TSF. With the implementation of either option, there would be no acid generating tailings being deposited in the TSF.</p> <p><u>Part G.</u> As described in the responses to Parts A to F, issues related ARD/ML with respect to the LGO stockpile will not change the evaluation of fish and fish habitat presented in the revised EIS (April 2018). Therefore, there would be no change to the residual adverse effects identified in the revised EIS for fish or fish habitat, and the health of Indigenous peoples, as a result of the issues raised in Part A through C.</p> <p><u>Final Response:</u></p> <p><u>Part A.</u> During operations, 2.5×10⁶ tonnes (see Figure 3.5.1-1 of the revised EIS [April 2018]) of low grade, gold-containing material will be placed in the low grade ore (LGO) stockpile during open pit mining (years 1 through 4), and will gradually be depleted over the remaining operating mine life (years 4 through 12) as material from the LGO stockpile will be blended with the high-grade ore from the underground mineralized rock to provide a consistent feed to the mill. Given the material is gold-containing, it is expected that all of the material in the LGO stockpile will be processed through the mill prior to the end of operations; therefore, no material is expected to remain in the LGO stockpile at closure. At the end of operations, the LGO stockpile will be decommissioned. Any materials that remain in the LGO stockpile at closure will be re-located to the mined-out areas of the open pit and isolated once the pit lake forms. As the pit lake fills the water quality will be monitored and treated (as required) with batch lime addition.</p> <p>Since the LGO will be in the stockpile for a maximum of 12 years, and 93% of the material on the site has been characterized as PAG, there is a risk of ARD onset. Given there is a risk of ARD developing in the LGO stockpile. the LGO stockpile area will be lined and equipped with runoff collections system and perimeter ditching to protect the soil beneath and adjacent from effects (Mit_016). The runoff collection system will be directed to a small collection pond</p>

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				<p>where the water will be tested and treated (if required) with batch lime addition before incorporation into the water management system. The LGO stockpile is located within the operations area, which will be surrounded by a perimeter ditch and seepage collection to ensure effects are isolated within the operations area. During operations, dewatering of the open pit and underground mine workings will create a drawdown zone that will collect virtually all of the seepage from the operations area, and direct it towards the open pit where it will be pumped and used in the water management system and undergo treatment.,</p> <p>In the event that the LGO in the LGO stockpile goes acidic, processing of the ore could impact the gold recovery and could produce acid generating tailings. To avoid this, Treasury Metals would implement one of two options. The first would be to remove the acidic ore from being processed and dispose of it in the open pit, where it will be submerged by the pit lake in the post-closure phase. The second option would be to add a caustic material (likely lime) to the ore prior to the addition of cyanide to help with gold extraction and to deposit non-ARD tailings in the TSF. With the implementation of either option, there would be no acid generating tailings being deposited in the TSF.</p> <p>.</p> <p><u>Part B.</u></p> <p>It is understood that LGO at the end of mine life may be acidic and have legacy load that would be added to initial pit lake water during recovery. The maximum quantity of LGO is currently assumed (if none is processed) to be 2.5 Mt, which represents about 20% of the waste rock placed in the open pit. It is also reasonable to assume that a substantial portion of this material will have been processed at the end of mine life so the amount may be substantially less. As with the waste rock, a portion of the load generated during open storage will have been flushed and managed by water treatment during operations. For a scenario where all of this LGO were to be placed in the open pit at the end of mine life, it is also assumed that it would be placed at the base (deepest region) of the open pit and under water cover within a very short period of time. Therefore, it is considered that the incremental load added by placement of this material would be relatively small and certainly manageable in terms of the batch water treatment planned for the open pit. Once the pit has filled and in-pit treatment has effectively managed this legacy load, the submerged LGO will no longer be available to oxidize generate additional acidic inputs.</p> <p>Further, it is recognized that minimizing ARD development in LGO and waste rock during operations will be beneficial to the project by reducing overall operations and closure water treatment costs. As such further work is planned to understand and minimize ARD by exploring management opportunities in future phases of project planning.</p> <p><u>Part C.</u></p> <p>In order to prevent ARD form occurring in the LGO stockpile, a cover would need to physically and chemically isolate the material from both water and oxygen. Considering the current strategy of continuing turnover within the LGO stockpile, as described in the response in Part A, it would not be practical or feasible to maintain a cover over the LGO capable of preventing ARD/ML conditions during the operational period that the LGO stockpile is in use.</p> <p><u>Part D.</u></p>

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response
				<p>As described in Section 10 the revised EIS (April 2018) the LGO stockpile area will be lined and equipped with runoff collections system and perimeter ditching to protect the soil beneath and adjacent from effects (Mit_016). The LGO stockpile is located within the operations area, which will be surrounded by a perimeter ditch and seepage collection to ensure effects are isolated within the operations area. During operations, dewatering of the open pit and underground mine workings will create a drawdown zone that will collect virtually all of the seepage from the operations area, and direct it towards the open pit where it will be pumped and used in the water management system and undergo treatment. TMI_911-GW(2)-04 confirmed that the only seepage escaping the effects of drawdown during operations would be 6% of the seepage from the liner of the TSF. At the end of operations, the LGO stockpile will be decommissioned. Any materials that remain in the LGO stockpile at closure will be re-located to the mined out areas of the open pit and isolated once the pit lake forms. Therefore, no changes to the water quality effects presented in the revised EIS (April 2018) are warranted to address the issues raised in Parts A to C.</p> <p><u>Part E.</u></p> <p>As per the responses to Parts A through D, there would be no changes to the water quality predictions presented in the revised EIS (April 2018) to reflect the issues raised in the context and rationale, and Parts A through D, and thus there are no changes to the effects to fish and fish habitat and health of Indigenous peoples associated with the issues raised regarding the LGO stockpile.</p> <p><u>Part F.</u></p> <p>As described in the responses to Parts A to E, issues related ARD/ML with respect to the LGO stockpile will not change the evaluation of fish and fish habitat presented in the revised EIS (April 2018), and thus there will be no changes to the mitigation measures required to prevent adverse effects on fish and fish habitat and the health of Indigenous peoples. The mitigation measures for the LGO stockpile as described in the revised EIS (April 2018) are:</p> <ul style="list-style-type: none"> • The LGO stockpile area will be lined and equipped with runoff collections system and perimeter ditching to protect the soil beneath and adjacent from effects (Mit_016). • During operations, the drawdown zone of the dewatering process will capture all seepage that bypasses the seepage collection systems and will report to the open pit (Mit_052). • Decommission the low-grade ore (LGO) stockpile at the end of operations (Mit_006). <p>As per the response to Parts A and B, any LGO that is not processed once operations has ceased will be deposited into the open pit, where it will be submerged by the pit lake. No LGO will be left on the surface following operations. Additionally, in the event that the LGO in the LGO stockpile goes acidic, processing of the LGO could substantially impact the gold recovery and could produce acid generating tailings. To avoid this, Treasury Metals would implement one of two options. The first would be to remove the acidic ore from being processed and dispose of it in the open pit, where it will be submerged by the pit lake in the post-closure phase. The second option would be to add a caustic material (likely lime) to the ore prior to the addition of cyanide to help with gold extraction and to deposit non-ARD</p>

Unique Identifier	Agency IR #	Annex	Agency / Group / Stakeholder	Cross Reference / Comment / Information Request / Response
				<p>tailings in the TSF. With the implementation of either option, there would be no acid generating tailings being deposited in the TSF.</p> <p><u>Part G.</u> As described in the responses to Parts A to F, issues related ARD/ML with respect to the LGO stockpile will not change the evaluation of fish and fish habitat presented in the revised EIS (April 2018). Therefore, there would be no change to the residual adverse effects identified in the revised EIS for fish or fish habitat, and the health of Indigenous peoples, as a result of the issues raised in Part A through C.</p> <p><u>Part H.</u> No specific modifications to the Follow-Up Program were identified as a result of the issues and concerns raised in this information request. An updated Follow-Up Program has been provided in support of the Round 2 process as the Goliath Gold Follow Up Program Addendum.</p>

TMI_898-MW(2)-02 Figure D2: Long-term Tailings Storage Facility (TSF) Water Surface Elevations

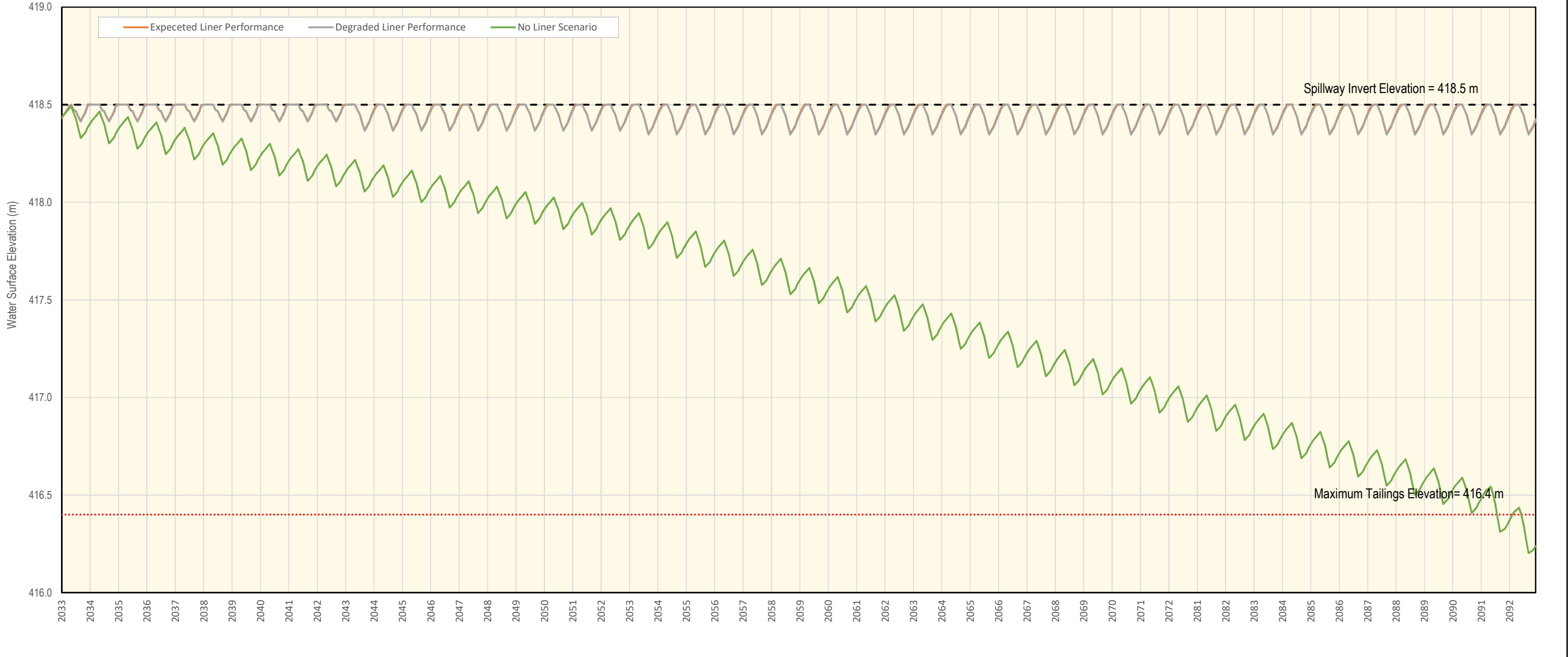


Table TMI_989-MW(2)-02_Table_B1: Multi-year Wet Cover Model (average climatic conditions)

Month	Days	Invert Elevation (m)	Capacity of TSF (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Precipitation (mm)	Evaporation (mm)	Seepage (m³/d)	TSF Inflows (m³)			TSF Outflows (m³)			Net Inflows-Outflows (m³)	End of Month Volume before discharge (m³)	Discharge Volume (m³)	End of Month Volume after discharge (m³)	End of Month WSEL after discharge (m)
						Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients				Baseline	Baseline	Open Water	Restored Operations Area	Total Inflows	Pond Evaporation					
January	31	418.5	1,591,580.3	418.43	1,539,989.5	618,569.2	1.00	11,430.8	0.45	17.39	0.00	2.40	10,757.2	89.5	10,846.7	0.0	74.4	74.4	10,772.3	1,550,761.8	0.0	1,550,761.8	418.45
February	28	418.5	1,591,580.3	418.45	1,550,761.8	618,569.2	1.00	11,430.8	0.45	11.66	0.00	2.40	7,212.0	60.0	7,272.0	0.0	67.2	67.2	7,204.8	1,557,966.5	0.0	1,557,966.5	418.46
March	31	418.5	1,591,580.3	418.46	1,557,966.5	618,569.2	1.00	11,430.8	0.45	15.24	0.00	2.40	9,426.4	78.4	9,504.8	0.0	74.4	74.4	9,430.4	1,567,396.9	0.0	1,567,396.9	418.47
April	30	418.5	1,591,580.3	418.47	1,567,396.9	618,569.2	1.00	11,430.8	0.45	125.83	8.74	2.40	77,835.0	647.3	78,482.2	5,407.5	72.0	5,479.5	73,002.7	1,640,399.7	48,819.4	1,591,580.3	418.50
May	31	418.5	1,591,580.3	418.50	1,591,580.3	618,569.2	1.00	11,430.8	0.45	147.33	100.39	2.40	91,131.2	757.8	91,889.1	62,101.1	74.4	62,175.5	29,713.5	1,621,293.8	29,713.5	1,591,580.3	418.50
June	30	418.5	1,591,580.3	418.50	1,591,580.3	618,569.2	1.00	11,430.8	0.45	75.99	117.12	2.40	47,006.9	390.9	47,397.8	72,446.2	72.0	72,518.2	-25,120.5	1,566,459.8	0.0	1,566,459.8	418.47
July	31	418.5	1,591,580.3	418.47	1,566,459.8	618,569.2	1.00	11,430.8	0.45	72.83	130.66	2.40	45,052.7	374.6	45,427.4	80,823.0	74.4	80,897.4	-35,470.1	1,530,989.7	0.0	1,530,989.7	418.42
August	31	418.5	1,591,580.3	418.42	1,530,989.7	618,569.2	1.00	11,430.8	0.45	28.64	105.78	2.40	17,716.1	147.3	17,863.4	65,429.9	74.4	65,504.3	-47,640.9	1,483,348.9	0.0	1,483,348.9	418.36
September	30	418.5	1,591,580.3	418.36	1,483,348.9	618,569.2	1.00	11,430.8	0.45	45.54	55.47	2.40	28,171.9	234.3	28,406.2	34,309.8	72.0	34,381.8	-5,975.7	1,477,373.2	0.0	1,477,373.2	418.35
October	31	418.5	1,591,580.3	418.35	1,477,373.2	618,569.2	1.00	11,430.8	0.45	56.83	30.44	2.40	35,155.0	292.3	35,447.3	18,830.2	74.4	18,904.6	16,542.7	1,493,915.9	0.0	1,493,915.9	418.37
November	30	418.5	1,591,580.3	418.37	1,493,915.9	618,569.2	1.00	11,430.8	0.45	43.90	0.00	2.40	27,152.4	225.8	27,378.2	0.0	72.0	72.0	27,306.2	1,521,222.0	0.0	1,521,222.0	418.41
December	31	418.5	1,591,580.3	418.41	1,521,222.0	618,569.2	1.00	11,430.8	0.45	30.21	0.00	2.40	18,686.5	155.4	18,841.9	0.0	74.4	74.4	18,767.5	1,539,989.5	0.0	1,539,989.5	418.43
January	31	418.5	1,591,580.3	418.43	1,539,989.5	618,569.2	1.00	11,430.8	0.45	17.39	0.00	2.40	10,757.2	89.5	10,846.7	0.0	74.4	74.4	10,772.3	1,550,761.8	0.0	1,550,761.8	418.45
February	28	418.5	1,591,580.3	418.45	1,550,761.8	618,569.2	1.00	11,430.8	0.45	11.66	0.00	2.40	7,212.0	60.0	7,272.0	0.0	67.2	67.2	7,204.8	1,557,966.5	0.0	1,557,966.5	418.46
March	31	418.5	1,591,580.3	418.46	1,557,966.5	618,569.2	1.00	11,430.8	0.45	15.24	0.00	2.40	9,426.4	78.4	9,504.8	0.0	74.4	74.4	9,430.4	1,567,396.9	0.0	1,567,396.9	418.47
April	30	418.5	1,591,580.3	418.47	1,567,396.9	618,569.2	1.00	11,430.8	0.45	125.83	8.74	2.40	77,835.0	647.3	78,482.2	5,407.5	72.0	5,479.5	73,002.7	1,640,399.7	48,819.4	1,591,580.3	418.50
May	31	418.5	1,591,580.3	418.50	1,591,580.3	618,569.2	1.00	11,430.8	0.45	147.33	100.39	2.40	91,131.2	757.8	91,889.1	62,101.1	74.4	62,175.5	29,713.5	1,621,293.8	29,713.5	1,591,580.3	418.50
June	30	418.5	1,591,580.3	418.50	1,591,580.3	618,569.2	1.00	11,430.8	0.45	75.99	117.12	2.40	47,006.9	390.9	47,397.8	72,446.2	72.0	72,518.2	-25,120.5	1,566,459.8	0.0	1,566,459.8	418.47
July	31	418.5	1,591,580.3	418.47	1,566,459.8	618,569.2	1.00	11,430.8	0.45	72.83	130.66	2.40	45,052.7	374.6	45,427.4	80,823.0	74.4	80,897.4	-35,470.1	1,530,989.7	0.0	1,530,989.7	418.42
August	31	418.5	1,591,580.3	418.42	1,530,989.7	618,569.2	1.00	11,430.8	0.45	28.64	105.78	2.40	17,716.1	147.3	17,863.4	65,429.9	74.4	65,504.3	-47,640.9	1,483,348.9	0.0	1,483,348.9	418.36
September	30	418.5	1,591,580.3	418.36	1,483,348.9	618,569.2	1.00	11,430.8	0.45	45.54	55.47	2.40	28,171.9	234.3	28,406.2	34,309.8	72.0	34,381.8	-5,975.7	1,477,373.2	0.0	1,477,373.2	418.35
October	31	418.5	1,591,580.3	418.35	1,477,373.2	618,569.2	1.00	11,430.8	0.45	56.83	30.44	2.40	35,155.0	292.3	35,447.3	18,830.2	74.4	18,904.6	16,542.7	1,493,915.9	0.0	1,493,915.9	418.37
November	30	418.5	1,591,580.3	418.37	1,493,915.9	618,569.2	1.00	11,430.8	0.45	43.90	0.00	2.40	27,152.4	225.8	27,378.2	0.0	72.0	72.0	27,306.2	1,521,222.0	0.0	1,521,222.0	418.41
December	31	418.5	1,591,580.3	418.41	1,521,222.0	618,569.2	1.00	11,430.8	0.45	30.21	0.00	2.40	18,686.5	155.4	18,841.9	0.0	74.4	74.4	18,767.5	1,539,989.5	0.0	1,539,989.5	418.43
January	31	418.5	1,591,580.3	418.43	1,539,989.5	618,569.2	1.00	11,430.8	0.45	17.39	0.00	2.40	10,757.2	89.5	10,846.7	0.0	74.4	74.4	10,772.3	1,550,761.8	0.0	1,550,761.8	418.45
February	28	418.5	1,591,580.3	418.45	1,550,761.8	618,569.2	1.00	11,430.8	0.45	11.66	0.00	2.40	7,212.0	60.0	7,272.0	0.0	67.2	67.2	7,204.8	1,557,966.5	0.0	1,557,966.5	418.46
March	31	418.5	1,591,580.3	418.46	1,557,966.5	618,569.2	1.00	11,430.8	0.45	15.24	0.00	2.40	9,426.4	78.4	9,504.8	0.0	74.4	74.4	9,430.4	1,567,396.9	0.0	1,567,396.9	418.47
April	30	418.5	1,591,580.3	418.47	1,567,396.9	618,569.2	1.00	11,430.8	0.45	125.83	8.74	2.40	77,835.0	647.3	78,482.2	5,407.5	72.0	5,479.5	73,002.7	1,640,399.7	48,819.4	1,591,580.3	418.50
May	31	418.5	1,591,580.3	418.50	1,591,580.3	618,569.2	1.00	11,430.8	0.45	147.33	100.39	2.40	91,131.2	757.8	91,889.1	62,101.1	74.4	62,175.5	29,713.5	1,621,293.8	29,713.5	1,591,580.3	418.50
June	30	418.5	1,591,580.3	418.50	1,591,580.3	618,569.2	1.00	11,430.8	0.45	75.99	117.12	2.40	47,006.9	390.9	47,397.8	72,446.2	72.0	72,518.2	-25,120.5	1,566,459.8	0.0	1,566,459.8	418.47
July	31	418.5	1,591,580.3	418.47	1,566,459.8	618,569.2	1.00	11,430.8	0.45	72.83	130.66	2.40	45,052.7	374.6	45,427.4	80,823.0	74.4	80,897.4	-35,470.1	1,530,989.7	0.0	1,530,989.7	418.42
August	31	418.5	1,591,580.3	418.42	1,530,989.7	618,569.2	1.00	11,430.8	0.45	28.64	105.78	2.40	17,716.1	147.3	17,863.4	65,429.9	74.4	65,504.3	-47,640.9	1,483,348.9	0.0	1,483,348.9	418.36
September	30	418.5	1,591,580.3	418.36	1,483,348.9	618,569.2	1.00	11,430.8	0.45	45.54	55.47	2.40	28,171.9	234.3	28,406.2	34,309.8	72.0	34,381.8	-5,975.7	1,477,373.2	0.0	1,477,373.2	418.35
October	31	418.5	1,591,580.3	418.35	1,477,373.2	618,569.2	1.00	11,430.8	0.45	56.83	30.44	2.40	35,155.0	292.3	35,447.3	18,830.2	74.4	18,904.6	16,542.7	1,493,915.9	0.0	1,493,915.9	418.37
November	30	418.5	1,591,580.3	418.37	1,493,915.9	618,569.2	1.00	11,430.8	0.45	43.90	0.00	2.40	27,152.4	225.8	27,378.2	0.0	72.0	72.0	27,306.2	1,521,222.0	0.0	1,521,222.0	418.41
December	31	418.5	1,591,580.3	418.41	1,521,222.0	618,569.2	1.00	11,430.8	0.45	30.21	0.00	2.40	18,686.5	155.4	18,841.9	0.0	74.4	74.4	18,767.5	1,539,989.5	0.0	1,539,989.5	418.43
January	31	418.5	1,591,580.3	418.43	1,539,989.5	618,569.2	1.00	11,430.8	0.45	17.39	0.00	2.40	10,757.2	89.5	10,846.7	0.0	74.4	74.4	10,772.3	1,550,761.8	0.0	1,550,761.8	418.45
February	28	418.5	1,591,580.3	418.45	1,550,761.8	618,569.2	1.00	11,430.8	0.45	11.66	0.00	2.40	7,212.0	60.0	7,272.0	0.0	67.2	67.2	7,204.8	1,557,966.5	0.0	1,557,966.5	418.46
March	31	418.5	1,591,580.3	418.46	1,557,966.5	618,569.2	1.00	11,430.8	0.45	15.24	0.00	2.40	9,426.4	78.4	9,504.8	0.0	74.4	74.4	9,430.4	1,567,396.9	0.0	1,567,396.9	418.47
April	30	418.5	1,591,580.3	418.47	1,567,396.9	618,569.2	1.00	11,430.8	0.45	125.83	8.74	2.40	77,835.0	647.3	78,482.2	5,407.5	72.0	5,479.5	73,002.7	1,640,399.7	48,819.4	1,591,580.3	418.50

Table TMI_989-MW(2)-02_Table_B1: Multi-year Wet Cover Model (average climatic conditions)

Month	Days	Invert Elevation (m)	Capacity of TSF (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Precipitation (mm)	Evaporation (mm)	Seepage (m³/d)	TSF Inflows (m³)			TSF Outflows (m³)			Net Inflows-Outflows (m³)	End of Month Volume before discharge (m³)	Discharge Volume (m³)	End of Month Volume after discharge (m³)	End of Month WSEL after discharge (m)
						Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients	Baseline	Baseline		Open Water	Restored Operations Area	Total Inflows	Pond Evaporation	Seepage	Total Outflows					
May	31	418.5	1,591,580.3	418.50	1,591,580.3	618,569.2	1.00	11,430.8	0.45	147.33	100.39	2.40	91,131.2	757.8	91,889.1	62,101.1	74.4	62,175.5	29,713.5	1,621,293.8	29,713.5	1,591,580.3	418.50
June	30	418.5	1,591,580.3	418.50	1,591,580.3	618,569.2	1.00	11,430.8	0.45	75.99	117.12	2.40	47,006.9	390.9	47,397.8	72,446.2	72.0	72,518.2	-25,120.5	1,566,459.8	0.0	1,566,459.8	418.47
July	31	418.5	1,591,580.3	418.47	1,566,459.8	618,569.2	1.00	11,430.8	0.45	72.83	130.66	2.40	45,052.7	374.6	45,427.4	80,823.0	74.4	80,897.4	-35,470.1	1,530,989.7	0.0	1,530,989.7	418.42
August	31	418.5	1,591,580.3	418.42	1,530,989.7	618,569.2	1.00	11,430.8	0.45	28.64	105.78	2.40	17,716.1	147.3	17,863.4	65,429.9	74.4	65,504.3	-47,640.9	1,483,348.9	0.0	1,483,348.9	418.36
September	30	418.5	1,591,580.3	418.36	1,483,348.9	618,569.2	1.00	11,430.8	0.45	45.54	55.47	2.40	28,171.9	234.3	28,406.2	34,309.8	72.0	34,381.8	-5,975.7	1,477,373.2	0.0	1,477,373.2	418.35
October	31	418.5	1,591,580.3	418.35	1,477,373.2	618,569.2	1.00	11,430.8	0.45	56.83	30.44	2.40	35,155.0	292.3	35,447.3	18,830.2	74.4	18,904.6	16,542.7	1,493,915.9	0.0	1,493,915.9	418.37
November	30	418.5	1,591,580.3	418.37	1,493,915.9	618,569.2	1.00	11,430.8	0.45	43.90	0.00	2.40	27,152.4	225.8	27,378.2	0.0	72.0	72.0	27,306.2	1,521,222.0	0.0	1,521,222.0	418.41
December	31	418.5	1,591,580.3	418.41	1,521,222.0	618,569.2	1.00	11,430.8	0.45	30.21	0.00	2.40	18,686.5	155.4	18,841.9	0.0	74.4	74.4	18,767.5	1,539,989.5	0.0	1,539,989.5	418.43
January	31	418.5	1,591,580.3	418.43	1,539,989.5	618,569.2	1.00	11,430.8	0.45	17.39	0.00	2.40	10,757.2	89.5	10,846.7	0.0	74.4	74.4	10,772.3	1,550,761.8	0.0	1,550,761.8	418.45
February	28	418.5	1,591,580.3	418.45	1,550,761.8	618,569.2	1.00	11,430.8	0.45	11.66	0.00	2.40	7,212.0	60.0	7,272.0	0.0	67.2	67.2	7,204.8	1,557,966.5	0.0	1,557,966.5	418.46
March	31	418.5	1,591,580.3	418.46	1,557,966.5	618,569.2	1.00	11,430.8	0.45	15.24	0.00	2.40	9,426.4	78.4	9,504.8	0.0	74.4	74.4	9,430.4	1,567,396.9	0.0	1,567,396.9	418.47
April	30	418.5	1,591,580.3	418.47	1,567,396.9	618,569.2	1.00	11,430.8	0.45	125.83	8.74	2.40	77,835.0	647.3	78,482.2	5,407.5	72.0	5,479.5	73,002.7	1,640,399.7	48,819.4	1,591,580.3	418.50
May	31	418.5	1,591,580.3	418.50	1,591,580.3	618,569.2	1.00	11,430.8	0.45	147.33	100.39	2.40	91,131.2	757.8	91,889.1	62,101.1	74.4	62,175.5	29,713.5	1,621,293.8	29,713.5	1,591,580.3	418.50
June	30	418.5	1,591,580.3	418.50	1,591,580.3	618,569.2	1.00	11,430.8	0.45	75.99	117.12	2.40	47,006.9	390.9	47,397.8	72,446.2	72.0	72,518.2	-25,120.5	1,566,459.8	0.0	1,566,459.8	418.47
July	31	418.5	1,591,580.3	418.47	1,566,459.8	618,569.2	1.00	11,430.8	0.45	72.83	130.66	2.40	45,052.7	374.6	45,427.4	80,823.0	74.4	80,897.4	-35,470.1	1,530,989.7	0.0	1,530,989.7	418.42
August	31	418.5	1,591,580.3	418.42	1,530,989.7	618,569.2	1.00	11,430.8	0.45	28.64	105.78	2.40	17,716.1	147.3	17,863.4	65,429.9	74.4	65,504.3	-47,640.9	1,483,348.9	0.0	1,483,348.9	418.36
September	30	418.5	1,591,580.3	418.36	1,483,348.9	618,569.2	1.00	11,430.8	0.45	45.54	55.47	2.40	28,171.9	234.3	28,406.2	34,309.8	72.0	34,381.8	-5,975.7	1,477,373.2	0.0	1,477,373.2	418.35
October	31	418.5	1,591,580.3	418.35	1,477,373.2	618,569.2	1.00	11,430.8	0.45	56.83	30.44	2.40	35,155.0	292.3	35,447.3	18,830.2	74.4	18,904.6	16,542.7	1,493,915.9	0.0	1,493,915.9	418.37
November	30	418.5	1,591,580.3	418.37	1,493,915.9	618,569.2	1.00	11,430.8	0.45	43.90	0.00	2.40	27,152.4	225.8	27,378.2	0.0	72.0	72.0	27,306.2	1,521,222.0	0.0	1,521,222.0	418.41
December	31	418.5	1,591,580.3	418.41	1,521,222.0	618,569.2	1.00	11,430.8	0.45	30.21	0.00	2.40	18,686.5	155.4	18,841.9	0.0	74.4	74.4	18,767.5	1,539,989.5	0.0	1,539,989.5	418.43

TMI_904 MW(2) 08_Table_3: Summary of Waste Rock Humidity Cell Results

Humidity Cell ID	Lithology	Sulphide Content	Sulphide Percentile Rank in Lithology		Steady Sulphate Rate ⁽¹⁾	Carbonate NP	Carb NP Percentile Rank in Lithology		Calculated Carb NP Depletion*	Weeks to steady decline in pH < 6
		%	n	Rank	mg/kg/wk	kg CaCO ₃ /t	n ⁽²⁾	Rank	Weeks (Years)	Weeks
BMS-A	BMS	0.13	67	9%	4.0	0.4	52	40%	119 (2.3)	51 ⁽³⁾
BMS-B		0.33		47%	2.3	1.0		77%	280 (5.4)	63 ⁽³⁾
BMS-C		1.54		98%	4.6	1.1		77%	235 (4.5)	65
BS-A	BS	0.12	20	42%	2.9	8.1	20	94%	2341 (45)	63 ⁽³⁾
BS-B		0.28		53%	3.4	2.3		70%	539 (10.4)	63 ⁽³⁾
BS-C		0.90		91%	4.9	0.5		17%	140 (2.7)	65
MSS-A	MSS	0.27	59	34%	2.1	0.5	35	63%	183 (3.5)	63 ⁽³⁾
MSS-B		1.50		88%	2.8	0.8		72%	200 (3.8)	63 ⁽³⁾
MSS-C		1.58		88%	3.0	0.3		35%	112 (2.1)	62
MSED-A	MSED	0.67	15	80%	1.6	3.3	9	70%	719 (13.8)	63 ⁽³⁾
MSED-B		0.91		83%	5.9	2.5		59%	313 (6.0)	85 ⁽³⁾

Notes:

- (1) Based on week 39 to 51 rates
- (2) Number of samples with measured inorganic carbon content
- (3) Weeks at cell termination. No steady decline in pH observed

UPDATED MULTI-YEAR WATER COVER MODEL

CM1 Introduction

In April of 2018, Treasury Metals submitted a revised version of the Environmental Impact Statement (EIS) for the proposed Goliath Gold Project (the Project) to the Canadian Environmental Assessment Agency (the Agency) for consideration under the Canadian Environmental Assessment Act (CEAA), 2012. The Agency reviewed the submission and informed Treasury Metals that the requirements of the EIS Guidelines for the Project were met and that the Agency would issue a series of information requests to Treasury Metals regarding the technical review of the EIS and supporting appendices (referred to herein as the Round 2 information requests). The Round 2 information requests were issued to Treasury Metals from July 6th, 2018 to July 27th, 2018 and included questions from the Agency, other Federal and Provincial reviewers, Indigenous communities and interested stakeholders.

As part of the Round 2 information requests, Environment and Climate Change Canada (ECCC) the that the water cover model developed to respond to Round 2 information requests (TMI_989-MW(2)-02) be updated to address additional capabilities, including the following:

- The use of actual climate data for a long-period instead of the average precipitation and evaporation data so as to capture potential large variations from year-to-year.
- Modify the actual climate data for a long-period to reflect climate change, and incorporate changes in evaporation as a result of projected increases in temperature (provide a description for how the evaporation rate for the climate change scenarios was adjusted). The assumptions and data tables for the climate change scenarios should be provided.
- Include potential losses arising from snow sublimation during winter months.

CM2 Sources of Historic Precipitation and Temperature Data

A 49-year (1969 through 2017) record of actual climate readings have been compiled from the data collected at available monitoring stations in the area. The precipitation and temperature data were taken from the stations in Dryden, the closest location to the Project for which data were available. However, there is no single station in Dryden covering that entire period. In fact, there have been five stations operated in Dryden over the years as shown in Table 1. The priority for compiling data used the following procedure:

- Data from the Dryden Regional (6032125) station that was used when available. This station was commissioned on September 24, 2010. As shown in the table, data from this station were used for the period from September 24, 2010 through December 31, 2017.
- Data from the Dryden A (auto) (6032120) station were used as the second choice. This station was commissioned on November 23, 1999 and was decommissioned on September 23, 2010. Given the short period of record in 1999, data from this station were used for the period from January 1, 2000 through September 23, 2010.

- Data from the Dryden A (6032119) station were used as the third choice. This station was commissioned on January 1, 1970 and was decommissioned on at the end of 2004. As shown in the table, data from this station were used for the period from 1970 through 1999.
- The only station with data available for was Dryden (6032117). This station was commissioned in 1914 and decommissioned in 1996.
- Although data were also available from the Dryden Forestry (6032118) for the period from 1960 through 1967, no data from this station were used in the analysis.

Station	Years of Data Available	Years Used in the Analysis
Dryden Regional (6032125)	2010–2017	2010–2017 ⁽¹⁾
Dryden A (auto) (6032120)	1999–2010 ⁽²⁾	2000–2010 ⁽¹⁾
Dryden A (6032119)	1970–2004	1970–1999 ⁽²⁾
Dryden (6032117)	1914–1996	1969
Dryden Forestry (6032118)	1960–1967	NA

NOTES:

- (1) The Dryden Regional (6032125) station was not commissioned until September 24, 2010. Prior to that point in 2010, data was taken from the Dryden A (auto) (6032120) station. The Dryden A (auto) (6032120) station was decommissioned on September 23, 2010.
- (2) As only 38 days of data were available from the Dryden A (auto) (6032120) station in 1999, the 1999 data were taken from the Dryden A (6032119) station.

The available daily climate data were downloaded from the Environment Canada and Climate Change website (http://climate.weather.gc.ca/historical_data/search_historic_data_e.html) and use to calculate monthly total precipitation and monthly average temperatures for the period from 1969 through 2017. Where available (1969–1999), the total daily precipitations and total daily snowfall readings were used to calculate the percentage of precipitations falling as snowfall and combined to calculate the average monthly percentage of precipitation falling as snow. This information was used to determine those months when precipitation losses for snow sublimation and drifting snow would be applied. For those months when snowfall data were not recorded (2000–2017), the monthly averages calculated for from the 1969–1999 period were assigned. Table 2 summarizes the monthly average percentages for precipitation falling as snowfall, calculated using the 1969–1992 data.

Month	Period Used in Calculation	Average Percent of Monthly Precipitation as Snowfall
January	1969–1999	98%
February	1969–1999	94%
March	1969–1999	82%
April	1969–1999	38%
May	1969–1999	4%
June	1969–1999	0%
July	1969–1999	0%
August	1969–1999	0%
September	1969–1999	2%
October	1969–1999	22%
November	1969–1999	83%
December	1969–1999	94%

CM3 Sources of Historic Evaporation Data

A 31-year (1969–1999) set of daily lake evaporation data from the Rawson Lake (6036904] station were obtained and used in the analysis. Given the nature of lake evaporation readings, data were not available for every day of that period. To adjust for missing data, the total of the available daily evaporation readings for each month were calculated, and then adjusted by the ratio of days in the month to the number of available data of data, as shown in the following example for August 1972:

$$adjusted\ evaporation = \sum available\ daily\ evaporation \times \frac{days\ in\ month}{days\ with\ data}$$

$$73.4\ mm \times \frac{24\ days}{31\ days} = 94.8\ mm$$

The average monthly evaporations rates were determined for each month using the adjusted data for the period from 1969 through 1999 and then applied for those years for which evaporation data is not yet available (2000–2017). Table 3 lists the monthly evaporation data currently used for the 2000–2017 period.

Month	Period Used in Calculation	Average Monthly Evaporation (mm)
January	1969–1999	0.0
February	1969–1999	0.0
March	1969–1999	0.0
April	1969–1999	8.7
May	1969–1999	99.9
June	1969–1999	115.4
July	1969–1999	128.3
August	1969–1999	106.0
September	1969–1999	55.3
October	1969–1999	29.5
November	1969–1999	0.0
December	1969–1999	0.0

CM4 Snowfall Losses through Sublimation and Drift

Feedback from Environment and Climate Change Canada (ECCC) regarding TMI_989-MW(2)-02 indicated that they wished to see the multi-year water cover model (the model) should be expanded to include consideration of losses through snow sublimation in the winter months. Additionally, during the December 18, 2018 meeting ECCC representatives also suggested that the model could also consider winter losses due to drifting snow.

Most of the literature regarding sublimation rates (Essery et al, 1999; Li and Pomeroy, 1997; Pomeroy et al., 2002; Jones and Pomeroy, 1996) have focused on calculating the rates of snow sublimation for the snow intercepted by the forest canopy, which would not be relevant for the evaluating the water cover over the TSF. However, Pomeroy and Jones (1996), noted that daily sublimation rates for the prairies ranged from 0.01–0.3 mm/d, with an average value of 0.1 mm/d. Jones and Pomeroy (1996) also noted that most sublimation during the day is offset by frost accumulation in the evenings.

No definitive estimates of the amount of snow lost to drifting were provided in literature (Li and Pomeroy, 1997; Essery and Pomeroy, 1999; Pomeroy et al., 1993; Pomeroy et al., 2002; Pomeroy and Gray, 1990), however, the rate of saltation and deposition was found to be dependent on the roughness of the surface, the size of clearings and the fetch downwind from trees. In large open areas, the saltation and deposition of snow appear to offset each other. For the purpose of the multi-year water cover model, an allowance for 2% of snow drift losses has been included. This adjustment would only be applied in months where snowfall occurs.

CM5 Consideration of Climate Change

A discussion of the potential effects of climate change on the model and the scenarios considered in the revised EIS (April 2018) were presented in Section 5.1.4, as well as discussed in the response to TMI_263-EE(1)-06. The revised EIS (April 2018) acknowledges that it is widely recognized that climate is changing, and that changes in climate over the life of the Project could potentially result in a shift in weather conditions and/or the frequency of extreme weather events. The revised EIS (April 2018) goes on to indicate that various climate change assessments developed for northern Ontario generally predict that the temperatures will increase in the future, while precipitation will remain stable, or increase. There are a multitude of reputable sources available that describe the projections for future changes in climate, including how climate is predicted to change in northwestern Ontario. The primary source of climate change data relied on in both the revised EIS (April 2018) and in the multi-year water cover model is the document entitled "Climate change projections for Ontario: An updated synthesis for policymakers and planners" (McDermid et al., 2015), also referred to as CCRR-44. This updated summary for policymakers (McDermid et al., 2015) made use from the Fifth Assessment Report (AR5) from the IPCC (2013), which replaces the socio-economic emission scenarios relied on in Fourth Assessment Report (AR4) from the IPCC (2007) with new emission scenarios. Specifically, the updated summary for policymakers (McDermid et al., 2015) presents predictions for the following three emission scenarios:

- **RCP 2.6 (W/m²):** This scenario is described as a medium-low emission scenario with aggressive mitigation. Emissions are expected to peak early, and then fall due to active removal of atmospheric carbon dioxide. The RCP 2.6 scenario requires that all of the main GHG emitters, including developing countries, to participate early on in climate change mitigation policy.
- **RCP 4.5 (W/m²):** This emission scenario represents a medium stabilization emission scenario where radiative forcing stabilizes by 2100.
- **RCP 8.5 (W/m²):** This emission scenario represents a very high emission scenario and a failure to curb warming by 2100. The greenhouse gas (GHG) emissions for this scenario are up to seven times higher than preindustrial levels.

The updated summary for policymakers (McDermid et al., 2015) provides predictions for each of the 2011–2040, 2041–2070, and 2071–2100 time horizons. As detailed in McDermid et al. (2015), the updated summary for policymakers relies on statistically downscaled data from the average of four (4) Earth Systems Models (CanESM2, MIROC-ESM-CHEM, CESM1-CAMS, hadGEM2-ES) rather than using data from a single model. The data relied on in the updated summary for policymakers (McDermid et al., 2015) are described more fully by McKenney et al. (2006; 2011; 2013). The results are presented numerically for the three major watersheds in Ontario (i.e., Great Lakes, Hudson Bay, and Nelson River). The data for the Nelson River watershed, the region most relevant for the Goliath Gold Project, are summarized in Table 4.

Table 4: Projections for Mean Changes in Climate (relative to 1971 to 2000)							
Scenario	Time Horizon	Temperatures (°C)			Precipitation (mm)		
		Annual	Summer	Winter	Annual	Summer	Winter
RCP 2.6	2011–2040	+2.30	+2.20	+2.30	+18.10	-18.60	+21.70
	2041–2070	+3.00	+2.70	+3.20	+51.80	-7.40	+24.00
	2071–2100	+3.10	+2.90	+3.60	+57.50	-2.90	+21.90
RCP 4.5	2011–2040	+2.20	+2.10	+2.10	+28.70	-19.10	+19.40
	2041–2070	+4.00	+3.40	+4.70	+37.50	-19.80	+21.60
	2071–2100	+5.00	+4.40	+5.60	+40.60	-24.10	+30.60
RCP 8.5	2011–2040	+2.40	+2.30	+2.70	+32.80	-20.80	+18.80
	2041–2070	+4.80	+4.60	+5.60	+54.30	-27.70	+30.60
	2071–2100	+8.30	+7.80	+9.30	+64.00	-43.60	+39.70

Note: Data from McDermid et al, 2015

The only data provided in the updated summary for policymakers (McDermid et al, 2015) were annual, summer and winter predictions. For temperature, the following relationship was used to determine appropriate values to use for the “spring” and “fall” periods:

$$\text{spring or fall} = \frac{4 \times \text{annual} - \text{summer} - \text{winter}}{2}$$

For precipitation, the following relationship was used to determine appropriate values to use for the “spring” and “fall” periods:

$$\text{spring/fall} = \frac{\text{annual} - \text{summer} - \text{winter}}{2}$$

The annual and seasonal temperature predictions for the Nelson River watershed, calculated as described above, are summarized in Table 5.

Table 5: Projections for Annual and Seasonal Changes in Temperature in °C (relative to 1971 to 2000)						
Scenario	Time Horizon	Annual	Spring	Summer	Fall	Winter
RCP 2.6	2011–2040	+2.30	+2.35	+2.20	+2.35	+2.30
	2041–2070	+3.00	+3.05	+2.70	+3.05	+3.20
	2071–2100	+3.10	+2.95	+2.90	+2.95	+3.60
RCP 4.5	2011–2040	+2.20	+2.30	+2.10	+2.30	+2.10
	2041–2070	+4.00	+3.95	+3.40	+3.95	+4.70
	2071–2100	+5.00	+5.00	+4.40	+5.00	+5.60
RCP 8.5	2011–2040	+2.40	+2.30	+2.30	+2.30	+2.70
	2041–2070	+4.80	+4.50	+4.60	+4.50	+5.60
	2071–2100	+8.30	+8.05	+7.80	+8.05	+9.30

The annual and seasonal precipitation predictions for the Nelson River watershed, calculated as described above, are summarized in Table 5.

Table 6: Projections for Annual and Seasonal Changes in Precipitation in mm (relative to 1971 to 2000)						
Scenario	Time Horizon	Annual	Spring	Summer	Fall	Winter
RCP 2.6	2011–2040	+18.10	+7.50	-18.60	+7.50	+21.70
	2041–2070	+51.80	+17.60	-7.40	+17.60	+24.00
	2071–2100	+57.50	+19.25	-2.90	+19.25	+21.90
RCP 4.5	2011–2040	+28.70	+14.20	-19.10	+14.20	+19.40
	2041–2070	+37.50	+17.85	-19.80	+17.85	+21.60
	2071–2100	+40.60	+17.05	-24.10	+17.05	+30.60
RCP 8.5	2011–2040	+32.80	+17.40	-20.80	+17.40	+18.80
	2041–2070	+54.30	+25.70	-27.70	+25.70	+30.60
	2071–2100	+64.00	+33.95	-43.60	+33.95	+39.70

The seasonal predictions of change were applied to the individual months using the following relationships: spring (March, April, May); summer (June, July, August), fall (September, October, November); and winter (December, January, February).

CM6 Future Evaporation to Reflect Climate Change

Although not explicitly provided in the updated summary for policymakers (McDermid et al, 2015), the predicted increases of temperature in the future can be expected to result in increased evaporation. In order to capture the likely changes in evaporation rates, the following formulation from the Handbook of Hydrology (1992) was used to calculate daily potential evaporation:

$$E_p = \frac{\Delta}{\Delta + \gamma} \times (R_n + A_h) + \left(\frac{\gamma}{\Delta + \gamma} \right) \times \frac{6.43 \times (1 + 0.536 \times U_2) \times D}{\lambda}$$

where:

- E_p = potential evaporation (mm/d)
- Δ = gradient of the saturation vapour pressure (kPa/°C), and $\Delta = \frac{4098 \times e_s}{(237.3 + T)^2}$
- γ = psychrometric constant (kPa/°C), and $\gamma = \frac{c_p \times P}{\epsilon \times \lambda}$
- R_n = net radiation at the water surface (mm/d)
- A_h = energy advection at the water surface (assumed to be insignificant)
- U_2 = wind speed at 2 m (m/s), calculated from 10 m winds as follows:

$$U_2 = U_{10} \times \left(\frac{\ln\left(\frac{2}{z_0}\right)}{\ln\left(\frac{10}{z_0}\right)} \right)$$
- D = vapour pressure deficit (kPa), and $D = e_s - e$
- e_s = the saturation vapour pressure (kPa), and $e_s = 0.6108 \times \exp\left(\frac{17.27 \times T}{237.3 + T}\right)$
- T = temperature (°)
- C_p = specific heat of moist air (1.013 kJ/kg/°C)
- P = atmospheric pressure (kPa)
- ϵ = ratio of the molecular weight of water to dry air (0.622)
- λ = latent heat of vaporization of water (MJ/kg), and $\lambda = 2.501 - 0.002361 \times T$

The average daily insolation and net radiation were calculated for the latitude and longitude of Dryden using the formulations provided in "Meteorology for Scientists and Engineers" (Stull, 2000). Daily net radiation rates were then calculated considering both Albedo and cloud cover. The Albedo were adjusted monthly to account for the likely presence of snow on the ground. The baseline daily potential evaporation rates (E_p) were calculated using the normal temperatures (1971–2000), along with the average monthly relative humidity and wind speeds from the hourly Dryden data for the last 10 years. The average baseline cloud cover values ($\sigma_L, \sigma_M, \sigma_H$) were derived by iteratively solving the above equation to yield predicted baseline evaporations rates (1971–2000) that were consistent with the measured normal evaporation rates.

Monthly evaporation rates in the future were calculated by using the above equation, adding the future change in seasonal temperatures (see Table 5) to the monthly normal temperatures. No adjustment was made to the level of cloud cover. The resulting predictions for future annual and seasonal evaporation rates are summarized in Table 7.

Table 7: Predicted Change in Annual and Seasonal Evaporation in mm (relative to 1971 to 2000)						
Scenario	Time Horizon	Annual	Spring	Summer	Fall	Winter
RCP 2.6	2011–2040	+31.61	+15.65	+8.34	+7.63	0.0
	2041–2070	+49.92	+22.91	+14.24	+12.77	0.0
	2071–2100	+52.64	+23.65	+15.89	+13.09	0.0
RCP 4.5	2011–2040	+33.67	+18.65	+6.10	+8.93	0.0
	2041–2070	+58.21	+28.26	+13.98	+15.98	0.0
	2071–2100	+70.37	+33.13	+18.30	+18.95	0.0
RCP 8.5	2011–2040	+37.19	+20.08	+7.56	+9.55	0.0
	2041–2070	+70.92	+34.61	+18.66	+17.65	0.0
	2071–2100	+164.06	+87.69	+29.03	+47.34	0.0

CM7 TSF Seepage Rates

One of the important factors to consider in the multi-year water cover model is the losses through the floor and walls of the TSF. As described in Section W7.1 of the Goliath Gold Water Addendum, and the response to TMI_900-MW(2)-04, the entire TSF basin will be lined with a geosynthetic liner (HDPE, or equivalent). The estimated seepage rate of 2.4 m³/day through the original TSF liner represents the approximate upper bound estimate for a properly installed HDPE geomembrane underlying mine tailings (Kerry Rowe et al., 2016), that is independent of the soil characteristics underneath the TSF liner. As described in the response to TMI_951-GW(2)-01B, the HPDE liner would be placed during the initial construction activities and would cover the floors and walls of the initial of the TSF construction (see TMI_951 GW(2) 01B_Attachment_1). The floor and initial walls of the TSF (Stage 1) covered with the original HPDE liner material represents 97% of the TSF basin. The subsequent stages of the TSF construction (Stages 2 through 4) would be constructed using clay on the inboard slope to limit the potential for seepage through the walls of the TSF, with HPDE material placed on the inboard side of the vertical drains for each lift. The vertical areas above the crest of the Stage 1 dam (i.e., the 6 vertical metres of dam comprising the Stage 2, 3 and 4 lifts) represents just 3% of the TSF basin. The effect on the wall areas above the original HPDE liner on the overall seepage rates from the TSF would be relatively small, possibly increasing the overall seepage rate from 2.4 m³/d to as much as 3.13 m³/d.

Literature (Robert M. Koerner et al., 2011) suggests that unexposed HDPE geomembranes will have an expected service life in excess of 400 years; therefore, it is expected that the liner will have a seepage rate of 3.13 m³/d (the upper bound estimate from literature), for the expected service life of the liner. At that point, the HPDE liner is expected to undergo a gradual degradation given it will be placed beneath the TSF, where it will be isolated from the degrading effects of sunlight and high temperatures. Exactly how long the HPDE liner will be beneath the TSF to continue to provide some level of protection against seepage is a function of how long it will take for the HPDE material fully degrade. Based on evidence of plastics within landfills, the HPDE liner should take between 1,000 and 10,000 years to fully degrade.

Although it is expected that seepage through the floor and walls of the TSF will remain at the rate of 3.13 m³/d for the expected service life of the liner (~400 years), and that this rate represented the upper bound estimate from literature, the reviewers remain concerned on the sensitivity of the surface water model to the rate of seepage through the liner. To address this concern, the revised multi-year water cover model was run for the following three (3) separate seepage scenarios:

- A base case with seepage through the floor and walls of the TSF of 3.13 m³/d, which represents the upper bound estimate from literature for a properly installed HPDE liner, which is expected to have a service life of approximately 400 years.
- A degraded liner case with seepage through the floor and walls of the TSF liner of 31.3 m³/d. This unrealistic estimate of potential seepage through the TSF liner, uses a seepage rate that is an order of magnitude higher than the upper bound seepage rate identified from literature. This seepage rate is not expected to occur for a properly installed liner, and has been included to test the sensitivity of surface water quality predictions to changes in the liner performance. Degradation of the TSF liner is not expected to occur until after the service life of approximately 400 years.
- A no liner case with seepage through the floor and walls of the TSF of 200 m³/d. This seepage rate is expected through the floor of the TSF in the absence of any liner, as predicted by the groundwater model presented in Appendix M to the revised EIS (April 2018). It should be restated that, the TSF will be constructed with a liner (geosynthetic liner or equivalent). For seepage rates to reach a levels of 200 m³/d, the HPDE liner will have to have completely disappeared, which based on evidence from landfill sites could be between 1,000 and 10,000 years.

CM8 Results of the Multi-Year Water Cover Model

F8.1 Long-term Predictions using Actual Data

The first modifications requested for the multi-year water cover model were the use of actual data instead of the expected normal precipitation and evaporation rates, as was done for the draft responses. Figures 1a and 1b compare the updated predictions of the multi-year water cover model using both the expected normal (1979–2000) data (as presented in the draft responses) to the predictions using actual data (as described in Section CM2). The results in Figures 1a and 1b include climate change using an "ensemble forecast", which represents the average of the RCP 2.6, RCP 4.5 and RCP 8.5 forecasts provided by MNRF (McDermid et al., 2015).

Both the normal data (Figure 1a) and the actual climate data (Figure 1b) show that both the "base case" (seepage rates of 3.13 m³/d through the floor and walls of the TSF) and the "degraded liner case" (seepage rates of 31.3 m³/d through the floor and walls of the TSF) would be viable over the long-term. However, the "no liner case" (seepage rates of 200 m³/d through the floor and walls of the TSF) was

shown to fail in the long-term (after 114 years using normal data [Figure 1a] and after 89 years using actual data [Figure 1b]). Both expected and actual climate data show the same conclusions, with the actual data showing greater variability and failure in a shorter time frame.

Tabular summaries for the data presented on Figure 1a are provided in the following tables:

- Table 8a: the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF);
- Table 8b: the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF); and
- Table 8c: the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF)

Tabular summaries for the data presented on Figure 2a are provided in the following tables:

- Table 9a: the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF);
- Table 9b: the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF); and
- Table 9c: the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF)

F8.2 Incorporating Multiple Climate Change Scenarios

To reflect the effects of climate change in the multi-year water cover model, data was taken from the Ontario Ministry of Natural Resources and Forestry (MNRF) report entitled “Climate change projections for Ontario: An updated synthesis for policymakers and planners” (McDermid et al., 2015), also referred to as CCRR-44. This updated summary for policymakers (McDermid et al, 2015) made use from the Fifth Assessment Report (AR5) from the IPCC (2013), which replaces the socio-economic emission scenarios relied on in Fourth Assessment Report (AR4) from the IPCC (2007) with new emission scenarios. Specifically, the updated summary for policymakers (McDermid et al, 2015) presents predictions for the following three emission scenarios:

- **RCP 2.6 (W/m²):** This scenario is described as a medium-low emission scenario with aggressive mitigation.
- **RCP 4.5 (W/m²):** This emission scenario represents a medium stabilization emission scenario where radiative forcing stabilizes by 2100.
- **RCP 8.5 (W/m²):** This emission scenario represents a very high emission scenario and a failure to curb warming by 2100.

In addition to the individual scenarios, and “ensemble forecast” which represents the average of the RCP 2.6, RCP 4.5 and RCP 8.5 forecasts was also evaluated. The “ensemble forecast” was used in the results presented in Figures 1a and 1b.

Figures 2a, 2b, 2c and 2d compare the multi-year water cover model results for the “ensemble forecast”, RCP 2.6, RCP 4.5 and RCP 8.5 scenarios, respectively. The results presented in Figure 2a are the same as presented in Figure 1b. The modelling shows that for the “ensemble forecast” (Figure 2a), the RCP 4.5 forecasts (Figure 2c) and the RCP 8.5 forecasts (Figure 2d), both the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF) and the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF) would be viable over the long-term. The “no liner case” (seepage

rates of 200 m³/d through the floor and walls of the TSF) was shown to fail in the long-term, with the time for till the failure of the “no liner case” varying by climate change scenario (~2121 for the “ensemble forecast”, 2121 for RCP 4.5, and 2077 for RCP 8.5). However, the RCP 2.6 forecasts indicate that even the “no liner case” would be viable over the long-term for the RCP 2.6 scenario.

Regardless of the predictions of the multi-year water cover model, mitigation measures could be implemented at the Goliath Gold Project to counteract the potential effects of climate on the long-term viability of the wet closure cover option. The suggestion provided by NRCAN experts during the January 10, 2019 meeting with the Agency and their technical reviewers was to implement a system to pump water from the adjacent pit lake to help maintain the water cover long-term. As noted by the representative from the Ontario Ministry of Energy, Mines and Northern Development (MENDM), appropriate financial assurances for the provision of such mitigation measures would need to be incorporated as part of the final closure planning process (MENDM O.Reg. 240/00), which is independent and separate to the federal EA process.

Table 10 provides the estimated volumes of supplemental water required to ensure that the tailings within the TSF remain saturated below a water cover in perpetuity.

Table 10: Estimated Supplemental Water Requirements (m³/d) to Ensure a Long-term Water Cover			
Scenario	Base Case (3.13 m³/d of seepage)	Degraded Liner Case (31.3 m³/d of seepage)	No Liner Case (200 m³/d of seepage)
Ensemble forecast	0	0	164
RCP 2.6	0	0	0
RCP 4.5	0	0	138
RCP 8.5	0	0	277

Tabular summaries for the data presented on Figure 2a are provided in the following tables:

- Table 11a: the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF);
- Table 11b: the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF); and
- Table 11c: the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF)

Tabular summaries for the data presented on Figure 2b are provided in the following tables:

- Table 12a: the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF);
- Table 12b: the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF); and
- Table 12c: the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF)

Tabular summaries for the data presented on Figure 2c are provided in the following tables:

- Table 13a: the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF);

- Table 13b: the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF); and
- Table 13c: the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF)

Tabular summaries for the data presented on Figure 2d are provided in the following tables:

- Table 14a: the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF);
- Table 14b: the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF); and
- Table 14c: the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF)

F8.3 Incorporating of Snow Losses (sublimation and drift)

The final aspect that ECCC requested be incorporated into the multi-year water cover model was consideration of winter precipitation losses through both sublimation and snow drift losses. As described in Section CM4, average rates of sublimation losses in the prairies was 0.1 mm/d (Pomeroy and Jones, 1996), with most of the sublimation losses during the day likely to be offset by frost accumulation in the evenings. No definitive estimates of the amount of snow lost to drifting were provided in literature; however, the rates of saltation and deposition of snow in large open areas appear to offset each other. The multi-year water cover model has also been run using a daily sublimation rate of 0.1 mm/d, and snow drift losses of 2% of the snowfall amounts. These corrections were only applied during those months when snowfall is expected.

Figures 3a, 3b, 3c and 3d compare the multi-year water cover model results with consideration of sublimation and snow drift losses for the “ensemble forecast”, RCP 2.6, RCP 4.5 and RCP 8.5 scenarios, respectively. The modelling shows that for the “ensemble forecast” (Figure 3a), RCP 2.6 forecast (Figure 3b) the RCP 4.5 forecasts (Figure 3c), both the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF) and the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF) would be viable over the long-term, even when the losses associated with sublimation and snow drift losses are considered. The “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF) was shown to fail in the long-term for the “ensemble forecast” (Figure 3a), RCP 2.6 forecast (Figure 3b) the RCP 4.5 forecasts (Figure 3c) forecasts. For the RCP 8.5 forecasts (Figure 3d), the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF) would be viable over the long-term. Both the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF) and “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF) predictions were shown to fail in the long-term for the RCP 8.5 forecasts (Figure 3d) forecasts.

Regardless of the predictions of the multi-year water cover model, mitigation measures could be implemented at the Goliath Gold Project to counteract the potential effects of climate on the long-term viability of the wet closure cover option. The suggestion provided by NRCAN experts during the January 10, 2019 meeting with the Agency and their technical reviewers was to implement a system to pump water from the adjacent pit lake to help maintain the water cover long-term. As noted by the representative from the MENDM, appropriate financial assurances for the provision of such mitigation measures would need to be incorporated as part of the final closure planning process (MENDM O.Reg. 240/00), which is independent and separate to the federal EA process.

Table 15 provides the estimated volumes of supplemental water required to ensure that the tailings within the TSF remain saturated below a water cover in perpetuity.

Table 15: Estimated Supplemental Water Requirements (m³/d) to Ensure a Long-term Water Cover (including sublimation and snow drift losses)			
Scenario	Base Case (3.13 m³/d of seepage)	Degraded Liner Case (31.3 m³/d of seepage)	No Liner Case (200 m³/d of seepage)
Ensemble forecast	0	0	192
RCP 2.6	0	0	75
RCP 4.5	0	0	169
RCP 8.5	0	89	301

Tabular summaries for the data presented on Figure 3a are provided in the following tables:

- Table 16a: the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF);
- Table 16b: the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF); and
- Table 16c: the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF)

Tabular summaries for the data presented on Figure 3b are provided in the following tables:

- Table 72a: the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF);
- Table 17b: the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF); and
- Table 17c: the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF)

Tabular summaries for the data presented on Figure 3c are provided in the following tables:

- Table 18a: the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF);
- Table 18b: the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF); and
- Table 18c: the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF)

Tabular summaries for the data presented on Figure 3d are provided in the following tables:

- Table 19a: the “base case” (seepage rates of 3.13 m³/d through the floor and walls of the TSF);
- Table 19b: the “degraded liner case” (seepage rates of 31.3 m³/d through the floor and walls of the TSF); and
- Table 19c: the “no liner case” (seepage rates of 200 m³/d through the floor and walls of the TSF)

CM9 Conclusions

At part of the Round 2 information request process, and to respond to requests from Environment and Climate Change Canada (ECCC), the multi-year water cover model was updated to include a longer period of predictions (400 years) based on the application of actual climate observations. The actual observations were adjusted to reflect the projected changes in climate in the future, including the expected changes in evaporation rates as a result of increases in temperature. Finally, the model was modified to include consideration of winter-time losses through snow sublimation and snow drift losses.

The results of the multi-year water cover model (presented in Section CM8) indicate the following:

- For the 'base case' seepage rates (seepage rates of 3.13 m³/d through the floor and walls of the TSF), the water cover over the TSF could be maintained in perpetuity without the need of mitigation to supplement the water cover.
- For the "degraded liner case" (seepage rates of 31.3 m³/d through the floor and walls of the TSF), the water cover over the TSF could be maintained in perpetuity without the need of mitigation to supplement the water cover for the "ensemble forecast", the RCP 2.6 forecast, and the RCP 4.5 forecasts. For the RCP 8.5, high carbon future forecasts, the water cover for the "degraded liner case" could be maintained over the long-term with the addition of 89 m³/d (61.8 L/min) of supplemental water pumped from the flooded pit lake (see the green line on Figure 4). The multi-year water cover model indicates that pumping of supplemental water would not be required to maintain the water cover until approximately 2223 (see Figure 3d), assuming that the initial installation of the liner was performing at the degraded rate of 31.3 m³/d, and the rate of climate changes is consistent with the high carbon (RCP 8,5) scenario identified by the IPCC. However, literature (Robert M. Koerner et al., 2011) suggests that unexposed HDPE geomembranes will have an expected service life in excess of 400 years; therefore, it is expected that the liner will have a seepage rate of 3.13 m³/d (the upper bound estimate from literature), for the expected service life of 400 years. At that point, the HPDE liner is expected to undergo a gradual degradation given it will be placed beneath the TSF, where it will be isolated from the degrading effects of sunlight and high temperatures. The actual time when pumping of supplemental water could be required to maintain the water cover will be sometime around 500 years after the closure of the TSF.
- For the "no liner case" (seepage rates of 200 m³/d through the floor and walls of the TSF), supplemental water pumped from the pit lake would be required for all of the future climate scenarios. The rate of supplemental water requirements to maintain the water cover over the TSF varies by scenario to as much as 301 m³/d (208 L/min) for the high carbon (RCP 8,5) scenario, as shown in Table 9 and on Figure 5. It should be noted that the TSF will be constructed with a geosynthetic liner (HPDE or equivalent), and the seepage rates from the floor and walls of the TSF would not reach a levels of 200 m³/d until the HPDE liner has completely disintegrated with time. Based on evidence from landfill sites, it would take between 1,000 and 10,000 years for the HPDE liner to completed degrade to the point where it provided no mitigation to the rates of seepage from the TSF.

CM10 References

Essery, R., J. Pomeroy, J. Parvainen, P. Storck, 2003. Sublimation of Snow from Coniferous Forests in a Climate Model. American Meteorological Society.

- Essery, R., L. Li, J.W. Pomeroy, 1999. A distributed model of blowing snow over complex terrain. *Hydrological Processes*. 12, 2423–2438.
- Ganger, R.J. and D.M. Male, 1979. Melting of a Prairie Snowpack. American Meteorological Society.
- Gelfan, A.N., J.W. Pomeroy, L.S. Kuchment, 2004. Modeling Forest Cover Influences on Snow Accumulation, Sublimation and Melt. American Meteorological Society.
- Hedstrom, N.R. and J.W. Pomeroy, 1997. Measurements and modelling of snow interception in the boreal forest. *Hydrological Processes*. 12, 1611–1625.
- Li, L. and J.W. Pomeroy, 1997. Estimates of Threshold Wind Speeds for Snow Transport Using Meteorological Data. American Meteorological Society.
- Male, D.M. and R.J. Granger, 1981. Snow Surface Energy Exchange. *Water resources research*, vol. 17, pages 609–627.
- McDermid, J., S. Fera, A. Hogg, 2015. Climate change projections for Ontario: An updated synthesis for policymakers and planners. Ministry of Natural Resources and Forestry climate change research report CCRR-44.
- McKenney, D.W., J.H. Pedlar, M.F. Hutchison, P. Papadopol, K. Lawrence, K. Campbell, E. Milewska, R.F. Hopkinson, and D.T. Price, 2013. Spatial climate models for Canada's forestry community. *For. Chron.* 89: 659–663.
- McKenney, D.W., M.F. Hutchison, P. Papadopol, K. Lawrence, J. Pedlar, K. Campbell, E. Milewska, R.F. Hopkinson, D. Price and T. Owen, 2011. Customized spatial climate models for North America. *Bull. Amer. Meteor. Soc.* 92: 1611–1622.
- McKenney, D.W., P. Papadopol, M.F. Hutchison, 2006. The development of 1901–2000 historical monthly climate models for Canada and the United States. *Agric. For. Meteor.* 138: 69–81.
- Pomeroy, J.W. and D.M. Gray, 1990. Saltation of Snow. *Water resource research*, vol. 26, pages 1583–1594.
- Pomeroy, J.W., D.M. Gray, K.R. Shook, B. Toth, R.L.H. Essery, 1998. An evaluation of snow accumulation and ablation processes for land surface modelling. *Hydrological Processes*. 12, 2339–2367.
- Pomeroy, J.W., D.M. Gray, N.R. Hedstrom, J.R. Janowicz, 2002. Prediction of seasonal snow accumulation in cold climate forests. *Hydrological Processes*. 16, 3543–3558.
- Pomeroy, J.W., D.M. Gray, P.G. Landline, 1993. The Prairie Blowing Snow Model: characteristics, validation, operation. *Journal of Hydrology*, 144, 165–192.
- Pomeroy, J.W., H.G. Jones, 1996. Wind-blown Snow: Sublimation, Transport and Change in Polar Snow. *Processes of Chemical Exchange between the Atmosphere and Polar Snow*.
- Pomeroy, J.W., J. Parvainen, N. Hedstrom, D.M. Gray, 1998. Coupled model of forest snow interceptions and sublimation. *Hydrological Processes*. 12, 2317–2337.

Figure 1a: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1971–2000 normal climate data starting in 2032

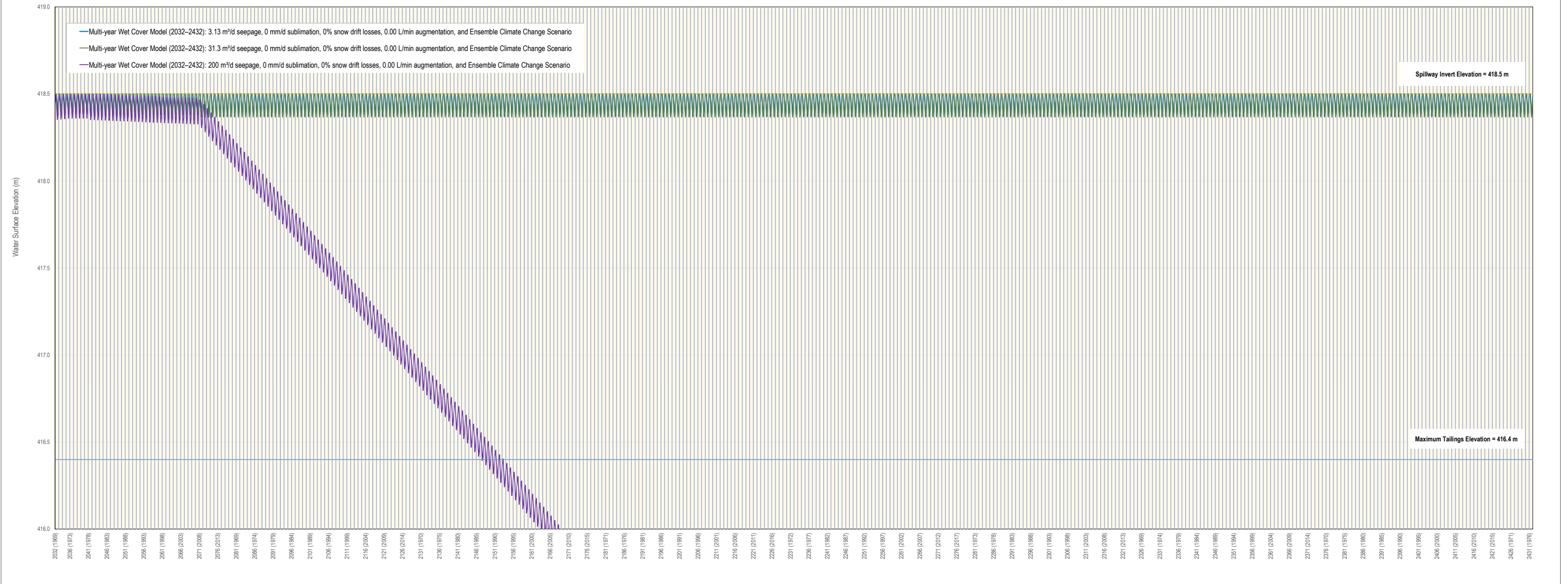


Figure 1b: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032

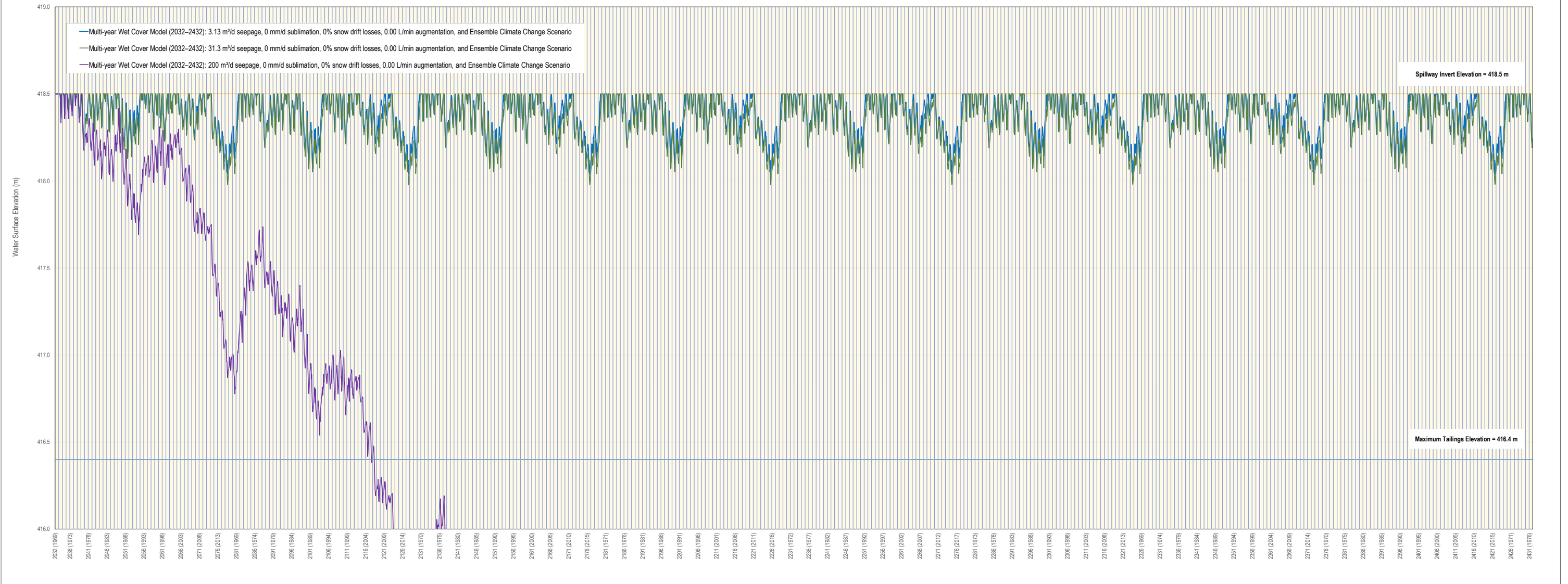


Figure 2a: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032

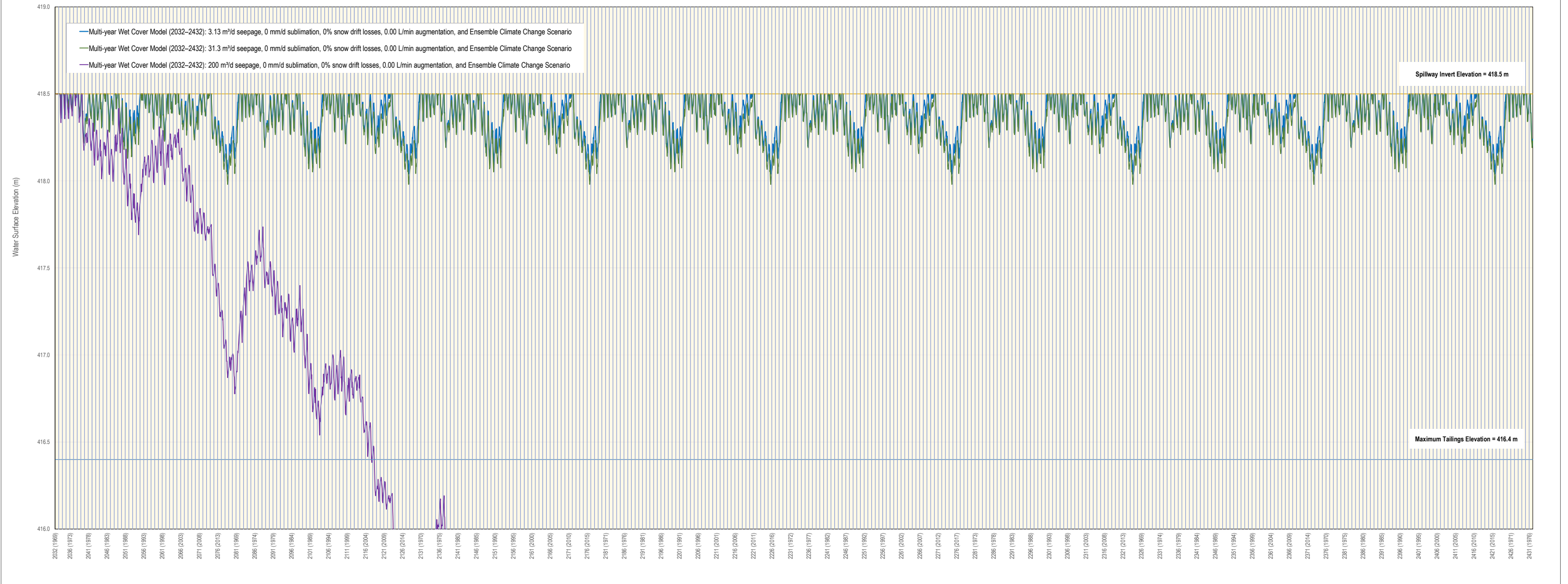


Figure 2b: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032

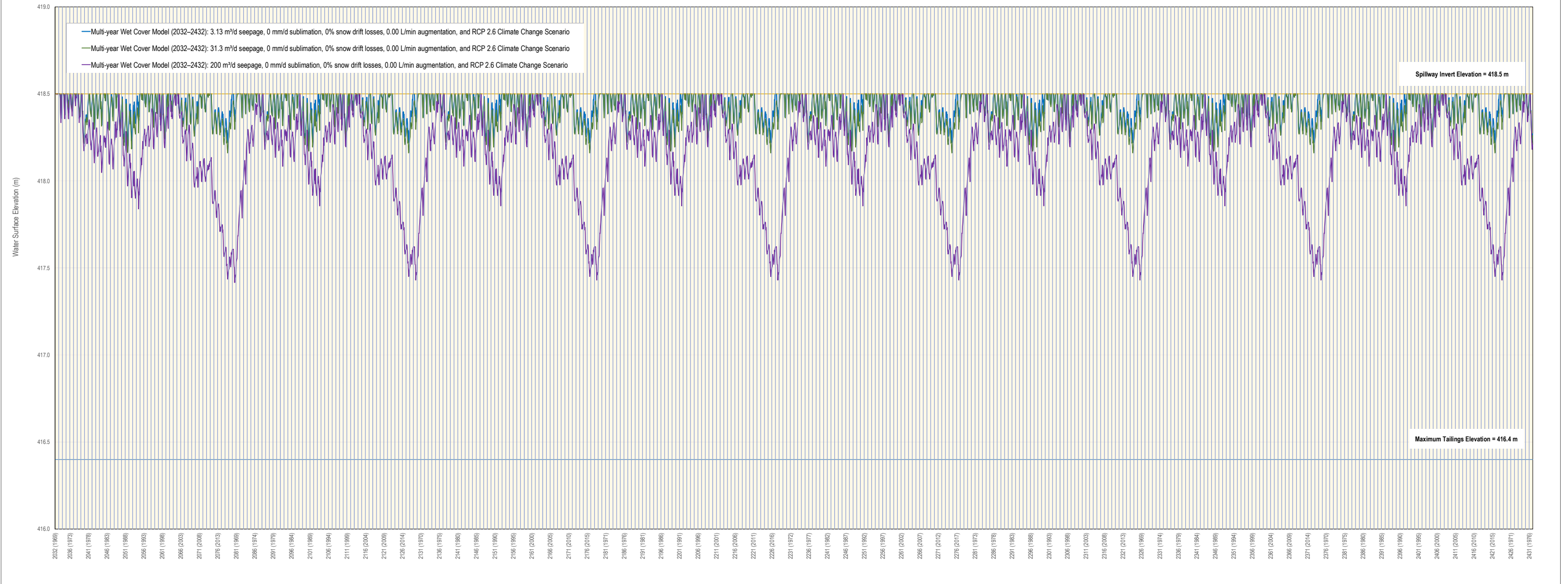


Figure 2c: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032

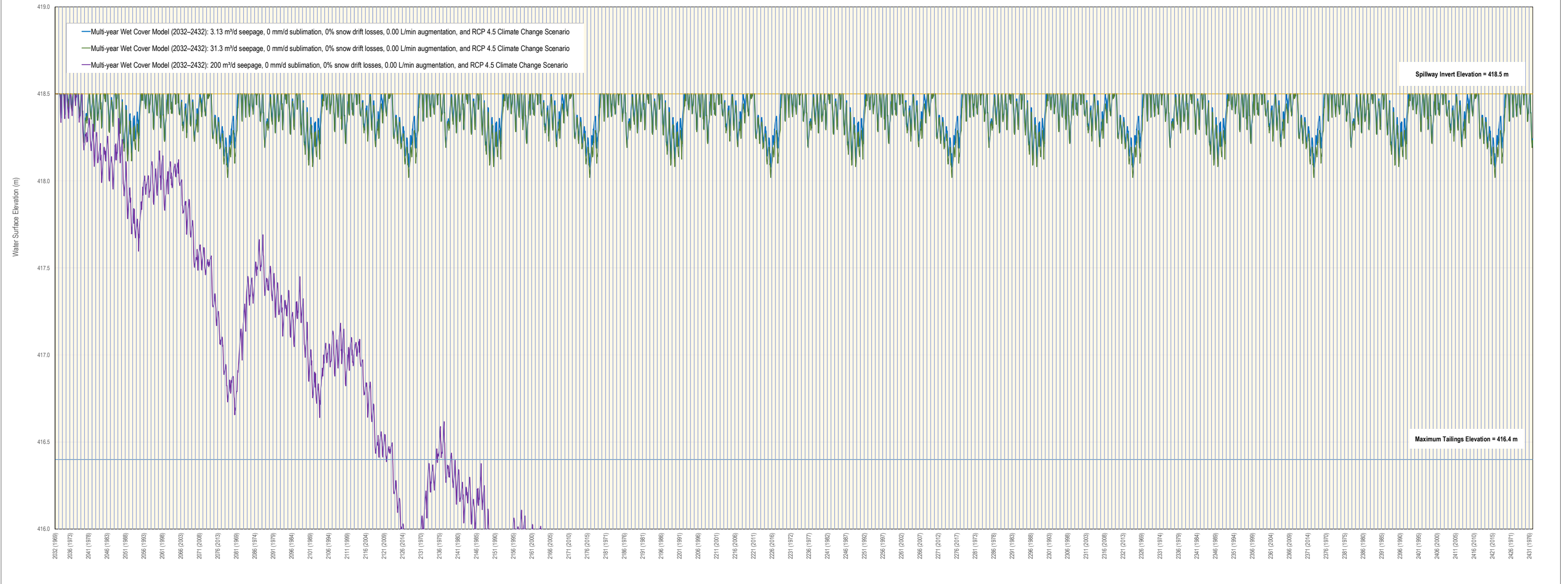


Figure 2d: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032

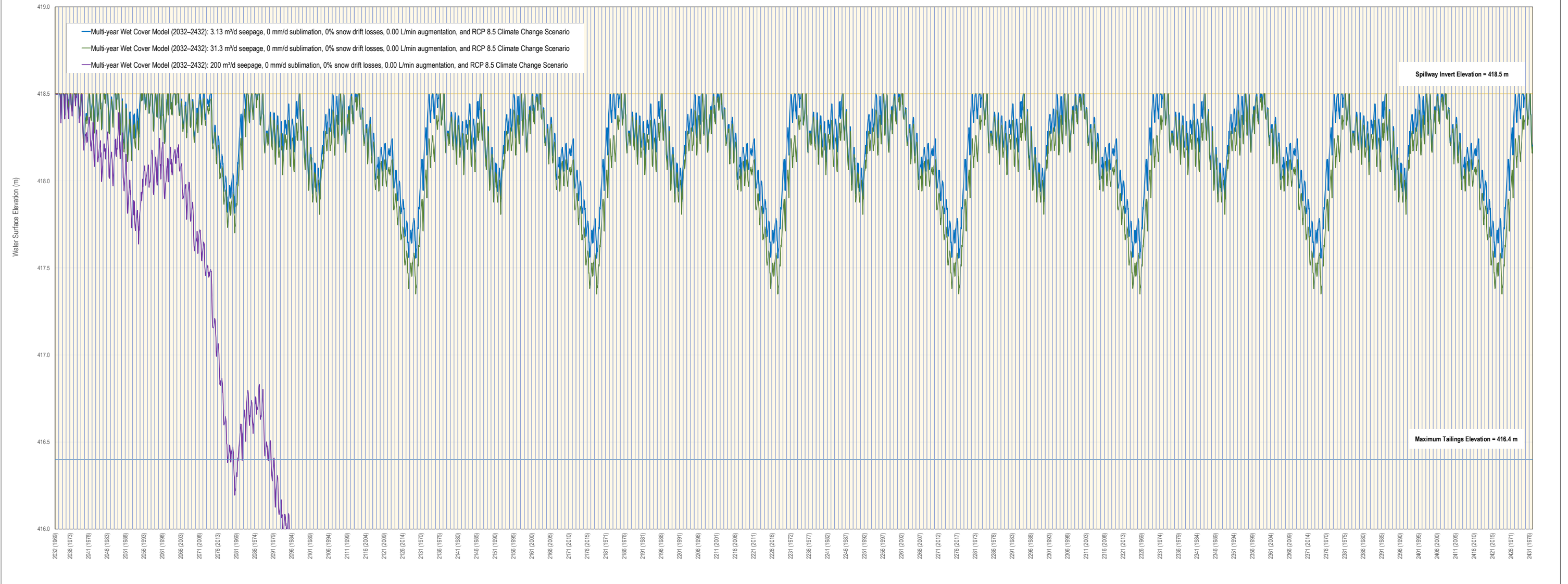


Figure 3a: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032

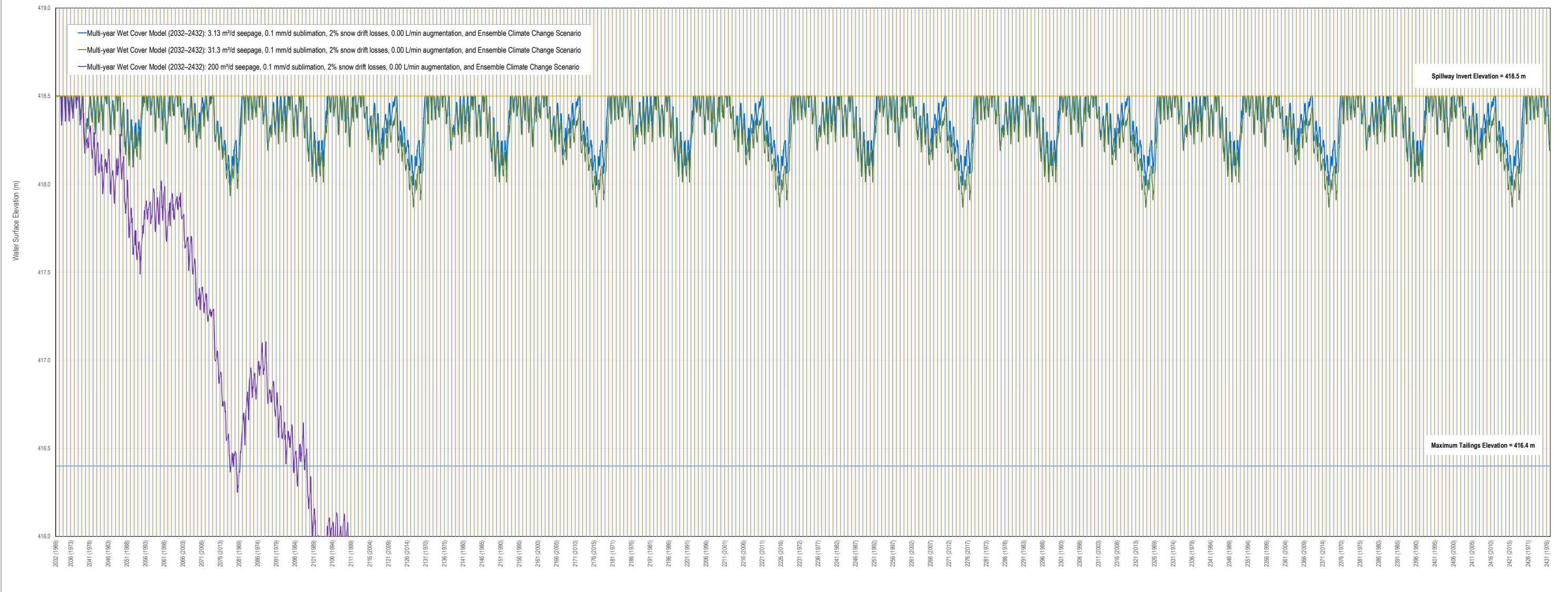


Figure 3b: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032

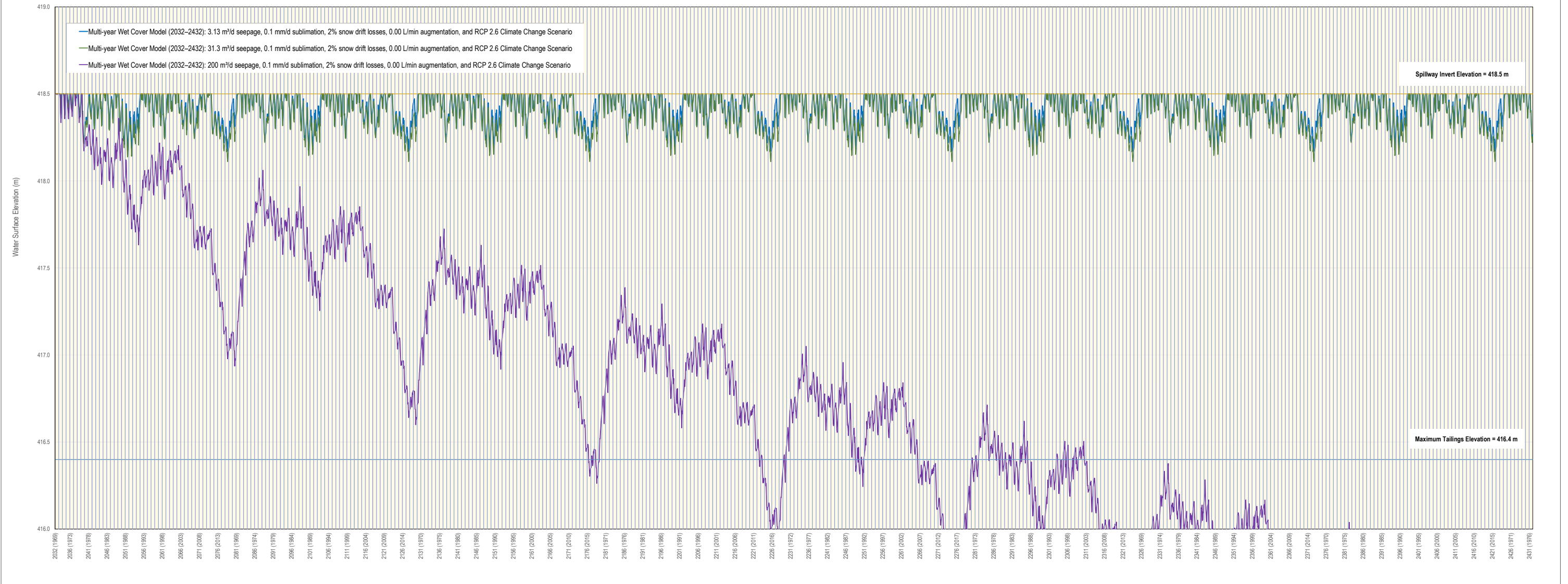


Figure 3c: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032

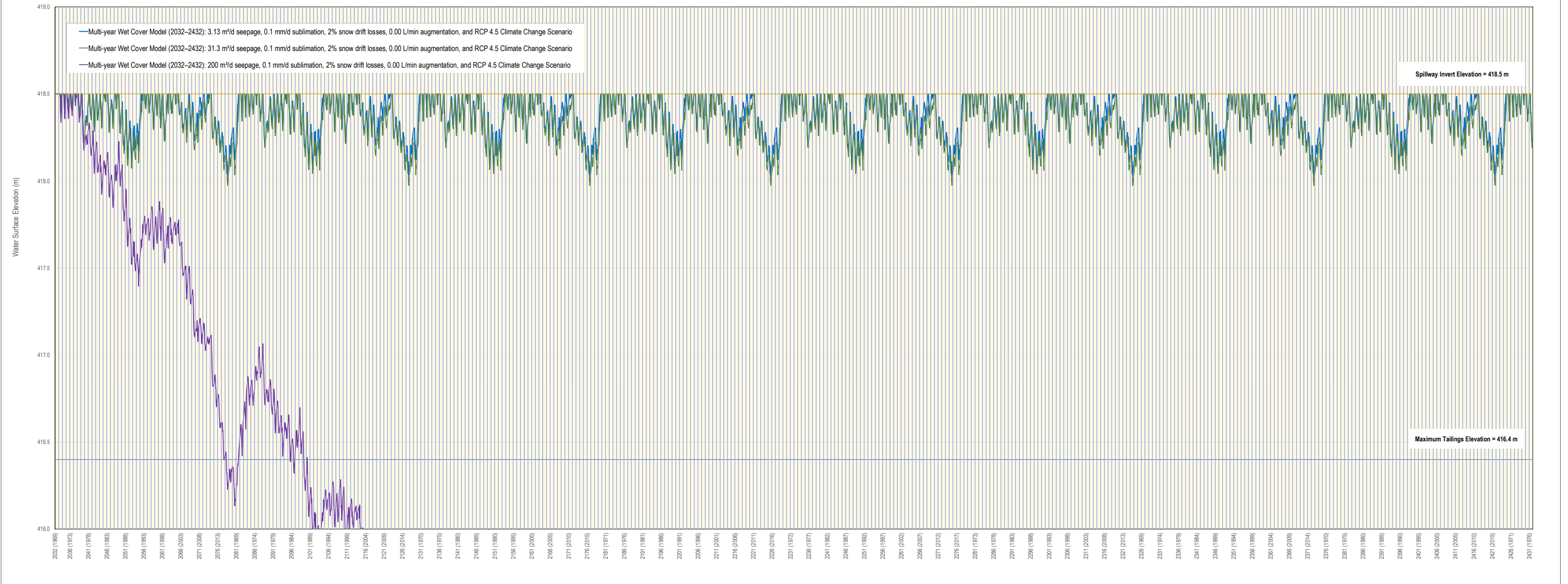


Figure 3d: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032

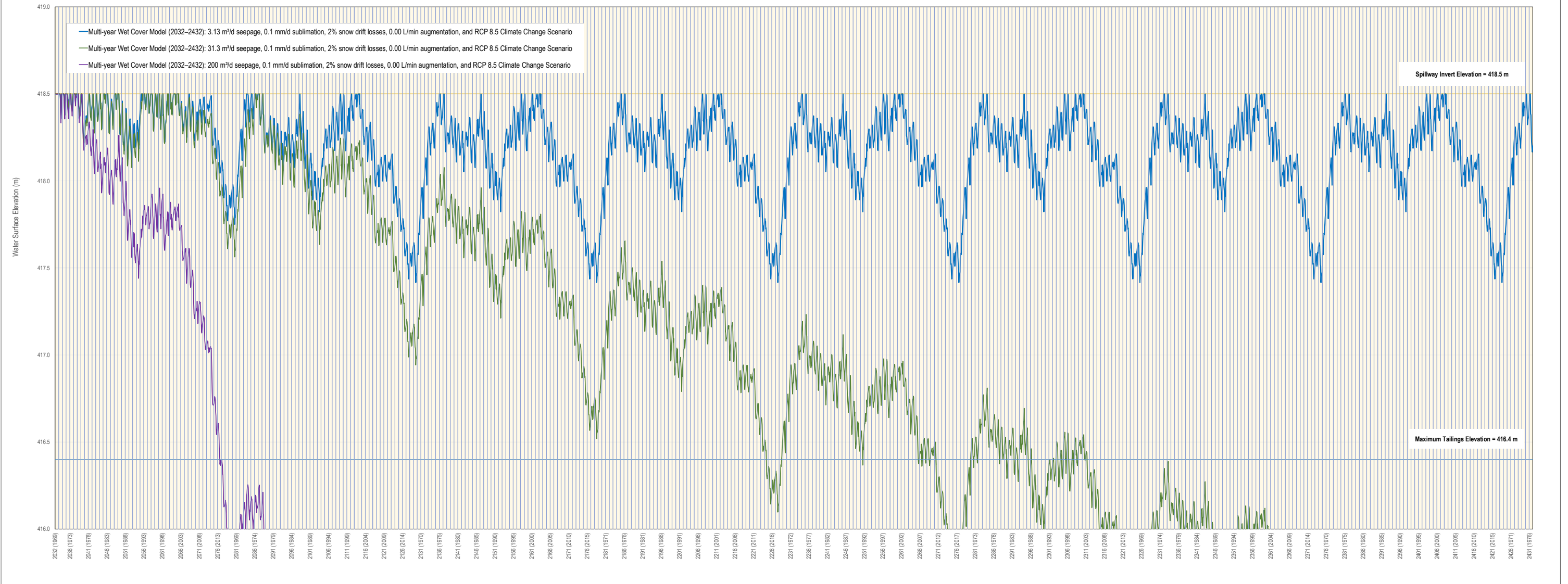


Figure 4: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032

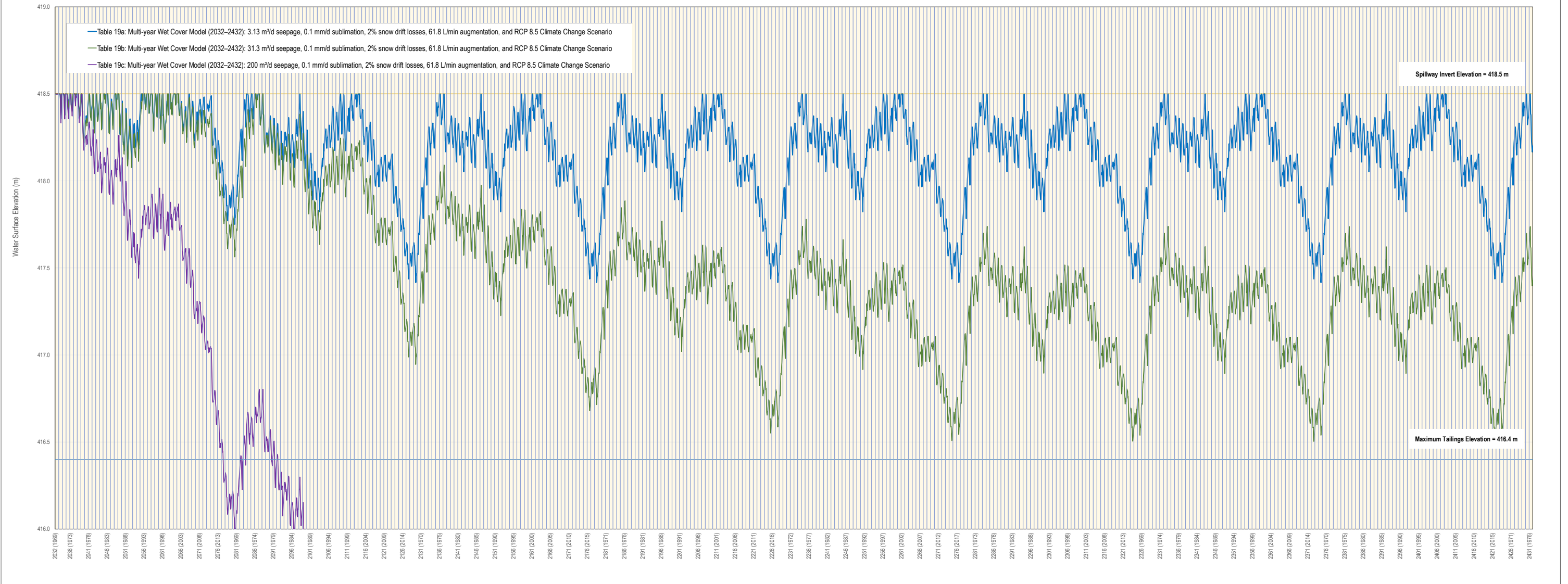
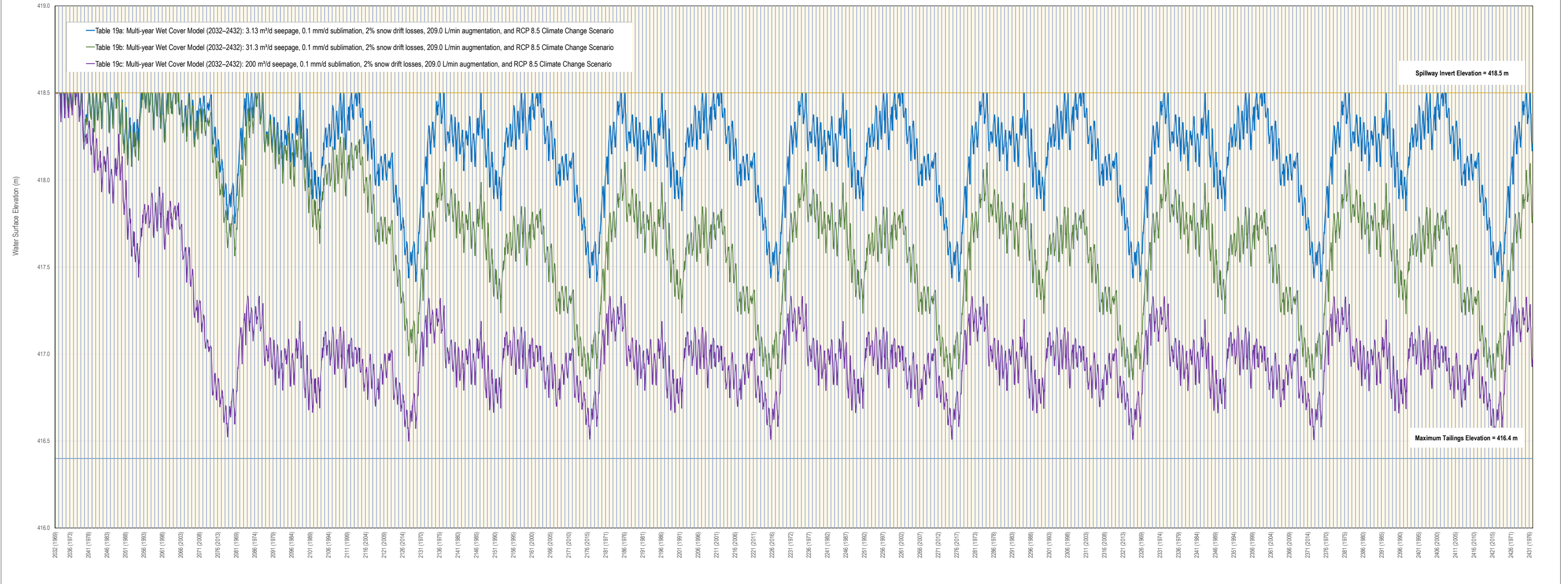


Figure 5: Comparison of multi-year (400 years) Tailings Storage Facility (TSF) water cover predictions; using 1969–2017 monthly climate data starting in 2032



Model Inputs	
Year of Simulation	2032
Source of Climate Record	Ensemble
Source of Change Levels	Ensemble
Invert Elevation (mASL)	416.6
Capacity of TSP (m ³)	1,991,622.6
Area of Open Water Within TSP (m ²)	61,946.0
Ruoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m ²)	11,433.9
Ruoff Coefficient for Restored Lands Within TSP	0.3
Trapper from TSP (mm/day)	0.0
Supplementary Water Addition (mm/day)	0.0
Elevation for Supplemental Water Addition (mASL)	0.0
Sublimation Losses in Winter (mm/day)	0.0
Wind Drift Losses in Winter (% of snowfall)	0%

NOTES:
 * The model requires snow water to be present at the junction of the TSP from the rest of water.
 * Based on the Values from Pomeroy and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Pile Snow".

Table 8a: Multi-Year Wet Cover Model (2032-2432): 3.13 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Scenario	Year	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of TSP (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Ruoff Coeff.	Restored Area (m ²)	Ruoff Coeff.	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precip. Change (mm)	Precipitation as % of Snowfall	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (mm)	Snow Accumulation (mm)	Snow Melt (mm)	Sublimation (mm)	Wind Drift Losses (mm)	Total Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)	Total WSEL Change (m)	Total Volume Change (m ³)
1	2032	1969	2011-2040	January	31	416.5	1,991,622.6	414.3	1,529,803.0	61,952.0	1.00	11,433.9	0.45	-16.84	-2.37	34.72	-6.66	100%	0.00	0.00	3.13	19,648.8	1614.0	0.0	18,952.0	0.0	0.0	0.0	416.5	1,529,803.0	0.0	1,529,803.0	416.6	
2	2032	1969	2011-2040	February	28	416.5	1,991,622.6	414.6	1,559,422.0	61,952.0	1.00	11,433.9	0.45	-13.59	-2.37	34.72	-6.66	100%	0.00	0.00	3.13	15,675.9	1302.0	0.0	17,768.0	0.0	0.0	0.0	417.0	1,570,167.0	0.0	1,570,167.0	416.8	
3	2032	1969	2011-2040	March	31	416.5	1,991,622.6	414.8	1,575,103.0	61,952.0	1.00	11,433.9	0.45	-10.27	-2.37	37.89	-4.34	100%	0.00	0.00	3.13	18,941.1	1658.0	0.0	20,750.0	0.0	0.0	0.0	417.2	1,591,222.0	0.0	1,591,222.0	416.9	
4	2032	1969	2011-2040	April	30	416.5	1,991,622.6	415.0	1,591,522.0	61,952.0	1.00	11,433.9	0.45	-6.96	-2.37	39.94	-4.34	0%	8.74	+19.23	3.13	25,538.5	2124.0	0.0	27,709.0	17,750.0	93.0	0.0	11,228.9	1,622,222.0	1,605,544.0	13,520.0	1,591,622.6	416.9
5	2032	1969	2011-2040	May	31	416.5	1,991,622.6	415.0	1,612,222.0	61,952.0	1.00	11,433.9	0.45	-3.64	-2.37	39.94	-4.34	0%	100.39	+1.89	3.13	42,625.9	3746.0	0.0	42,471.4	46,964.7	0.0	0.0	67,881.7	1,653,222.0	1,636,544.0	16,678.0	1,591,622.6	416.9
6	2032	1969	2011-2040	June	30	416.5	1,991,622.6	414.7	1,569,968.0	61,952.0	1.00	11,433.9	0.45	16.11	-2.37	39.94	-4.34	0%	117.12	+24.1	3.13	42,625.9	5184.0	0.0	42,949.9	73,951.0	93.0	0.0	74,022.0	1,610,222.0	1,598,911.0	11,311.0	1,591,622.6	416.9
7	2032	1969	2011-2040	July	31	416.5	1,991,622.6	414.6	1,558,911.0	61,952.0	1.00	11,433.9	0.45	19.00	-2.37	36.18	-6.50	0%	130.66	+34.1	3.13	54,712.2	4613.0	0.0	55,945.5	62,542.0	93.0	0.0	83,012.2	1,577,222.0	1,531,814.0	45,408.0	1,591,622.6	416.9
8	2032	1969	2011-2040	August	31	416.5	1,991,622.6	414.2	1,531,814.0	61,952.0	1.00	11,433.9	0.45	17.71	-2.37	36.18	-6.50	0%	109.78	+15.1	3.13	44,278.4	3662.0	0.0	44,666.6	46,361.0	93.0	0.0	66,408.1	1,511,222.0	1,451,022.0	60,200.0	1,591,622.6	416.9
9	2032	1969	2011-2040	September	30	416.5	1,991,622.6	414.0	1,510,222.0	61,952.0	1.00	11,433.9	0.45	15.46	-2.37	36.18	-6.50	0%	80.89	-4.58	0%	109.78	-4.58	0%	84,681.0	34,861.0	93.0	0.0	37,229.5	1,396,222.0	1,336,222.0	60,000.0	1,591,622.6	416.9
10	2032	1969	2011-2040	October	31	416.5	1,991,622.6	414.1	1,507,222.0	61,952.0	1.00	11,433.9	0.45	4.70	-2.37	39.93	-4.34	0%	30.44	+14.3	3.13	39,387.8	3275.0	0.0	39,753.5	23,381.0	93.0	0.0	21,485.1	1,262,222.0	1,202,222.0	60,000.0	1,591,622.6	416.9
11	2032	1969	2011-2040	November	30	416.5	1,991,622.6	414.4	1,545,432.0	61,952.0	1.00	11,433.9	0.45	-4.52	-2.37	34.72	-6.66	81%	0.00	0.00	3.13	29,635.6	2644.0	0.0	29,820.0	0.0	0.0	0.0	93.0	29,781.0	1,575,222.0	0.0	1,591,622.6	416.9
12	2032	1969	2011-2040	December	31	416.5	1,991,622.6	414.8	1,575,222.0	61,952.0	1.00	11,433.9	0.45	-13.08	-2.37	27.15	-6.66	100%	0.00	0.00	3.13	20,291.1	1739.0	0.0	21,030.0	0.0	0.0	0.0	97.0	29,989.0	1,596,213.0	4,508.0	1,591,622.6	416.9
13	2033	1970	2011-2040	January	31	416.5	1,991,622.6	415.0	1,591,522.0	61,952.0	1.00	11,433.9	0.45	-16.94	-2.37	34.72	-6.66	100%	0.00	0.00	3.13	16,608.8	1614.0	0.0	18,952.0	0.0	0.0	0.0	97.0	18,471.0	1,611,107.0	16,471.0	1,591,622.6	416.9
14	2033	1970	2011-2040	February	28	416.5	1,991,622.6	415.0	1,612,222.0	61,952.0	1.00	11,433.9	0.45	-13.59	-2.37	34.72	-6.66	100%	0.00	0.00	3.13	15,675.9	1302.0	0.0	17,768.0	0.0	0.0	0.0	97.0	18,290.0	1,611,107.0	16,471.0	1,591,622.6	416.9
15	2033	1970	2011-2040	March	31	416.5	1,991,622.6	415.0	1,628,222.0	61,952.0	1.00	11,433.9	0.45	-10.27	-2.37	37.89	-4.34	0%	100.39	+1.89	3.13	18,941.1	1658.0	0.0	20,750.0	0.0	0.0	0.0	97.0	20,009.0	1,611,622.0	20,009.0	1,591,622.6	416.9
16	2033	1970	2011-2040	April	30	416.5	1,991,622.6	414.7	1,569,968.0	61,952.0	1.00	11,433.9	0.45	16.11	-2.37	39.94	-4.34	0%	117.12	+24.1	3.13	42,625.9	5184.0	0.0	42,949.9	73,951.0	93.0	0.0	74,022.0	1,588,222.0	1,531,814.0	56,408.0	1,591,622.6	416.9
17	2033	1970	2011-2040	May	31	416.5	1,991,622.6	414.6	1,558,911.0	61,952.0	1.00	11,433.9	0.45	19.00	-2.37	36.18	-6.50	0%	130.66	+34.1	3.13	54,712.2	4613.0	0.0	55,945.5	62,542.0	93.0	0.0	83,012.2	1,547,222.0	1,487,222.0	60,000.0	1,591,622.6	416.9
18	2033	1970	2011-2040	June	30	416.5	1,991,622.6	414.2	1,531,814.0	61,952.0	1.00	11,433.9	0.45	17.71	-2.37	36.18	-6.50	0%	109.78	+15.1	3.13	44,278.4	3662.0	0.0	44,666.6	46,361.0	93.0	0.0	66,408.1	1,486,222.0	1,426,222.0	60,000.0	1,591,622.6	416.9
19	2033	1970	2011-2040	July	31	416.5	1,991,622.6	414.0	1,510,222.0	61,952.0	1.00	11,433.9	0.45	15.46	-2.37	36.18	-6.50	0%	80.89	-4.58	0%	109.78	-4.58	0%	84,681.0	34,861.0	93.0	0.0	37,229.5	1,366,222.0	1,306,222.0	60,000.0	1,591,622.6	416.9
20	2033	1970	2011-2040	August	31	416.5	1,991,622.6	414.2	1,531,814.0	61,952.0	1.00	11,433.9	0.45	17.71	-2.37	36.18	-6.50	0%	109.78	+15.1	3.13	44,278.4	3662.0	0.0	44,666.6	46,361.0	93.0	0.0	66,408.1	1,486,222.0	1,426,222.0	60,000.0	1,591,622.6	416.9
21	2033	1970	2011-2040	September	30	416.5	1,991,622.6	414.0	1,510,222.0	61,952.0	1.00	11,433.9	0.45	11.96	-2.37	32.93	-4.34	0%	56.47	+45.7	3.13	53,971.1	4469.0	0.0	54,461.0	37,160.0	93.0	0.0	37,229.5	1,296,222.0	1,236,222.0	60,000.0	1,591,622.6	416.9
22	2033	1970	2011-2040	October	31	416.5	1,991,622.6	414.1	1,507,222.0	61,952.0	1.00	11,433.9	0.45	4.70	-2.37	39.93	-4.34	0%	30.44	+14.3	3.13	39,387.8	3275.0	0.0	39,753.5	23,381.0	93.0	0.0	21,485.1	1,166,222.0	1,106,222.0	60,000.0	1,591,622.6	416.9
23	2033	1970	2011-2040	November	30	416.5	1,991,622.6	414.4	1,545,432.0	61,952.0	1.00	11,433.9	0.45	-4.52	-2.37	34.72	-6.66	81%	0.00	0.00	3.13	29,635.6	2644.0	0.0	29,820.0	0.0	0.0	0.0	93.0	29,781.0	1,575,222.0	0.0	1,591,622.6	416.9
24	2033	1970	2011-2040	December	31	416.5	1,991,622.6	414.8	1,575,222.0	61,952.0	1.00	11,433.9	0.45	-13.08	-2.37	27.15	-6.66	100%	0.00	0.00	3.13	20,291.1	1739.0	0.0	21,030.0	0.0	0.0	0.0	97.0	29,989.0	1,596,213.0	4,508.0	1,591,622.6	416.9
25	2034	1971	2011-2040	January	31	416.5	1,991,622.6	415.0	1,591,522.0	61,952.0	1.00	11,433.9	0.45	-16.94	-2.37	34.72	-6.66	100%	0.00	0.00	3.13	16,608.8	1614.0	0.0	18,952.0	0.0	0.0	0.0	97.0	18,471.0	1,611,107.0	16,471.0	1,591,622.6	416.9
26	2034	1971	2011-2040	February	28	416.5	1,991,622.6	415.0	1,612,222.0	61,952.0	1.00	11,433.9	0.45	-13.59	-2.37	34.72	-6.66	100%	0.00	0.00	3.13	15,675.9	1302.0	0.0	17,768.0	0.0	0.0	0.0	97.0	18,290.0	1,611,107.0	16,471.0	1,591,622.6	416.9
27	2034	1971	2011-2040	March	31	416.5	1,991,622.6	415.0	1,628,222.0	61,952.0	1.00	11,433.9	0.45	-10.27	-2.37	37.89	-4.34	0%	100.39	+1.89	3.13	18,941.1	1658.0	0.0	20,750.0	0.0	0.0	0.0	97.0	20,009.0	1,611,622.0	20,009.0	1,591,622.6	416.9
28	2034	1971	2011-2040	April	30	416.5	1,991,622.6	414.7	1,569,968.0	61,952.0	1.00	11,433.9	0.45	16.11	-2.37	39.94	-4.34	0%	117.12	+24.1	3.13	42,625.9	5184.0	0.0	42,949.9	73,951.0	93.0	0.0	74,022.0	1,588,222.0	1,531,814.0	56,408.0	1,591,622.6	416.9
29	2034	1971	2011-2040	May	31	416.5	1,991,622.6	414.6	1,558,911.0	61,952.0	1.00	11,433.9	0.45	19.00	-2.37	36.18	-6.50	0%	130.66	+34.1	3.13	54,712.2	4613.0	0.0	55,945.5	62,542.0	93.0	0.0	83,012.2	1,547,222.0	1,487,222.0	60,000.0	1,591,622.6	416.9
30	2034	1971	2011-2040	June	30	416.5	1,991,622.6	414.2	1,531,814.0	61,952.0	1.00																							

Table 8a. Multi-year Wet Cover Model (2032-2432): 3.13 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Season Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Runoff Coefficients		Restored Operations Area Runoff Coefficients		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflows (m³)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Volume after discharge (m³)	List of Month WSEL after discharge (m)
										Open Water	Restored Operations Area	Open Water	Restored Operations Area									Open Water	Restored Operations Area	Open Water	Restored Operations Area	Open Water	Restored Operations Area	Open Water	Restored Operations Area					
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-2.50	-5.33	36.94	-7.81	21%	8.74	+10.09	3.13	27,679.5	2,952.00	0.00	27,957.7	17,214.2	93.9	0.0	0.0	17,308.1	16,601.6	1,602,234.1	10,601.6	1,591,632.0	418.50
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-10.75	-5.33	89.47	+7.81	7%	100.39	+10.08	3.13	47,183.8	392.40	0.00	47,576.2	73,902.9	97.0	0.0	0.0	74,000.0	26,423.8	1,565,208.9	0.0	1,565,208.9	418.47
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.47	1,565,208.9	0.00	11,430.0	0.45	-6.11	-5.00	127.47	+7.84	0%	117.12	+8.00	3.13	61,629.9	512.40	0.00	61,942.3	78,052.3	93.9	0.0	0.0	78,166.2	1,468.9	1,561,739.9	0.0	1,561,739.9	418.45
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.45	1,565,988.9	0.00	11,430.0	0.45	-19.00	-5.00	96.18	+7.84	0%	130.66	+8.11	3.13	54,641.6	454.40	0.00	54,996.0	85,939.4	97.0	0.0	0.0	85,939.4	30,840.5	1,579,798.4	0.0	1,579,798.4	418.41
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.41	1,579,798.4	0.00	11,430.0	0.45	-17.71	-5.00	78.08	+7.84	0%	109.78	+8.17	3.13	43,488.8	361.30	0.00	43,850.1	69,243.5	97.0	0.0	0.0	69,340.5	25,524.4	1,484,228.0	0.0	1,484,228.0	418.37
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.37	1,484,228.0	0.00	11,430.0	0.45	-11.96	-5.00	83.93	+7.81	0%	95.47	+11.30	3.13	36,338.1	469.70	0.00	36,607.8	65,944.6	93.9	0.0	0.0	66,134.4	1,524.4	1,584,484.4	0.0	1,584,484.4	418.33
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.39	1,500,486.4	0.00	11,430.0	0.45	-4.70	-5.33	93.33	+7.81	32%	30.44	+10.22	3.13	41,529.7	343.30	0.00	41,843.0	26,149.2	97.0	0.0	0.0	25,346.2	16,227.8	1,526,114.3	0.0	1,526,114.3	418.41
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.41	1,526,114.3	0.00	11,430.0	0.45	-4.50	-5.33	43.57	+7.81	93%	0.00	+5.04	3.13	31,795.5	264.20	0.00	32,060.8	3,117.5	93.9	0.0	0.0	3,211.4	28,854.4	1,584,943.6	0.0	1,584,943.6	418.45
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.45	1,584,943.6	0.00	11,430.0	0.45	-13.88	-8.17	27.76	+10.24	96%	0.00	0.00	0.00	3.13	23,129.1	192.30	0.00	23,321.4	0.0	97.0	0.0	0.0	23,224.4	1,578,168.0	0.0	1,578,168.0	418.48
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.48	1,578,168.0	0.00	11,430.0	0.45	-16.84	-8.17	24.72	+10.24	100%	0.00	0.00	0.00	3.13	21,629.7	179.90	0.00	21,808.6	0.0	97.0	0.0	0.0	21,711.6	1,589,876.6	8,247.0	1,581,632.0	418.50
324	2430	1975	2071-2100	February	28	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-13.59	-8.17	19.66	+10.24	96%	0.00	0.00	0.00	3.13	17,877.9	148.70	0.00	18,026.6	0.0	97.0	0.0	0.0	17,938.9	1,609,571.5	17,938.9	1,591,632.0	418.50
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-6.07	-5.33	27.89	+7.81	97%	0.00	+9.99	3.13	22,062.1	183.60	0.00	22,245.7	6,180.1	97.0	0.0	0.0	6,277.1	1,598.6	1,607,621.1	15,889.6	1,591,632.0	418.50
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-2.50	-5.33	36.94	+7.81	22%	8.74	+10.09	3.13	27,679.5	2,952.00	0.00	27,957.7	17,214.2	93.9	0.0	0.0	17,308.1	16,601.6	1,602,234.1	10,601.6	1,591,632.0	418.50
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-10.75	-5.33	89.47	+7.81	7%	100.39	+10.08	3.13	47,183.8	392.40	0.00	47,576.2	73,902.9	97.0	0.0	0.0	74,000.0	26,423.8	1,565,208.9	0.0	1,565,208.9	418.47
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,565,208.9	0.00	11,430.0	0.45	-6.11	-5.00	127.47	+7.84	0%	117.12	+8.00	3.13	61,629.9	512.40	0.00	61,942.3	78,052.3	93.9	0.0	0.0	78,166.2	1,468.9	1,561,739.9	0.0	1,561,739.9	418.45
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.45	1,565,988.9	0.00	11,430.0	0.45	-19.00	-5.00	96.18	+7.84	0%	130.66	+8.11	3.13	54,641.6	454.40	0.00	54,996.0	85,939.4	97.0	0.0	0.0	85,939.4	30,840.5	1,579,798.4	0.0	1,579,798.4	418.41
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.41	1,579,798.4	0.00	11,430.0	0.45	-17.71	-5.00	78.08	+7.84	0%	109.78	+8.17	3.13	43,488.8	361.30	0.00	43,850.1	69,243.5	97.0	0.0	0.0	69,340.5	25,524.4	1,484,228.0	0.0	1,484,228.0	418.37
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.37	1,484,228.0	0.00	11,430.0	0.45	-11.96	-5.00	83.93	+7.81	0%	95.47	+11.30	3.13	36,338.1	469.70	0.00	36,607.8	65,944.6	93.9	0.0	0.0	66,134.4	1,524.4	1,584,484.4	0.0	1,584,484.4	418.33
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.39	1,500,486.4	0.00	11,430.0	0.45	-4.70	-5.33	93.33	+7.81	32%	30.44	+10.22	3.13	41,529.7	343.30	0.00	41,843.0	26,149.2	97.0	0.0	0.0	25,346.2	16,227.8	1,526,114.3	0.0	1,526,114.3	418.41
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.41	1,526,114.3	0.00	11,430.0	0.45	-4.50	-5.33	43.57	+7.81	93%	0.00	+5.04	3.13	31,795.5	264.20	0.00	32,060.8	3,117.5	93.9	0.0	0.0	3,211.4	28,854.4	1,584,943.6	0.0	1,584,943.6	418.45
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.45	1,584,943.6	0.00	11,430.0	0.45	-13.88	-8.17	27.76	+10.24	96%	0.00	0.00	0.00	3.13	23,129.1	192.30	0.00	23,321.4	0.0	97.0	0.0	0.0	23,224.4	1,578,168.0	0.0	1,578,168.0	418.48
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.48	1,578,168.0	0.00	11,430.0	0.45	-16.84	-8.17	24.72	+10.24	100%	0.00	0.00	0.00	3.13	21,629.7	179.90	0.00	21,808.6	0.0	97.0	0.0	0.0	21,711.6	1,589,876.6	8,247.0	1,581,632.0	418.50
325	2431	1976	2071-2100	February	28	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-13.59	-8.17	19.66	+10.24	96%	0.00	0.00	0.00	3.13	17,877.9	148.70	0.00	18,026.6	0.0	97.0	0.0	0.0	17,938.9	1,609,571.5	17,938.9	1,591,632.0	418.50
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-6.07	-5.33	27.89	+7.81	76%	0.00	+9.99	3.13	22,062.1	183.60	0.00	22,245.7	6,180.1	97.0	0.0	0.0	6,277.1	1,598.6	1,607,621.1	15,889.6	1,591,632.0	418.50
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-2.50	-5.33	36.94	+7.81	21%	8.74	+10.09	3.13	27,679.5	2,952.00	0.00	27,957.7	17,214.2	93.9	0.0	0.0	17,308.1	16,601.6	1,602,234.1	10,601.6	1,591,632.0	418.50
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-10.75	-5.33	89.47	+7.81	7%	100.39	+10.08	3.13	47,183.8	392.40	0.00	47,576.2	73,902.9	97.0	0.0	0.0	74,000.0	26,423.8	1,565,208.9	0.0	1,565,208.9	418.47
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.47	1,565,208.9	0.00	11,430.0	0.45	-6.11	-5.00	127.47	+7.84	0%	117.12	+8.00	3.13	61,629.9	512.40	0.00	61,942.3	78,052.3	93.9	0.0	0.0	78,166.2	1,468.9	1,561,739.9	0.0	1,561,739.9	418.45
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.45	1,565,988.9	0.00	11,430.0	0.45	-19.00	-5.00	96.18	+7.84	0%	130.66	+8.11	3.13	54,641.6	454.40	0.00	54,996.0	85,939.4	97.0	0.0	0.0	85,939.4	30,840.5	1,579,798.4	0.0	1,579,798.4	418.41
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.41	1,579,798.4	0.00	11,430.0	0.45	-17.71																					

Model Inputs	
First Year of Simulation	2032
Source of Climate Record	Historical
Climate Change Scenario	SSP5-8.5
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,901,622.6
Area of Open Water Within TSP (m²)	61,946.6
Rainfall Coefficient for Open Water Within TSP	1.4333
Area of Restored Lands Within TSP (m²)	143,033.8
Rainfall Coefficient for Restored Lands Within TSP	0.5
Trigger from TSP (mm)	31.30
Supplementary Water Addition (m³/d)	1,000,000
Trigger Elevation for Supplemental Water Addition (mASL)	416.00
Sublimation Losses in Winter (mm/day)	0.00
Wind Drift Losses in Winter (% of snowfall)	0%

NOTES: 1) The climate projection was derived from the output of the TSP from the last open water season. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 8b: Multi-Year Wet Cover Model (2032-2432): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Pre-Start Year	Start Year	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Restored Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Storage (m³)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool Volume	Average	Sublimation	Wind Drift Losses	Total Outflow	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)				
1	2032	1989	2011-2040	January	31	416.5	1,901,622.6	414.3	1,509,893.0	61,952.2	1,000,000.0	143,033.8	0.45	-0.88	-2.37	18.72	-6.66	100%	0.00	0	31.30	19,468.8	1614.0	0.0	18,952.2	0.0	0.0	0.0	0.0	0.0	1,509,893.0	1,509,893.0	0.0	1,509,893.0	414.4	1,509,893.0		
2	2032	1989	2011-2040	February	28	416.5	1,901,622.6	414.6	1,508,589.4	61,962.0	1,000,000.0	143,033.8	0.45	-0.87	-2.37	18.76	-6.66	100%	0.00	0	31.30	15,679.9	1302.0	0.0	15,781.1	0.0	0.0	0.0	0.0	0.0	1,508,589.4	1,508,589.4	0.0	1,508,589.4	414.8	1,508,589.4		
3	2032	1989	2011-2040	March	31	416.5	1,901,622.6	414.8	1,507,303.1	61,969.2	1,000,000.0	143,033.8	0.45	-0.87	-2.32	27.89	-4.34	100%	0.00	0	31.30	19,811.1	1658.0	0.0	20,750.0	0.0	0.0	0.0	0.0	0.0	1,507,303.1	1,507,303.1	0.0	1,507,303.1	415.0	1,507,303.1		
4	2032	1989	2011-2040	April	30	416.5	1,901,622.6	415.0	1,505,922.5	61,993.2	1,000,000.0	143,033.8	0.45	-0.86	-2.32	39.94	-4.34	0%	8.74	+10.23	31.30	25,538.5	2124.0	0.0	27,709.0	11,750.0	0.0	0.0	12,674.0	13,079.9	1,604,708.5	13,079.9	1,604,708.5	1,604,708.5	0.0	1,604,708.5	415.2	1,604,708.5
5	2032	1989	2011-2040	May	31	416.5	1,901,622.6	415.0	1,504,522.6	61,999.2	1,000,000.0	143,033.8	0.45	-0.85	-2.32	48.47	-4.34	0%	10.29	+19.29	31.30	42,626.5	3246.0	0.0	44,714.0	66,964.7	0.0	0.0	47,969.4	52,378.6	1,604,708.5	52,378.6	1,604,708.5	1,604,708.5	0.0	1,604,708.5	415.4	1,604,708.5
6	2032	1989	2011-2040	June	30	416.5	1,901,622.6	414.7	1,503,093.0	61,992.2	1,000,000.0	143,033.8	0.45	-0.84	-2.30	107.47	-6.50	0%	117.2	+121	31.30	42,626.5	5184.0	0.0	42,919.9	73,981.9	0.0	0.0	47,877.1	119,023.0	1,502,227.7	119,023.0	1,502,227.7	1,502,227.7	0.0	1,502,227.7	414.8	1,502,227.7
7	2032	1989	2011-2040	July	31	416.5	1,901,622.6	414.5	1,501,727.0	61,992.2	1,000,000.0	143,033.8	0.45	-0.83	-2.30	107.46	-6.50	0%	117.2	+121	31.30	42,626.5	5184.0	0.0	42,919.9	73,981.9	0.0	0.0	47,877.1	119,023.0	1,502,227.7	119,023.0	1,502,227.7	1,502,227.7	0.0	1,502,227.7	414.2	1,502,227.7
8	2032	1989	2011-2040	August	31	416.5	1,901,622.6	414.2	1,500,227.7	61,992.2	1,000,000.0	143,033.8	0.45	-0.82	-2.30	107.46	-6.50	0%	117.2	+121	31.30	42,626.5	5184.0	0.0	42,919.9	73,981.9	0.0	0.0	47,877.1	119,023.0	1,502,227.7	119,023.0	1,502,227.7	1,502,227.7	0.0	1,502,227.7	414.0	1,502,227.7
9	2032	1989	2011-2040	September	30	416.5	1,901,622.6	414.0	1,498,699.6	61,992.2	1,000,000.0	143,033.8	0.45	-0.81	-2.30	107.46	-6.50	0%	117.2	+121	31.30	42,626.5	5184.0	0.0	42,919.9	73,981.9	0.0	0.0	47,877.1	119,023.0	1,502,227.7	119,023.0	1,502,227.7	1,502,227.7	0.0	1,502,227.7	413.8	1,502,227.7
10	2032	1989	2011-2040	October	31	416.5	1,901,622.6	414.1	1,497,199.9	61,992.2	1,000,000.0	143,033.8	0.45	-0.80	-2.32	18.76	-6.66	100%	0.00	0	31.30	15,679.9	1302.0	0.0	15,781.1	0.0	0.0	0.0	0.0	0.0	1,497,199.9	1,497,199.9	0.0	1,497,199.9	413.6	1,497,199.9		
11	2032	1989	2011-2040	November	30	416.5	1,901,622.6	414.3	1,495,766.6	61,982.0	1,000,000.0	143,033.8	0.45	-0.80	-2.32	18.76	-6.66	100%	0.00	0	31.30	15,679.9	1302.0	0.0	15,781.1	0.0	0.0	0.0	0.0	0.0	1,495,766.6	1,495,766.6	0.0	1,495,766.6	413.4	1,495,766.6		
12	2032	1989	2011-2040	December	31	416.5	1,901,622.6	414.7	1,494,303.1	61,992.2	1,000,000.0	143,033.8	0.45	-0.80	-2.32	18.76	-6.66	100%	0.00	0	31.30	15,679.9	1302.0	0.0	15,781.1	0.0	0.0	0.0	0.0	0.0	1,494,303.1	1,494,303.1	0.0	1,494,303.1	413.2	1,494,303.1		
13	2033	1970	2011-2040	January	31	416.5	1,901,622.6	414.9	1,492,893.0	61,992.2	1,000,000.0	143,033.8	0.45	-0.79	-2.32	27.89	-4.34	0%	8.74	+10.23	31.30	19,811.1	1658.0	0.0	20,750.0	0.0	0.0	0.0	0.0	0.0	1,492,893.0	1,492,893.0	0.0	1,492,893.0	413.0	1,492,893.0		
14	2033	1970	2011-2040	February	28	416.5	1,901,622.6	415.1	1,491,522.5	61,992.2	1,000,000.0	143,033.8	0.45	-0.78	-2.32	39.94	-4.34	0%	10.29	+19.29	31.30	25,538.5	2124.0	0.0	27,709.0	11,750.0	0.0	0.0	12,674.0	13,079.9	1,491,522.5	13,079.9	1,491,522.5	1,491,522.5	0.0	1,491,522.5	412.8	1,491,522.5
15	2033	1970	2011-2040	March	31	416.5	1,901,622.6	415.0	1,490,152.6	61,992.2	1,000,000.0	143,033.8	0.45	-0.77	-2.32	48.47	-4.34	0%	10.29	+19.29	31.30	42,626.5	3246.0	0.0	42,919.9	66,964.7	0.0	0.0	47,969.4	52,378.6	1,490,152.6	52,378.6	1,490,152.6	1,490,152.6	0.0	1,490,152.6	412.6	1,490,152.6
16	2033	1970	2011-2040	April	30	416.5	1,901,622.6	414.8	1,488,782.7	61,992.2	1,000,000.0	143,033.8	0.45	-0.76	-2.32	107.47	-6.50	0%	117.2	+121	31.30	42,626.5	5184.0	0.0	42,919.9	73,981.9	0.0	0.0	47,877.1	119,023.0	1,488,782.7	119,023.0	1,488,782.7	1,488,782.7	0.0	1,488,782.7	412.4	1,488,782.7
17	2033	1970	2011-2040	May	31	416.5	1,901,622.6	414.6	1,487,427.0	61,992.2	1,000,000.0	143,033.8	0.45	-0.75	-2.32	107.46	-6.50	0%	117.2	+121	31.30	42,626.5	5184.0	0.0	42,919.9	73,981.9	0.0	0.0	47,877.1	119,023.0	1,487,427.0	119,023.0	1,487,427.0	1,487,427.0	0.0	1,487,427.0	412.2	1,487,427.0
18	2033	1970	2011-2040	June	30	416.5	1,901,622.6	414.4	1,486,093.0	61,992.2	1,000,000.0	143,033.8	0.45	-0.74	-2.32	107.46	-6.50	0%	117.2	+121	31.30	42,626.5	5184.0	0.0	42,919.9	73,981.9	0.0	0.0	47,877.1	119,023.0	1,486,093.0	119,023.0	1,486,093.0	1,486,093.0	0.0	1,486,093.0	412.0	1,486,093.0
19	2033	1970	2011-2040	July	31	416.5	1,901,622.6	414.2	1,484,799.9	61,992.2	1,000,000.0	143,033.8	0.45	-0.73	-2.32	107.46	-6.50	0%	117.2	+121	31.30	42,626.5	5184.0	0.0	42,919.9	73,981.9	0.0	0.0	47,877.1	119,023.0	1,484,799.9	119,023.0	1,484,799.9	1,484,799.9	0.0	1,484,799.9	411.8	1,484,799.9
20	2033	1970	2011-2040	August	31	416.5	1,901,622.6	414.0	1,483,522.5	61,992.2	1,000,000.0	143,033.8	0.45	-0.72	-2.32	107.46	-6.50	0%	117.2	+121	31.30	42,626.5	5184.0	0.0	42,919.9	73,981.9	0.0	0.0	47,877.1	119,023.0	1,483,522.5	119,023.0	1,483,522.5	1,483,522.5	0.0	1,483,522.5	411.6	1,483,522.5
21	2033	1970	2011-2040	September	30	416.5	1,901,622.6	413.8	1,482,266.6	61,992.2	1,000,000.0	143,033.8	0.45	-0.71	-2.32	107.46	-6.50	0%	117.2	+121	31.30	42,626.5	5184.0	0.0	42,919.9	73,981.9	0.0	0.0	47,877.1	119,023.0	1,482,266.6	119,023.0	1,482,266.6	1,482,266.6	0.0	1,482,266.6	411.4	1,482,266.6
22	2033	1970	2011-2040	October	31	416.5	1,901,622.6	414.1	1,481,022.5	61,992.2	1,000,000.0	143,033.8	0.45	-0.71	-2.32	18.76	-6.66	100%	0.00	0	31.30	15,679.9	1302.0	0.0	15,781.1	0.0	0.0	0.0	0.0	0.0	1,481,022.5	1,481,022.5	0.0	1,481,022.5	411.2	1,481,022.5		
23	2033	1970	2011-2040	November	30	416.5	1,901,622.6	414.3	1,479,799.9	61,992.2	1,000,000.0	143,033.8	0.45	-0.70	-2.32	18.76	-6.66	100%	0.00	0	31.30	15,679.9	1302.0	0.0	15,781.1	0.0	0.0	0.0	0.0	0.0	1,479,799.9	1,479,799.9	0.0	1,479,799.9	411.0	1,479,799.9		
24	2033	1970	2011-2040	December	31	416.5	1,901,622.6	414.7	1,478,503.1	61,992.2	1,000,000.0	143,033.8	0.45	-0.70	-2.32	18.76	-6.66	100%	0.00	0	31.30	15,679.9	1302.0	0.0	15,781.1	0.0	0.0	0.0	0.0	0.0	1,478,503.1	1,478,503.1	0.0	1,478,503.1	410.8	1,478,503.1		
25	2034	1971	2011-2040	January	31	416.5	1,901,622.6	415.0	1,477,152.6	61,992.2	1,000,000.0	143,033.8	0.45	-0.69	-2.32	27.89	-4.34	0%	8.74	+10.23	31.30	19,811.1	1658.0	0.0	20,750.0	0.0	0.0	0.0	0.0	0.0	1,477,152.6	1,477,152.6	0.0	1,477,152.6	410.6	1,477,152.6		
26	2034	1971	2011-2040	February	28	416.5	1,901,622.6	415.2	1,475,822.5	61,992.2	1,000,000.0	143,033.8	0.45	-0.68	-2.32	39.94	-4.34	0%	10.29	+19.29	31.30	25,538.5	2124.0	0.0	27,709.0	11,750.0	0.0	0.0	12,674.0	13,079.9	1,475,822.5	13,079.9	1,475,822.5	1,475,822.5	0.0	1,475,822.5	410.4	1,475,822.5
27	2034	1971	2011-2040	March	31	416.5	1,901,622.6	415.1	1,474,522.6	61,992.2	1,000,000.0	143,033.8																										

Table 8b. Multi-Year Wet Cover Model (2032-2432): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert (Elevation)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficients	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Exposition (mm)	Forecast Exposure Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)							
199	2051	1988	2041-2070	January	21	418.5	1,591,632.0	418.9	1,584,207.0	1.00	14.33	0.45	-1.60	-4.40	27.62	-4.47	94.7	100.0	0.0	31.30	20,521.1	170.7	0.0	20,691.8	0.0	0.0	193.3	17,255.1	1,603,986.0	12,364.2	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	February	28	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	16,782.2	190.5	0.0	16,972.7	0.0	0.0	193.3	16,044.4	1,607,673.0	16,044.4	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	March	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	17,922.1	190.5	0.0	18,112.2	0.0	0.0	193.3	17,255.1	1,603,986.0	12,364.2	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	April	30	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	27,540.0	220.0	0.0	27,760.0	0.0	0.0	193.3	26,844.0	1,617,433.0	11,807.7	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	May	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	45,503.3	387.2	0.0	45,890.5	0.0	0.0	193.3	44,701.1	1,626,922.0	11,207.1	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	June	30	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	62,229.4	514.1	0.0	62,743.5	0.0	0.0	193.3	61,421.3	1,637,311.0	10,607.9	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	July	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	80,228.0	678.4	0.0	80,906.4	0.0	0.0	193.3	79,120.0	1,648,191.0	10,007.0	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	August	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	98,228.0	827.2	0.0	99,055.2	0.0	0.0	193.3	96,827.0	1,658,868.0	9,407.0	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	September	30	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	116,228.0	978.4	0.0	117,206.4	0.0	0.0	193.3	114,827.0	1,670,345.0	8,807.0	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	October	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	134,228.0	1,107.2	0.0	135,335.2	0.0	0.0	193.3	132,938.0	1,682,422.0	8,207.0	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	November	30	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	152,228.0	1,256.8	0.0	153,484.8	0.0	0.0	193.3	151,238.0	1,694,905.0	7,607.0	1,591,632.0	418.5	1,584,207.0
199	2051	1988	2041-2070	December	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	170,228.0	1,416.8	0.0	171,644.8	0.0	0.0	193.3	169,248.0	1,708,382.0	7,007.0	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	January	28	418.5	1,591,632.0	418.9	1,584,207.0	1.00	14.33	0.45	-1.60	-4.40	27.62	-4.47	94.7	100.0	0.0	31.30	20,521.1	170.7	0.0	20,691.8	0.0	0.0	193.3	17,255.1	1,603,986.0	12,364.2	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	February	28	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	16,782.2	190.5	0.0	16,972.7	0.0	0.0	193.3	16,044.4	1,607,673.0	16,044.4	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	March	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	17,922.1	190.5	0.0	18,112.2	0.0	0.0	193.3	17,255.1	1,603,986.0	12,364.2	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	April	30	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	27,540.0	220.0	0.0	27,760.0	0.0	0.0	193.3	26,844.0	1,617,433.0	11,807.7	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	May	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	45,503.3	387.2	0.0	45,890.5	0.0	0.0	193.3	44,701.1	1,626,922.0	11,207.1	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	June	30	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	62,229.4	514.1	0.0	62,743.5	0.0	0.0	193.3	61,421.3	1,637,311.0	10,607.9	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	July	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	80,228.0	678.4	0.0	80,906.4	0.0	0.0	193.3	79,120.0	1,648,191.0	10,007.0	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	August	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	98,228.0	827.2	0.0	99,055.2	0.0	0.0	193.3	96,827.0	1,658,868.0	9,407.0	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	September	30	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	116,228.0	978.4	0.0	117,206.4	0.0	0.0	193.3	114,827.0	1,670,345.0	8,807.0	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	October	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	134,228.0	1,107.2	0.0	135,335.2	0.0	0.0	193.3	132,938.0	1,682,422.0	8,207.0	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	November	30	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	152,228.0	1,256.8	0.0	153,484.8	0.0	0.0	193.3	151,238.0	1,694,905.0	7,607.0	1,591,632.0	418.5	1,584,207.0
200	2052	1989	2041-2070	December	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	170,228.0	1,416.8	0.0	171,644.8	0.0	0.0	193.3	169,248.0	1,708,382.0	7,007.0	1,591,632.0	418.5	1,584,207.0
201	2053	1990	2041-2070	January	28	418.5	1,591,632.0	418.9	1,584,207.0	1.00	14.33	0.45	-1.60	-4.40	27.62	-4.47	94.7	100.0	0.0	31.30	20,521.1	170.7	0.0	20,691.8	0.0	0.0	193.3	17,255.1	1,603,986.0	12,364.2	1,591,632.0	418.5	1,584,207.0
201	2053	1990	2041-2070	February	28	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	16,782.2	190.5	0.0	16,972.7	0.0	0.0	193.3	16,044.4	1,607,673.0	16,044.4	1,591,632.0	418.5	1,584,207.0
201	2053	1990	2041-2070	March	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	17,922.1	190.5	0.0	18,112.2	0.0	0.0	193.3	17,255.1	1,603,986.0	12,364.2	1,591,632.0	418.5	1,584,207.0
201	2053	1990	2041-2070	April	30	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	27,540.0	220.0	0.0	27,760.0	0.0	0.0	193.3	26,844.0	1,617,433.0	11,807.7	1,591,632.0	418.5	1,584,207.0
201	2053	1990	2041-2070	May	31	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	45,503.3	387.2	0.0	45,890.5	0.0	0.0	193.3	44,701.1	1,626,922.0	11,207.1	1,591,632.0	418.5	1,584,207.0
201	2053	1990	2041-2070	June	30	418.5	1,591,632.0	418.5	1,591,632.0	1.00	14.33	0.45	-1.39	-4.40	27.62	-4.47	100.0	100.0	0.0	31.30	62,												

Table 8b: Multi-Year Wet Cover Model (2032-2432): 31.3 mm/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 mm augmentation, and Ensemble Climate Change Scenario

Count	Passive Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Runoff Coefficients		Restored Operations Area Runoff Coefficients		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (mm/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflow-Outflow (m³)	End of Month Volume before discharge (m³)	Discharge Volume (m³)	End of Month Volume after discharge (m³)	List of Month WSEL after discharge (m)					
										Open Water	Restored Operations Area	Restored Operations Area	Restored Operations Area									Pond Evaporation	Average	Sublimation Losses	Wind Drift Losses	Total Outflow													
323	2429	1974	2071-2101	April	30	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	2.50	-5.33	36.94	-7.81	21%	8.74	+10.09	31.30	27,679.5	230.2	0.0	27,959.7	17,214.2	939.0	0.0	0.0	18,153.2	9,765.5	1,601,389.0	9,765.5	1,591,632.0	418.50					
323	2429	1974	2071-2101	May	31	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	10.75	-5.33	39.47	-7.81	7%	100.39	+10.08	31.30	47,183.8	392.4	0.0	47,576.2	17,902.9	970.3	0.0	0.0	74,873.2	27,297.1	1,564,335.5	0.0	1,564,335.5	418.48					
323	2429	1974	2071-2101	June	30	418.5	1,591,632.0	418.46	1,564,335.5	0.00	11,430.0	0.45	16.71	-5.03	37.47	-7.84	0%	117.12	-8.80	31.30	61,623.9	512.4	0.0	62,136.3	16,803.3	939.0	0.0	0.0	77,939.3	14,453.3	1,548,882.5	0.0	1,548,882.5	418.44					
323	2429	1974	2071-2101	July	31	418.5	1,591,632.0	418.44	1,548,882.5	0.00	11,430.0	0.45	19.00	-5.03	36.18	-7.84	0%	130.66	-8.11	31.30	54,641.6	454.4	0.0	55,096.0	16,834.4	970.3	0.0	0.0	66,809.7	17,173.7	1,537,168.8	0.0	1,537,168.8	418.40					
323	2429	1974	2071-2101	August	31	418.5	1,591,632.0	418.40	1,517,168.8	0.00	11,430.0	0.45	17.71	-5.03	38.08	-7.84	0%	109.78	-8.17	31.30	43,448.8	361.3	0.0	43,810.1	16,243.5	970.3	0.0	0.0	79,213.8	26,465.7	1,490,761.1	0.0	1,490,761.1	418.37					
323	2429	1974	2071-2101	September	30	418.5	1,591,632.0	418.37	1,490,761.1	0.00	11,430.0	0.45	11.96	-5.03	35.93	-7.81	0%	92.47	-11.30	31.30	36,138.1	469.7	0.0	36,607.8	14,245.5	939.0	0.0	0.0	42,793.3	14,413.3	1,465,178.4	0.0	1,465,178.4	418.33					
323	2429	1974	2071-2101	October	31	418.5	1,591,632.0	418.39	1,505,178.4	0.00	11,430.0	0.45	4.70	-5.03	35.33	-7.81	32%	30.44	+10.22	31.30	41,529.7	345.3	0.0	41,875.0	25,149.2	970.3	0.0	0.0	26,119.5	19,756.6	1,520,931.0	0.0	1,520,931.0	418.41					
323	2429	1974	2071-2101	November	30	418.5	1,591,632.0	418.41	1,520,931.0	0.00	11,430.0	0.45	4.50	-5.33	33.57	-7.81	93%	0.00	-8.04	31.30	31,795.5	264.2	0.0	32,060.8	3,117.5	939.0	0.0	0.0	4,596.5	27,944.3	1,548,915.2	0.0	1,548,915.2	418.44					
323	2429	1974	2071-2101	December	31	418.5	1,591,632.0	418.44	1,548,915.2	0.00	11,430.0	0.45	13.88	-5.17	27.76	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
324	2430	1975	2071-2101	January	31	418.5	1,591,632.0	418.47	1,571,268.3	0.00	11,430.0	0.45	-16.84	-6.17	24.72	+10.24	100%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
324	2430	1975	2071-2101	February	29	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-13.59	-6.17	27.89	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
324	2430	1975	2071-2101	March	31	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-6.07	-5.33	27.89	+7.81	97%	0.00	-9.99	31.30	22,062.1	181.6	0.0	22,243.7	6,186.1	970.3	0.0	0.0	7,188.4	15,113.3	1,606,747.9	15,113.3	1,591,632.0	418.50					
324	2430	1975	2071-2101	April	30	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	2.50	-5.33	36.94	-7.81	22%	8.74	+10.09	31.30	27,679.5	230.2	0.0	27,909.7	17,214.2	939.0	0.0	0.0	18,153.2	9,765.5	1,601,389.0	9,765.5	1,591,632.0	418.50					
324	2430	1975	2071-2101	May	31	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	10.75	-5.33	39.47	-7.81	7%	100.39	+10.08	31.30	47,183.8	392.4	0.0	47,576.2	17,902.9	970.3	0.0	0.0	74,873.2	27,297.1	1,564,335.5	0.0	1,564,335.5	418.48					
324	2430	1975	2071-2101	June	30	418.5	1,591,632.0	418.46	1,564,335.5	0.00	11,430.0	0.45	16.71	-5.03	37.47	-7.84	0%	117.12	-8.80	31.30	61,623.9	512.4	0.0	62,136.3	16,803.3	939.0	0.0	0.0	77,939.3	14,453.3	1,548,882.5	0.0	1,548,882.5	418.44					
324	2430	1975	2071-2101	July	31	418.5	1,591,632.0	418.44	1,548,882.5	0.00	11,430.0	0.45	19.00	-5.03	36.18	-7.84	0%	130.66	-8.11	31.30	54,641.6	454.4	0.0	55,096.0	16,834.4	970.3	0.0	0.0	66,809.7	17,173.7	1,537,168.8	0.0	1,537,168.8	418.40					
324	2430	1975	2071-2101	August	31	418.5	1,591,632.0	418.40	1,517,168.8	0.00	11,430.0	0.45	17.71	-5.03	38.08	-7.84	0%	109.78	-8.17	31.30	43,448.8	361.3	0.0	43,810.1	16,243.5	970.3	0.0	0.0	79,213.8	26,465.7	1,490,761.1	0.0	1,490,761.1	418.37					
324	2430	1975	2071-2101	September	30	418.5	1,591,632.0	418.37	1,490,761.1	0.00	11,430.0	0.45	11.96	-5.03	35.93	-7.81	0%	92.47	-11.30	31.30	36,138.1	469.7	0.0	36,607.8	14,245.5	939.0	0.0	0.0	42,793.3	14,413.3	1,465,178.4	0.0	1,465,178.4	418.33					
324	2430	1975	2071-2101	October	31	418.5	1,591,632.0	418.39	1,505,178.4	0.00	11,430.0	0.45	4.70	-5.03	35.33	-7.81	32%	30.44	+10.22	31.30	41,529.7	345.3	0.0	41,875.0	25,149.2	970.3	0.0	0.0	26,119.5	19,756.6	1,520,931.0	0.0	1,520,931.0	418.41					
324	2430	1975	2071-2101	November	30	418.5	1,591,632.0	418.41	1,520,931.0	0.00	11,430.0	0.45	4.50	-5.33	33.57	-7.81	93%	0.00	-8.04	31.30	31,795.5	264.2	0.0	32,060.8	3,117.5	939.0	0.0	0.0	4,596.5	27,944.3	1,548,915.2	0.0	1,548,915.2	418.44					
324	2430	1975	2071-2101	December	31	418.5	1,591,632.0	418.44	1,548,915.2	0.00	11,430.0	0.45	13.88	-6.17	27.76	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
325	2431	1976	2071-2101	January	31	418.5	1,591,632.0	418.47	1,571,268.3	0.00	11,430.0	0.45	-16.84	-6.17	24.72	+10.24	100%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
325	2431	1976	2071-2101	February	29	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-13.59	-6.17	27.89	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
325	2431	1976	2071-2101	March	31	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	-6.07	-5.33	27.89	+7.81	97%	0.00	-9.99	31.30	22,062.1	181.6	0.0	22,243.7	6,186.1	970.3	0.0	0.0	7,188.4	15,113.3	1,606,747.9	15,113.3	1,591,632.0	418.50					
325	2431	1976	2071-2101	April	30	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	2.50	-5.33	36.94	-7.81	22%	8.74	+10.09	31.30	27,679.5	230.2	0.0	27,909.7	17,214.2	939.0	0.0	0.0	18,153.2	9,765.5	1,601,389.0	9,765.5	1,591,632.0	418.50					
325	2431	1976	2071-2101	May	31	418.5	1,591,632.0	418.50	1,591,632.0	0.00	11,430.0	0.45	10.75	-5.33	39.47	-7.81	7%	100.39	+10.08	31.30	47,183.8	392.4	0.0	47,576.2	17,902.9	970.3	0.0	0.0	74,873.2	27,297.1	1,564,335.5	0.0	1,564,335.5	418.48					
325	2431	1976	2071-2101	June	30	418.5	1,591,632.0	418.46	1,564,335.5	0.00	11,430.0	0.45	16.71	-5.03	37.47	-7.84	0%	117.12	-8.80	31.30	61,623.9	512.4	0.0	62,136.3	16,803.3	939.0	0.0	0.0	77,939.3	14,453.3	1,548,882.5	0.0	1,548,882.5	418.44					
325	2431	1976	2071-2101	July	31	418.5	1,591,632.0	418.44	1,548,882.5	0.00	11,430.0	0.45	19.00	-5.03	36.18	-7.84	0%	130.66	-8.11	31.30	54,641.6	454.4	0.0	55,096.0	16,834.4	970.3	0.0	0.0	66,809.7	17,173.7	1,537,168.8	0.0	1,537,168.8	418.40					
325	2431	1976	2071-2101	August	31	418.5	1,591,632.0	418.40	1,517,168.8	0.00	11,430.0</																												

Model Inputs	
Year of Simulation	2032
Source of Climate Record	Reanalysis
Climate Change Scenario	SSP2-4.5
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,901,620.6
Area of Open Water Within TSP (m²)	61,046.6
Runoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m²)	14,433.8
Runoff Coefficient for Restored Lands Within TSP	0.5
Elevation from TSP (m)	200.0
Supplementary Water Addition (m³/d)	0.0
Trigger for Supplementary Water Addition (mASL)	416.0
Substation Losses in Winter (mm/day)	0.0
Wind Drift Losses in Winter (% of snow)	0%

NOTES: 1) The climate record was selected to be the period of the TSP basin that had no open water.
2) Based on the values from Pomeroy and Jones (1996) "Windblown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 8c: Multi-Year Wet Cover Model (2032-2432): 200 m/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 L/min augmentation, and Ensemble Climate Change Scenario

Count	Pre-Start Year	Start Year	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Restored Area (m²)	Runoff Coefficient	Temperature (°C)	Forecast Precipitation (mm)	Precipitation as Snow (%)	Precipitation as Rain (%)	Evaporation (mm)	Forecast Evaporation (mm)	Average (m³/d)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool Evaporation	Average	Substation Losses	Wind Drift Losses	Total Outflow	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)
1	2032	1969	2011-2040	January	31	416.5	1,901,620.6	416.3	1,509,863.0	61,052.2	1.00	14,433.8	0.45	-16.84	-2.37	34.72	-6.66	100%	0.00	0.00	200.00	14,608.8	1614.0	0.0	18,932.2	0.0	6,200.0	0.0	6,200.0	13,372.0	1,553,769.0	0.0	1,553,769.0	416.45	1,553,769.0
2	2032	1969	2011-2040	February	28	416.5	1,901,620.6	416.5	1,553,597.0	61,052.2	1.00	14,433.8	0.45	-13.59	-2.37	18.66	-6.66	100%	0.00	0.00	200.00	15,679.9	1302.0	0.0	15,781.9	0.0	6,200.0	0.0	6,200.0	14,880.0	1,561,813.0	0.0	1,561,813.0	416.46	1,561,813.0
3	2032	1969	2011-2040	March	31	416.5	1,901,620.6	416.6	1,563,547.8	61,052.2	1.00	14,433.8	0.45	-8.07	-2.37	27.89	-6.66	100%	0.00	0.00	200.00	18,811.1	1658.0	0.0	20,779.0	0.0	6,200.0	0.0	6,200.0	13,907.0	1,577,454.8	0.0	1,577,454.8	416.48	1,577,454.8
4	2032	1969	2011-2040	April	30	416.5	1,901,620.6	416.7	1,577,554.8	61,052.2	1.00	14,433.8	0.45	-2.92	-2.37	39.94	-6.66	100%	0.00	0.00	200.00	25,538.0	2124.0	0.0	25,750.0	17,750.0	6,200.0	0.0	17,750.0	16,119.0	1,585,470.7	0.0	1,585,470.7	416.49	1,585,470.7
5	2032	1969	2011-2040	May	31	416.5	1,901,620.6	416.8	1,589,824.0	61,052.2	1.00	14,433.8	0.45	10.29	-2.37	48.47	-6.66	100%	0.00	0.00	200.00	42,626.0	3746.0	0.0	42,714.0	66,964.0	6,200.0	0.0	73,984.0	17,787.0	1,597,704.0	0.0	1,597,704.0	416.50	1,597,704.0
6	2032	1969	2011-2040	June	30	416.5	1,901,620.6	416.8	1,597,704.0	61,052.2	1.00	14,433.8	0.45	16.11	-2.37	50.47	-6.66	100%	0.00	0.00	200.00	42,626.0	3746.0	0.0	42,714.0	66,964.0	6,200.0	0.0	73,984.0	16,963.0	1,597,704.0	0.0	1,597,704.0	416.51	1,597,704.0
7	2032	1969	2011-2040	July	31	416.5	1,901,620.6	416.4	1,560,742.0	61,052.2	1.00	14,433.8	0.45	19.00	-2.37	36.16	-6.66	100%	0.00	0.00	200.00	33,066.0	3411.0	0.0	33,345.0	24,200.0	6,200.0	0.0	39,545.0	15,740.0	1,597,704.0	0.0	1,597,704.0	416.39	1,597,704.0
8	2032	1969	2011-2040	August	31	416.5	1,901,620.6	416.3	1,567,540.0	61,052.2	1.00	14,433.8	0.45	17.71	-2.37	38.08	-6.66	100%	0.00	0.00	200.00	34,278.0	3662.0	0.0	34,666.0	36,821.0	6,200.0	0.0	41,066.0	17,914.0	1,597,704.0	0.0	1,597,704.0	416.39	1,597,704.0
9	2032	1969	2011-2040	September	30	416.5	1,901,620.6	416.3	1,576,260.0	61,052.2	1.00	14,433.8	0.45	17.19	-2.37	39.29	-6.66	100%	0.00	0.00	200.00	34,278.0	3662.0	0.0	34,666.0	36,821.0	6,200.0	0.0	41,066.0	17,914.0	1,597,704.0	0.0	1,597,704.0	416.39	1,597,704.0
10	2032	1969	2011-2040	October	31	416.5	1,901,620.6	416.3	1,496,260.0	61,052.2	1.00	14,433.8	0.45	4.70	-2.37	59.33	-6.66	100%	0.00	0.00	200.00	30,444.0	4154.0	0.0	30,738.0	21,381.0	6,200.0	0.0	37,288.0	12,172.0	1,593,033.0	0.0	1,593,033.0	416.38	1,593,033.0
11	2032	1969	2011-2040	November	30	416.5	1,901,620.6	416.8	1,503,033.0	61,052.2	1.00	14,433.8	0.45	-4.30	-2.37	43.57	-6.66	83%	0.00	0.00	200.00	29,636.6	2464.0	0.0	29,820.0	0.0	6,200.0	0.0	6,200.0	23,862.0	1,508,938.0	0.0	1,508,938.0	416.41	1,508,938.0
12	2032	1969	2011-2040	December	31	416.5	1,901,620.6	416.1	1,528,933.0	61,052.2	1.00	14,433.8	0.45	-13.00	-2.37	27.15	-6.66	100%	0.00	0.00	200.00	20,991.0	1739.0	0.0	21,830.0	0.0	6,200.0	0.0	6,200.0	14,880.0	1,541,813.0	0.0	1,541,813.0	416.43	1,541,813.0
13	2033	1970	2011-2040	January	31	416.5	1,901,620.6	416.3	1,581,913.0	61,052.2	1.00	14,433.8	0.45	-6.96	-2.37	31.72	-6.66	100%	0.00	0.00	200.00	16,608.0	1614.0	0.0	16,796.0	0.0	6,200.0	0.0	6,200.0	13,372.0	1,560,185.0	0.0	1,560,185.0	416.45	1,560,185.0
14	2033	1970	2011-2040	February	28	416.5	1,901,620.6	416.5	1,595,185.0	61,052.2	1.00	14,433.8	0.45	-13.59	-2.37	18.66	-6.66	100%	0.00	0.00	200.00	15,679.9	1302.0	0.0	15,781.9	0.0	6,200.0	0.0	6,200.0	14,880.0	1,561,813.0	0.0	1,561,813.0	416.46	1,561,813.0
15	2033	1970	2011-2040	March	31	416.5	1,901,620.6	416.6	1,581,913.0	61,052.2	1.00	14,433.8	0.45	-8.07	-2.37	27.89	-6.66	100%	0.00	0.00	200.00	18,811.1	1658.0	0.0	20,779.0	0.0	6,200.0	0.0	6,200.0	13,907.0	1,575,264.0	0.0	1,575,264.0	416.48	1,575,264.0
16	2033	1970	2011-2040	April	30	416.5	1,901,620.6	416.8	1,577,554.8	61,052.2	1.00	14,433.8	0.45	-2.92	-2.37	39.94	-6.66	100%	0.00	0.00	200.00	25,538.0	2124.0	0.0	25,750.0	17,750.0	6,200.0	0.0	17,750.0	16,119.0	1,587,265.0	0.0	1,587,265.0	416.49	1,587,265.0
17	2033	1970	2011-2040	May	31	416.5	1,901,620.6	416.8	1,589,824.0	61,052.2	1.00	14,433.8	0.45	10.29	-2.37	48.47	-6.66	100%	0.00	0.00	200.00	42,626.0	3746.0	0.0	42,714.0	66,964.0	6,200.0	0.0	73,984.0	17,787.0	1,597,704.0	0.0	1,597,704.0	416.50	1,597,704.0
18	2033	1970	2011-2040	June	30	416.5	1,901,620.6	416.8	1,597,704.0	61,052.2	1.00	14,433.8	0.45	16.11	-2.37	50.47	-6.66	100%	0.00	0.00	200.00	42,626.0	3746.0	0.0	42,714.0	66,964.0	6,200.0	0.0	73,984.0	16,963.0	1,597,704.0	0.0	1,597,704.0	416.51	1,597,704.0
19	2033	1970	2011-2040	July	31	416.5	1,901,620.6	416.4	1,560,742.0	61,052.2	1.00	14,433.8	0.45	19.00	-2.37	36.16	-6.66	100%	0.00	0.00	200.00	33,066.0	3411.0	0.0	33,345.0	24,200.0	6,200.0	0.0	39,545.0	15,740.0	1,597,704.0	0.0	1,597,704.0	416.39	1,597,704.0
20	2033	1970	2011-2040	August	31	416.5	1,901,620.6	416.3	1,567,540.0	61,052.2	1.00	14,433.8	0.45	17.71	-2.37	38.08	-6.66	100%	0.00	0.00	200.00	34,278.0	3662.0	0.0	34,666.0	36,821.0	6,200.0	0.0	41,066.0	17,914.0	1,597,704.0	0.0	1,597,704.0	416.39	1,597,704.0
21	2033	1970	2011-2040	September	30	416.5	1,901,620.6	416.3	1,576,260.0	61,052.2	1.00	14,433.8	0.45	17.19	-2.37	39.29	-6.66	100%	0.00	0.00	200.00	34,278.0	3662.0	0.0	34,666.0	36,821.0	6,200.0	0.0	41,066.0	17,914.0	1,597,704.0	0.0	1,597,704.0	416.39	1,597,704.0
22	2033	1970	2011-2040	October	31	416.5	1,901,620.6	416.3	1,496,260.0	61,052.2	1.00	14,433.8	0.45	4.70	-2.37	59.33	-6.66	100%	0.00	0.00	200.00	30,444.0	4154.0	0.0	30,738.0	21,381.0	6,200.0	0.0	37,288.0	12,172.0	1,589,212.0	0.0	1,589,212.0	416.39	1,589,212.0
23	2033	1970	2011-2040	November	30	416.5	1,901,620.6	416.8	1,503,033.0	61,052.2	1.00	14,433.8	0.45	-4.30	-2.37	43.57	-6.66	83%	0.00	0.00	200.00	29,636.6	2464.0	0.0	29,820.0	0.0	6,200.0	0.0	6,200.0	23,862.0	1,508,938.0	0.0	1,508,938.0	416.41	1,508,938.0
24	2033	1970	2011-2040	December	31	416.5	1,901,620.6	416.1	1,528,933.0	61,052.2	1.00	14,433.8	0.45	-13.00	-2.37	27.15	-6.66	100%	0.00	0.00	200.00	20,991.0	1739.0	0.0	21,830.0	0.0	6,200.0	0.0	6,200.0	14,880.0	1,541,813.0	0.0	1,541,813.0	416.43	1,541,813.0
25	2033	1971	2011-2040	January	31	416.5	1,901,620.6	416.4	1,583,813.0	61,052.2	1.00	14,433.8	0.45	-6.84	-2.37	31.72	-6.66	100%	0.00	0.00	200.00	16,608.0	1614.0	0.0	16,796.0	0.0	6,200.0	0.0	6,200.0	13,372.0	1,567,073.0	0.0	1,567,073.0	416.45	1,567,073.0
26	2033	1971	2011-2040	February	28	416.5	1,901,620.6	416.6	1,581,913.0	61,052.2	1.00	14,433.8	0.45	-8.07	-2.37	27.89	-6.66	100%	0.00	0.00	200.00	18,811.1	1658.0	0.0	20,779.0	0.0	6,200.0	0.0	6,200.0	13,907.0	1,568,265.0	0.0			

Table 8c: Multi-Year Wet Cover Model (2032-2432); 200 m d/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 L/min augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Runoff Volume (m³)	Runoff Depth (mm)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	TSF Inflow (m³)	TSF Outflow (m³)	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL after discharge (m)				
2021	2073	2010	2071-2100	April	30	4185	1,591,622.0	4184.1	1,521,715.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	3%	8.74	-10.39	200.0	47,679.0	250.2	0.0	23,274.2	4,995.5	1,521,011.0	0.0	1,521,011.0	4184.2
2021	2073	2010	2071-2100	May	31	4185	1,591,622.0	4184.2	1,528,411.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	4%	10.39	-10.39	200.0	47,679.0	352.4	0.0	48,102.9	5,225.8	1,498,842.0	0.0	1,498,842.0	4184.3
2021	2073	2010	2071-2100	June	30	4185	1,591,622.0	4184.3	1,535,106.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	5%	12.94	-10.39	200.0	47,679.0	454.6	0.0	48,587.5	5,461.2	1,476,673.0	0.0	1,476,673.0	4184.4
2021	2073	2010	2071-2100	July	31	4185	1,591,622.0	4184.4	1,541,801.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	6%	15.49	-10.39	200.0	47,679.0	557.0	0.0	49,063.1	5,696.6	1,454,504.0	0.0	1,454,504.0	4184.5
2021	2073	2010	2071-2100	August	31	4185	1,591,622.0	4184.5	1,548,496.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	7%	18.04	-10.39	200.0	47,679.0	659.4	0.0	49,538.7	5,932.0	1,432,335.0	0.0	1,432,335.0	4184.6
2021	2073	2010	2071-2100	September	30	4185	1,591,622.0	4184.6	1,555,191.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	8%	20.59	-10.39	200.0	47,679.0	761.8	0.0	50,014.3	6,167.4	1,410,166.0	0.0	1,410,166.0	4184.7
2021	2073	2010	2071-2100	October	31	4185	1,591,622.0	4184.7	1,561,886.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	9%	23.14	-10.39	200.0	47,679.0	864.2	0.0	50,490.0	6,402.8	1,388,000.0	0.0	1,388,000.0	4184.8
2021	2073	2010	2071-2100	November	30	4185	1,591,622.0	4184.8	1,568,581.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	10%	25.69	-10.39	200.0	47,679.0	966.6	0.0	50,965.6	6,638.2	1,365,831.0	0.0	1,365,831.0	4184.9
2021	2073	2010	2071-2100	December	31	4185	1,591,622.0	4184.9	1,575,276.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	11%	28.24	-10.39	200.0	47,679.0	1,069.0	0.0	51,441.2	6,873.6	1,343,662.0	0.0	1,343,662.0	4185.0
2022	2074	2011	2071-2100	January	29	4185	1,591,622.0	4185.0	1,581,971.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	12%	30.79	-10.39	200.0	47,679.0	1,171.4	0.0	51,916.8	7,109.0	1,321,493.0	0.0	1,321,493.0	4185.1
2022	2074	2011	2071-2100	February	28	4185	1,591,622.0	4185.1	1,588,666.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	13%	33.34	-10.39	200.0	47,679.0	1,273.8	0.0	52,392.4	7,344.4	1,299,324.0	0.0	1,299,324.0	4185.2
2022	2074	2011	2071-2100	March	31	4185	1,591,622.0	4185.2	1,595,361.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	14%	35.89	-10.39	200.0	47,679.0	1,376.2	0.0	52,868.0	7,579.8	1,277,155.0	0.0	1,277,155.0	4185.3
2022	2074	2011	2071-2100	April	30	4185	1,591,622.0	4185.3	1,602,056.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	15%	38.44	-10.39	200.0	47,679.0	1,478.6	0.0	53,343.6	7,815.2	1,254,986.0	0.0	1,254,986.0	4185.4
2022	2074	2011	2071-2100	May	31	4185	1,591,622.0	4185.4	1,608,751.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	16%	40.99	-10.39	200.0	47,679.0	1,581.0	0.0	53,819.2	8,050.6	1,232,817.0	0.0	1,232,817.0	4185.5
2022	2074	2011	2071-2100	June	30	4185	1,591,622.0	4185.5	1,615,446.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	17%	43.54	-10.39	200.0	47,679.0	1,683.4	0.0	54,294.8	8,286.0	1,210,648.0	0.0	1,210,648.0	4185.6
2022	2074	2011	2071-2100	July	31	4185	1,591,622.0	4185.6	1,622,141.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	18%	46.09	-10.39	200.0	47,679.0	1,785.8	0.0	54,770.4	8,521.4	1,188,479.0	0.0	1,188,479.0	4185.7
2022	2074	2011	2071-2100	August	31	4185	1,591,622.0	4185.7	1,628,836.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	19%	48.64	-10.39	200.0	47,679.0	1,888.2	0.0	55,246.0	8,756.8	1,166,310.0	0.0	1,166,310.0	4185.8
2022	2074	2011	2071-2100	September	30	4185	1,591,622.0	4185.8	1,635,531.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	20%	51.19	-10.39	200.0	47,679.0	1,990.6	0.0	55,721.6	8,992.2	1,144,141.0	0.0	1,144,141.0	4185.9
2022	2074	2011	2071-2100	October	31	4185	1,591,622.0	4185.9	1,642,226.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	21%	53.74	-10.39	200.0	47,679.0	2,093.0	0.0	56,197.2	9,227.6	1,121,972.0	0.0	1,121,972.0	4186.0
2022	2074	2011	2071-2100	November	30	4185	1,591,622.0	4186.0	1,648,921.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	22%	56.29	-10.39	200.0	47,679.0	2,195.4	0.0	56,672.8	9,463.0	1,099,803.0	0.0	1,099,803.0	4186.1
2022	2074	2011	2071-2100	December	31	4185	1,591,622.0	4186.1	1,655,616.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	23%	58.84	-10.39	200.0	47,679.0	2,297.8	0.0	57,148.4	9,698.4	1,077,634.0	0.0	1,077,634.0	4186.2
2023	2075	2012	2071-2100	January	31	4185	1,591,622.0	4186.2	1,662,311.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	24%	61.39	-10.39	200.0	47,679.0	2,400.2	0.0	57,624.0	9,933.8	1,055,465.0	0.0	1,055,465.0	4186.3
2023	2075	2012	2071-2100	February	29	4185	1,591,622.0	4186.3	1,669,006.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	25%	63.94	-10.39	200.0	47,679.0	2,502.6	0.0	58,099.6	10,169.2	1,033,296.0	0.0	1,033,296.0	4186.4
2023	2075	2012	2071-2100	March	31	4185	1,591,622.0	4186.4	1,675,701.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	26%	66.49	-10.39	200.0	47,679.0	2,605.0	0.0	58,575.2	10,404.6	1,011,127.0	0.0	1,011,127.0	4186.5
2023	2075	2012	2071-2100	April	30	4185	1,591,622.0	4186.5	1,682,396.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	27%	69.04	-10.39	200.0	47,679.0	2,707.4	0.0	59,050.8	10,640.0	988,958.0	0.0	988,958.0	4186.6
2023	2075	2012	2071-2100	May	31	4185	1,591,622.0	4186.6	1,689,091.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	28%	71.59	-10.39	200.0	47,679.0	2,809.8	0.0	59,526.4	10,875.4	966,789.0	0.0	966,789.0	4186.7
2023	2075	2012	2071-2100	June	30	4185	1,591,622.0	4186.7	1,695,786.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	29%	74.14	-10.39	200.0	47,679.0	2,912.2	0.0	60,002.0	11,110.8	944,620.0	0.0	944,620.0	4186.8
2023	2075	2012	2071-2100	July	31	4185	1,591,622.0	4186.8	1,702,481.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	30%	76.69	-10.39	200.0	47,679.0	3,014.6	0.0	60,477.6	11,346.2	922,451.0	0.0	922,451.0	4186.9
2023	2075	2012	2071-2100	August	31	4185	1,591,622.0	4186.9	1,709,176.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	31%	79.24	-10.39	200.0	47,679.0	3,117.0	0.0	60,953.2	11,581.6	900,282.0	0.0	900,282.0	4187.0
2023	2075	2012	2071-2100	September	30	4185	1,591,622.0	4187.0	1,715,871.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	32%	81.79	-10.39	200.0	47,679.0	3,219.4	0.0	61,428.8	11,817.0	878,113.0	0.0	878,113.0	4187.1
2023	2075	2012	2071-2100	October	31	4185	1,591,622.0	4187.1	1,722,566.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	33%	84.34	-10.39	200.0	47,679.0	3,321.8	0.0	61,904.4	12,052.4	855,944.0	0.0	855,944.0	4187.2
2023	2075	2012	2071-2100	November	30	4185	1,591,622.0	4187.2	1,729,261.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	34%	86.89	-10.39	200.0	47,679.0	3,424.2	0.0	62,380.0	12,287.8	833,775.0	0.0	833,775.0	4187.3
2023	2075	2012	2071-2100	December	31	4185	1,591,622.0	4187.3	1,735,956.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	35%	89.44	-10.39	200.0	47,679.0	3,526.6	0.0	62,855.6	12,523.2	811,606.0	0.0	811,606.0	4187.4
2024	2076	2013	2071-2100	January	31	4185	1,591,622.0	4187.4	1,742,651.0	0.10	14,520.0	4.0	-3.3	-0.4	89.4	-7.81	36%	91.99	-10.39	200.0	47,679.0	3,629.0	0.0	63,331.2	12,758.6	789,437.0	0.0	789,437.0	4187.5

Table 8c: Multi-Year Wet Cover Model (2032-2432); 200 m/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Open Water	Natural Operations Area	TSP Inflows (m³)		TSP Outflows (m³)		Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	Initial WSEL (m)	Initial Volume (m³)							
																	Open Water	Natural Operations Area	Open Water	Natural Operations Area														
208	2140	1979	2071-2100	January	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.64	-1.17	24.72	+10.24	100%	0.00	0.00	200.00	21627.7	1789	0.00	21.866	0.00	0.00	6.00	12426	22944.4	0.00	22944.4	4169
208	2140	1979	2071-2100	February	28	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.59	-1.17	24.72	+10.24	100%	0.00	0.00	200.00	17879	1487	0.00	18.056	0.00	0.00	6.00	12426	22937.0	0.00	22937.0	4171
208	2140	1979	2071-2100	March	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4172
208	2140	1979	2071-2100	April	30	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4173
208	2140	1979	2071-2100	May	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4174
208	2140	1979	2071-2100	June	30	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4175
208	2140	1979	2071-2100	July	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4176
208	2140	1979	2071-2100	August	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4177
208	2140	1979	2071-2100	September	30	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4178
208	2140	1979	2071-2100	October	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4179
208	2140	1979	2071-2100	November	30	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4180
208	2140	1979	2071-2100	December	29	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4181
208	2140	1980	2071-2100	January	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.64	-1.17	24.72	+10.24	100%	0.00	0.00	200.00	21627	1789	0.00	21.866	0.00	0.00	6.00	12426	22944.4	0.00	22944.4	4182
208	2140	1980	2071-2100	February	28	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.59	-1.17	24.72	+10.24	100%	0.00	0.00	200.00	17879	1487	0.00	18.056	0.00	0.00	6.00	12426	22937.0	0.00	22937.0	4183
208	2140	1980	2071-2100	March	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4184
208	2140	1980	2071-2100	April	30	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4185
208	2140	1980	2071-2100	May	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4186
208	2140	1980	2071-2100	June	30	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4187
208	2140	1980	2071-2100	July	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4188
208	2140	1980	2071-2100	August	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4189
208	2140	1980	2071-2100	September	30	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4190
208	2140	1980	2071-2100	October	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4191
208	2140	1980	2071-2100	November	30	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4192
208	2140	1980	2071-2100	December	29	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4193
208	2140	1981	2071-2100	January	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.64	-1.17	24.72	+10.24	100%	0.00	0.00	200.00	21627	1789	0.00	21.866	0.00	0.00	6.00	12426	22944.4	0.00	22944.4	4194
208	2140	1981	2071-2100	February	28	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.59	-1.17	24.72	+10.24	100%	0.00	0.00	200.00	17879	1487	0.00	18.056	0.00	0.00	6.00	12426	22937.0	0.00	22937.0	4195
208	2140	1981	2071-2100	March	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4196
208	2140	1981	2071-2100	April	30	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4197
208	2140	1981	2071-2100	May	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4198
208	2140	1981	2071-2100	June	30	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	22061	1836	0.00	22.857	4.961	0.00	6.00	12426	22937.0	0.00	22937.0	4199
208	2140	1981	2071-2100	July	31	4185	1591.6224	4167	1591.6224	4167	1591.6224	1.00	11.53	0.45	-1.53	-1.17	27.89	+10.24	100%	0.00	-0.59	200.00	220											

Table 8c: Multi-Year Wet Cover Model (2032-2432); 200 m d/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 m/Lin augmentation, and Ensemble Climate Change Scenario

Year	Month	Day	Forecast Horizon	Season	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Change (m³)	TSF Inflows (m³)		TSF Outflows (m³)		Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	Initial WSEL (m)	Initial Volume (m³)						
																		Open Water	Restored	Supplementary	Total Inflow								Restored	Total Outflow				
118	2019	1987	2019-2100	October	31	4185	1,591,632.0	4128	2,814,943.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,148.2	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
119	2019	1987	2019-2100	November	30	4185	1,591,632.0	4129	2,809,419.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,147.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
120	2019	1987	2019-2100	December	29	4185	1,591,632.0	4130	2,803,895.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,147.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
121	2019	1988	2019-2100	January	28	4185	1,591,632.0	4131	2,797,871.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,146.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
122	2019	1988	2019-2100	February	28	4185	1,591,632.0	4132	2,791,847.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,146.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
123	2019	1988	2019-2100	March	27	4185	1,591,632.0	4133	2,785,823.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,145.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
124	2019	1988	2019-2100	April	30	4185	1,591,632.0	4134	2,779,799.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,145.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
125	2019	1988	2019-2100	May	31	4185	1,591,632.0	4135	2,773,775.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,144.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
126	2019	1988	2019-2100	June	30	4185	1,591,632.0	4136	2,767,751.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,144.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
127	2019	1988	2019-2100	July	31	4185	1,591,632.0	4137	2,761,727.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,143.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
128	2019	1988	2019-2100	August	31	4185	1,591,632.0	4138	2,755,703.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,143.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
129	2019	1988	2019-2100	September	30	4185	1,591,632.0	4139	2,749,679.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,142.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
130	2019	1988	2019-2100	October	31	4185	1,591,632.0	4140	2,743,655.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,142.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
131	2019	1988	2019-2100	November	30	4185	1,591,632.0	4141	2,737,631.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,141.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
132	2019	1988	2019-2100	December	29	4185	1,591,632.0	4142	2,731,607.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,141.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
133	2019	1989	2019-2100	January	28	4185	1,591,632.0	4143	2,725,583.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,140.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
134	2019	1989	2019-2100	February	28	4185	1,591,632.0	4144	2,719,559.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,140.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
135	2019	1989	2019-2100	March	27	4185	1,591,632.0	4145	2,713,535.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,139.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
136	2019	1989	2019-2100	April	30	4185	1,591,632.0	4146	2,707,511.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,139.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
137	2019	1989	2019-2100	May	31	4185	1,591,632.0	4147	2,701,487.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,138.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
138	2019	1989	2019-2100	June	30	4185	1,591,632.0	4148	2,695,463.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,138.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
139	2019	1989	2019-2100	July	31	4185	1,591,632.0	4149	2,689,439.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,137.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
140	2019	1989	2019-2100	August	31	4185	1,591,632.0	4150	2,683,415.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,137.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
141	2019	1989	2019-2100	September	30	4185	1,591,632.0	4151	2,677,391.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,136.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
142	2019	1989	2019-2100	October	31	4185	1,591,632.0	4152	2,671,367.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,136.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
143	2019	1989	2019-2100	November	30	4185	1,591,632.0	4153	2,665,343.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,135.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
144	2019	1989	2019-2100	December	29	4185	1,591,632.0	4154	2,659,319.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,135.0	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.0
145	2020	1990	2019-2100	January	28	4185	1,591,632.0	4155	2,653,295.0	1,610,592.0	1.00	11.53	0.45	-0.33	43.37	-7.81	33%	35.44	+13.22	200.0	41,378.7	345.3	0.0	41,740.0	31,152.0	2,000.0	0.0	31,134.5	4,591.9	-2,804,412.0	0.0	-2,804,412.0	412.9	1,591,632.

Table 8c: Multi-Year Wet Cover Model (2032-2432); 200 m/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Precipitation (mm)	Forecast Evaporation (mm)	Precipitation as a % of Evaporation	Evaporation (mm)	Forecast Change (mm)	Change (m)	TSP Inflows (m³)				TSP Outflows (m³)				Total Inflows	Total Outflows	Net Inflow	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)
																Open Water	Restored Wetland	Supplementary Wetland	Total Inflows	Open Water	Restored Wetland	Supplementary Wetland	Total Outflows								
212	2018	2010	2017-2010	January	31	4185	1,599,620	4129	1,318,674	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	21,627.7	179.9	0.0	21,806.6	0.0	0.00	6,200.0	0.0	6,200.0	14,246.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	February	28	4185	1,599,620	4122	1,317,584	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	March	30	4185	1,599,620	4120	1,316,713	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	April	30	4185	1,599,620	4124	1,315,243	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	May	31	4185	1,599,620	4126	1,313,773	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	June	30	4185	1,599,620	4128	1,312,303	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	July	31	4185	1,599,620	4130	1,310,833	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	August	31	4185	1,599,620	4132	1,309,363	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	September	30	4185	1,599,620	4134	1,307,893	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	October	31	4185	1,599,620	4136	1,306,423	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	November	30	4185	1,599,620	4138	1,304,953	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
212	2018	2010	2017-2010	December	31	4185	1,599,620	4140	1,303,483	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	January	31	4185	1,599,620	4142	1,302,013	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	February	28	4185	1,599,620	4144	1,300,543	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	March	30	4185	1,599,620	4146	1,299,073	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	April	30	4185	1,599,620	4148	1,297,603	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	May	31	4185	1,599,620	4150	1,296,133	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	June	30	4185	1,599,620	4152	1,294,663	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	July	31	4185	1,599,620	4154	1,293,193	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	August	31	4185	1,599,620	4156	1,291,723	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	September	30	4185	1,599,620	4158	1,290,253	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	October	31	4185	1,599,620	4160	1,288,783	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	November	30	4185	1,599,620	4162	1,287,313	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
213	2019	2011	2017-2010	December	31	4185	1,599,620	4164	1,285,843	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
214	2020	2012	2017-2010	January	31	4185	1,599,620	4166	1,284,373	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
214	2020	2012	2017-2010	February	28	4185	1,599,620	4168	1,282,903	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
214	2020	2012	2017-2010	March	31	4185	1,599,620	4170	1,281,433	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
214	2020	2012	2017-2010	April	30	4185	1,599,620	4172	1,279,963	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
214	2020	2012	2017-2010	May	31	4185	1,599,620	4174	1,278,493	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
214	2020	2012	2017-2010	June	30	4185	1,599,620	4176	1,277,023	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
214	2020	2012	2017-2010	July	31	4185	1,599,620	4178	1,275,553	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
214	2020	2012	2017-2010	August	31	4185	1,599,620	4180	1,274,083	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	148.7	0.0	18,028.4	0.0	0.00	5,600.0	0.0	5,600.0	12,426.6	-3,118.9	41.9	-3,118.9	41.9
214	2020	2012	2017-2010	September	30	4185	1,599,620	4182	1,272,613	0.1502	1.00	0.00	0.00	0.00	0.00	0.00	200.00	17,879.7	14												

Table 8c: Multi-Year Wet Cover Model (2032-2432); 200 m/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Month	Day	Forecast Horizon	Season	Invert Elevation (m)	Capacity of Invert (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Precipitation (mm)	Forecast Evaporation (mm)	Precipitation as a Percentage of Evaporation	Evaporation (mm)	Forecast Change (mm)	Change (mm)	TSF Inflows (m³)		TSF Outflows (m³)		End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month WSEL after Discharge (m)							
																		Open Water	Restored	Supplementary	Total Inflows						Open Water	Restored	Total Outflows				
256	2032	2006	2071-2100	July	31	4185	1,599,620.4	4117	4,098,178.1	1,659,692.1	1.00	11,430.0	0.45	19.00	-0.03	-0.06	19.06	7.84	0%	13.66	-0.11	200.0	454.61	454.4	0.0	50,909.4	36,944.4	4,976,122.0	0.0	-4,976,122.0	4117.02	4,098,178.1	1,659,692.1
256	2032	2006	2071-2100	August	31	4185	1,599,620.4	4112	4,076,122.0	1,659,692.1	1.00	11,430.0	0.45	17.11	-0.07	-0.08	16.78	7.84	0%	10.78	-0.17	200.0	448.68	361.3	0.0	43,881.1	36,944.4	4,976,122.0	0.0	-4,976,122.0	4116.00	4,076,122.0	1,659,692.1
256	2032	2006	2071-2100	September	30	4185	1,599,620.4	4107	4,054,176.0	1,659,692.1	1.00	11,430.0	0.45	15.22	-0.08	-0.09	14.89	7.84	0%	9.45	-0.18	200.0	442.95	268.0	0.0	41,762.2	36,944.4	4,976,122.0	0.0	-4,976,122.0	4114.98	4,054,176.0	1,659,692.1
256	2032	2006	2071-2100	October	31	4185	1,599,620.4	4102	4,032,224.0	1,659,692.1	1.00	11,430.0	0.45	13.33	-0.09	-0.10	13.00	7.84	0%	8.12	-0.19	200.0	437.22	174.7	0.0	39,643.3	36,944.4	4,976,122.0	0.0	-4,976,122.0	4113.96	4,032,224.0	1,659,692.1
256	2032	2006	2071-2100	November	30	4185	1,599,620.4	4097	4,008,276.0	1,659,692.1	1.00	11,430.0	0.45	11.44	-0.10	-0.11	11.11	7.84	0%	6.79	-0.20	200.0	431.49	81.4	0.0	37,524.4	36,944.4	4,976,122.0	0.0	-4,976,122.0	4112.94	4,008,276.0	1,659,692.1
256	2032	2006	2071-2100	December	31	4185	1,599,620.4	4092	4,000,000.0	1,659,692.1	1.00	11,430.0	0.45	9.55	-0.11	-0.12	9.22	7.84	0%	5.46	-0.21	200.0	425.76	-12.3	0.0	35,405.5	36,944.4	4,976,122.0	0.0	-4,976,122.0	4111.92	4,000,000.0	1,659,692.1
257	2033	2006	2071-2100	January	31	4185	1,599,620.4	4106	4,067,332.0	1,659,692.1	1.00	11,430.0	0.45	16.54	-0.17	-0.17	16.21	7.84	0%	12.07	-0.24	200.0	458.95	458.7	0.0	52,000.0	36,944.4	4,976,122.0	0.0	-4,976,122.0	4113.00	4,067,332.0	1,659,692.1
257	2033	2006	2071-2100	February	28	4185	1,599,620.4	4104	4,052,224.0	1,659,692.1	1.00	11,430.0	0.45	15.65	-0.18	-0.18	15.32	7.84	0%	11.18	-0.18	200.0	453.22	453.0	0.0	50,881.1	36,944.4	4,976,122.0	0.0	-4,976,122.0	4112.08	4,052,224.0	1,659,692.1
257	2033	2006	2071-2100	March	31	4185	1,599,620.4	4103	4,047,332.0	1,659,692.1	1.00	11,430.0	0.45	14.76	-0.19	-0.19	14.43	7.84	0%	10.29	-0.19	200.0	447.49	447.3	0.0	49,762.2	36,944.4	4,976,122.0	0.0	-4,976,122.0	4111.16	4,047,332.0	1,659,692.1
257	2033	2006	2071-2100	April	30	4185	1,599,620.4	4102	4,042,224.0	1,659,692.1	1.00	11,430.0	0.45	13.87	-0.20	-0.20	13.54	7.84	0%	9.40	-0.20	200.0	441.76	441.6	0.0	48,643.3	36,944.4	4,976,122.0	0.0	-4,976,122.0	4110.24	4,042,224.0	1,659,692.1
257	2033	2006	2071-2100	May	31	4185	1,599,620.4	4101	4,037,332.0	1,659,692.1	1.00	11,430.0	0.45	12.98	-0.21	-0.21	12.65	7.84	0%	8.51	-0.21	200.0	436.03	435.9	0.0	47,524.4	36,944.4	4,976,122.0	0.0	-4,976,122.0	4109.32	4,037,332.0	1,659,692.1
257	2033	2006	2071-2100	June	30	4185	1,599,620.4	4100	4,032,224.0	1,659,692.1	1.00	11,430.0	0.45	12.09	-0.22	-0.22	11.76	7.84	0%	7.62	-0.22	200.0	430.30	430.2	0.0	46,405.5	36,944.4	4,976,122.0	0.0	-4,976,122.0	4108.40	4,032,224.0	1,659,692.1
257	2033	2006	2071-2100	July	31	4185	1,599,620.4	4109	4,091,332.0	1,659,692.1	1.00	11,430.0	0.45	19.10	-0.23	-0.23	18.77	7.84	0%	13.64	-0.23	200.0	465.57	465.4	0.0	54,326.6	36,944.4	4,976,122.0	0.0	-4,976,122.0	4109.48	4,091,332.0	1,659,692.1
257	2033	2006	2071-2100	August	31	4185	1,599,620.4	4108	4,086,224.0	1,659,692.1	1.00	11,430.0	0.45	18.21	-0.24	-0.24	17.88	7.84	0%	12.75	-0.24	200.0	459.84	459.7	0.0	53,207.7	36,944.4	4,976,122.0	0.0	-4,976,122.0	4108.56	4,086,224.0	1,659,692.1
257	2033	2006	2071-2100	September	30	4185	1,599,620.4	4107	4,081,176.0	1,659,692.1	1.00	11,430.0	0.45	17.32	-0.25	-0.25	16.99	7.84	0%	11.86	-0.25	200.0	454.11	454.0	0.0	52,088.8	36,944.4	4,976,122.0	0.0	-4,976,122.0	4107.64	4,081,176.0	1,659,692.1
257	2033	2006	2071-2100	October	31	4185	1,599,620.4	4106	4,076,122.0	1,659,692.1	1.00	11,430.0	0.45	16.43	-0.26	-0.26	16.10	7.84	0%	10.97	-0.26	200.0	448.38	448.3	0.0	50,969.9	36,944.4	4,976,122.0	0.0	-4,976,122.0	4106.72	4,076,122.0	1,659,692.1
257	2033	2006	2071-2100	November	30	4185	1,599,620.4	4105	4,071,076.0	1,659,692.1	1.00	11,430.0	0.45	15.54	-0.27	-0.27	15.21	7.84	0%	10.08	-0.27	200.0	442.65	442.6	0.0	49,851.0	36,944.4	4,976,122.0	0.0	-4,976,122.0	4105.80	4,071,076.0	1,659,692.1
257	2033	2006	2071-2100	December	31	4185	1,599,620.4	4104	4,066,000.0	1,659,692.1	1.00	11,430.0	0.45	14.65	-0.28	-0.28	14.32	7.84	0%	9.19	-0.28	200.0	436.92	436.9	0.0	48,732.1	36,944.4	4,976,122.0	0.0	-4,976,122.0	4104.88	4,066,000.0	1,659,692.1
258	2034	2007	2071-2100	January	31	4185	1,599,620.4	4115	4,126,224.0	1,659,692.1	1.00	11,430.0	0.45	21.65	-0.29	-0.29	21.32	7.84	0%	15.18	-0.29	200.0	471.24	471.1	0.0	58,653.2	36,944.4	4,976,122.0	0.0	-4,976,122.0	4116.00	4,126,224.0	1,659,692.1
258	2034	2007	2071-2100	February	29	4185	1,599,620.4	4113	4,111,176.0	1,659,692.1	1.00	11,430.0	0.45	20.76	-0.30	-0.30	20.43	7.84	0%	14.29	-0.30	200.0	465.51	465.4	0.0	57,534.3	36,944.4	4,976,122.0	0.0	-4,976,122.0	4115.08	4,111,176.0	1,659,692.1
258	2034	2007	2071-2100	March	31	4185	1,599,620.4	4112	4,096,224.0	1,659,692.1	1.00	11,430.0	0.45	19.87	-0.31	-0.31	19.54	7.84	0%	13.40	-0.31	200.0	459.78	459.7	0.0	56,415.4	36,944.4	4,976,122.0	0.0	-4,976,122.0	4114.16	4,096,224.0	1,659,692.1
258	2034	2007	2071-2100	April	30	4185	1,599,620.4	4111	4,091,176.0	1,659,692.1	1.00	11,430.0	0.45	18.98	-0.32	-0.32	18.65	7.84	0%	12.51	-0.32	200.0	454.05	454.0	0.0	55,296.5	36,944.4	4,976,122.0	0.0	-4,976,122.0	4113.24	4,091,176.0	1,659,692.1
258	2034	2007	2071-2100	May	31	4185	1,599,620.4	4110	4,086,122.0	1,659,692.1	1.00	11,430.0	0.45	18.09	-0.33	-0.33	17.76	7.84	0%	11.62	-0.33	200.0	448.32	448.3	0.0	54,177.6	36,944.4	4,976,122.0	0.0	-4,976,122.0	4112.32	4,086,122.0	1,659,692.1
258	2034	2007	2071-2100	June	30	4185	1,599,620.4	4109	4,081,176.0	1,659,692.1	1.00	11,430.0	0.45	17.20	-0.34	-0.34	16.87	7.84	0%	10.73	-0.34	200.0	442.59	442.6	0.0	53,058.7	36,944.4	4,976,122.0	0.0	-4,976,122.0	4111.40	4,081,176.0	1,659,692.1
258	2034	2007	2071-2100	July	31	4185	1,599,620.4	4118	4,140,224.0	1,659,692.1	1.00	11,430.0	0.45	23.71	-0.35	-0.35	23.38	7.84	0%	16.26	-0.35	200.0	476.86	476.7	0.0	60,979.8	36,944.4	4,976,122.0	0.0	-4,976,122.0	4112.48	4,140,224.0	1,659,692.1
258	2034	2007	2071-2100	August	31	4185	1,599,620.4	4117	4,135,176.0	1,659,692.1	1.00	11,430.0	0.45	22.82	-0.36	-0.36	22.49	7.84	0%	15.37	-0.36	200.0	471.13	471.0	0.0	59,860.9	36,944.4	4,976,122.0	0.0	-4,976,122.0	4111.56	4,135,176.0	1,659,692.1
258	2034	2007	2071-2100	September	30	4185	1,599,620.4	4116	4,130,122.0	1,659,692.1	1.00	11,430.0	0.45	21.93	-0.37	-0.37	21.60	7.84	0%	14.48	-0.37	200.0	465.40	465.4	0.0	58,742.0	36,944.4	4,976,122.0	0.0	-4,976,122.0	4110.64	4,130,122.0	1,659,692.1
258	2034	2007	2071-2100	October	31	4185	1,599,620.4	4115	4,125,076.0	1,659,692.1	1.00	11,430.0	0.45	21.04	-0.38	-0.38	20.71	7.84	0%	13.59	-0.38	200.0	459.67	459.7	0.0	57,623.1	36,944.4	4,976,122.0	0.0	-4,976,122.0	4109.72	4,125,076.0	1,659,692.1
258	2034	2007	2071-2100	November	30	4185	1,599,620.4	4114	4,120,000.0	1,659,692.1	1.00	11,430.0	0.45	20.15	-0.39	-0.39	19.82	7.84	0%	12.70	-0.39	200.0	453.94	453.9	0.0	56,504.2</							

Table 8c: Multi-Year Wet Cover Model (2032-2432); 200 m/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Month	Day	Forecast Horizon	Season	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Snowmelt (mm)	Runoff (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL after Discharge (m)							
																										Open Water	Natural Operations Area	Temperature	Forecast Temperature Change	Precipitation	Forecast Precipitation Change	Evaporation
278	2034	1978	2021-2020	October	31	4185	1,591,622.0	4104.4	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
278	2034	1978	2021-2020	November	30	4185	1,591,622.0	4104.5	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
278	2034	1978	2021-2020	December	31	4185	1,591,622.0	4104.6	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	January	31	4185	1,591,622.0	4105.1	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	February	29	4185	1,591,622.0	4105.3	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	March	31	4185	1,591,622.0	4105.6	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	April	30	4185	1,591,622.0	4105.9	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	May	31	4185	1,591,622.0	4106.2	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	June	30	4185	1,591,622.0	4106.5	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	July	31	4185	1,591,622.0	4106.8	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	August	31	4185	1,591,622.0	4107.1	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	September	30	4185	1,591,622.0	4107.4	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	October	31	4185	1,591,622.0	4107.7	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	November	30	4185	1,591,622.0	4108.0	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
279	2035	1979	2021-2020	December	31	4185	1,591,622.0	4108.3	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	January	31	4185	1,591,622.0	4108.6	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	February	29	4185	1,591,622.0	4108.9	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	March	31	4185	1,591,622.0	4109.2	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	April	30	4185	1,591,622.0	4109.5	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	May	31	4185	1,591,622.0	4109.8	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	June	30	4185	1,591,622.0	4110.1	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	July	31	4185	1,591,622.0	4110.4	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	August	31	4185	1,591,622.0	4110.7	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	September	30	4185	1,591,622.0	4111.0	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	October	31	4185	1,591,622.0	4111.3	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	November	30	4185	1,591,622.0	4111.6	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
280	2036	1980	2021-2020	December	31	4185	1,591,622.0	4111.9	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
281	2037	1981	2021-2020	January	31	4185	1,591,622.0	4112.2	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
281	2037	1981	2021-2020	February	29	4185	1,591,622.0	4112.5	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8	2,000.0	0.0	31,348.2	3,529.5	4,507,676.8	0.0	-4,507,676.8	41,840.0
281	2037	1981	2021-2020	March	31	4185	1,591,622.0	4112.8	4,918,162.0	0.1430	0.45	4.70	-0.33	93.37	-7.81	0%	30.44	+13.22	200.00	41,787.8	345.3	0.0	41,840.0	31,542.8								

Table 8c: Multi-Year Wet Cover Model (2032-2432); 200 m/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Change (m³/d)	TSF Inflows (m³)		TSF Outflows (m³)		Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month WSEL (m)						
																		Open Water	Restored	Supplementary	Total Inflows							Open Water	Restored	Total Outflows			
2017	2017	2017-2010	January	28	418.5	1,591,632.0	405.96	4,867,418.0	1,659,922.0	1.00	14.33	0.45	-1.64	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	179.9	0.0	21,868.6	0.0	6,200.0	0.0	6,200.0	14,246.6	4,871,809.0	0.0	-4,871,809.0	405.97
2017	2017	2017-2010	February	28	418.5	1,591,632.0	405.97	4,871,809.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	148.7	0.0	18,058.6	0.0	6,500.0	0.0	6,500.0	14,246.6	4,883,343.0	0.0	-4,883,343.0	405.99
2017	2017	2017-2010	March	31	418.5	1,591,632.0	405.98	4,883,343.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	148.7	0.0	18,058.6	0.0	6,500.0	0.0	6,500.0	14,246.6	4,894,877.0	0.0	-4,894,877.0	406.01
2017	2017	2017-2010	April	30	418.5	1,591,632.0	406.01	4,906,478.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	292.2	0.0	18,171.2	0.0	6,200.0	0.0	6,200.0	14,246.6	4,917,365.0	0.0	-4,917,365.0	406.02
2017	2017	2017-2010	May	31	418.5	1,591,632.0	406.02	4,944,802.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	392.4	0.0	18,270.6	0.0	6,200.0	0.0	6,200.0	14,246.6	4,940,597.0	0.0	-4,940,597.0	406.03
2017	2017	2017-2010	June	30	418.5	1,591,632.0	406.03	4,989,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	487.8	0.0	18,359.6	0.0	6,200.0	0.0	6,200.0	14,246.6	4,964,069.0	0.0	-4,964,069.0	406.04
2017	2017	2017-2010	July	31	418.5	1,591,632.0	406.04	5,038,512.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	574.8	0.0	18,440.6	0.0	6,200.0	0.0	6,200.0	14,246.6	4,988,823.0	0.0	-4,988,823.0	406.05
2017	2017	2017-2010	August	31	418.5	1,591,632.0	406.05	5,092,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	658.8	0.0	18,516.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,013,977.0	0.0	-5,013,977.0	406.06
2017	2017	2017-2010	September	30	418.5	1,591,632.0	406.06	5,146,478.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	734.8	0.0	18,588.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,039,623.0	0.0	-5,039,623.0	406.07
2017	2017	2017-2010	October	31	418.5	1,591,632.0	406.07	5,209,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	804.8	0.0	18,658.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,065,977.0	0.0	-5,065,977.0	406.08
2017	2017	2017-2010	November	30	418.5	1,591,632.0	406.08	5,281,802.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	868.8	0.0	18,724.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,093,023.0	0.0	-5,093,023.0	406.09
2017	2017	2017-2010	December	31	418.5	1,591,632.0	406.09	5,364,802.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	924.8	0.0	18,786.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,120,823.0	0.0	-5,120,823.0	406.10
2018	2018	2018-2010	January	28	418.5	1,591,632.0	406.10	5,444,802.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	974.8	0.0	18,848.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,149,023.0	0.0	-5,149,023.0	406.11
2018	2018	2018-2010	February	28	418.5	1,591,632.0	406.11	5,510,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,018.8	0.0	18,906.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,178,223.0	0.0	-5,178,223.0	406.12
2018	2018	2018-2010	March	31	418.5	1,591,632.0	406.12	5,581,802.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,056.8	0.0	18,960.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,208,423.0	0.0	-5,208,423.0	406.13
2018	2018	2018-2010	April	30	418.5	1,591,632.0	406.13	5,659,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,088.8	0.0	19,010.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,239,623.0	0.0	-5,239,623.0	406.14
2018	2018	2018-2010	May	31	418.5	1,591,632.0	406.14	5,744,802.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,114.8	0.0	19,056.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,271,823.0	0.0	-5,271,823.0	406.15
2018	2018	2018-2010	June	30	418.5	1,591,632.0	406.15	5,838,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,136.8	0.0	19,100.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,305,223.0	0.0	-5,305,223.0	406.16
2018	2018	2018-2010	July	31	418.5	1,591,632.0	406.16	5,940,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,154.8	0.0	19,142.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,339,623.0	0.0	-5,339,623.0	406.17
2018	2018	2018-2010	August	31	418.5	1,591,632.0	406.17	6,050,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,169.8	0.0	19,182.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,374,823.0	0.0	-5,374,823.0	406.18
2018	2018	2018-2010	September	30	418.5	1,591,632.0	406.18	6,169,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,182.8	0.0	19,220.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,411,423.0	0.0	-5,411,423.0	406.19
2018	2018	2018-2010	October	31	418.5	1,591,632.0	406.19	6,298,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,193.8	0.0	19,256.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,449,423.0	0.0	-5,449,423.0	406.20
2018	2018	2018-2010	November	30	418.5	1,591,632.0	406.20	6,438,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,202.8	0.0	19,290.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,488,823.0	0.0	-5,488,823.0	406.21
2018	2018	2018-2010	December	31	418.5	1,591,632.0	406.21	6,589,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,209.8	0.0	19,322.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,529,623.0	0.0	-5,529,623.0	406.22
2019	2019	2019-2010	January	28	418.5	1,591,632.0	406.22	6,751,802.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,214.8	0.0	19,352.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,571,823.0	0.0	-5,571,823.0	406.23
2019	2019	2019-2010	February	28	418.5	1,591,632.0	406.23	6,916,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,218.8	0.0	19,380.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,615,623.0	0.0	-5,615,623.0	406.24
2019	2019	2019-2010	March	31	418.5	1,591,632.0	406.24	7,084,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,221.8	0.0	19,406.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,660,823.0	0.0	-5,660,823.0	406.25
2019	2019	2019-2010	April	30	418.5	1,591,632.0	406.25	7,265,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,223.8	0.0	19,430.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,708,423.0	0.0	-5,708,423.0	406.26
2019	2019	2019-2010	May	31	418.5	1,591,632.0	406.26	7,459,258.0	1,659,922.0	1.00	14.33	0.45	-1.59	-11.77	24.72	+10.24	94%	0.00	0	200.00	17,879.7	1,224.8	0.0	19,452.6	0.0	6,200.0	0.0	6,200.0	14,246.6	5,758,423.0	0.0	-5,758,423.0	406.27
2019	2019	2019-2010	June	30	418.5	1,591,632.0	406.27																										

Table 8c: Multi-Year Wet Cover Model (2032-2432): 200 m³/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.80 Limin augmentation, and Ensemble Climate Change Scenario

Count	Season Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of Wet (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Runoff Coefficients		Restored Operations Area Runoff Coefficients		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m ³ /d)	TSF Inflows (m ³)				TSF Outflows (m ³)				Net Inflow-Outflow (m ³)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month Volume after Discharge (m ³)	List of Month WSEL after Discharge (m)
										Area (m ²)	Runoff Coefficients	Area (m ²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pool Evaporation	Average	Sublimation Losses	Wind Drift Losses					
323	2429	1974	2071-2100	April	30	418.5	1,599,632.0	450.45	-5,265,262.2	0.00	11,430.0	0.45	-2.50	-5.33	36.94	-7.81	21%	8.74	+10.09	200.00	27,679.5	230.2	0.0	27,909.7	17,214.2	0.000	0.0	0.0	23,214.2	4,695.5	-5,264,967.7	0.0	-5,264,967.7	450.45
323	2429	1974	2071-2100	May	31	418.5	1,599,632.0	450.45	-5,264,967.7	0.00	11,430.0	0.45	-10.75	-5.33	39.47	-7.81	7%	100.39	+10.09	200.00	47,183.8	392.4	0.0	47,576.2	73,902.9	0.200	0.0	0.0	80,102.9	32,208.8	-5,297,171.5	0.0	-5,297,171.5	450.45
323	2429	1974	2071-2100	June	30	418.5	1,599,632.0	450.45	-5,264,967.7	0.00	11,430.0	0.45	-16.75	-5.33	37.47	-7.81	0%	117.12	+10.09	200.00	61,623.9	512.4	0.0	62,136.3	76,602.3	0.000	0.0	0.0	62,602.3	20,518.0	-5,317,631.8	0.0	-5,317,631.8	450.38
323	2429	1974	2071-2100	July	31	418.5	1,599,632.0	450.38	-5,317,631.8	0.00	11,430.0	0.45	-19.00	-5.03	36.18	-7.84	0%	130.66	+11.11	200.00	54,641.6	454.4	0.0	55,096.0	85,839.4	0.200	0.0	0.0	52,039.4	36,943.4	-5,354,580.9	0.0	-5,354,580.9	450.34
323	2429	1974	2071-2100	August	31	418.5	1,599,632.0	450.34	-5,354,580.9	0.00	11,430.0	0.45	-17.75	-5.03	38.08	-7.84	0%	109.78	+11.11	200.00	43,848.8	361.3	0.0	44,210.1	69,243.5	0.200	0.0	0.0	79,443.5	31,835.4	-5,386,276.3	0.0	-5,386,276.3	450.29
323	2429	1974	2071-2100	September	30	418.5	1,599,632.0	450.30	-5,386,276.3	0.00	11,430.0	0.45	-11.00	-5.03	35.93	-7.81	0%	92.47	+11.11	200.00	34,381.1	469.7	0.0	34,850.8	41,245.5	0.000	0.0	0.0	41,245.5	3,864.7	-5,376,462.0	0.0	-5,376,462.0	450.31
323	2429	1974	2071-2100	October	31	418.5	1,599,632.0	450.31	-5,376,462.0	0.00	11,430.0	0.45	-4.75	-5.03	35.33	-7.81	32%	30.44	+10.24	200.00	41,528.7	345.3	0.0	41,874.0	26,149.2	0.200	0.0	0.0	31,349.2	10,524.9	-5,366,337.1	0.0	-5,366,337.1	450.32
323	2429	1974	2071-2100	November	30	418.5	1,599,632.0	450.32	-5,366,337.1	0.00	11,430.0	0.45	-4.50	-5.33	43.57	-7.81	93%	0.00	+10.24	200.00	31,795.5	264.2	0.0	32,060.8	3,117.5	0.000	0.0	0.0	8,117.5	22,923.3	-5,343,413.8	0.0	-5,343,413.8	450.35
323	2429	1974	2071-2100	December	31	418.5	1,599,632.0	450.30	-5,343,413.8	0.00	11,430.0	0.45	-13.88	-4.17	27.76	+10.24	98%	0.00	+10.24	200.00	23,129.1	192.3	0.0	23,321.4	0.0	0.000	0.0	0.0	6,000.0	17,121.4	-5,326,292.4	0.0	-5,326,292.4	450.37
324	2430	1975	2071-2100	January	31	418.5	1,599,632.0	450.37	-5,326,292.4	0.00	11,430.0	0.45	-16.84	-4.17	24.72	+10.24	100%	0.00	+10.24	200.00	21,628.7	179.9	0.0	21,808.6	0.0	0.000	0.0	0.0	6,200.0	16,608.6	-5,310,683.8	0.0	-5,310,683.8	450.39
324	2430	1975	2071-2100	February	28	418.5	1,599,632.0	450.39	-5,310,683.8	0.00	11,430.0	0.45	-13.59	-4.17	28.66	+10.24	99%	0.00	+10.24	200.00	17,877.9	148.7	0.0	18,026.6	0.0	0.000	0.0	0.0	5,600.0	12,426.6	-5,298,257.2	0.0	-5,298,257.2	450.41
324	2430	1975	2071-2100	March	31	418.5	1,599,632.0	450.41	-5,298,257.2	0.00	11,430.0	0.45	-6.07	-5.33	27.89	+7.81	97%	0.00	+10.24	200.00	22,021.1	183.6	0.0	22,204.7	1,981.1	0.200	0.0	0.0	12,380.1	9,824.6	-5,288,371.6	0.0	-5,288,371.6	450.42
324	2430	1975	2071-2100	April	30	418.5	1,599,632.0	450.42	-5,288,371.6	0.00	11,430.0	0.45	-2.50	-5.33	36.94	-7.81	22%	8.74	+10.09	200.00	27,679.5	230.2	0.0	27,909.7	17,214.2	0.000	0.0	0.0	23,214.2	4,695.5	-5,283,676.2	0.0	-5,283,676.2	450.43
324	2430	1975	2071-2100	May	31	418.5	1,599,632.0	450.43	-5,283,676.2	0.00	11,430.0	0.45	-10.75	-5.33	39.47	-7.81	7%	100.39	+10.09	200.00	47,183.8	392.4	0.0	47,576.2	73,902.9	0.200	0.0	0.0	80,102.9	32,208.8	-5,316,202.9	0.0	-5,316,202.9	450.39
324	2430	1975	2071-2100	June	30	418.5	1,599,632.0	450.39	-5,316,202.9	0.00	11,430.0	0.45	-16.75	-5.03	37.47	-7.84	0%	117.12	+10.09	200.00	61,623.9	512.4	0.0	62,136.3	76,602.3	0.000	0.0	0.0	62,602.3	20,518.0	-5,348,718.9	0.0	-5,348,718.9	450.36
324	2430	1975	2071-2100	July	31	418.5	1,599,632.0	450.36	-5,348,718.9	0.00	11,430.0	0.45	-19.00	-5.03	36.18	-7.84	0%	130.66	+11.11	200.00	54,641.6	454.4	0.0	55,096.0	85,839.4	0.200	0.0	0.0	52,039.4	36,943.4	-5,377,602.4	0.0	-5,377,602.4	450.31
324	2430	1975	2071-2100	August	31	418.5	1,599,632.0	450.31	-5,377,602.4	0.00	11,430.0	0.45	-17.75	-5.03	38.08	-7.84	0%	109.78	+11.11	200.00	43,848.8	361.3	0.0	44,210.1	69,243.5	0.200	0.0	0.0	79,443.5	31,835.4	-5,409,297.7	0.0	-5,409,297.7	450.27
324	2430	1975	2071-2100	September	30	418.5	1,599,632.0	450.27	-5,409,297.7	0.00	11,430.0	0.45	-11.00	-5.03	35.93	-7.81	0%	92.47	+11.11	200.00	34,381.1	469.7	0.0	34,850.8	41,245.5	0.000	0.0	0.0	41,245.5	3,864.7	-5,396,443.4	0.0	-5,396,443.4	450.28
324	2430	1975	2071-2100	October	31	418.5	1,599,632.0	450.28	-5,396,443.4	0.00	11,430.0	0.45	-4.75	-5.33	43.57	-7.81	93%	0.00	+10.24	200.00	31,795.5	264.2	0.0	32,060.8	3,117.5	0.000	0.0	0.0	31,349.2	10,524.9	-5,384,416.6	0.0	-5,384,416.6	450.29
324	2430	1975	2071-2100	November	30	418.5	1,599,632.0	450.29	-5,384,416.6	0.00	11,430.0	0.45	-4.50	-5.33	43.57	-7.81	93%	0.00	+10.24	200.00	31,795.5	264.2	0.0	32,060.8	3,117.5	0.000	0.0	0.0	8,117.5	22,923.3	-5,362,493.3	0.0	-5,362,493.3	450.32
324	2430	1975	2071-2100	December	31	418.5	1,599,632.0	450.32	-5,362,493.3	0.00	11,430.0	0.45	-13.88	-4.17	27.76	+10.24	98%	0.00	+10.24	200.00	23,129.1	192.3	0.0	23,321.4	0.0	0.000	0.0	0.0	6,200.0	17,121.4	-5,346,373.9	0.0	-5,346,373.9	450.35
325	2431	1976	2071-2100	January	31	418.5	1,599,632.0	450.35	-5,346,373.9	0.00	11,430.0	0.45	-16.84	-4.17	24.72	+10.24	100%	0.00	+10.24	200.00	21,628.7	179.9	0.0	21,808.6	0.0	0.000	0.0	0.0	6,200.0	16,608.6	-5,329,765.3	0.0	-5,329,765.3	450.37
325	2431	1976	2071-2100	February	28	418.5	1,599,632.0	450.37	-5,329,765.3	0.00	11,430.0	0.45	-13.59	-4.17	28.66	+10.24	99%	0.00	+10.24	200.00	17,877.9	148.7	0.0	18,026.6	0.0	0.000	0.0	0.0	5,600.0	12,426.6	-5,317,338.7	0.0	-5,317,338.7	450.39
325	2431	1976	2071-2100	March	31	418.5	1,599,632.0	450.38	-5,317,338.7	0.00	11,430.0	0.45	-6.07	-5.33	27.89	+7.81	76%	0.00	+10.24	200.00	22,021.1	183.6	0.0	22,204.7	1,981.1	0.200	0.0	0.0	12,380.1	9,824.6	-5,307,453.1	0.0	-5,307,453.1	450.40
325	2431	1976	2071-2100	April	30	418.5	1,599,632.0	450.40	-5,307,453.1	0.00	11,430.0	0.45	-2.50	-5.33	36.94	-7.81	22%	8.74	+10.09	200.00	27,679.5	230.2	0.0	27,909.7	17,214.2	0.000	0.0	0.0	23,214.2	4,695.5	-5,302,757.6	0.0	-5,302,757.6	450.40
325	2431	1976	2071-2100	May	31	418.5	1,599,632.0	450.40	-5,302,757.6	0.00	11,430.0	0.45	-10.75	-5.33	39.47	-7.81	7%	100.39	+10.09	200.00	47,183.8	392.4	0.0	47,576.2	73,902.9	0.200	0.0	0.0	80,102.9	32,208.8	-5,335,264.4	0.0	-5,335,264.4	450.36
325	2431	1976	2071-2100	June	30	418.5	1,599,632.0	450.36	-5,335,264.4	0.00	11,430.0	0.45	-16.75	-5.03	37.47	-7.84	0%	117.12	+10.09	200.00	61,623.9	512.4	0.0	62,136.3	76,602.3	0.000	0.0	0.0	62,602.3	20,518.0	-5,368,800.4	0.0	-5,368,800.4	450.33
325	2431	1976	2071-2100	July	31	418.5	1,599,632.0	450.33	-5,368,800.4	0.00	11,430.0	0.45	-19.00	-5.03	36.18	-7.84	0%	130.66	+11.11	200.00	54,641.6	454.4	0.0	55,096.0	85,839.4	0.200	0.0	0.0	52,039.4	36,943.4	-5,397,743.8	0.0	-5,397,743.8	450.28
325	2431	1976	2071-2100	August	31	418.5	1,599,632.0																											

Model Inputs	
First Year of Simulation	2032
Source of Climate Record	Ensemble
Source of Change Scenario	Ensemble
Invert Elevation (mASL)	416.6
Maximum Elevation of Tailings (mASL)	416.6
Capacity of TSP (m³)	1,991,822.6
Area of Open Water Within TSP (m²)	61,666.6
Ruoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m²)	11,433.8
Ruoff Coefficient for Restored Lands Within TSP	0.15
Drainage from TSP (m³/s)	3.13
Supplementary Water Addition (m³/s)	0.0
Trigger Elevation for Supplementary Water Addition (mASL)	416.0
Sublimation Losses in Winter (mm/day)	0.0
Wind Drift Losses in Winter (% of snow)	0%

NOTES: 1) The climate record was selected from the period of the TSP from the non-vegetated water.
2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 9a: Multi-Year Wet Cover Model (2032-2432): 3.13 m³/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Pre-Start Year	Start Year	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Restored Area (m²)	Restored Ruoff Coeff	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Average (m³/s)	TSP Inflows (m³/s)				TSP Outflows (m³/s)				Total Outflow	Net Inflow	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)
																					Open Water	Restored	Supplementary	Total Inflow	Sublimation	Wind Drift	Total Outflow	Net Inflow							
1	2032	1969	2011-2040	January	31	416.5	1,991,822.6	414.3	1,539,863.0	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	63,964.4	532.2	0.0	64,506.6	0.0	0.0	0.0	64,506.6	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
2	2032	1969	2011-2040	February	28	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	132,099.9	1,099.0	0.0	133,198.9	0.0	0.0	0.0	133,198.9	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
3	2032	1969	2011-2040	March	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	83,949.9	743.0	0.0	84,692.9	0.0	0.0	0.0	84,692.9	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
4	2032	1969	2011-2040	April	30	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	146,878.0	1,221.0	0.0	148,099.0	0.0	0.0	0.0	148,099.0	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
5	2032	1969	2011-2040	May	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	197,945.0	1,619.0	0.0	199,564.0	0.0	0.0	0.0	199,564.0	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
6	2032	1969	2011-2040	June	30	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	241.0	3.13	0.0	244.13	0.0	0.0	0.0	244.13	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
7	2032	1969	2011-2040	July	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	69,279.8	576.1	0.0	70,855.9	0.0	0.0	0.0	70,855.9	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
8	2032	1969	2011-2040	August	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	94,269.9	783.9	0.0	95,053.8	0.0	0.0	0.0	95,053.8	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
9	2032	1969	2011-2040	September	30	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	109,364.0	947.0	0.0	110,311.0	0.0	0.0	0.0	110,311.0	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
10	2032	1969	2011-2040	October	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	145,866.0	1,349.0	0.0	147,215.0	0.0	0.0	0.0	147,215.0	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
11	2032	1969	2011-2040	November	30	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	234.2	3.13	0.0	237.33	0.0	0.0	0.0	237.33	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
12	2032	1969	2011-2040	December	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	264.3	3.13	0.0	267.43	0.0	0.0	0.0	267.43	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
13	2033	1970	2011-2040	January	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	264.3	3.13	0.0	267.43	0.0	0.0	0.0	267.43	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
14	2033	1970	2011-2040	February	28	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	197,945.0	1,619.0	0.0	199,564.0	0.0	0.0	0.0	199,564.0	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
15	2033	1970	2011-2040	March	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	241.0	3.13	0.0	244.13	0.0	0.0	0.0	244.13	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
16	2033	1970	2011-2040	April	30	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	146,878.0	1,221.0	0.0	148,099.0	0.0	0.0	0.0	148,099.0	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
17	2033	1970	2011-2040	May	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	197,945.0	1,619.0	0.0	199,564.0	0.0	0.0	0.0	199,564.0	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
18	2033	1970	2011-2040	June	30	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	241.0	3.13	0.0	244.13	0.0	0.0	0.0	244.13	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
19	2033	1970	2011-2040	July	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	69,279.8	576.1	0.0	70,855.9	0.0	0.0	0.0	70,855.9	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
20	2033	1970	2011-2040	August	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	94,269.9	783.9	0.0	95,053.8	0.0	0.0	0.0	95,053.8	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
21	2033	1970	2011-2040	September	30	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	109,364.0	947.0	0.0	110,311.0	0.0	0.0	0.0	110,311.0	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
22	2033	1970	2011-2040	October	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	145,866.0	1,349.0	0.0	147,215.0	0.0	0.0	0.0	147,215.0	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
23	2033	1970	2011-2040	November	30	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	234.2	3.13	0.0	237.33	0.0	0.0	0.0	237.33	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
24	2033	1970	2011-2040	December	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	264.3	3.13	0.0	267.43	0.0	0.0	0.0	267.43	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
25	2034	1971	2011-2040	January	31	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	264.3	3.13	0.0	267.43	0.0	0.0	0.0	267.43	1,604,414.1	12,786.5	1,591,626.6	416.0	1,591,626.6	416.0	1,591,626.6
26	2034	1971	2011-2040	February	28	416.5	1,991,822.6	415.0	1,591,822.6	61,666.62	1,433.8	1.00	-1.00	-0.27	96.80	-6.66	100%	0.00	0.00	3.13	197,945.0	1,619.0	0.0	199,564.0	0.0	0.0	0.0	199,							

Table S6. Multi-Year Wet Cover Model (2032-2432): 3.11 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Forecast Month	Forecast Day	Forecast Invert (Elevation)	Forecast Capacity (m³)	Forecast Initial WSEL (m)	Forecast Initial Volume (m³)	Forecast Open Water Area (m²)	Forecast Natural Operations Area (m²)	Forecast Temperature (°C)	Forecast Precipitation (mm)	Forecast Evaporation (mm)	Forecast Sublimation (mm)	Forecast Snow Accumulation (mm)	Forecast Snowmelt (mm)	Forecast Runoff (mm)	Forecast Inflow (mm)	Forecast Outflow (mm)	Forecast Net Inflow (mm)	Forecast End of Month WSEL (m)	Forecast End of Month Volume (m³)	Forecast Discharge Volume (m³)	Forecast End of Month Discharge (m³)	Forecast End of Month WSEL (m)	
2017	2029	1970	2021-2100	January	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	19.40	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	February	29	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	17.30	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	March	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	15.20	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	April	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	13.10	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	May	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	11.00	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	June	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	8.90	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	July	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	6.80	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	August	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	4.70	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	September	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	2.60	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	October	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	0.50	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	November	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-1.60	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2017	2029	1970	2021-2100	December	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-3.70	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	January	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-5.80	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	February	29	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-7.90	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	March	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-10.00	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	April	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-12.10	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	May	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-14.20	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	June	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-16.30	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	July	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-18.40	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	August	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-20.50	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	September	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-22.60	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	October	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-24.70	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	November	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-26.80	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2018	2030	1971	2021-2100	December	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-28.90	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	January	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-31.00	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	February	29	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-33.10	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	March	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-35.20	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	April	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-37.30	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	May	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-39.40	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	June	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-41.50	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	July	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-43.60	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	August	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-45.70	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	September	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-47.80	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	October	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-49.90	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	November	30	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-52.00	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2019	2031	1972	2021-2100	December	31	418.5	1,991,622.0	418.0	1,991,622.0	1,000,000.0	11,430.0	0.45	-54.10	-11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,991,622.0	0.0	1,991,622.0	418.0
2020	2032	1973	2021-2100	January	31																						

Table S6. Multi-year Wet Cover Model (2032-2432): 3.11 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Case	Scenario	Forecast Horizon	Month	Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Natural Operations Area	Runoff	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Exfiltration (mm)	Forecast Exfiltration Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Wet Cover (mm)				
																														Open Water	Runoff	Natural Operations Area	Runoff
399	2051	1992	2071-2100	April	30	418.5	1,591,632.0	418.2	1,522,864.0	1.00	11,430.0	0.45	-0.03	-0.34	62.50	-0.71	57%	0.00	-10.39	313	33,529.0	278.0	0.0	11,900.0	21,951.0	1,547,716.0	0.0	1,526,716.0	418.45	1,526,716.0	418.45		
399	2051	1992	2071-2100	May	31	418.5	1,591,632.0	418.45	1,584,776.0	1.00	11,430.0	0.45	-0.34	62.50	-0.71	57%	0.00	-10.39	313	33,529.0	316.0	0.0	11,880.0	21,951.0	1,548,776.0	0.0	1,526,776.0	418.49	1,526,776.0	418.49			
399	2051	1992	2071-2100	June	30	418.5	1,591,632.0	418.4	1,580,216.0	1.00	11,430.0	0.45	-0.34	62.50	-0.71	57%	0.00	-10.39	313	33,529.0	316.0	0.0	11,880.0	21,951.0	1,548,776.0	0.0	1,526,776.0	418.49	1,526,776.0	418.49			
399	2051	1992	2071-2100	July	31	418.5	1,591,632.0	418.4	1,575,760.0	1.00	11,430.0	0.45	-0.34	62.50	-0.71	57%	0.00	-10.39	313	33,529.0	316.0	0.0	11,880.0	21,951.0	1,548,776.0	0.0	1,526,776.0	418.49	1,526,776.0	418.49			
399	2051	1992	2071-2100	August	31	418.5	1,591,632.0	418.4	1,570,304.0	1.00	11,430.0	0.45	-0.34	62.50	-0.71	57%	0.00	-10.39	313	33,529.0	316.0	0.0	11,880.0	21,951.0	1,548,776.0	0.0	1,526,776.0	418.49	1,526,776.0	418.49			
399	2051	1992	2071-2100	September	30	418.5	1,591,632.0	418.4	1,565,848.0	1.00	11,430.0	0.45	-0.34	62.50	-0.71	57%	0.00	-10.39	313	33,529.0	316.0	0.0	11,880.0	21,951.0	1,548,776.0	0.0	1,526,776.0	418.49	1,526,776.0	418.49			
399	2051	1992	2071-2100	October	31	418.5	1,591,632.0	418.4	1,561,392.0	1.00	11,430.0	0.45	-0.34	62.50	-0.71	57%	0.00	-10.39	313	33,529.0	316.0	0.0	11,880.0	21,951.0	1,548,776.0	0.0	1,526,776.0	418.49	1,526,776.0	418.49			
399	2051	1992	2071-2100	November	30	418.5	1,591,632.0	418.4	1,556,936.0	1.00	11,430.0	0.45	-0.34	62.50	-0.71	57%	0.00	-10.39	313	33,529.0	316.0	0.0	11,880.0	21,951.0	1,548,776.0	0.0	1,526,776.0	418.49	1,526,776.0	418.49			
399	2051	1992	2071-2100	December	31	418.5	1,591,632.0	418.4	1,552,480.0	1.00	11,430.0	0.45	-0.34	62.50	-0.71	57%	0.00	-10.39	313	33,529.0	316.0	0.0	11,880.0	21,951.0	1,548,776.0	0.0	1,526,776.0	418.49	1,526,776.0	418.49			
400	2252	1993	2071-2100	January	29	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	February	29	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	March	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	April	30	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	May	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	June	30	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	July	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	August	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	September	30	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	October	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	November	30	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
400	2252	1993	2071-2100	December	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
401	2253	1993	2071-2100	January	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
401	2253	1993	2071-2100	February	29	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
401	2253	1993	2071-2100	March	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
401	2253	1993	2071-2100	April	30	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
401	2253	1993	2071-2100	May	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
401	2253	1993	2071-2100	June	30	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
401	2253	1993	2071-2100	July	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
401	2253	1993	2071-2100	August	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
401	2253	1993	2071-2100	September	30	418.5	1,591,632.0	418.0	1,591,632.0	1.00	11,430.0	0.45	-0.23	-0.17	15.00	+0.24	100%	0.00	0.00	0.00	0.00	313	8,615.0	86.0	0.0	14,000.0	0.0	1,591,632.0	0.0	1,591,632.0	418.00	1,591,632.0	418.00
401	2253	1993	2071-2100	October	31	418.																											

Table S6. Multi-Year Wet Cover Model (2032-2432): 3.11 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial WSEL (m)	Open Water	Natural Operations Area	Temperature (C)	Forecast Temperature (C)	Forecast Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation (mm)	Change (mm)	Open Water	Restored	Supplementary	Total Inflow	Peak	Average	Sublimation	Net Inflow	End of Month WSEL (m)	End of Month Discharge Volume (m³)	End of Month WSEL (m)	End of Month Discharge Volume (m³)				
256	2032	2005	2071-2100	July	31	418.5	1591.622	418.6	1.509144	0.150292	1.00	11.33	0.43	19.71	-0.00	49.50	7.84	0%	126.30	-0.11	3.13	2276.70	2143	0.0	26.811	8147.3	0.0	8447.3	1502.88	418.38	1502.88	418.38	
256	2032	2005	2071-2100	August	31	418.5	1591.622	418.38	1.502849	0.150292	1.00	11.33	0.43	17.40	-0.00	49.50	7.84	0%	100.00	-0.17	3.13	2276.70	1988	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
256	2032	2005	2071-2100	September	30	418.5	1591.622	418.38	1.494521	0.150292	1.00	11.33	0.43	15.00	-0.00	49.50	7.84	0%	75.00	-0.23	3.13	2276.70	1878	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
256	2032	2005	2071-2100	October	31	418.5	1591.622	418.38	1.484449	0.150292	1.00	11.33	0.43	12.50	-0.00	49.50	7.84	0%	50.00	-0.29	3.13	2276.70	1778	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
256	2032	2005	2071-2100	November	30	418.5	1591.622	418.31	1.450933	0.150292	1.00	11.33	0.43	10.00	-0.00	49.50	7.84	0%	25.00	-0.34	3.13	2276.70	1678	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
256	2032	2005	2071-2100	December	31	418.5	1591.622	418.38	1.428122	0.150292	1.00	11.33	0.43	7.50	-0.00	49.50	7.84	0%	0.00	-0.39	3.13	2276.70	1578	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	January	31	418.5	1591.622	418.38	1.407844	0.150292	1.00	11.33	0.43	5.00	-0.00	49.50	7.84	0%	0.00	-0.44	3.13	2276.70	1478	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	February	29	418.5	1591.622	418.40	1.318402	0.150292	1.00	11.33	0.43	2.50	-0.00	49.50	7.84	0%	0.00	-0.49	3.13	2276.70	1378	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	March	31	418.5	1591.622	418.42	1.238922	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-0.54	3.13	2276.70	1278	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	April	30	418.5	1591.622	418.45	1.151131	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-0.59	3.13	2276.70	1178	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	May	31	418.5	1591.622	418.45	1.051773	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-0.64	3.13	2276.70	1078	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	June	30	418.5	1591.622	418.45	0.951720	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-0.69	3.13	2276.70	978	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	July	31	418.5	1591.622	418.38	0.847876	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-0.74	3.13	2276.70	878	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	August	31	418.5	1591.622	418.29	0.740259	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-0.79	3.13	2276.70	778	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	September	30	418.5	1591.622	418.24	0.630229	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-0.84	3.13	2276.70	678	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	October	31	418.5	1591.622	418.21	0.517307	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-0.89	3.13	2276.70	578	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	November	30	418.5	1591.622	418.24	0.402825	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-0.94	3.13	2276.70	478	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
257	2033	2006	2071-2100	December	31	418.5	1591.622	418.24	0.287301	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-0.99	3.13	2276.70	378	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	January	31	418.5	1591.622	418.24	0.172825	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.04	3.13	2276.70	278	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	February	29	418.5	1591.622	418.24	0.057301	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.09	3.13	2276.70	178	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	March	31	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.14	3.13	2276.70	78	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	April	30	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.19	3.13	2276.70	-222	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	May	31	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.24	3.13	2276.70	-322	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	June	30	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.29	3.13	2276.70	-422	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	July	31	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.34	3.13	2276.70	-522	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	August	31	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.39	3.13	2276.70	-622	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	September	30	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.44	3.13	2276.70	-722	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	October	31	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.49	3.13	2276.70	-822	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	November	30	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.54	3.13	2276.70	-922	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
258	2034	2007	2071-2100	December	31	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.59	3.13	2276.70	-1022	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
259	2035	2008	2071-2100	January	31	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.64	3.13	2276.70	-1122	0.0	0.0	8508.0	4684.3	1504.05	0.0	1504.05	418.32	1504.05	418.32
259	2035	2008	2071-2100	February	29	418.5	1591.622	418.24	0.000000	0.150292	1.00	11.33	0.43	0.00	-0.00	49.50	7.84	0%	0.00	-1.69	3.13	2276.70	-1222	0.0	0.0	85							

Table 9a. Multi-year Wet Cover Model (2032-2432): 3.13 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Season Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflow-Outflow (m³)	End of Month Volume before discharge (m³)	Discharge Volume (m³)	End of Month Volume after discharge (m³)	List of Month WSEL after discharge (m)
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Area (m²)	Runoff Coefficients	Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pond Evaporation	Average					
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,438.00	0.45	1.48	-0.33	22.60	-7.81	21%	0.00	+10.00	3.13	48,734.4	415.6	0.0	50,150.0	11,806.7	0.0	0.0	0.0	11,806.6	38,243.4	1,633,862.0	38,243.4	1,591,632.6	418.50	
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,438.00	0.45	7.70	+5.33	100.50	+7.81	7%	82.15	+10.00	3.13	67,241.9	552.2	0.0	67,814.1	62,472.2	0.0	0.0	0.0	62,472.3	5,086.3	1,596,719.4	5,086.3	1,591,632.6	418.50	
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,438.00	0.45	15.00	+12.00	117.70	+7.84	0%	133.00	+10.00	3.13	87,633.3	66.1	0.0	87,700.4	80,192.2	0.0	0.0	0.0	80,192.2	7,508.2	1,600,899.8	0.0	1,599,899.8	418.47	
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.47	1,589,868.8	1,438.00	0.45	20.40	+10.00	151.10	+7.84	0%	148.91	+11.11	3.13	111,293.5	522.9	0.0	111,816.4	97,125.6	0.0	0.0	0.0	97,125.6	15,690.8	1,544,533.6	0.0	1,544,533.6	418.44	
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.44	1,544,533.6	1,438.00	0.45	15.84	+5.33	159.30	+7.84	0%	178.40	+11.11	3.13	133,685.7	778.1	0.0	134,463.8	121,309.4	0.0	0.0	0.0	121,309.4	13,154.4	1,588,950.0	0.0	1,588,950.0	418.49	
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.40	1,568,592.0	1,438.00	0.45	8.42	+5.33	97.90	+7.81	0%	47.90	+11.11	3.13	102,634.4	338.0	0.0	102,972.4	98,368.9	0.0	0.0	0.0	98,368.9	4,203.1	1,571,115.6	0.0	1,571,115.6	418.50	
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.50	1,591,110.5	1,438.00	0.45	4.65	+5.33	30.60	+7.81	32%	37.20	+10.22	3.13	20,521.6	243.9	0.0	20,765.5	20,529.7	0.0	0.0	0.0	20,529.7	140.7	1,591,251.3	0.0	1,591,251.3	418.50	
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.50	1,587,251.3	1,438.00	0.45	-3.40	+5.33	20.80	+7.81	93%	0.00	+5.04	3.13	17,854.5	147.1	0.0	17,862.6	17,862.6	0.0	0.0	0.0	17,862.6	3,211.4	1,483,822.2	0.0	1,483,822.2	418.50	
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,438.00	0.45	8.96	+11.11	93.00	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	3.13	19,787.5	138.6	0.0	0.0	0.0	0.0	19,787.5	1,688,943.4	18,099.1	1,580,844.3	418.50
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,438.00	0.45	-15.20	+11.11	82.60	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	3.13	57,430.7	477.6	0.0	0.0	0.0	0.0	57,430.7	1,688,443.8	57,430.7	1,591,632.6	418.50
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,438.00	0.45	-14.38	+11.11	24.50	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	3.13	21,491.8	178.7	0.0	0.0	0.0	0.0	21,491.8	1,613,215.5	21,491.8	1,591,632.6	418.50
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,438.00	0.45	8.92	+5.33	48.60	+7.81	97%	0.00	+9.99	3.13	30,545.4	291.2	0.0	30,836.6	28,954.6	1,181.1	0.0	0.0	0.0	28,954.6	1,633,601.0	26,255.5	1,591,632.6	418.50	
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,438.00	0.45	0.27	+5.33	38.90	+7.81	22%	0.00	+10.00	3.13	28,806.6	240.2	0.0	29,100.9	11,806.7	0.0	0.0	0.0	11,806.6	17,293.3	1,608,862.8	17,293.3	1,591,632.6	418.50	
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,438.00	0.45	12.42	+5.33	46.90	+7.81	0%	120.00	+10.00	3.13	32,354.6	208.1	0.0	32,562.7	30,442.2	0.0	0.0	0.0	30,442.2	1,637,709.0	0.0	1,637,709.0	418.43		
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,537,795.6	1,438.00	0.45	16.40	+5.33	96.30	+7.84	0%	102.40	+10.00	3.13	84,759.8	450.0	0.0	85,199.8	74,747.6	0.0	0.0	0.0	74,747.6	1,535,264.4	0.0	1,535,264.4	418.41		
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.41	1,525,284.4	1,438.00	0.45	21.71	+5.33	89.30	+7.84	0%	137.89	+11.11	3.13	80,544.5	316.1	0.0	80,860.6	60,321.5	0.0	0.0	0.0	60,321.5	1,473,205.5	0.0	1,473,205.5	418.34		
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.34	1,412,255.5	1,438.00	0.45	16.52	+5.33	141.10	+7.84	0%	89.70	+11.11	3.13	81,829.2	682.3	0.0	82,511.5	69,298.2	0.0	0.0	0.0	69,298.2	1,366,957.3	0.0	1,366,957.3	418.37		
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.37	1,406,284.4	1,438.00	0.45	10.56	+5.33	69.90	+7.81	0%	47.90	+11.11	3.13	48,829.1	389.4	0.0	49,218.5	30,327.7	0.0	0.0	0.0	30,327.7	1,381,919.7	0.0	1,381,919.7	418.39		
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.39	1,387,110.7	1,438.00	0.45	6.21	+5.33	48.80	+7.81	3%	40.30	+10.22	3.13	30,244.5	291.2	0.0	30,535.6	31,247.3	0.0	0.0	0.0	31,247.3	1,361.3	1,387,402.1	0.0	1,387,402.1	418.39	
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.39	1,311,021.1	1,438.00	0.45	2.13	+5.33	23.60	+7.81	0%	0.00	+10.04	3.13	19,426.5	161.8	0.0	19,621.1	1,113.5	0.0	0.0	0.0	1,113.5	1,311.4	1,312,444.7	0.0	1,312,444.7	418.42	
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.42	1,307,448.7	1,438.00	0.45	-14.52	+11.11	91.40	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	3.13	20,760.0	214.2	0.0	0.0	0.0	20,760.0	1,553,325.9	0.0	1,553,325.9	418.45	
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.45	1,353,325.9	1,438.00	0.45	-18.13	+11.11	44.20	+10.24	99%	0.00	0.00	0.00	0.00	0.00	0.00	3.13	33,877.7	285.1	0.0	0.0	0.0	0.0	33,877.7	1,587,186.6	0.0	1,587,186.6	418.49
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.49	1,357,186.6	1,438.00	0.45	-10.89	+11.11	30.30	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	3.13	20,979.9	238.6	0.0	0.0	0.0	0.0	20,979.9	1,613,387.0	30,744.5	1,582,642.5	418.50
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,391,632.0	1,438.00	0.45	-8.49	+5.33	53.90	+7.81	76%	0.00	+8.99	3.13	38,769.2	317.4	0.0	39,086.4	6,180.1	0.0	0.0	0.0	6,180.1	1,623,204.4	32,208.4	1,591,632.6	418.50		
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,391,632.0	1,438.00	0.45	4.90	+5.33	63.90	+7.81	0%	0.00	+10.00	3.13	44,354.8	368.8	0.0	44,723.7	11,806.7	0.0	0.0	0.0	11,806.6	1,634,450.7	32,623.1	1,591,632.6	418.50		
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,391,632.0	1,438.00	0.45	15.60	+5.33	12.60	+7.81	0%	135.76	+10.00	3.13	12,746.0	105.0	0.0	12,851.6	60,751.1	0.0	0.0	0.0	60,751.1	1,633,612.4	0.0	1,633,612.4	418.39		
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,508,412.4	1,438.00	0.45	18.12	+5.33	133.70	+7.84	0%	118.89	+10.00	3.13	77,850.4	647.4	0.0	78,497.8	77,747.1	0.0	0.0	0.0	77,747.1	1,508,260.1	0.0	1,508,260.1	418.39		
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,509,209.1	1,438.00	0.45	19.17	+5.33	63.70	+7.84	0%	141.64	+11.11	3.13	34,500.0	287.3	0.0	34,827.8	52,529.2	0.0	0.0	0.0	52,529.2	1,461,380.7	0.0	1,461,380.7	418.31		
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.31	1,451,380.7	1,438.00	0.45	18.62	+5.33	67.00	+7.84	0%	122.40	+11.11	3.13	36,637.7	344.8	0.0	36,985.5	75,524.3	0.0	0.0	0.0	75,524.3	1,442,619.9	0.0	1,442,619.9	418.26		
325	2431	1976	2071-2100	September	30	418.5	1,591,632.0	418.26	1,408,717.8	1,438.00	0.45	12.02	+5.33	39.50	+7.81	0%	79.20	+11.11	3.13	29,2														

Model Inputs	
Year of Simulation	2032
Source of Climate Record	Canadian
Climate Change Scenario	CCSm3.0
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,991,832.6
Area of Open Water Within TSP (m²)	61,946.6
Ruoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m²)	14,433.8
Ruoff Coefficient for Restored Lands Within TSP	0.5
Evaporation from TSP (mm/day)	31.30
Supplementary Water Addition (m³/day)	0.00
Trigger Elevation for Supplemental Water Addition (mASL)	416.00
Sublimation Losses in Winter (mm/day)	0.00
Wind Drift Losses in Winter (% of snowfall)	0%

NOTES: 1) The climate record was selected to be the period of the TSP from the last open water. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 96: Multi-Year Wet Cover Model (2032-2432): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Year	Month	Day	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Restored Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Evaporation (mm)	Supplementary Water Addition (m³)	Sublimation (mm)	Wind Drift Losses (%)	Total Outflow (m³)	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)					
1	2032	1991	2011-2040	January	31	416.5	1,991,832.6	416.3	1,539,865.1	61,952.92	1,430.8	0.45	-18.71	-2.37	96.70	-6.66	100%	0.00	0	31.30	63,964.4	532.2	0.0	64,566.0	0.0	97.3	0.0	0.0	64,566.0	1,633,446.5	11,913.2	416.5	1,991,832.6	
2	2032	1991	2011-2040	February	28	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-12.78	-2.37	16.80	-6.66	100%	0.00	0	31.30	13,209.9	109.9	0.0	13,319.7	0.0	97.4	0.0	0.0	13,319.7	1,646,756.3	12,443.3	416.5	1,991,832.6	
3	2032	1991	2011-2040	March	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-7.89	-2.32	15.10	-4.34	100%	0.00	0	31.30	8,934.9	743.3	0.0	9,678.2	0.0	97.3	0.0	0.0	9,678.2	1,656,434.5	8,039.9	416.5	1,991,832.6	
4	2032	1991	2011-2040	April	30	416.5	1,991,832.6	416.5	1,534,532.6	61,952.92	1,430.8	0.45	-2.44	-2.32	7.40	-4.34	0%	0.00	-19.23	31.30	14,637.8	1,221.1	0.0	15,859.0	6,273.5	99.0	0.0	0.0	7,266.5	1,742.2	1,661,779.9	7,262.2	416.5	1,991,832.6
5	2032	1991	2011-2040	May	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	9.53	-2.32	32.98	-4.34	0%	0.00	-1.89	31.30	19,793.4	163.9	0.0	19,957.3	4,886.6	99.3	0.0	0.0	4,886.6	1,791,666.1	43,951.1	416.5	1,991,832.6	
6	2032	1991	2011-2040	June	30	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	11.08	-2.32	52.80	-4.34	0%	0.00	-2.41	31.30	47,168.8	362.5	0.0	47,530.6	1,491.9	99.0	0.0	0.0	2,430.9	1,816,098.0	45,118.8	416.5	1,991,832.6	
7	2032	1991	2011-2040	July	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	17.43	-2.32	118.50	-4.34	0%	10.40	-3.41	31.30	69,279.8	576.1	0.0	69,855.9	6,508.6	99.0	0.0	0.0	6,760.9	1,846,856.5	15,661.5	416.5	1,991,832.6	
8	2032	1991	2011-2040	August	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	19.00	-2.32	169.80	-4.34	0%	96.90	-1.51	31.30	94,269.9	783.9	0.0	94,853.8	10,991.3	97.3	0.0	0.0	16,129.4	1,863,747.9	36,504.4	416.5	1,991,832.6	
9	2032	1991	2011-2040	September	30	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	17.68	-2.32	97.60	-4.34	0%	100.00	-1.51	31.30	83,904.4	647.7	0.0	84,552.1	9,484.1	99.0	0.0	0.0	9,484.1	1,873,232.0	21,363.3	416.5	1,991,832.6	
10	2032	1991	2011-2040	October	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	21.77	-2.32	63.50	-4.34	9%	19.43	+4.14	31.30	41,866.3	349.0	0.0	42,215.3	9,078.7	97.3	0.0	0.0	9,918.1	1,882,320.7	32,337.4	416.5	1,991,832.6	
11	2032	1991	2011-2040	November	30	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	3.87	-2.32	34.20	+3.44	89%	0.00	0	31.30	23,842.4	198.3	0.0	24,040.7	0.0	99.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	2032	1991	2011-2040	December	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-10.72	-2.32	34.40	+6.66	100%	0.00	0	31.30	26,043.3	216.3	0.0	26,260.0	0.0	97.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
13	2033	1970	2011-2040	January	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-16.40	-2.32	39.40	+6.66	100%	0.00	0	31.30	26,513.3	216.3	0.0	26,729.6	0.0	97.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14	2033	1970	2011-2040	February	28	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-17.30	-2.32	32.90	+6.66	100%	0.00	0	31.30	19,793.4	163.9	0.0	19,957.3	0.0	97.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
15	2033	1970	2011-2040	March	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-8.78	-2.32	34.80	+3.44	91%	0.00	0	31.30	24,213.3	204.4	0.0	24,417.7	0.0	97.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
16	2033	1970	2011-2040	April	30	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-0.31	-2.32	34.80	+3.44	35%	0.00	-19.23	31.30	36,584.6	304.2	0.0	36,950.2	6,370.5	99.0	0.0	0.0	6,266.2	1,901,250.2	6,266.2	416.5	1,991,832.6	
17	2033	1970	2011-2040	May	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	7.42	-2.32	69.50	-4.34	0%	70.02	-18.29	31.30	58,869.3	482.7	0.0	59,351.6	10,991.3	97.3	0.0	0.0	48,188.3	1,937.7	1,801,266.3	48,188.3	416.5	1,991,832.6
18	2033	1970	2011-2040	June	30	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	17.68	-2.32	120.20	-4.34	0%	100.00	-1.51	31.30	82,818.9	663.9	0.0	83,682.8	19,584.1	99.0	0.0	0.0	19,584.1	1,957,846.1	21,363.3	416.5	1,991,832.6	
19	2033	1970	2011-2040	July	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	20.83	-2.32	97.60	-4.34	0%	120.00	-3.41	31.30	120,279.9	273.7	0.0	120,553.6	23,584.3	97.3	0.0	0.0	23,584.3	1,981,430.4	25,437.7	416.5	1,991,832.6	
20	2033	1970	2011-2040	August	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	18.00	-2.32	52.20	-4.34	0%	100.00	-1.51	31.30	26,286.6	231.1	0.0	26,517.7	6,633.5	97.3	0.0	0.0	6,633.5	1,988,063.9	7,130.3	416.5	1,991,832.6	
21	2033	1970	2011-2040	September	30	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	11.86	-2.32	34.30	+3.44	2%	48.89	+4.14	31.30	86,075.5	715.7	0.0	86,791.2	13,077.3	99.0	0.0	0.0	13,077.3	1,991,110.2	13,077.3	416.5	1,991,832.6	
22	2033	1970	2011-2040	October	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-5.96	-2.32	39.40	+3.44	0%	45.37	+4.14	31.30	60,263.3	472.0	0.0	60,735.3	2,367.8	97.3	0.0	0.0	2,367.8	1,993,478.0	2,367.8	416.5	1,991,832.6	
23	2033	1970	2011-2040	November	30	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-4.75	-2.32	37.10	+3.44	0%	42.16	+3.44	31.30	14,606.6	121.9	0.0	14,728.5	1,611.0	97.3	0.0	0.0	1,611.0	1,995,089.0	1,611.0	416.5	1,991,832.6	
24	2033	1970	2011-2040	December	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-15.40	-2.32	43.90	+6.66	97%	0.00	0	31.30	31,721.1	261.1	0.0	31,982.2	0.0	97.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
25	2034	1971	2011-2040	January	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-21.43	-2.32	15.50	+6.66	100%	0.00	0	31.30	10,747.1	114.0	0.0	10,861.1	0.0	97.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
26	2034	1971	2011-2040	February	28	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-13.57	-2.32	37.80	+6.66	97%	0.00	0	31.30	23,331.3	177.2	0.0	23,508.6	0.0	97.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
27	2034	1971	2011-2040	March	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-7.96	-2.32	46.90	+6.66	97%	0.00	0	31.30	31,923.7	261.1	0.0	32,185.4	0.0	97.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
28	2034	1971	2011-2040	April	30	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	-2.40	-2.32	37.80	+6.66	97%	0.00	-19.23	31.30	23,374.4	194.2	0.0	23,568.6	6,273.5	99.0	0.0	0.0	6,273.5	1,998,161.6	6,273.5	416.5	1,991,832.6	
29	2034	1971	2011-2040	May	31	416.5	1,991,832.6	416.5	1,591,832.6	61,952.92	1,430.8	0.45	8.86	-2.32	88.80	+3.44	1%	0.00	-2.41	31.30	36,092.2	324.8	0.0	36,417.0	4,886.6	97.3	0.0							

Table 96: Multi-Year Wet Cover Model (2032-2432): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/m/d augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Runoff Coefficient	Runoff Volume (mm)	Runoff Coefficient	Runoff Volume (mm)	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Exposition (mm)	Forecast Exposure Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)						
209	2091	1992	2071-2100	April	30	418.5	1,472,021	418,502	1.00	14,720.21	0.00	14,720.21	0.00	14,720.21	0.00	-0.33	40.50	-0.71	57%	0.00	-10.08	31.30	33,589.9	278.8	0.0	31,877.1	1,807.7	939.0	0.0	0.0	1,747.7	1,953.0	1,450,843	0.0	1,524,167	417.7
209	2091	1992	2071-2100	May	31	418.5	1,591,632	418,502	1.00	15,916.32	0.00	15,916.32	0.00	15,916.32	0.00	-0.33	42.50	-0.71	62%	0.00	-10.08	31.30	33,589.9	361.6	0.0	31,877.1	1,815.7	970.0	0.0	0.0	1,772.7	1,977.4	1,524,167	0.0	1,524,167	417.7
209	2091	1992	2071-2100	June	30	418.5	1,710,243	418,502	1.00	17,102.43	0.00	17,102.43	0.00	17,102.43	0.00	-0.33	44.50	-0.71	67%	0.00	-10.08	31.30	33,589.9	445.2	0.0	31,877.1	1,824.3	1,040.0	0.0	0.0	1,789.3	2,002.7	1,548,167	0.0	1,548,167	417.7
209	2091	1992	2071-2100	July	31	418.5	1,829,864	418,502	1.00	18,298.64	0.00	18,298.64	0.00	18,298.64	0.00	-0.33	46.50	-0.71	72%	0.00	-10.08	31.30	33,589.9	518.8	0.0	31,877.1	1,831.9	1,170.0	0.0	0.0	1,805.9	2,027.7	1,573,167	0.0	1,573,167	417.7
209	2091	1992	2071-2100	August	31	418.5	1,949,485	418,502	1.00	19,494.85	0.00	19,494.85	0.00	19,494.85	0.00	-0.33	48.50	-0.71	77%	0.00	-10.08	31.30	33,589.9	592.0	0.0	31,877.1	1,839.5	1,290.0	0.0	0.0	1,821.9	2,047.7	1,602,167	0.0	1,602,167	417.7
209	2091	1992	2071-2100	September	30	418.5	2,069,106	418,502	1.00	20,691.06	0.00	20,691.06	0.00	20,691.06	0.00	-0.33	50.50	-0.71	82%	0.00	-10.08	31.30	33,589.9	665.2	0.0	31,877.1	1,847.1	1,410.0	0.0	0.0	1,837.9	2,072.7	1,631,167	0.0	1,631,167	417.7
209	2091	1992	2071-2100	October	31	418.5	2,188,727	418,502	1.00	21,887.27	0.00	21,887.27	0.00	21,887.27	0.00	-0.33	52.50	-0.71	87%	0.00	-10.08	31.30	33,589.9	738.4	0.0	31,877.1	1,854.7	1,530.0	0.0	0.0	1,845.9	2,097.7	1,660,167	0.0	1,660,167	417.7
209	2091	1992	2071-2100	November	30	418.5	2,308,348	418,502	1.00	23,083.48	0.00	23,083.48	0.00	23,083.48	0.00	-0.33	54.50	-0.71	92%	0.00	-10.08	31.30	33,589.9	811.6	0.0	31,877.1	1,862.3	1,650.0	0.0	0.0	1,853.9	2,122.7	1,689,167	0.0	1,689,167	417.7
209	2091	1992	2071-2100	December	31	418.5	2,427,969	418,502	1.00	24,279.69	0.00	24,279.69	0.00	24,279.69	0.00	-0.33	56.50	-0.71	97%	0.00	-10.08	31.30	33,589.9	884.8	0.0	31,877.1	1,869.9	1,770.0	0.0	0.0	1,861.9	2,147.7	1,718,167	0.0	1,718,167	417.7
209	2091	1992	2071-2100	January	29	418.5	2,547,590	418,502	1.00	25,475.90	0.00	25,475.90	0.00	25,475.90	0.00	-0.33	58.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	957.0	0.0	31,877.1	1,877.5	1,870.0	0.0	0.0	1,870.0	2,172.7	1,747,167	0.0	1,747,167	417.7
209	2091	1992	2071-2100	February	28	418.5	2,667,211	418,502	1.00	26,672.11	0.00	26,672.11	0.00	26,672.11	0.00	-0.33	60.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,030.2	0.0	31,877.1	1,885.1	1,970.0	0.0	0.0	1,878.0	2,197.7	1,776,167	0.0	1,776,167	417.7
209	2091	1992	2071-2100	March	31	418.5	2,786,832	418,502	1.00	27,868.32	0.00	27,868.32	0.00	27,868.32	0.00	-0.33	62.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,102.4	0.0	31,877.1	1,892.7	2,070.0	0.0	0.0	1,885.6	2,222.7	1,805,167	0.0	1,805,167	417.7
209	2091	1992	2071-2100	April	30	418.5	2,906,453	418,502	1.00	29,064.53	0.00	29,064.53	0.00	29,064.53	0.00	-0.33	64.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,174.6	0.0	31,877.1	1,900.3	2,160.0	0.0	0.0	1,893.2	2,247.7	1,834,167	0.0	1,834,167	417.7
209	2091	1992	2071-2100	May	31	418.5	3,026,074	418,502	1.00	30,260.74	0.00	30,260.74	0.00	30,260.74	0.00	-0.33	66.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,246.8	0.0	31,877.1	1,907.9	2,250.0	0.0	0.0	1,900.8	2,272.7	1,863,167	0.0	1,863,167	417.7
209	2091	1992	2071-2100	June	30	418.5	3,145,695	418,502	1.00	31,456.95	0.00	31,456.95	0.00	31,456.95	0.00	-0.33	68.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,319.0	0.0	31,877.1	1,915.5	2,340.0	0.0	0.0	1,908.4	2,297.7	1,892,167	0.0	1,892,167	417.7
209	2091	1992	2071-2100	July	31	418.5	3,265,316	418,502	1.00	32,653.16	0.00	32,653.16	0.00	32,653.16	0.00	-0.33	70.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,391.2	0.0	31,877.1	1,923.1	2,430.0	0.0	0.0	1,916.0	2,322.7	1,921,167	0.0	1,921,167	417.7
209	2091	1992	2071-2100	August	31	418.5	3,384,937	418,502	1.00	33,849.37	0.00	33,849.37	0.00	33,849.37	0.00	-0.33	72.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,463.4	0.0	31,877.1	1,930.7	2,520.0	0.0	0.0	1,923.6	2,347.7	1,950,167	0.0	1,950,167	417.7
209	2091	1992	2071-2100	September	30	418.5	3,504,558	418,502	1.00	35,045.58	0.00	35,045.58	0.00	35,045.58	0.00	-0.33	74.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,535.6	0.0	31,877.1	1,938.3	2,610.0	0.0	0.0	1,931.2	2,372.7	1,979,167	0.0	1,979,167	417.7
209	2091	1992	2071-2100	October	31	418.5	3,624,179	418,502	1.00	36,241.79	0.00	36,241.79	0.00	36,241.79	0.00	-0.33	76.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,607.8	0.0	31,877.1	1,946.9	2,700.0	0.0	0.0	1,938.8	2,397.7	2,008,167	0.0	2,008,167	417.7
209	2091	1992	2071-2100	November	30	418.5	3,743,800	418,502	1.00	37,438.00	0.00	37,438.00	0.00	37,438.00	0.00	-0.33	78.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,680.0	0.0	31,877.1	1,954.4	2,790.0	0.0	0.0	1,946.4	2,422.7	2,037,167	0.0	2,037,167	417.7
209	2091	1992	2071-2100	December	31	418.5	3,863,421	418,502	1.00	38,634.21	0.00	38,634.21	0.00	38,634.21	0.00	-0.33	80.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,752.2	0.0	31,877.1	1,962.0	2,880.0	0.0	0.0	1,954.0	2,447.7	2,066,167	0.0	2,066,167	417.7
209	2091	1992	2071-2100	January	29	418.5	3,983,042	418,502	1.00	39,830.42	0.00	39,830.42	0.00	39,830.42	0.00	-0.33	82.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,824.4	0.0	31,877.1	1,969.6	2,970.0	0.0	0.0	1,961.6	2,472.7	2,095,167	0.0	2,095,167	417.7
209	2091	1992	2071-2100	February	28	418.5	4,102,663	418,502	1.00	41,026.63	0.00	41,026.63	0.00	41,026.63	0.00	-0.33	84.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,896.6	0.0	31,877.1	1,977.2	3,060.0	0.0	0.0	1,969.2	2,497.7	2,124,167	0.0	2,124,167	417.7
209	2091	1992	2071-2100	March	31	418.5	4,222,284	418,502	1.00	42,222.84	0.00	42,222.84	0.00	42,222.84	0.00	-0.33	86.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	1,968.8	0.0	31,877.1	1,984.8	3,150.0	0.0	0.0	1,976.8	2,522.7	2,153,167	0.0	2,153,167	417.7
209	2091	1992	2071-2100	April	30	418.5	4,341,905	418,502	1.00	43,419.05	0.00	43,419.05	0.00	43,419.05	0.00	-0.33	88.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	2,041.0	0.0	31,877.1	1,992.4	3,240.0	0.0	0.0	1,984.4	2,547.7	2,182,167	0.0	2,182,167	417.7
209	2091	1992	2071-2100	May	31	418.5	4,461,526	418,502	1.00	44,615.26	0.00	44,615.26	0.00	44,615.26	0.00	-0.33	90.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	2,113.2	0.0	31,877.1	1,999.9	3,330.0	0.0	0.0	1,992.0	2,572.7	2,211,167	0.0	2,211,167	417.7
209	2091	1992	2071-2100	June	30	418.5	4,581,147	418,502	1.00	45,811.47	0.00	45,811.47	0.00	45,811.47	0.00	-0.33	92.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	2,185.4	0.0	31,877.1	2,007.5	3,420.0	0.0	0.0	2,000.6	2,597.7	2,240,167	0.0	2,240,167	417.7
209	2091	1992	2071-2100	July	31	418.5	4,700,768	418,502	1.00	47,007.68	0.00	47,007.68	0.00	47,007.68	0.00	-0.33	94.50	-0.71	100%	0.00	-10.08	31.30	33,589.9	2,257.6	0											

Table 96: Multi-Year Wet Cover Model (2032-2432): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/m/d augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Snowmelt (mm)	Forecast Snowmelt Change (mm)	Open Water	Restored	Supplementary	Total Inflows	Total Outflows	Net Inflow	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL after Discharge (m)										
																											Open Water	Restored	Supplementary	Total Inflows	Total Outflows	Net Inflow				
212	2018	2010	2017-2010	January	31	4185	1,591,622	4138	1,498,306	4169,922	1.00	11,433	0.45	-14.07	-11.77	14.00	+10.24	94%	0.00	0	31	30	11,275.1	145.3	0.0	11,784.4	0.0	0.0	0.0	0.0	0.0	11,784.4	151,453.0	0.0	151,453.0	4140
212	2018	2010	2017-2010	February	28	4185	1,591,622	4140	1,514,930	4169,922	1.00	11,433	0.45	-12.11	-11.67	14.00	+10.24	94%	0.00	0	31	30	11,285.1	133.8	0.0	11,793.3	0.0	0.0	0.0	0.0	0.0	11,793.3	150,459.0	0.0	150,459.0	4141
212	2018	2010	2017-2010	March	27	4185	1,591,622	4140	1,540,344	4169,922	1.00	11,433	0.45	-10.71	-10.27	14.00	+10.24	94%	0.00	0	31	30	11,295.1	122.1	0.0	11,804.5	0.0	0.0	0.0	0.0	0.0	11,804.5	149,465.0	0.0	149,465.0	4142
212	2018	2010	2017-2010	April	30	4185	1,591,622	4142	1,530,344	4169,922	1.00	11,433	0.45	-9.21	-8.77	14.00	+10.24	94%	0.00	0	31	30	11,305.1	110.4	0.0	11,815.6	0.0	0.0	0.0	0.0	0.0	11,815.6	148,471.0	0.0	148,471.0	4143
212	2018	2010	2017-2010	May	31	4185	1,591,622	4144	1,530,344	4169,922	1.00	11,433	0.45	-7.71	-7.27	14.00	+10.24	94%	0.00	0	31	30	11,315.1	98.7	0.0	11,826.7	0.0	0.0	0.0	0.0	0.0	11,826.7	147,477.0	0.0	147,477.0	4144
212	2018	2010	2017-2010	June	30	4185	1,591,622	4146	1,530,344	4169,922	1.00	11,433	0.45	-6.21	-5.77	14.00	+10.24	94%	0.00	0	31	30	11,325.1	87.0	0.0	11,837.8	0.0	0.0	0.0	0.0	0.0	11,837.8	146,483.0	0.0	146,483.0	4145
212	2018	2010	2017-2010	July	31	4185	1,591,622	4148	1,530,344	4169,922	1.00	11,433	0.45	-4.71	-4.27	14.00	+10.24	94%	0.00	0	31	30	11,335.1	75.3	0.0	11,849.0	0.0	0.0	0.0	0.0	0.0	11,849.0	145,489.0	0.0	145,489.0	4146
212	2018	2010	2017-2010	August	31	4185	1,591,622	4150	1,530,344	4169,922	1.00	11,433	0.45	-3.21	-2.77	14.00	+10.24	94%	0.00	0	31	30	11,345.1	63.6	0.0	11,860.2	0.0	0.0	0.0	0.0	0.0	11,860.2	144,495.0	0.0	144,495.0	4147
212	2018	2010	2017-2010	September	30	4185	1,591,622	4152	1,530,344	4169,922	1.00	11,433	0.45	-1.71	-1.27	14.00	+10.24	94%	0.00	0	31	30	11,355.1	51.9	0.0	11,871.4	0.0	0.0	0.0	0.0	0.0	11,871.4	143,501.0	0.0	143,501.0	4148
212	2018	2010	2017-2010	October	31	4185	1,591,622	4154	1,530,344	4169,922	1.00	11,433	0.45	-0.21	0.23	14.00	+10.24	94%	0.00	0	31	30	11,365.1	40.2	0.0	11,882.6	0.0	0.0	0.0	0.0	0.0	11,882.6	142,507.0	0.0	142,507.0	4149
212	2018	2010	2017-2010	November	30	4185	1,591,622	4156	1,530,344	4169,922	1.00	11,433	0.45	1.29	1.83	14.00	+10.24	94%	0.00	0	31	30	11,375.1	28.5	0.0	11,893.8	0.0	0.0	0.0	0.0	0.0	11,893.8	141,513.0	0.0	141,513.0	4150
212	2018	2010	2017-2010	December	31	4185	1,591,622	4158	1,530,344	4169,922	1.00	11,433	0.45	2.79	3.33	14.00	+10.24	94%	0.00	0	31	30	11,385.1	16.8	0.0	11,905.0	0.0	0.0	0.0	0.0	0.0	11,905.0	140,519.0	0.0	140,519.0	4151
213	2019	2011	2017-2010	January	31	4185	1,591,622	4160	1,530,344	4169,922	1.00	11,433	0.45	4.29	4.83	14.00	+10.24	94%	0.00	0	31	30	11,395.1	5.1	0.0	11,916.2	0.0	0.0	0.0	0.0	0.0	11,916.2	139,525.0	0.0	139,525.0	4152
213	2019	2011	2017-2010	February	28	4185	1,591,622	4162	1,530,344	4169,922	1.00	11,433	0.45	5.79	6.33	14.00	+10.24	94%	0.00	0	31	30	11,405.1	-1.6	0.0	11,927.4	0.0	0.0	0.0	0.0	0.0	11,927.4	138,531.0	0.0	138,531.0	4153
213	2019	2011	2017-2010	March	31	4185	1,591,622	4164	1,530,344	4169,922	1.00	11,433	0.45	7.29	7.83	14.00	+10.24	94%	0.00	0	31	30	11,415.1	-10.4	0.0	11,938.6	0.0	0.0	0.0	0.0	0.0	11,938.6	137,537.0	0.0	137,537.0	4154
213	2019	2011	2017-2010	April	30	4185	1,591,622	4166	1,530,344	4169,922	1.00	11,433	0.45	8.79	9.33	14.00	+10.24	94%	0.00	0	31	30	11,425.1	-19.2	0.0	11,949.8	0.0	0.0	0.0	0.0	0.0	11,949.8	136,543.0	0.0	136,543.0	4155
213	2019	2011	2017-2010	May	31	4185	1,591,622	4168	1,530,344	4169,922	1.00	11,433	0.45	10.29	10.83	14.00	+10.24	94%	0.00	0	31	30	11,435.1	-28.0	0.0	11,961.0	0.0	0.0	0.0	0.0	0.0	11,961.0	135,549.0	0.0	135,549.0	4156
213	2019	2011	2017-2010	June	30	4185	1,591,622	4170	1,530,344	4169,922	1.00	11,433	0.45	11.79	12.33	14.00	+10.24	94%	0.00	0	31	30	11,445.1	-36.8	0.0	11,972.2	0.0	0.0	0.0	0.0	0.0	11,972.2	134,555.0	0.0	134,555.0	4157
213	2019	2011	2017-2010	July	31	4185	1,591,622	4172	1,530,344	4169,922	1.00	11,433	0.45	13.29	13.83	14.00	+10.24	94%	0.00	0	31	30	11,455.1	-45.6	0.0	11,983.4	0.0	0.0	0.0	0.0	0.0	11,983.4	133,561.0	0.0	133,561.0	4158
213	2019	2011	2017-2010	August	31	4185	1,591,622	4174	1,530,344	4169,922	1.00	11,433	0.45	14.79	15.33	14.00	+10.24	94%	0.00	0	31	30	11,465.1	-54.4	0.0	11,994.6	0.0	0.0	0.0	0.0	0.0	11,994.6	132,567.0	0.0	132,567.0	4159
213	2019	2011	2017-2010	September	30	4185	1,591,622	4176	1,530,344	4169,922	1.00	11,433	0.45	16.29	16.83	14.00	+10.24	94%	0.00	0	31	30	11,475.1	-63.2	0.0	12,005.8	0.0	0.0	0.0	0.0	0.0	12,005.8	131,573.0	0.0	131,573.0	4160
213	2019	2011	2017-2010	October	31	4185	1,591,622	4178	1,530,344	4169,922	1.00	11,433	0.45	17.79	18.33	14.00	+10.24	94%	0.00	0	31	30	11,485.1	-72.0	0.0	12,017.0	0.0	0.0	0.0	0.0	0.0	12,017.0	130,579.0	0.0	130,579.0	4161
213	2019	2011	2017-2010	November	30	4185	1,591,622	4180	1,530,344	4169,922	1.00	11,433	0.45	19.29	19.83	14.00	+10.24	94%	0.00	0	31	30	11,495.1	-80.8	0.0	12,028.2	0.0	0.0	0.0	0.0	0.0	12,028.2	129,585.0	0.0	129,585.0	4162
213	2019	2011	2017-2010	December	31	4185	1,591,622	4182	1,530,344	4169,922	1.00	11,433	0.45	20.79	21.33	14.00	+10.24	94%	0.00	0	31	30	11,505.1	-89.6	0.0	12,039.4	0.0	0.0	0.0	0.0	0.0	12,039.4	128,591.0	0.0	128,591.0	4163
214	2020	2012	2017-2010	January	31	4185	1,591,622	4184	1,530,344	4169,922	1.00	11,433	0.45	22.29	22.83	14.00	+10.24	94%	0.00	0	31	30	11,515.1	-98.4	0.0	12,050.6	0.0	0.0	0.0	0.0	0.0	12,050.6	127,597.0	0.0	127,597.0	4164
214	2020	2012	2017-2010	February	28	4185	1,591,622	4186	1,530,344	4169,922	1.00	11,433	0.45	23.79	24.33	14.00	+10.24	94%	0.00	0	31	30	11,525.1	-107.2	0.0	12,061.8	0.0	0.0	0.0	0.0	0.0	12,061.8	126,603.0	0.0	126,603.0	4165
214	2020	2012	2017-2010	March	31	4185	1,591,622	4188	1,530,344	4169,922	1.00	11,433	0.45	25.29	25.83	14.00	+10.24	94%	0.00	0	31	30	11,535.1	-116.0	0.0	12,073.0	0.0	0.0	0.0	0.0	0.0	12,073.0	125,609.0	0.0	125,609.0	4166
214	2020	2012	2017-2010	April	30	4185	1,591,622	4190	1,530,344	4169,922	1.00	11,433	0.45	26.79	27.33	14.00	+10.24	94%	0.00	0	31	30	11,545.1	-124.8	0.0	12,084.2	0.0	0.0	0.0	0.0	0.0	12,084.2	124,615.0	0.0	124,615.0	4167
214	2020	2012	2017-2010	May	31	4185	1,591,622	4192	1,530,344	4169,922	1.00	11,433	0.45	28.29	28.83	14.00	+10.24	94%	0.00	0	31	30	11,555.1	-133.6	0.0	12,095.4	0.0	0.0	0.0	0.0	0.0	12,095.4	123,621.0	0.0	123,621.0	4168
214	2020	2012	2017-2010	June	30	4185	1,591,622	4194	1,530,344	4169,922	1.00	11,433	0.45	29.79	30																					

Table 9b: Multi-Year Wet Cover Model (2032-2432): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 Limn augmentation, and Ensemble Climate Change Scenario

Count	Passive Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflow/Outflow (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)		
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Area (m²)	Runoff Coefficients	Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Penetration	Seepage						Sublimation Losses	Wind Drift Losses
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	-0.33	22.60	-7.81	21%	0.00	+10.00	31.30	48,734.4	415.6	0.0	50,150.0	11,806.7	939.0	0.0	0.0	12,745.7	37,454.3	1,629,039.9	37,454.3	1,591,632.0	418.50			
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	+0.33	100.50	+7.81	7%	82.15	+10.00	31.30	67,241.9	559.2	0.0	67,801.1	62,817.2	970.3	0.0	0.0	63,587.5	4,213.5	1,595,846.1	4,213.5	1,591,632.0	418.50			
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.08	+0.00	117.70	-7.84	0%	130.00	+0.00	31.30	67,633.3	66.1	0.0	68,199.4	60,197.2	999.0	0.0	0.0	61,196.2	2,500.9	1,591,632.0	0.0	1,591,632.0	418.47			
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.47	1,589,024.7	1,430.0	0.45	20.45	+0.00	151.10	-7.84	0%	148.91	+0.00	31.30	71,293.5	552.9	0.0	71,846.4	67,125.6	970.3	0.0	0.0	66,065.9	5,780.5	1,542,815.2	0.0	1,542,815.2	418.44			
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.44	1,542,815.2	1,430.0	0.45	18.84	+0.00	159.30	-7.84	0%	79.40	+0.00	31.30	63,665.7	778.1	0.0	64,443.8	62,309.4	970.3	0.0	0.0	63,279.7	1,164.1	1,584,000.3	0.0	1,584,000.3	418.49			
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.49	1,564,000.3	1,430.0	0.45	8.42	+0.00	97.90	+7.81	0%	47.90	+11.30	31.30	42,634.4	339.0	0.0	43,073.4	38,369.9	939.0	0.0	0.0	37,307.9	3,765.5	1,567,915.8	0.0	1,567,915.8	418.49			
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.49	1,567,915.8	1,430.0	0.45	4.05	+0.00	30.60	+7.81	32%	37.20	+10.00	31.30	20,521.6	243.9	0.0	20,765.5	20,207.7	970.3	0.0	0.0	30,300.0	-9,534.5	1,568,941.3	0.0	1,568,941.3	418.49			
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.49	1,568,941.3	1,430.0	0.45	-3.40	+0.00	20.80	+7.81	93%	0.00	+0.04	31.30	17,864.5	147.1	0.0	17,961.7	3,117.5	939.0	0.0	0.0	4,596.5	13,785.1	1,600,726.4	9,980.8	1,591,632.0	418.50			
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	9.84	+0.00	14.17	0.00	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,591,632.0	418.50		
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-15.20	+0.00	14.17	0.00	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,591,632.0	418.50		
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.30	+0.00	14.17	0.00	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,591,632.0	418.50		
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-9.90	+0.00	48.60	+7.81	0%	0.00	+0.00	31.30	30,945.5	291.2	0.0	31,236.7	26,365.4	970.3	0.0	0.0	7,188.4	28,195.2	1,619,787.8	28,195.2	1,591,632.0	418.50			
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.27	+0.00	38.90	+7.81	22%	0.00	+0.00	31.30	28,806.6	240.2	0.0	29,106.8	11,806.7	939.0	0.0	0.0	12,745.7	16,361.1	1,608,017.7	16,361.1	1,591,632.0	418.50			
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	+0.00	46.90	+7.81	0%	120.00	+0.00	31.30	32,354.6	208.1	0.0	32,562.7	28,404.2	970.3	0.0	0.0	8,214.5	24,348.2	1,620,426.7	0.0	1,620,426.7	418.43			
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,589,024.7	1,430.0	0.45	16.40	+0.00	96.30	-7.84	0%	100.40	+0.00	31.30	34,759.9	450.0	0.0	35,210.0	31,747.6	939.0	0.0	0.0	66,886.6	-13,115.7	1,520,566.0	0.0	1,520,566.0	418.41			
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.47	1,582,366.6	1,430.0	0.45	21.70	+0.00	89.30	-7.84	0%	137.89	+0.00	31.30	36,914.5	316.1	0.0	37,230.6	30,321.5	970.3	0.0	0.0	97,282.8	32,562.1	1,470,813.9	0.0	1,470,813.9	418.34			
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.44	1,470,813.9	1,430.0	0.45	16.52	+0.00	141.10	-7.84	0%	89.70	+0.00	31.30	41,829.2	406.3	0.0	42,235.5	36,299.2	970.3	0.0	0.0	62,289.5	22,222.0	1,402,833.9	0.0	1,402,833.9	418.37			
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.37	1,402,833.9	1,430.0	0.45	10.56	+0.00	69.90	+7.81	0%	47.00	+11.30	31.30	40,629.1	389.4	0.0	41,018.5	36,317.7	939.0	0.0	0.0	37,251.7	3,766.8	1,402,833.9	0.0	1,402,833.9	418.38			
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.38	1,402,833.9	1,430.0	0.45	6.21	+0.00	48.80	+7.81	0%	40.30	+10.24	31.30	30,914.5	291.2	0.0	31,205.7	31,247.3	970.3	0.0	0.0	32,217.8	1,088.1	1,400,888.8	0.0	1,400,888.8	418.39			
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.39	1,400,888.8	1,430.0	0.45	2.13	+0.00	23.60	+7.81	0%	0.00	+0.04	31.30	19,426.9	161.8	0.0	19,588.7	17,115.8	939.0	0.0	0.0	4,596.5	1,521.8	1,402,426.3	0.0	1,402,426.3	418.41			
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.41	1,402,426.3	1,430.0	0.45	-14.52	+0.00	31.40	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,400,888.8	418.39		
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.44	1,400,888.8	1,430.0	0.45	-18.10	+0.00	44.20	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,398,411.6	0.0	1,398,411.6	418.48
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.48	1,398,411.6	1,430.0	0.45	-10.89	+0.00	14.17	0.00	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,398,411.6	418.50	
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-8.49	+0.00	53.90	+7.81	7%	0.00	+0.00	31.30	38,769.2	317.4	0.0	39,086.6	6,180.1	970.3	0.0	0.0	7,180.4	31,336.1	1,622,568.7	31,336.1	1,591,632.0	418.50			
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.80	+0.00	63.90	+7.81	0%	0.00	+0.00	31.30	44,354.8	368.8	0.0	44,723.7	11,806.7	939.0	0.0	0.0	12,745.7	31,978.0	1,623,916.6	31,978.0	1,591,632.0	418.50			
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.60	+0.00	12.60	+7.81	0%	139.76	+0.00	31.30	47,620.0	190.0	0.0	47,810.0	40,775.1	970.3	0.0	0.0	90,766.4	43,800.5	1,607,791.1	0.0	1,607,791.1	418.39			
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,400,888.8	1,430.0	0.45	18.12	+0.00	133.70	-7.84	0%	118.89	+0.00	31.30	47,860.4	647.4	0.0	48,507.8	37,747.1	939.0	0.0	0.0	78,686.1	-88.4	1,507,550.7	0.0	1,507,550.7	418.39			
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,400,888.8	1,430.0	0.45	19.17	+0.00	63.70	-7.84	0%	141.64	+0.00	31.30	50,500.0	281.3	0.0	50,781.3	32,529.2	970.3	0.0	0.0	93,099.5	48,761.7	1,448,799.0	0.0	1,448,799.0	418.31			
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.31	1,448,799.0	1,430.0	0.45	18.62	+0.00	67.00	-7.84	0%	122.40	+0.00	31.30	50,637.7	344.8	0.0	50,982.5	32,529.2	970.3	0.0	0.0	86,494.6	43,136.1	1,405,252.9	0.0	1,405,252.9	418.25			
325	2431	1976	2071-2100	September	30	418.5	1,591,632.0	418.25	1,405																											

Model Inputs	
Year of Simulation	2022
Source of Climate Record	Canadian
Climate Change Scenario	CanESM2
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,911,622.6
Area of Open Water Within TSP (m²)	61,646.6
Runoff Coefficient for Open Water Within TSP	14.03.8
Area of Restored Lands Within TSP (m²)	14,433.8
Runoff Coefficient for Restored Lands Within TSP	0.5
Trigger from TSP (m³)	200.0
Supplementary Water Addition (m³/d)	0.0
Elevation for Supplementary Water Addition (mASL)	416.0
Subduction Losses in Winter (mm/day)	0.0
Wind Drift Losses (% of snowfall)	0%

NOTES: 1) The climate record was selected to be the period of the TSP from the last open water. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes in Puff Size".

Table 9c: Multi-Year Wet Cover Model (2022-2432): 200 m/d seepage, 0 mm/d submation, 0% snow drift losses, 0.80 L/min augmentation, and Ensemble Climate Change Scenario

Count	Pre-Start Year	Start Year	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Restored Area (m²)	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Average (m/s)	Open Water	Restored	Supplementary Water Addition	Total Snow	Peak Depth (m)	Average	Sublimation	Wind Drift Losses	Total Outflow	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)
1	2022	1969	2011-2040	January	31	416.5	1,911,622.6	414.3	1,539,985.1	61,652.92	1.00	14,433.8	0.44	-18.71	-2.37	96.80	-6.66	100%	0.00	0.00	0.00	200.00	63,944.4	532.2	0.0	64,566.6	0.0	0.00	0.00	0.00	63,944.4	1,581,316.1	6,615.5	1,591,622.6	416.0	1,539,985.1
2	2022	1969	2011-2040	February	28	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-10.78	-2.37	14.70	-6.66	100%	0.00	0.00	0.00	200.00	10,329.0	109.9	0.0	10,438.9	0.0	0.00	0.00	0.00	10,329.0	1,591,622.6	7,718.7	1,591,622.6	416.0	1,591,622.6
3	2022	1969	2011-2040	March	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-7.89	-2.32	16.10	-4.34	100%	0.00	0.00	0.00	200.00	8,934.9	743.3	0.0	9,678.2	0.0	0.00	0.00	0.00	8,934.9	1,591,622.6	2,899.2	1,591,622.6	416.0	1,591,622.6
4	2022	1969	2011-2040	April	30	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-5.44	-2.32	19.40	-4.34	0%	0.00	-19.23	0.00	200.00	14,637.8	1,221.0	0.0	16,865.7	0.0	0.00	0.00	0.00	14,637.8	1,591,622.6	12,227.5	1,591,622.6	416.0	1,591,622.6
5	2022	1969	2011-2040	May	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-3.93	-2.32	32.98	-4.34	0%	0.00	-1.89	0.00	200.00	19,749.4	1,619.1	0.0	21,368.5	0.0	0.00	0.00	0.00	19,749.4	1,591,622.6	24,242.2	1,591,622.6	416.0	1,591,622.6
6	2022	1969	2011-2040	June	30	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-1.18	-2.00	40.80	-6.00	0%	0.00	-2.41	0.00	200.00	47,168.8	3,925.0	0.0	47,893.8	1,491.9	0.00	0.00	0.00	47,168.8	1,591,622.6	40,997.4	1,591,622.6	416.0	1,591,622.6
7	2022	1969	2011-2040	July	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	17.43	-2.00	18.50	-1.50	0%	10.40	-3.41	0.00	200.00	69,279.8	5,761.0	0.0	69,659.5	6,598.6	0.00	0.00	0.00	69,279.8	1,591,622.6	52,827.0	1,591,622.6	416.0	1,591,622.6
8	2022	1969	2011-2040	August	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	18.00	-2.00	18.80	-1.50	0%	90.00	-1.51	0.00	200.00	94,269.9	7,819.0	0.0	95,019.9	8,091.1	0.00	0.00	0.00	94,269.9	1,591,622.6	63,399.1	1,591,622.6	416.0	1,591,622.6
9	2022	1969	2011-2040	September	30	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	17.88	-2.00	17.60	-1.50	0%	100.00	-1.51	0.00	200.00	109,904.4	6,417.0	0.0	110,321.4	6,688.1	0.00	0.00	0.00	109,904.4	1,591,622.6	74,947.1	1,591,622.6	416.0	1,591,622.6
10	2022	1969	2011-2040	October	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	21.77	-2.00	18.50	-1.50	0%	14.34	-1.51	0.00	200.00	145,866.3	3,459.0	0.0	149,315.3	3,808.1	0.00	0.00	0.00	145,866.3	1,591,622.6	150,728.7	1,591,622.6	416.0	1,591,622.6
11	2022	1969	2011-2040	November	30	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	18.87	-2.00	14.20	-1.50	0%	34.20	-1.51	0.00	200.00	134,424.4	1,983.0	0.0	136,407.4	2,176.0	0.00	0.00	0.00	134,424.4	1,591,622.6	140,401.7	1,591,622.6	416.0	1,591,622.6
12	2022	1969	2011-2040	December	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-10.72	-2.37	14.70	-6.66	100%	0.00	0.00	0.00	200.00	26,943.2	216.3	0.0	27,159.5	0.0	0.00	0.00	0.00	26,943.2	1,591,622.6	27,159.5	1,591,622.6	416.0	1,591,622.6
13	2023	1970	2011-2040	January	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-16.40	-2.37	39.40	-6.66	100%	0.00	0.00	0.00	200.00	26,943.2	216.3	0.0	27,159.5	0.0	0.00	0.00	0.00	26,943.2	1,591,622.6	27,159.5	1,591,622.6	416.0	1,591,622.6
14	2023	1970	2011-2040	February	28	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-17.30	-2.37	32.90	-6.66	100%	0.00	0.00	0.00	200.00	19,749.4	1,619.1	0.0	19,948.5	0.0	0.00	0.00	0.00	19,749.4	1,591,622.6	20,968.1	1,591,622.6	416.0	1,591,622.6
15	2023	1970	2011-2040	March	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-8.78	-2.32	34.80	-4.34	0%	0.00	-1.89	0.00	200.00	24,213.5	2,014.0	0.0	24,417.5	0.0	0.00	0.00	0.00	24,213.5	1,591,622.6	26,231.5	1,591,622.6	416.0	1,591,622.6
16	2023	1970	2011-2040	April	30	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-6.11	-2.32	34.80	-4.34	0%	0.00	-1.89	0.00	200.00	35,844.6	3,042.0	0.0	36,886.6	1,470.9	0.00	0.00	0.00	35,844.6	1,591,622.6	40,927.5	1,591,622.6	416.0	1,591,622.6
17	2023	1970	2011-2040	May	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	7.42	-2.32	49.50	-4.34	0%	70.02	-1.89	0.00	200.00	48,849.3	4,827.0	0.0	49,336.3	6,375.0	0.00	0.00	0.00	48,849.3	1,591,622.6	54,161.7	1,591,622.6	416.0	1,591,622.6
18	2023	1970	2011-2040	June	30	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	17.68	-2.00	47.60	-1.50	0%	100.00	-1.51	0.00	200.00	62,818.1	4,617.0	0.0	63,435.1	5,134.1	0.00	0.00	0.00	62,818.1	1,591,622.6	68,451.8	1,591,622.6	416.0	1,591,622.6
19	2023	1970	2011-2040	July	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	20.83	-2.00	39.70	-1.50	0%	120.00	-1.51	0.00	200.00	82,541.1	3,459.0	0.0	82,990.1	3,708.1	0.00	0.00	0.00	82,541.1	1,591,622.6	86,424.4	1,591,622.6	416.0	1,591,622.6
20	2023	1970	2011-2040	August	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	18.00	-2.00	32.20	-1.50	0%	140.00	-1.51	0.00	200.00	109,904.4	2,251.0	0.0	110,155.4	2,402.0	0.00	0.00	0.00	109,904.4	1,591,622.6	112,157.4	1,591,622.6	416.0	1,591,622.6
21	2023	1970	2011-2040	September	30	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	18.87	-2.00	14.20	-1.50	0%	48.89	-1.51	0.00	200.00	134,424.4	1,983.0	0.0	136,407.4	2,176.0	0.00	0.00	0.00	134,424.4	1,591,622.6	136,600.7	1,591,622.6	416.0	1,591,622.6
22	2023	1970	2011-2040	October	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	21.80	-2.37	14.70	-6.66	100%	0.00	0.00	0.00	200.00	145,866.3	3,459.0	0.0	149,315.3	3,808.1	0.00	0.00	0.00	145,866.3	1,591,622.6	150,728.7	1,591,622.6	416.0	1,591,622.6
23	2023	1970	2011-2040	November	30	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	18.87	-2.00	14.20	-1.50	0%	34.20	-1.51	0.00	200.00	134,424.4	1,983.0	0.0	136,407.4	2,176.0	0.00	0.00	0.00	134,424.4	1,591,622.6	140,401.7	1,591,622.6	416.0	1,591,622.6
24	2023	1970	2011-2040	December	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-10.72	-2.37	14.70	-6.66	100%	0.00	0.00	0.00	200.00	26,943.2	216.3	0.0	27,159.5	0.0	0.00	0.00	0.00	26,943.2	1,591,622.6	27,159.5	1,591,622.6	416.0	1,591,622.6
25	2024	1971	2011-2040	January	31	416.5	1,911,622.6	416.0	1,591,622.6	61,652.92	1.00	14,433.8	0.44	-16.40	-2.37	39.40	-6.66	100%	0.00	0.00	0.00	200.00	26,943.2	216.3	0.0	27,159.5	0.0	0.00	0.00	0.00	26,943.2	1,591,622.6	27,159.5	1,591,622.6	416.0	1,591,622.6
26	2024	1971	2011-2040	February	28	416.5	1,911,622.6	416.0	1,591,622.6	61,652.																										

Table 9c: Multi-Year Wet Cover Model (2032-2432); 200 m/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Change (m³)	TSF Inflows (m³)		TSF Outflows (m³)		Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)									
																		Open Water	Restored	Supplementary	Total Inflow							Restored	Supplementary	Total Outflow						
205	2017	2005	2017-2010	October	31	418.5	1,591,622.0	418.38	-13.115	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
205	2017	2005	2017-2010	November	30	418.5	1,591,622.0	418.38	-12.739	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
205	2017	2005	2017-2010	December	31	418.5	1,591,622.0	418.38	-12.363	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	January	31	418.5	1,591,622.0	418.43	-22.296	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	February	29	418.5	1,591,622.0	418.45	-36.846	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	March	31	418.5	1,591,622.0	418.48	-41.832	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	April	30	418.5	1,591,622.0	418.48	-57.878	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	May	31	418.5	1,591,622.0	418.47	-62.818	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	June	30	418.5	1,591,622.0	418.42	-67.818	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	July	31	418.5	1,591,622.0	418.37	-72.818	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	August	31	418.5	1,591,622.0	418.32	-77.818	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	September	30	418.5	1,591,622.0	418.29	-82.818	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	October	31	418.5	1,591,622.0	418.29	-87.818	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	November	30	418.5	1,591,622.0	418.29	-92.818	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
206	2018	2006	2017-2010	December	31	418.5	1,591,622.0	418.29	-97.818	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	January	31	418.5	1,591,622.0	418.27	-138.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	February	29	418.5	1,591,622.0	418.27	-143.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	March	31	418.5	1,591,622.0	418.27	-148.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	April	30	418.5	1,591,622.0	418.25	-153.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	May	31	418.5	1,591,622.0	418.25	-158.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	June	30	418.5	1,591,622.0	418.25	-163.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	July	31	418.5	1,591,622.0	418.25	-168.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	August	31	418.5	1,591,622.0	418.25	-173.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	September	30	418.5	1,591,622.0	418.25	-178.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	October	31	418.5	1,591,622.0	418.25	-183.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	November	30	418.5	1,591,622.0	418.25	-188.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41	1,591,622.0
207	2019	2007	2017-2010	December	31	418.5	1,591,622.0	418.25	-193.492	61,569.2	1.00	11.303	0.45	4.79	-3.50	-7.81	23%	29.47	+13.22	200.0	30,786.2	25.2	0.0	31,844.4	34,568.0	2,000.0	0.0	35,748.8	318.6	-12,792.0	418.38	1,591,622.0	0.0	10,995.0	418.41</	

Table 9c: Multi-Year Wet Cover Model (2032-2432); 200 m/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial WSEL (m)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Change (mm)	TSF Inflows (mm)		TSF Outflows (mm)		Net Inflow (mm)	End of Month WSEL (m)	End of Month WSEL (m)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month WSEL (m)					
																		Open Water	Restored	Supplementary	Total							Open Water	Restored	Supplementary	Total	
2010	2010	2010-2010	April	30	418.5	1,599,620.4	413.0	404.682	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2010	2010	2010-2010	May	31	418.5	1,599,620.4	413.32	417.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2010	2010	2010-2010	June	30	418.5	1,599,620.4	413.32	421.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2010	2010	2010-2010	July	31	418.5	1,599,620.4	413.32	425.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2010	2010	2010-2010	August	31	418.5	1,599,620.4	413.32	429.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2010	2010	2010-2010	September	30	418.5	1,599,620.4	413.32	433.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2010	2010	2010-2010	October	31	418.5	1,599,620.4	413.32	437.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2010	2010	2010-2010	November	30	418.5	1,599,620.4	413.32	441.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2010	2010	2010-2010	December	31	418.5	1,599,620.4	413.32	445.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	January	31	418.5	1,599,620.4	413.32	449.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	February	28	418.5	1,599,620.4	413.32	453.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	March	31	418.5	1,599,620.4	413.32	457.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	April	30	418.5	1,599,620.4	413.32	461.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	May	31	418.5	1,599,620.4	413.32	465.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	June	30	418.5	1,599,620.4	413.32	469.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	July	31	418.5	1,599,620.4	413.32	473.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	August	31	418.5	1,599,620.4	413.32	477.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	September	30	418.5	1,599,620.4	413.32	481.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	October	31	418.5	1,599,620.4	413.32	485.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	November	30	418.5	1,599,620.4	413.32	489.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2011	2010	2010-2010	December	31	418.5	1,599,620.4	413.32	493.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2012	2010	2010-2010	January	31	418.5	1,599,620.4	413.32	497.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2012	2010	2010-2010	February	28	418.5	1,599,620.4	413.32	501.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2012	2010	2010-2010	March	31	418.5	1,599,620.4	413.32	505.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2012	2010	2010-2010	April	30	418.5	1,599,620.4	413.32	509.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2012	2010	2010-2010	May	31	418.5	1,599,620.4	413.32	513.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2012	2010	2010-2010	June	30	418.5	1,599,620.4	413.32	517.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2012	2010	2010-2010	July	31	418.5	1,599,620.4	413.32	521.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2012	2010	2010-2010	August	31	418.5	1,599,620.4	413.32	525.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2012	2010	2010-2010	September	30	418.5	1,599,620.4	413.32	529.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.9	-818,308.2	0.0	-818,308.2	413.32
2012	2010	2010-2010	October	31	418.5	1,599,620.4	413.32	533.813	616,992.0	1.00	11.53	0.445	-0.33	19.00	-0.71	3%	8.74	-10.89	200.0	174.830	297.3	0.0	36.541	171.421	0.000	0.0	23,274.2	4,839.				

Table 9c: Multi-Year Wet Cover Model (2032-2432); 200 mfd seepage, 0 mmfd substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Runoff Volume (m³)	Runoff Depth (mm)	Temperature (°C)	Forecast Temperature Change (°C)	Forecast Precipitation Change (mm)	Forecast Evaporation Change (mm)	Exposition (mm)	Forecast Change (mm)	Change (mm)	Open Water	Restored	Supplementary	Total Inflows	Peak	Average	Substation	Wet Cell	Total Outflows	Net Inflows	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)							
2027	2029	1970	2021-2020	January	21	4185	1,591,622.0	41,522	2,940,703.4	0.165092	100	14,303.04	0.45	-19.40	-11.7	40.0	+10.24	100%	0.00	0	200.0	20,242.4	234.9	0.0	24,800.0	0.0	2,000.0	0.0	6,000.0	22,600.0	2,194,434.4	0.0	-2,194,434.4	41,522	0.0	0.0	0.0				
2027	2029	1970	2021-2020	February	28	4185	1,591,622.0	41,522	2,918,434.4	0.165092	100	14,303.04	0.45	-17.30	-11.7	35.0	+10.24	100%	0.00	0	200.0	21,524.0	272.3	0.0	22,712.0	0.0	2,000.0	0.0	5,600.0	16,502.0	2,197,972.0	0.0	-2,197,972.0	41,522	0.0	0.0	0.0				
2027	2029	1970	2021-2020	March	28	4185	1,591,622.0	41,522	2,896,165.4	0.165092	100	14,303.04	0.45	-15.20	-11.7	30.0	+10.24	100%	0.00	0	200.0	22,804.0	310.7	0.0	23,992.0	0.0	2,000.0	0.0	5,200.0	13,602.0	2,198,542.0	0.0	-2,198,542.0	41,522	0.0	0.0	0.0	0.0			
2027	2029	1970	2021-2020	April	30	4185	1,591,622.0	41,522	2,873,896.4	0.165092	100	14,303.04	0.45	-13.10	-11.7	25.0	+10.24	100%	0.00	0	200.0	24,084.0	349.1	0.0	25,476.0	0.0	2,000.0	0.0	4,800.0	11,702.0	2,199,112.0	0.0	-2,199,112.0	41,522	0.0	0.0	0.0	0.0	0.0		
2027	2029	1970	2021-2020	May	31	4185	1,591,622.0	41,522	2,851,627.4	0.165092	100	14,303.04	0.45	-11.00	-11.7	20.0	+10.24	100%	0.00	0	200.0	25,364.0	387.5	0.0	26,968.0	0.0	2,000.0	0.0	4,400.0	8,802.0	2,199,682.0	0.0	-2,199,682.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2027	2029	1970	2021-2020	June	30	4185	1,591,622.0	41,522	2,829,358.4	0.165092	100	14,303.04	0.45	-8.90	-11.7	15.0	+10.24	100%	0.00	0	200.0	26,644.0	425.9	0.0	28,460.0	0.0	2,000.0	0.0	4,000.0	5,202.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2027	2029	1970	2021-2020	July	31	4185	1,591,622.0	41,522	2,807,089.4	0.165092	100	14,303.04	0.45	-6.80	-11.7	10.0	+10.24	100%	0.00	0	200.0	27,924.0	464.3	0.0	29,952.0	0.0	2,000.0	0.0	3,600.0	3,602.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2027	2029	1970	2021-2020	August	31	4185	1,591,622.0	41,522	2,784,820.4	0.165092	100	14,303.04	0.45	-4.70	-11.7	5.0	+10.24	100%	0.00	0	200.0	29,204.0	502.7	0.0	31,444.0	0.0	2,000.0	0.0	3,200.0	2,002.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2027	2029	1970	2021-2020	September	30	4185	1,591,622.0	41,522	2,762,551.4	0.165092	100	14,303.04	0.45	-2.60	-11.7	0.0	+10.24	100%	0.00	0	200.0	30,484.0	541.1	0.0	32,936.0	0.0	2,000.0	0.0	2,800.0	1,602.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2027	2029	1970	2021-2020	October	31	4185	1,591,622.0	41,522	2,740,282.4	0.165092	100	14,303.04	0.45	-0.50	-11.7	-5.0	+10.24	100%	0.00	0	200.0	31,764.0	579.5	0.0	34,428.0	0.0	2,000.0	0.0	2,400.0	402.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2027	2029	1970	2021-2020	November	30	4185	1,591,622.0	41,522	2,717,973.4	0.165092	100	14,303.04	0.45	1.60	-11.7	-10.0	+10.24	100%	0.00	0	200.0	33,044.0	617.9	0.0	35,920.0	0.0	2,000.0	0.0	2,000.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2027	2029	1970	2021-2020	December	31	4185	1,591,622.0	41,522	2,695,664.4	0.165092	100	14,303.04	0.45	3.70	-11.7	-15.0	+10.24	100%	0.00	0	200.0	34,324.0	656.3	0.0	37,412.0	0.0	2,000.0	0.0	1,600.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	January	28	4185	1,591,622.0	41,522	2,673,355.4	0.165092	100	14,303.04	0.45	-1.40	-11.7	-10.0	+10.24	100%	0.00	0	200.0	35,604.0	694.7	0.0	38,904.0	0.0	2,000.0	0.0	1,200.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	February	28	4185	1,591,622.0	41,522	2,651,046.4	0.165092	100	14,303.04	0.45	-3.50	-11.7	-15.0	+10.24	100%	0.00	0	200.0	36,884.0	733.1	0.0	40,396.0	0.0	2,000.0	0.0	800.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	March	28	4185	1,591,622.0	41,522	2,628,737.4	0.165092	100	14,303.04	0.45	-5.60	-11.7	-20.0	+10.24	100%	0.00	0	200.0	38,164.0	771.5	0.0	41,888.0	0.0	2,000.0	0.0	400.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	April	30	4185	1,591,622.0	41,522	2,606,428.4	0.165092	100	14,303.04	0.45	-7.70	-11.7	-25.0	+10.24	100%	0.00	0	200.0	39,444.0	810.0	0.0	43,380.0	0.0	2,000.0	0.0	0.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	May	31	4185	1,591,622.0	41,522	2,584,119.4	0.165092	100	14,303.04	0.45	-9.80	-11.7	-30.0	+10.24	100%	0.00	0	200.0	40,724.0	848.4	0.0	44,872.0	0.0	2,000.0	0.0	0.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	June	30	4185	1,591,622.0	41,522	2,561,810.4	0.165092	100	14,303.04	0.45	-11.90	-11.7	-35.0	+10.24	100%	0.00	0	200.0	42,004.0	886.8	0.0	46,364.0	0.0	2,000.0	0.0	0.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	July	31	4185	1,591,622.0	41,522	2,539,501.4	0.165092	100	14,303.04	0.45	-14.00	-11.7	-40.0	+10.24	100%	0.00	0	200.0	43,284.0	925.2	0.0	47,856.0	0.0	2,000.0	0.0	0.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	August	31	4185	1,591,622.0	41,522	2,517,192.4	0.165092	100	14,303.04	0.45	-16.10	-11.7	-45.0	+10.24	100%	0.00	0	200.0	44,564.0	963.6	0.0	49,348.0	0.0	2,000.0	0.0	0.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	September	30	4185	1,591,622.0	41,522	2,494,883.4	0.165092	100	14,303.04	0.45	-18.20	-11.7	-50.0	+10.24	100%	0.00	0	200.0	45,844.0	1,002.0	0.0	50,840.0	0.0	2,000.0	0.0	0.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	October	31	4185	1,591,622.0	41,522	2,472,574.4	0.165092	100	14,303.04	0.45	-20.30	-11.7	-55.0	+10.24	100%	0.00	0	200.0	47,124.0	1,040.4	0.0	52,332.0	0.0	2,000.0	0.0	0.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	November	30	4185	1,591,622.0	41,522	2,450,265.4	0.165092	100	14,303.04	0.45	-22.40	-11.7	-60.0	+10.24	100%	0.00	0	200.0	48,404.0	1,078.8	0.0	53,824.0	0.0	2,000.0	0.0	0.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	2030	1971	2021-2020	December	31	4185	1,591,622.0	41,522	2,427,956.4	0.165092	100	14,303.04	0.45	-24.50	-11.7	-65.0	+10.24	100%	0.00	0	200.0	49,684.0	1,117.2	0.0	55,316.0	0.0	2,000.0	0.0	0.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2029	2031	1972	2021-2020	January	28	4185	1,591,622.0	41,522	2,405,647.4	0.165092	100	14,303.04	0.45	-26.60	-11.7	-70.0	+10.24	100%	0.00	0	200.0	50,964.0	1,155.6	0.0	56,808.0	0.0	2,000.0	0.0	0.0	0.0	2,199,742.0	0.0	-2,199,742.0	41,522	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2029	2031	1972	2021-2020	February	28	4185	1,591,622.0	41,522	2,383,338.4	0.165092	100	14,303.04	0.45	-28.70	-11.7	-75.0	+10.24	100%	0.00	0	200.0	52,244.0	1,194.0	0.0	58,300.0																

Table 9c: Multi-Year Wet Cover Model (2032-2432); 200 m d/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Snowmelt (mm)	Forecast Snowmelt Change (mm)	Inflow (m³/s)	Outflow (m³/s)	Storage (m³)	Open Water	Restored	Supplementary	Total Inflow	Total Outflow	Net Inflow	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Total WSEL Change (m)	Total Volume Change (m³)
118	2025	1987	2021-2100	October	31	4185	1,591,632.0	4175	-4,264,951.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	36,769.0	3015	0.0	36,769.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4178	4180	-2	-17,124.0	
119	2025	1987	2021-2100	November	30	4185	1,591,632.0	4178	-4,260,630.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	37,153.0	2925	0.0	37,153.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4180	4180	0	-17,124.0	
120	2025	1987	2021-2100	December	31	4185	1,591,632.0	4178	-4,256,310.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	37,537.0	2835	0.0	37,537.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4182	4182	0	-17,124.0	
121	2026	1988	2021-2100	January	31	4185	1,591,632.0	4182	-4,252,000.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	37,921.0	2745	0.0	37,921.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4184	4184	0	-17,124.0	
122	2026	1988	2021-2100	February	29	4185	1,591,632.0	4184	-4,247,641.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	38,305.0	2655	0.0	38,305.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4186	4186	0	-17,124.0	
123	2026	1988	2021-2100	March	31	4185	1,591,632.0	4188	-4,243,281.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	38,689.0	2565	0.0	38,689.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4188	4188	0	-17,124.0	
124	2026	1988	2021-2100	April	30	4185	1,591,632.0	4194	-4,238,921.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	39,073.0	2475	0.0	39,073.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4190	4190	0	-17,124.0	
125	2026	1988	2021-2100	May	31	4185	1,591,632.0	4200	-4,234,561.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	39,457.0	2385	0.0	39,457.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4192	4192	0	-17,124.0	
126	2026	1988	2021-2100	June	30	4185	1,591,632.0	4206	-4,230,201.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	39,841.0	2295	0.0	39,841.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4194	4194	0	-17,124.0	
127	2026	1988	2021-2100	July	31	4185	1,591,632.0	4212	-4,225,841.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	40,225.0	2205	0.0	40,225.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4196	4196	0	-17,124.0	
128	2026	1988	2021-2100	August	31	4185	1,591,632.0	4218	-4,221,481.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	40,609.0	2115	0.0	40,609.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4198	4198	0	-17,124.0	
129	2026	1988	2021-2100	September	30	4185	1,591,632.0	4224	-4,217,121.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	40,993.0	2025	0.0	40,993.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4200	4200	0	-17,124.0	
130	2026	1988	2021-2100	October	31	4185	1,591,632.0	4230	-4,212,761.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	41,377.0	1935	0.0	41,377.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4202	4202	0	-17,124.0	
131	2026	1988	2021-2100	November	30	4185	1,591,632.0	4236	-4,208,401.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	41,761.0	1845	0.0	41,761.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4204	4204	0	-17,124.0	
132	2026	1988	2021-2100	December	31	4185	1,591,632.0	4242	-4,204,041.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	42,145.0	1755	0.0	42,145.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4206	4206	0	-17,124.0	
133	2027	1989	2021-2100	January	31	4185	1,591,632.0	4248	-4,199,681.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	42,529.0	1665	0.0	42,529.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4208	4208	0	-17,124.0	
134	2027	1989	2021-2100	February	29	4185	1,591,632.0	4254	-4,195,321.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	42,913.0	1575	0.0	42,913.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4210	4210	0	-17,124.0	
135	2027	1989	2021-2100	March	31	4185	1,591,632.0	4260	-4,190,961.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	43,297.0	1485	0.0	43,297.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4212	4212	0	-17,124.0	
136	2027	1989	2021-2100	April	30	4185	1,591,632.0	4266	-4,186,601.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	43,681.0	1395	0.0	43,681.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4214	4214	0	-17,124.0	
137	2027	1989	2021-2100	May	31	4185	1,591,632.0	4272	-4,182,241.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	44,065.0	1305	0.0	44,065.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4216	4216	0	-17,124.0	
138	2027	1989	2021-2100	June	30	4185	1,591,632.0	4278	-4,177,881.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	44,449.0	1215	0.0	44,449.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4218	4218	0	-17,124.0	
139	2027	1989	2021-2100	July	31	4185	1,591,632.0	4284	-4,173,521.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	44,833.0	1125	0.0	44,833.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4220	4220	0	-17,124.0	
140	2027	1989	2021-2100	August	31	4185	1,591,632.0	4290	-4,169,161.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	45,217.0	1035	0.0	45,217.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4222	4222	0	-17,124.0	
141	2027	1989	2021-2100	September	30	4185	1,591,632.0	4296	-4,164,801.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	45,601.0	945	0.0	45,601.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4224	4224	0	-17,124.0	
142	2027	1989	2021-2100	October	31	4185	1,591,632.0	4302	-4,160,441.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	45,985.0	855	0.0	45,985.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4226	4226	0	-17,124.0	
143	2027	1989	2021-2100	November	30	4185	1,591,632.0	4308	-4,156,081.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	46,369.0	765	0.0	46,369.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4228	4228	0	-17,124.0	
144	2027	1989	2021-2100	December	31	4185	1,591,632.0	4314	-4,151,721.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	46,753.0	675	0.0	46,753.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4230	4230	0	-17,124.0	
145	2028	1990	2021-2100	January	31	4185	1,591,632.0	4320	-4,147,361.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	47,137.0	585	0.0	47,137.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4232	4232	0	-17,124.0	
146	2028	1990	2021-2100	February	29	4185	1,591,632.0	4326	-4,143,001.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	47,521.0	495	0.0	47,521.0	3,175.0	0.0	15,318.9	24,261.0	-4,501,843.0	0.0	-4,501,843.0	4234	4234	0	-17,124.0	
147	2028	1990	2021-2100	March	31	4185	1,591,632.0	4332	-4,138,641.0	0.0	11.30	-0.43	37.20	-7.81	33%	0.00	+0.22	200.0	47,905.0	405	0.0	47,905.0	3,175.0	0.0	15,318.9									

Table 9c: Multi-Year Wet Cover Model (2032-2432); 200 m/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 Lin augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Change (m³/d)	TSF Inflows (m³/d)		TSF Outflows (m³/d)		Net Inflow/Outflow (m³/d)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month WSEL after Discharge (m)							
																		Open Water	Restored Wetland	Supplementary Wetland	Total Inflow							Open Water	Restored Wetland	Total Outflow				
234	2040	1983	2071-2100	April	30	4185	1,591,622.0	450.63	5,133,724.0	1,616,992.0	1.00	11.43	0.45	-0.33	4.20	-0.71	60%	0.00	+10.20	200.00	14,880.1	1235.0	0.0	14,927.6	11,807.7	3,119.9	0.0	17,006.7	2,834.1	-1,158,586.0	432.62	-1,158,586.0	432.62	
234	2040	1983	2071-2100	May	31	4185	1,591,622.0	450.62	5,136,584.0	1,616,992.0	1.00	11.43	0.45	1.76	-0.33	4.10	-0.71	60%	0.00	+10.20	200.00	14,880.1	254.1	0.0	15,134.2	11,807.7	3,326.5	0.0	18,460.7	3,148.8	-1,158,586.0	432.62	-1,158,586.0	432.62
234	2040	1983	2071-2100	June	30	4185	1,591,622.0	450.61	5,141,546.0	1,616,992.0	1.00	11.43	0.45	3.19	-0.33	4.05	-0.71	60%	0.00	+10.20	200.00	14,880.1	465.9	0.0	15,346.0	11,807.7	3,538.3	0.0	19,884.3	3,360.6	-1,158,586.0	432.62	-1,158,586.0	432.62
234	2040	1983	2071-2100	July	31	4185	1,591,622.0	450.57	5,146,508.0	1,616,992.0	1.00	11.43	0.45	4.62	-0.33	4.00	-0.71	60%	0.00	+10.20	200.00	14,880.1	680.8	0.0	15,551.8	11,807.7	3,750.1	0.0	21,634.5	3,572.4	-1,158,586.0	432.62	-1,158,586.0	432.62
234	2040	1983	2071-2100	August	31	4185	1,591,622.0	450.48	5,151,470.0	1,616,992.0	1.00	11.43	0.45	6.05	-0.33	3.95	-0.71	60%	0.00	+10.20	200.00	14,880.1	905.7	0.0	15,757.6	11,807.7	3,961.9	0.0	23,382.5	3,784.0	-1,158,586.0	432.62	-1,158,586.0	432.62
234	2040	1983	2071-2100	September	30	4185	1,591,622.0	450.36	5,156,432.0	1,616,992.0	1.00	11.43	0.45	7.48	-0.33	3.90	-0.71	60%	0.00	+10.20	200.00	14,880.1	1,130.6	0.0	15,963.4	11,807.7	4,173.9	0.0	25,130.5	4,006.5	-1,158,586.0	432.62	-1,158,586.0	432.62
234	2040	1983	2071-2100	October	31	4185	1,591,622.0	450.23	5,161,394.0	1,616,992.0	1.00	11.43	0.45	8.91	-0.33	3.85	-0.71	60%	0.00	+10.20	200.00	14,880.1	1,355.5	0.0	16,170.2	11,807.7	4,385.7	0.0	26,878.5	4,231.0	-1,158,586.0	432.62	-1,158,586.0	432.62
234	2040	1983	2071-2100	November	30	4185	1,591,622.0	450.10	5,166,356.0	1,616,992.0	1.00	11.43	0.45	10.34	-0.33	3.80	-0.71	60%	0.00	+10.20	200.00	14,880.1	1,580.4	0.0	16,379.9	11,807.7	4,596.7	0.0	28,626.5	4,465.5	-1,158,586.0	432.62	-1,158,586.0	432.62
234	2040	1983	2071-2100	December	31	4185	1,591,622.0	450.00	5,171,318.0	1,616,992.0	1.00	11.43	0.45	11.77	-0.33	3.75	-0.71	60%	0.00	+10.20	200.00	14,880.1	1,805.3	0.0	16,585.6	11,807.7	4,807.6	0.0	30,374.5	4,700.0	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	January	31	4185	1,591,622.0	449.86	5,176,242.0	1,616,992.0	1.00	11.43	0.45	13.20	-0.33	3.70	-0.71	60%	0.00	+10.20	200.00	14,880.1	2,030.2	0.0	16,791.7	11,807.7	5,018.5	0.0	32,122.5	4,934.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	February	29	4185	1,591,622.0	449.70	5,181,166.0	1,616,992.0	1.00	11.43	0.45	14.65	-0.33	3.65	-0.71	60%	0.00	+10.20	200.00	14,880.1	2,255.1	0.0	16,997.9	11,807.7	5,230.4	0.0	33,870.5	5,168.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	March	31	4185	1,591,622.0	449.54	5,186,090.0	1,616,992.0	1.00	11.43	0.45	16.10	-0.33	3.60	-0.71	60%	0.00	+10.20	200.00	14,880.1	2,480.0	0.0	17,204.1	11,807.7	5,446.4	0.0	35,618.5	5,402.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	April	30	4185	1,591,622.0	449.37	5,190,914.0	1,616,992.0	1.00	11.43	0.45	17.55	-0.33	3.55	-0.71	60%	0.00	+10.20	200.00	14,880.1	2,704.9	0.0	17,417.7	11,807.7	5,662.3	0.0	37,366.5	5,646.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	May	31	4185	1,591,622.0	449.20	5,195,738.0	1,616,992.0	1.00	11.43	0.45	18.50	-0.33	3.50	-0.71	60%	0.00	+10.20	200.00	14,880.1	2,929.8	0.0	17,630.3	11,807.7	5,878.2	0.0	39,114.5	5,890.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	June	30	4185	1,591,622.0	449.03	5,200,562.0	1,616,992.0	1.00	11.43	0.45	19.45	-0.33	3.45	-0.71	60%	0.00	+10.20	200.00	14,880.1	3,154.7	0.0	17,842.9	11,807.7	6,090.0	0.0	40,862.5	6,134.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	July	31	4185	1,591,622.0	448.86	5,205,386.0	1,616,992.0	1.00	11.43	0.45	20.40	-0.33	3.40	-0.71	60%	0.00	+10.20	200.00	14,880.1	3,379.6	0.0	18,055.5	11,807.7	6,301.9	0.0	42,610.5	6,378.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	August	31	4185	1,591,622.0	448.69	5,210,210.0	1,616,992.0	1.00	11.43	0.45	21.35	-0.33	3.35	-0.71	60%	0.00	+10.20	200.00	14,880.1	3,604.5	0.0	18,268.1	11,807.7	6,513.8	0.0	44,358.5	6,622.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	September	30	4185	1,591,622.0	448.52	5,215,034.0	1,616,992.0	1.00	11.43	0.45	22.30	-0.33	3.30	-0.71	60%	0.00	+10.20	200.00	14,880.1	3,829.4	0.0	18,480.7	11,807.7	6,725.7	0.0	46,106.5	6,866.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	October	31	4185	1,591,622.0	448.35	5,220,058.0	1,616,992.0	1.00	11.43	0.45	23.25	-0.33	3.25	-0.71	60%	0.00	+10.20	200.00	14,880.1	4,054.3	0.0	18,692.9	11,807.7	6,937.6	0.0	47,854.5	7,110.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	November	30	4185	1,591,622.0	448.18	5,224,882.0	1,616,992.0	1.00	11.43	0.45	24.20	-0.33	3.20	-0.71	60%	0.00	+10.20	200.00	14,880.1	4,279.2	0.0	18,905.1	11,807.7	7,142.5	0.0	49,602.5	7,354.5	-1,158,586.0	432.62	-1,158,586.0	432.62
235	2041	1984	2071-2100	December	31	4185	1,591,622.0	448.01	5,229,706.0	1,616,992.0	1.00	11.43	0.45	25.15	-0.33	3.15	-0.71	60%	0.00	+10.20	200.00	14,880.1	4,504.1	0.0	19,117.3	11,807.7	7,356.4	0.0	51,350.5	7,598.5	-1,158,586.0	432.62	-1,158,586.0	432.62
236	2042	1985	2071-2100	January	31	4185	1,591,622.0	447.84	5,234,530.0	1,616,992.0	1.00	11.43	0.45	26.10	-0.33	3.10	-0.71	60%	0.00	+10.20	200.00	14,880.1	4,728.9	0.0	19,329.7	11,807.7	7,568.3	0.0	53,098.5	7,842.5	-1,158,586.0	432.62	-1,158,586.0	432.62
236	2042	1985	2071-2100	February	29	4185	1,591,622.0	447.67	5,239,374.0	1,616,992.0	1.00	11.43	0.45	27.05	-0.33	3.05	-0.71	60%	0.00	+10.20	200.00	14,880.1	4,953.7	0.0	19,541.9	11,807.7	7,780.2	0.0	54,846.5	8,086.5	-1,158,586.0	432.62	-1,158,586.0	432.62
236	2042	1985	2071-2100	March	31	4185	1,591,622.0	447.50	5,244,218.0	1,616,992.0	1.00	11.43	0.45	28.00	-0.33	3.00	-0.71	60%	0.00	+10.20	200.00	14,880.1	5,178.5	0.0	19,754.1	11,807.7	7,992.1	0.0	56,594.5	8,330.5	-1,158,586.0	432.62	-1,158,586.0	432.62
236	2042	1985	2071-2100	April	30	4185	1,591,622.0	447.33	5,249,062.0	1,616,992.0	1.00	11.43	0.45	28.95	-0.33	2.95	-0.71	60%	0.00	+10.20	200.00	14,880.1	5,403.3	0.0	19,966.3	11,807.7	8,202.0	0.0	58,342.5	8,574.5	-1,158,586.0	432.62	-1,158,586.0	432.62
236	2042	1985	2071-2100	May	31	4185	1,591,622.0	447.16	5,253,906.0	1,616,992.0	1.00	11.43	0.45	29.90	-0.33	2.90	-0.71	60%	0.00	+10.20	200.00	14,880.1	5,628.1	0.0	20,178.5	11,807.7	8,413.9	0.0	60,090.5	8,818.5	-1,158,586.0	432.62	-1,158,586.0	432.62
236	2042	1985	2071-2100	June	30	4185	1,591,622.0	447.00	5,258,750.0	1,616,992.0	1.00	11.43	0.45	30.85	-0.33	2.85	-0.71	60%	0.00	+10.20	200.00	14,880.1	5,852.9	0.0	20,390.9	11,807.7	8,626.3	0.0	61,838.5	9,062.5	-1,158,586.0	432.62	-1,158,586.0	432.62
236	2042	1985	2071-2100	July	31	4185	1,591,622.0	446.83	5,263,594.0	1,616,992.0	1.00	11.43	0.45	31.80	-0.33	2.80	-0.71	60%	0.00	+10.20	200.00	14,880.1	6,077.7	0.0	20,603.3	11,807.7	8,834.7	0.0	63,586.5	9,312.5	-1,158,586.0	432.62	-1,158,586	

Table 9c: Multi-Year Wet Cover Model (2032-2432); 200 m/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Month	Day	Forecast Horizon	Season	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Change (mm)	TSF Inflows (mm)				TSF Outflows (mm)				End of Month WSEL (m)	End of Month Volume (m³)						
																		Open Water	Restored	Supplementary	Total Inflow	Restored	Supplementary	Total Outflow	Restored			Supplementary	Total Outflow				
278	2034	1978	2021-2020	October	31	4185	1,591,622.0	4509	6,247,805.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
279	2034	1978	2021-2020	November	30	4185	1,591,622.0	4507	6,247,245.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
280	2034	1978	2021-2020	December	29	4185	1,591,622.0	4505	6,246,685.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
281	2034	1978	2021-2020	January	28	4185	1,591,622.0	4503	6,246,125.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
282	2034	1978	2021-2020	February	27	4185	1,591,622.0	4501	6,245,565.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
283	2034	1978	2021-2020	March	26	4185	1,591,622.0	4499	6,245,005.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
284	2034	1978	2021-2020	April	25	4185	1,591,622.0	4497	6,244,445.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
285	2034	1978	2021-2020	May	24	4185	1,591,622.0	4495	6,243,885.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
286	2034	1978	2021-2020	June	23	4185	1,591,622.0	4493	6,243,325.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
287	2034	1978	2021-2020	July	22	4185	1,591,622.0	4491	6,242,765.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
288	2034	1978	2021-2020	August	21	4185	1,591,622.0	4489	6,242,205.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
289	2034	1978	2021-2020	September	20	4185	1,591,622.0	4487	6,241,645.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
290	2034	1978	2021-2020	October	19	4185	1,591,622.0	4485	6,241,085.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
291	2034	1978	2021-2020	November	18	4185	1,591,622.0	4483	6,240,525.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
292	2034	1978	2021-2020	December	17	4185	1,591,622.0	4481	6,240,000.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
293	2034	1978	2021-2020	January	16	4185	1,591,622.0	4479	6,239,420.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
294	2034	1978	2021-2020	February	15	4185	1,591,622.0	4477	6,238,840.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
295	2034	1978	2021-2020	March	14	4185	1,591,622.0	4475	6,238,260.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
296	2034	1978	2021-2020	April	13	4185	1,591,622.0	4473	6,237,680.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
297	2034	1978	2021-2020	May	12	4185	1,591,622.0	4471	6,237,100.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
298	2034	1978	2021-2020	June	11	4185	1,591,622.0	4469	6,236,520.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
299	2034	1978	2021-2020	July	10	4185	1,591,622.0	4467	6,235,940.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
300	2034	1978	2021-2020	August	9	4185	1,591,622.0	4465	6,235,360.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
301	2034	1978	2021-2020	September	8	4185	1,591,622.0	4463	6,234,780.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
302	2034	1978	2021-2020	October	7	4185	1,591,622.0	4461	6,234,200.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
303	2034	1978	2021-2020	November	6	4185	1,591,622.0	4459	6,233,620.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
304	2034	1978	2021-2020	December	5	4185	1,591,622.0	4457	6,233,040.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
305	2034	1978	2021-2020	January	4	4185	1,591,622.0	4455	6,232,460.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
306	2034	1978	2021-2020	February	3	4185	1,591,622.0	4453	6,231,880.0	0.150922	1.00	11,430.0	0.45	-0.30	-1.20	-0.75	0.00	35.84	+0.22	200.0	10,920.0	150.7	0.0	187.83	31,650.0	2,000.0	0.0	34,668.0	4,647.7	4,314,249.0	0.0	-4,314,249.0	450.7
307	2034	1978	2021-2020	March	2	4185	1,591,622.0	4451	6,231,300.0	0.150922	1.00	11,430.0	0.45	-0.30	-																		

Table 9c: Multi-Year Wet Cover Model (2032-2432); 200 m d/d seepage, 0 mm/d substation, 0% snow drift losses, 0.80 mm augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of Invert (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficients	Runoff Coefficients	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Open Water	Runoff	Substation	TSF Inflows (mm)	TSF Outflows (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)		
2017	2007	2017-2010	January	21	418.5	1,591,622.0	407.55	6,707,544.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	165.9	0.0	20113.1	0.0	0.0	6.00	4.00	1.60	418.5	6,707,544.0
2017	2007	2017-2010	February	29	418.5	1,591,622.0	407.57	6,693,634.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	111.9	0.0	13,263.3	0.0	0.0	5.60	3.60	2.00	418.5	6,693,634.0
2017	2007	2017-2010	March	31	418.5	1,591,622.0	407.58	6,680,124.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	68.1	0.0	13,123.3	0.0	0.0	5.20	3.20	2.00	418.5	6,680,124.0
2017	2007	2017-2010	April	30	418.5	1,591,622.0	407.58	6,667,114.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	25.0	0.0	12,983.3	0.0	0.0	4.80	2.80	2.00	418.5	6,667,114.0
2017	2007	2017-2010	May	31	418.5	1,591,622.0	407.59	6,654,104.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	11.9	0.0	12,843.3	0.0	0.0	4.40	2.40	2.00	418.5	6,654,104.0
2017	2007	2017-2010	June	30	418.5	1,591,622.0	407.60	6,641,094.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-1.2	0.0	12,703.3	0.0	0.0	4.00	2.00	2.00	418.5	6,641,094.0
2017	2007	2017-2010	July	31	418.5	1,591,622.0	407.61	6,628,084.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-7.5	0.0	12,563.3	0.0	0.0	3.60	1.60	2.00	418.5	6,628,084.0
2017	2007	2017-2010	August	31	418.5	1,591,622.0	407.62	6,615,074.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-14.0	0.0	12,423.3	0.0	0.0	3.20	1.20	2.00	418.5	6,615,074.0
2017	2007	2017-2010	September	30	418.5	1,591,622.0	407.63	6,602,064.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-20.5	0.0	12,283.3	0.0	0.0	2.80	0.80	2.00	418.5	6,602,064.0
2017	2007	2017-2010	October	31	418.5	1,591,622.0	407.64	6,589,054.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-27.0	0.0	12,143.3	0.0	0.0	2.40	0.40	2.00	418.5	6,589,054.0
2017	2007	2017-2010	November	30	418.5	1,591,622.0	407.65	6,576,044.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-33.5	0.0	12,003.3	0.0	0.0	2.00	0.00	2.00	418.5	6,576,044.0
2017	2007	2017-2010	December	31	418.5	1,591,622.0	407.66	6,563,034.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-40.0	0.0	11,863.3	0.0	0.0	1.60	0.00	2.00	418.5	6,563,034.0
2018	2007	2017-2010	January	29	418.5	1,591,622.0	407.67	6,550,024.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-46.5	0.0	11,723.3	0.0	0.0	1.20	0.00	2.00	418.5	6,550,024.0
2018	2007	2017-2010	February	28	418.5	1,591,622.0	407.68	6,537,014.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-53.0	0.0	11,583.3	0.0	0.0	0.80	0.00	2.00	418.5	6,537,014.0
2018	2007	2017-2010	March	31	418.5	1,591,622.0	407.69	6,524,004.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-59.5	0.0	11,443.3	0.0	0.0	0.40	0.00	2.00	418.5	6,524,004.0
2018	2007	2017-2010	April	30	418.5	1,591,622.0	407.70	6,511,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-66.0	0.0	11,303.3	0.0	0.0	0.00	0.00	2.00	418.5	6,511,000.0
2018	2007	2017-2010	May	31	418.5	1,591,622.0	407.71	6,498,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-72.5	0.0	11,163.3	0.0	0.0	0.00	0.00	2.00	418.5	6,498,000.0
2018	2007	2017-2010	June	30	418.5	1,591,622.0	407.72	6,485,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-79.0	0.0	11,023.3	0.0	0.0	0.00	0.00	2.00	418.5	6,485,000.0
2018	2007	2017-2010	July	31	418.5	1,591,622.0	407.73	6,472,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-85.5	0.0	10,883.3	0.0	0.0	0.00	0.00	2.00	418.5	6,472,000.0
2018	2007	2017-2010	August	31	418.5	1,591,622.0	407.74	6,459,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-92.0	0.0	10,743.3	0.0	0.0	0.00	0.00	2.00	418.5	6,459,000.0
2018	2007	2017-2010	September	30	418.5	1,591,622.0	407.75	6,446,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-98.5	0.0	10,603.3	0.0	0.0	0.00	0.00	2.00	418.5	6,446,000.0
2018	2007	2017-2010	October	31	418.5	1,591,622.0	407.76	6,433,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-105.0	0.0	10,463.3	0.0	0.0	0.00	0.00	2.00	418.5	6,433,000.0
2018	2007	2017-2010	November	30	418.5	1,591,622.0	407.77	6,420,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-111.5	0.0	10,323.3	0.0	0.0	0.00	0.00	2.00	418.5	6,420,000.0
2018	2007	2017-2010	December	31	418.5	1,591,622.0	407.78	6,407,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-118.0	0.0	10,183.3	0.0	0.0	0.00	0.00	2.00	418.5	6,407,000.0
2019	2007	2017-2010	January	29	418.5	1,591,622.0	407.79	6,394,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-124.5	0.0	10,043.3	0.0	0.0	0.00	0.00	2.00	418.5	6,394,000.0
2019	2007	2017-2010	February	28	418.5	1,591,622.0	407.80	6,381,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-131.0	0.0	9,903.3	0.0	0.0	0.00	0.00	2.00	418.5	6,381,000.0
2019	2007	2017-2010	March	31	418.5	1,591,622.0	407.81	6,368,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-137.5	0.0	9,763.3	0.0	0.0	0.00	0.00	2.00	418.5	6,368,000.0
2019	2007	2017-2010	April	30	418.5	1,591,622.0	407.82	6,355,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-144.0	0.0	9,623.3	0.0	0.0	0.00	0.00	2.00	418.5	6,355,000.0
2019	2007	2017-2010	May	31	418.5	1,591,622.0	407.83	6,342,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-150.5	0.0	9,483.3	0.0	0.0	0.00	0.00	2.00	418.5	6,342,000.0
2019	2007	2017-2010	June	30	418.5	1,591,622.0	407.84	6,329,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-157.0	0.0	9,343.3	0.0	0.0	0.00	0.00	2.00	418.5	6,329,000.0
2019	2007	2017-2010	July	31	418.5	1,591,622.0	407.85	6,316,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-163.5	0.0	9,203.3	0.0	0.0	0.00	0.00	2.00	418.5	6,316,000.0
2019	2007	2017-2010	August	31	418.5	1,591,622.0	407.86	6,303,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-170.0	0.0	9,063.3	0.0	0.0	0.00	0.00	2.00	418.5	6,303,000.0
2019	2007	2017-2010	September	30	418.5	1,591,622.0	407.87	6,290,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-176.5	0.0	8,923.3	0.0	0.0	0.00	0.00	2.00	418.5	6,290,000.0
2019	2007	2017-2010	October	31	418.5	1,591,622.0	407.88	6,277,000.0	61,569.2	1.00	11.80	-1.17	22.00	+10.24	98%	0.00	0.00	0.00	200.0	13,404.4	-183.0	0.0	8,783.3	0.0						

Table 9c: Multi-Year Wet Cover Model (2032-2432): 200 m²/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Season Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of Wet (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m ³ /d)	TSF Inflows (m ³)				TSF Outflows (m ³)				Net Inflows (m ³)	End of Month Volume before discharge (m ³)	Discharge Volume (m ³)	End of Month Volume after discharge (m ³)	List of Month WSEL after discharge (m)
										Area (m ²)	Runoff Coefficients	Area (m ²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflows	Pool Evaporation	Average	Sublimation Losses	Wind Drift Losses					
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	406.74	7,315,227.6	0.00	11,430.0	0.45	1.48	-0.33	22.60	-7.81	21%	0.00	+10.00	200.00	48,734.4	415.6	0.0	50,150.0	11,806.7	0.000	0.0	0.0	17,806.7	52,343.3	-7,286,843.3	0.0	-7,286,843.3	406.74
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	406.79	7,286,884.3	0.00	11,430.0	0.45	1.70	-0.33	100.50	-7.81	7%	82.15	+10.00	200.00	67,241.9	559.2	0.0	67,801.1	62,817.2	0.200	0.0	0.0	68,017.2	1,016.2	-7,287,900.5	0.0	-7,287,900.5	406.78
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	406.76	7,287,003.3	0.00	11,430.0	0.45	1.00	-0.20	117.70	-7.84	0%	130.00	-0.00	200.00	67,653.3	661.1	0.0	68,314.4	66,107.2	0.000	0.0	0.0	68,107.2	27,668.9	-7,281,589.4	0.0	-7,281,589.4	406.75
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	406.75	7,315,569.6	0.00	11,430.0	0.45	20.45	-0.03	151.10	-7.84	0%	148.91	-0.11	200.00	11,290.5	652.9	0.0	11,943.4	61,125.6	0.200	0.0	0.0	61,325.6	13,302.6	-7,302,267.0	0.0	-7,302,267.0	406.71
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	406.71	7,347,008.8	0.00	11,430.0	0.45	15.84	-0.03	169.30	-7.84	0%	78.40	-0.17	200.00	93,665.7	778.1	0.0	94,443.8	92,309.4	0.200	0.0	0.0	92,509.4	3,911.0	-7,343,099.8	0.0	-7,343,099.8	406.75
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	406.76	7,311,553.2	0.00	11,430.0	0.45	8.42	-0.33	97.90	-7.81	0%	47.90	-11.30	200.00	42,634.4	339.9	0.0	43,074.3	38,368.9	0.000	0.0	0.0	42,368.9	5,704.5	-7,317,257.7	0.0	-7,317,257.7	406.75
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	406.76	7,312,440.7	0.00	11,430.0	0.45	4.05	-0.33	36.60	-7.81	32%	37.20	+10.32	200.00	20,521.6	243.9	0.0	20,765.5	20,529.7	0.200	0.0	0.0	20,729.7	1,912.3	-7,314,353.0	0.0	-7,314,353.0	406.74
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	406.74	7,318,402.9	0.00	11,430.0	0.45	-3.40	-0.33	20.80	-7.81	93%	0.00	-0.04	200.00	17,864.5	147.1	0.0	17,981.7	3,117.5	0.000	0.0	0.0	3,117.5	6,174.1	-7,306,678.8	0.0	-7,306,678.8	406.76
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	406.76	7,308,618.9	0.00	11,430.0	0.45	9.84	-0.17	6.00	-10.24	96%	0.00	-0.00	200.00	19,787.7	139.6	0.0	19,927.3	18,363.3	0.000	0.0	0.0	18,363.3	1,564.3	-7,307,054.4	0.0	-7,307,054.4	406.77
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	406.77	7,298,948.4	0.00	11,430.0	0.45	-16.20	-0.17	62.60	-10.24	96%	0.00	-0.00	200.00	57,430.7	477.6	0.0	57,908.3	0.0	0.000	0.0	0.0	57,908.3	7,247,240.1	0.0	-7,247,240.1	406.84	
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	406.84	7,247,240.1	0.00	11,430.0	0.45	-14.38	-0.17	34.50	+10.24	96%	0.00	-0.00	200.00	21,491.8	178.7	0.0	21,670.5	0.0	0.000	0.0	0.0	21,670.5	7,231,106.6	0.0	-7,231,106.6	406.86	
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	406.86	7,251,198.1	0.00	11,430.0	0.45	6.92	-0.33	48.60	-7.81	0%	0.00	-0.00	200.00	30,914.5	291.2	0.0	31,205.7	6,186.1	0.000	0.0	0.0	15,060.1	23,245.6	-7,258,244.0	0.0	-7,258,244.0	406.89
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	406.89	7,258,244.0	0.00	11,430.0	0.45	0.27	-0.33	38.90	-7.81	22%	0.00	-0.00	200.00	28,806.6	240.2	0.0	29,046.8	11,808.7	0.000	0.0	0.0	17,806.7	11,234.2	-7,198,918.9	0.0	-7,198,918.9	406.90
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	406.90	7,198,918.9	0.00	11,430.0	0.45	12.42	-0.33	46.90	-7.81	0%	100.40	-0.00	200.00	32,354.6	280.1	0.0	32,634.7	38,404.2	0.000	0.0	0.0	32,634.7	19,969.0	-7,248,904.4	0.0	-7,248,904.4	406.83
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	406.83	7,256,904.4	0.00	11,430.0	0.45	16.40	-0.00	36.30	-7.84	0%	100.40	-0.00	200.00	34,719.9	465.0	0.0	35,184.9	47,747.6	0.000	0.0	0.0	47,747.6	7,237,771.1	0.0	-7,237,771.1	406.90	
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	406.80	7,275,277.1	0.00	11,430.0	0.45	21.19	-0.03	69.30	-7.84	0%	137.89	-0.11	200.00	38,914.5	316.1	0.0	39,230.6	60,312.5	0.200	0.0	0.0	60,512.5	68,181.8	-7,333,468.9	0.0	-7,333,468.9	406.72
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	406.72	7,333,468.9	0.00	11,430.0	0.45	16.52	-0.03	141.10	-7.84	0%	89.70	-0.17	200.00	41,829.2	683.3	0.0	42,512.5	59,299.2	0.000	0.0	0.0	59,299.2	4,994.3	-7,338,463.8	0.0	-7,338,463.8	406.75
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	406.75	7,314,488.1	0.00	11,430.0	0.45	10.56	-0.00	69.90	-7.81	0%	47.90	-11.20	200.00	46,829.1	389.4	0.0	47,218.5	36,317.7	0.000	0.0	0.0	42,317.7	4,950.8	-7,311,537.3	0.0	-7,311,537.3	406.75
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	406.75	7,311,537.3	0.00	11,430.0	0.45	6.21	-0.33	48.80	-7.81	0%	40.30	+10.22	200.00	30,914.5	291.2	0.0	31,205.7	31,247.3	0.200	0.0	0.0	31,447.3	2,441.6	-7,313,978.4	0.0	-7,313,978.4	406.75
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	406.76	7,313,978.4	0.00	11,430.0	0.45	2.13	-0.33	23.60	-7.81	0%	0.00	-0.04	200.00	14,235.9	161.8	0.0	14,397.7	3,113.8	0.000	0.0	0.0	3,113.8	4,474.9	-7,318,453.3	0.0	-7,318,453.3	406.76
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	406.76	7,303,233.5	0.00	11,430.0	0.45	-14.52	-0.17	91.40	+10.24	96%	0.00	-0.00	200.00	20,760.0	214.2	0.0	20,974.2	0.0	0.000	0.0	0.0	20,974.2	19,774.2	-7,283,459.7	0.0	-7,283,459.7	406.79
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	406.79	7,283,459.7	0.00	11,430.0	0.45	-18.13	-0.17	44.20	+10.24	96%	0.00	-0.00	200.00	33,877.7	280.1	0.0	34,157.8	0.0	0.000	0.0	0.0	34,157.8	7,737.7	-7,291,197.4	0.0	-7,291,197.4	406.83
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	406.83	7,255,702.6	0.00	11,430.0	0.45	-10.89	-0.17	30.30	+10.24	96%	0.00	-0.00	200.00	20,979.9	239.6	0.0	21,219.5	0.0	0.000	0.0	0.0	21,219.5	3,688.1	-7,262,014.5	0.0	-7,262,014.5	406.85
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	406.85	7,230,513.3	0.00	11,430.0	0.45	-8.49	-0.33	53.90	-7.81	0%	0.00	-0.00	200.00	38,169.2	317.4	0.0	38,486.6	6,180.1	0.000	0.0	0.0	12,360.1	26,126.4	-7,236,637.4	0.0	-7,236,637.4	406.89
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	406.89	7,250,507.4	0.00	11,430.0	0.45	4.90	-0.33	63.90	-7.81	0%	0.00	-0.00	200.00	44,354.8	368.8	0.0	44,723.7	11,806.7	0.000	0.0	0.0	17,806.7	26,917.0	-7,162,904.4	0.0	-7,162,904.4	406.92
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	406.92	7,162,904.4	0.00	11,430.0	0.45	15.60	-0.33	12.60	-7.81	0%	139.76	+10.00	200.00	12,460.4	195.0	0.0	12,655.4	6,795.1	0.000	0.0	0.0	10,155.1	49,123.2	-7,212,118.6	0.0	-7,212,118.6	406.81
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	406.81	7,272,118.6	0.00	11,430.0	0.45	18.12	-0.00	133.70	-7.84	0%	118.89	-0.40	200.00	77,850.4	647.4	0.0	78,497.8	77,747.1	0.000	0.0	0.0	78,497.8	4,240.4	-7,277,358.0	0.0	-7,277,358.0	406.80
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	406.80	7,277,358.0	0.00	11,430.0	0.45	19.17	-0.03	63.70	-7.84	0%	140.64	-0.11	200.00	34,520.0	281.3	0.0	34,801.3	52,529.2	0.200	0.0	0.0	52,729.2	43,991.4	-7,341,354.4	0.0	-7,341,354.4	406.71
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	406.71	7,341,354.4	0.00	11,430.0	0.45	18.62	-0.03</																				

Table 1a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0 mm d/sulphation, 0% snow drift losses, 8.00 Limit augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert (Elevation)	Capacity (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water	Natural Operations Area	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	TSF Inflows (m³)	TSF Outflows (m³)	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month WSEL (m)			
2021	2073	2010	2021-2010	April	30	418.5	1,591,632.0	418,500	1,579,150	1.00	14.30	0.45	-1.30	-0.50	7.81	3%	8.74	+10.8	313	317,314	263.9	0.0	11,208.1	418.9	1,591,632.0	418.500	1,579,150
2021	2073	2010	2021-2010	May	31	418.5	1,591,632.0	418,500	1,580,610	1.00	14.30	0.45	-1.30	-0.50	7.81	4%	9.87	+10.8	313	317,314	263.9	0.0	11,208.1	419.4	1,591,632.0	418.500	1,579,150
2021	2073	2010	2021-2010	June	30	418.5	1,591,632.0	418,500	1,582,090	1.00	14.30	0.45	-1.30	-0.50	7.81	5%	11.00	+10.8	313	317,314	263.9	0.0	11,208.1	419.9	1,591,632.0	418.500	1,579,150
2021	2073	2010	2021-2010	July	31	418.5	1,591,632.0	418,500	1,583,570	1.00	14.30	0.45	-1.30	-0.50	7.81	6%	12.13	+10.8	313	317,314	263.9	0.0	11,208.1	420.4	1,591,632.0	418.500	1,579,150
2021	2073	2010	2021-2010	August	31	418.5	1,591,632.0	418,500	1,585,050	1.00	14.30	0.45	-1.30	-0.50	7.81	7%	13.26	+10.8	313	317,314	263.9	0.0	11,208.1	420.9	1,591,632.0	418.500	1,579,150
2021	2073	2010	2021-2010	September	30	418.5	1,591,632.0	418,500	1,586,530	1.00	14.30	0.45	-1.30	-0.50	7.81	8%	14.39	+10.8	313	317,314	263.9	0.0	11,208.1	421.4	1,591,632.0	418.500	1,579,150
2021	2073	2010	2021-2010	October	31	418.5	1,591,632.0	418,500	1,588,010	1.00	14.30	0.45	-1.30	-0.50	7.81	9%	15.52	+10.8	313	317,314	263.9	0.0	11,208.1	421.9	1,591,632.0	418.500	1,579,150
2021	2073	2010	2021-2010	November	30	418.5	1,591,632.0	418,500	1,589,490	1.00	14.30	0.45	-1.30	-0.50	7.81	10%	16.65	+10.8	313	317,314	263.9	0.0	11,208.1	422.4	1,591,632.0	418.500	1,579,150
2021	2073	2010	2021-2010	December	31	418.5	1,591,632.0	418,500	1,590,970	1.00	14.30	0.45	-1.30	-0.50	7.81	11%	17.78	+10.8	313	317,314	263.9	0.0	11,208.1	422.9	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	January	29	418.5	1,591,632.0	418,500	1,592,450	1.00	14.30	0.45	-1.30	-0.50	7.81	12%	18.91	+10.8	313	317,314	263.9	0.0	11,208.1	423.4	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	February	28	418.5	1,591,632.0	418,500	1,593,930	1.00	14.30	0.45	-1.30	-0.50	7.81	13%	20.04	+10.8	313	317,314	263.9	0.0	11,208.1	423.9	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	March	31	418.5	1,591,632.0	418,500	1,595,410	1.00	14.30	0.45	-1.30	-0.50	7.81	14%	21.17	+10.8	313	317,314	263.9	0.0	11,208.1	424.4	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	April	30	418.5	1,591,632.0	418,500	1,596,890	1.00	14.30	0.45	-1.30	-0.50	7.81	15%	22.30	+10.8	313	317,314	263.9	0.0	11,208.1	424.9	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	May	31	418.5	1,591,632.0	418,500	1,598,370	1.00	14.30	0.45	-1.30	-0.50	7.81	16%	23.43	+10.8	313	317,314	263.9	0.0	11,208.1	425.4	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	June	30	418.5	1,591,632.0	418,500	1,599,850	1.00	14.30	0.45	-1.30	-0.50	7.81	17%	24.56	+10.8	313	317,314	263.9	0.0	11,208.1	425.9	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	July	31	418.5	1,591,632.0	418,500	1,601,330	1.00	14.30	0.45	-1.30	-0.50	7.81	18%	25.69	+10.8	313	317,314	263.9	0.0	11,208.1	426.4	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	August	31	418.5	1,591,632.0	418,500	1,602,810	1.00	14.30	0.45	-1.30	-0.50	7.81	19%	26.82	+10.8	313	317,314	263.9	0.0	11,208.1	426.9	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	September	30	418.5	1,591,632.0	418,500	1,604,290	1.00	14.30	0.45	-1.30	-0.50	7.81	20%	27.95	+10.8	313	317,314	263.9	0.0	11,208.1	427.4	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	October	31	418.5	1,591,632.0	418,500	1,605,770	1.00	14.30	0.45	-1.30	-0.50	7.81	21%	29.08	+10.8	313	317,314	263.9	0.0	11,208.1	427.9	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	November	30	418.5	1,591,632.0	418,500	1,607,250	1.00	14.30	0.45	-1.30	-0.50	7.81	22%	30.21	+10.8	313	317,314	263.9	0.0	11,208.1	428.4	1,591,632.0	418.500	1,579,150
2022	2074	2011	2021-2010	December	31	418.5	1,591,632.0	418,500	1,608,730	1.00	14.30	0.45	-1.30	-0.50	7.81	23%	31.34	+10.8	313	317,314	263.9	0.0	11,208.1	428.9	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	January	29	418.5	1,591,632.0	418,500	1,610,210	1.00	14.30	0.45	-1.30	-0.50	7.81	24%	32.47	+10.8	313	317,314	263.9	0.0	11,208.1	429.4	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	February	28	418.5	1,591,632.0	418,500	1,611,690	1.00	14.30	0.45	-1.30	-0.50	7.81	25%	33.60	+10.8	313	317,314	263.9	0.0	11,208.1	429.9	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	March	31	418.5	1,591,632.0	418,500	1,613,170	1.00	14.30	0.45	-1.30	-0.50	7.81	26%	34.73	+10.8	313	317,314	263.9	0.0	11,208.1	430.4	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	April	30	418.5	1,591,632.0	418,500	1,614,650	1.00	14.30	0.45	-1.30	-0.50	7.81	27%	35.86	+10.8	313	317,314	263.9	0.0	11,208.1	430.9	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	May	31	418.5	1,591,632.0	418,500	1,616,130	1.00	14.30	0.45	-1.30	-0.50	7.81	28%	36.99	+10.8	313	317,314	263.9	0.0	11,208.1	431.4	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	June	30	418.5	1,591,632.0	418,500	1,617,610	1.00	14.30	0.45	-1.30	-0.50	7.81	29%	38.12	+10.8	313	317,314	263.9	0.0	11,208.1	431.9	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	July	31	418.5	1,591,632.0	418,500	1,619,090	1.00	14.30	0.45	-1.30	-0.50	7.81	30%	39.25	+10.8	313	317,314	263.9	0.0	11,208.1	432.4	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	August	31	418.5	1,591,632.0	418,500	1,620,570	1.00	14.30	0.45	-1.30	-0.50	7.81	31%	40.38	+10.8	313	317,314	263.9	0.0	11,208.1	432.9	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	September	30	418.5	1,591,632.0	418,500	1,622,050	1.00	14.30	0.45	-1.30	-0.50	7.81	32%	41.51	+10.8	313	317,314	263.9	0.0	11,208.1	433.4	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	October	31	418.5	1,591,632.0	418,500	1,623,530	1.00	14.30	0.45	-1.30	-0.50	7.81	33%	42.64	+10.8	313	317,314	263.9	0.0	11,208.1	433.9	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	November	30	418.5	1,591,632.0	418,500	1,625,010	1.00	14.30	0.45	-1.30	-0.50	7.81	34%	43.77	+10.8	313	317,314	263.9	0.0	11,208.1	434.4	1,591,632.0	418.500	1,579,150
2023	2075	2012	2021-2010	December	31	418.5	1,591,632.0	418,500	1,626,490	1.00	14.30	0.45	-1.30	-0.50	7.81	35%	44.90	+10.8	313	317,314	263.9	0.0	11,208.1	434.9	1,591,632.0	418.500	1,579,150
2024	2076	2013	2021-2010	January	29	418.5	1,591,632.0	418,500	1,627,970	1.00	14.30	0.45	-1.30	-0.50	7.81	36%	46.03	+10.8	313	317,314	263.9	0.0	11,208.1	435.4	1,591,632.0	418.500	1,579,150
2024	2076	2013	2021-2010	February	28	418.5	1,591,632.0	418,500	1,629,450	1.00	14.30	0.45	-1.30	-0.50	7.81	37%	47.16	+10.8	313	317,314	263.9	0.0	11,208.1	435.9	1,591,632.0	418.500	1,579,150
2024	2076	2013	2021-2010	March	31	418.5	1,591,632.0	418,500	1,630,930	1.00	14.30	0.45	-1.30	-0.50	7.81	38%	48.29	+10.8	313	317,314	263.9	0.0	11,208.1	436.4	1,591,632.0	418.500	1,579,150
2024	2076	2013	2021-2010	April	30	418.5	1,591,632.0	418,500	1,632,410	1.00	14.30	0.45	-1.30	-0.50	7.81	39%	49.42	+10.8	313	317,314	263.9	0.0	11,208.1	436.9	1,5		

Table 1a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0 mm d/sublimation, 0% snow drift losses, 8.00 L/min augmentation, and Ensemble Climate Change Scenario

Case	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Natural Operations Area	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	TSF Inflows (mm)	TSF Outflows (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Initial WSEL (m)	Initial Volume (mm)		
																											Open Water	Natural Operations Area
399	2021	1992	2021-2100	April	30	418.5	1,591,632.0	418.2	1,522,864.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	April	31	418.5	1,591,632.0	418.4	1,584,776.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	1	418.5	1,591,632.0	418.5	1,584,776.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	2	418.5	1,591,632.0	418.6	1,575,731.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	3	418.5	1,591,632.0	418.7	1,566,786.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	4	418.5	1,591,632.0	418.8	1,557,841.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	5	418.5	1,591,632.0	418.9	1,548,896.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	6	418.5	1,591,632.0	419.0	1,540,001.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	7	418.5	1,591,632.0	419.1	1,531,056.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	8	418.5	1,591,632.0	419.2	1,522,111.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	9	418.5	1,591,632.0	419.3	1,513,166.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	10	418.5	1,591,632.0	419.4	1,504,221.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	11	418.5	1,591,632.0	419.5	1,495,276.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	12	418.5	1,591,632.0	419.6	1,486,331.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	13	418.5	1,591,632.0	419.7	1,477,386.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	14	418.5	1,591,632.0	419.8	1,468,441.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	15	418.5	1,591,632.0	419.9	1,459,496.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	16	418.5	1,591,632.0	420.0	1,450,551.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	17	418.5	1,591,632.0	420.1	1,441,606.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	18	418.5	1,591,632.0	420.2	1,432,661.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	19	418.5	1,591,632.0	420.3	1,423,716.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	20	418.5	1,591,632.0	420.4	1,414,771.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	21	418.5	1,591,632.0	420.5	1,405,826.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	22	418.5	1,591,632.0	420.6	1,396,881.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	23	418.5	1,591,632.0	420.7	1,387,936.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	24	418.5	1,591,632.0	420.8	1,378,991.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	25	418.5	1,591,632.0	420.9	1,370,046.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	26	418.5	1,591,632.0	421.0	1,361,101.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	27	418.5	1,591,632.0	421.1	1,352,156.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	28	418.5	1,591,632.0	421.2	1,343,211.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	29	418.5	1,591,632.0	421.3	1,334,266.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	30	418.5	1,591,632.0	421.4	1,325,321.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	May	31	418.5	1,591,632.0	421.5	1,316,376.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	June	1	418.5	1,591,632.0	421.6	1,307,431.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	418.5	1,591,632.0
399	2021	1992	2021-2100	June	2	418.5	1,591,632.0	421.7	1,298,486.0	1.00	14.30	0.45	-0.33	40.0	-0.71	57%	0.00	-10.38	313	33,829.0	278.0	0.0	418.0	1,554,776.0	0.0	1,591,632.0	4	

Table 1a: Multi-year Wet Cover Model (2032-2432): 3.13 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Month	Day	Forecast Horizon	Season	Forecast Month	Forecast Day	Invert (Elevation)	Capacity (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water	Runoff Coefficients	Runoff Coefficients	Runoff Coefficients	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflows (mm)	TSF Outflows (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	
278	2034	1978	2021-2100	October	31	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
279	2034	1978	2021-2100	November	30	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
280	2034	1978	2021-2100	December	29	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
281	2034	1978	2021-2100	January	28	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
282	2034	1978	2021-2100	February	28	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
283	2034	1978	2021-2100	March	27	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
284	2034	1978	2021-2100	April	27	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
285	2034	1978	2021-2100	May	26	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
286	2034	1978	2021-2100	June	26	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
287	2034	1978	2021-2100	July	25	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
288	2034	1978	2021-2100	August	25	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
289	2034	1978	2021-2100	September	24	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
290	2034	1978	2021-2100	October	23	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
291	2034	1978	2021-2100	November	23	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
292	2034	1978	2021-2100	December	22	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
293	2034	1978	2021-2100	January	21	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
294	2034	1978	2021-2100	February	21	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
295	2034	1978	2021-2100	March	20	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
296	2034	1978	2021-2100	April	20	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
297	2034	1978	2021-2100	May	19	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
298	2034	1978	2021-2100	June	19	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
299	2034	1978	2021-2100	July	18	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
300	2034	1978	2021-2100	August	18	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
301	2034	1978	2021-2100	September	17	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
302	2034	1978	2021-2100	October	17	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
303	2034	1978	2021-2100	November	16	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
304	2034	1978	2021-2100	December	16	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
305	2034	1978	2021-2100	January	15	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
306	2034	1978	2021-2100	February	15	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
307	2034	1978	2021-2100	March	14	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
308	2034	1978	2021-2100	April	14	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
309	2034	1978	2021-2100	May	13	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
310	2034	1978	2021-2100	June	13	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
311	2034	1978	2021-2100	July	12	4185	1591.622	4185	1591.622	4185	1.00	1.00	1.00	1.00	1.00	-0.33	2.50	-0.33	35.84	-0.33	0.00	-0.33	313	1072.5	1591.622	0.0	2583.0	1591.622	0.0	1591.622	4185
312	2034	1978	2021-2100	August	12	4185	1591.6																								

Table 11a: Multi-year Wet Cover Model (2032-2432): 3.13 m³/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflow-Outflow (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)		
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pond Evaporation	Average	Sublimation Losses	Wind Drift Losses						Total Outflow	
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	418,500	0.45	11,430.0	0.45	-1.48	-0.33	22.60	-7.81	21%	0.00	+10.00	3.13	48,734.4	4116.0	0.0	50,150.0	11,806.7	0.0	0.0	0.0	11,806.6	38,243.4	1,633,802.0	38,243.4	1,591,632.6	418.50	
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	418,500	0.45	11,430.0	0.45	-1.70	-0.33	10.90	-7.81	7%	0.00	+10.00	3.13	67,241.9	5592.0	0.0	67,801.1	62,472.2	0.0	0.0	0.0	62,474.3	5,086.3	1,596,719.4	5,086.3	1,591,632.6	418.50	
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	418,500	0.45	11,430.0	0.45	-1.00	-0.20	11.70	-7.84	0%	130.00	-8.00	3.13	67,633.3	661.0	0.0	68,194.3	60,102.2	0.0	0.0	0.0	60,102.1	21,702.8	1,591,699.8	0.0	1,591,699.8	418.47	
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.47	1,589,868.8	418,500	0.45	11,430.0	0.45	-20.42	-0.20	10.10	-7.84	0%	140.00	-8.11	3.13	11,290.5	652.0	0.0	11,942.6	87,125.6	0.0	0.0	0.0	87,125.6	55,362.0	1,544,536.6	0.0	1,544,536.6	418.44	
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.44	1,544,533.8	418,500	0.45	11,430.0	0.45	-18.84	-0.20	10.30	-7.84	0%	78.40	-8.17	3.13	93,665.7	778.1	0.0	94,443.8	92,309.4	0.0	0.0	0.0	92,309.4	42,058.4	1,588,592.0	0.0	1,588,592.0	418.49	
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.40	1,568,592.0	418,500	0.45	11,430.0	0.45	8.42	-0.20	9.70	-7.81	0%	47.90	-11.30	3.13	40,634.4	338.0	0.0	40,972.4	38,368.9	0.0	0.0	0.0	38,368.9	4,516.8	1,561,110.6	0.0	1,561,110.6	418.50	
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.50	1,591,110.5	418,500	0.45	11,430.0	0.45	4.05	-0.20	9.60	-7.81	32%	37.20	-10.22	3.13	20,321.6	243.0	0.0	20,564.6	20,329.7	0.0	0.0	0.0	20,329.7	140.7	1,591,251.3	0.0	1,591,251.3	418.50	
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.50	1,591,251.3	418,500	0.45	11,430.0	0.45	-3.40	-0.20	20.80	-7.81	93%	0.00	-0.04	3.13	17,864.5	147.1	0.0	17,864.7	3,117.5	0.0	0.0	0.0	3,117.5	14,832.2	1,606,887.5	14,832.2	1,591,632.6	418.50	
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	418,500	0.45	11,430.0	0.45	8.86	-0.17	9.90	-10.24	96%	0.00	0.00	0.00	3.13	19,397.0	138.0	0.0	19,535.0	18.3	0.0	0.0	0.0	18.3	1,606,609.9	18.33	1,591,632.6	418.50	
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	418,500	0.45	11,430.0	0.45	-16.20	-0.17	82.60	-10.24	100%	0.00	0.00	0.00	3.13	57,407.7	477.6	0.0	57,885.3	0.0	0.0	0.0	0.0	57,885.3	1,648,443.8	57,813.3	1,591,632.6	418.50	
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	418,500	0.45	11,430.0	0.45	-14.38	-0.17	24.50	-10.24	96%	0.00	0.00	0.00	3.13	21,491.8	178.7	0.0	21,670.6	0.0	0.0	0.0	0.0	0.0	21,670.6	1,613,215.5	21,620.9	1,591,632.6	418.50
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	418,500	0.45	11,430.0	0.45	8.92	-0.20	48.60	-7.81	0%	0.00	-0.99	3.13	30,545.4	291.2	0.0	30,836.6	4,186.1	0.0	0.0	0.0	4,186.1	26,650.5	1,620,811.0	26,650.5	1,591,632.6	418.50	
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	418,500	0.45	11,430.0	0.45	0.27	-0.20	38.90	-7.81	22%	0.00	+0.09	3.13	28,806.6	240.2	0.0	29,046.8	11,806.7	0.0	0.0	0.0	11,806.6	17,239.3	1,608,862.8	17,239.3	1,591,632.6	418.50	
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	418,500	0.45	11,430.0	0.45	12.42	-0.20	46.90	-7.81	0%	120.00	+0.08	3.13	32,354.6	208.1	0.0	32,562.7	38,442.2	0.0	0.0	0.0	38,442.2	1,627,709.0	0.0	1,627,709.0	418.43		
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,537,795.6	418,500	0.45	11,430.0	0.45	16.40	-0.20	36.30	-7.84	0%	100.40	-8.00	3.13	84,739.8	460.0	0.0	85,199.8	85,000.0	0.0	0.0	0.0	85,000.0	1,535,284.4	0.0	1,535,284.4	418.41		
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.41	1,525,284.4	418,500	0.45	11,430.0	0.45	21.70	-0.20	39.30	-7.84	0%	137.80	-8.11	3.13	38,544.5	316.1	0.0	38,860.6	60,323.5	0.0	0.0	0.0	60,323.5	1,473,205.5	0.0	1,473,205.5	418.34		
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.34	1,412,255.5	418,500	0.45	11,430.0	0.45	-16.52	-0.20	161.10	-7.84	0%	89.70	-8.17	3.13	47,829.2	683.3	0.0	48,512.5	90,298.2	0.0	0.0	0.0	90,298.2	1,406,798.8	0.0	1,406,798.8	418.37		
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.37	1,406,298.8	418,500	0.45	11,430.0	0.45	10.56	-0.20	69.90	-7.81	0%	47.90	-11.20	3.13	48,629.1	389.4	0.0	49,018.5	30,327.7	0.0	0.0	0.0	30,327.7	1,381,119.7	0.0	1,381,119.7	418.39		
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.39	1,387,119.7	418,500	0.45	11,430.0	0.45	6.21	-0.20	48.80	-7.81	3%	40.30	-10.22	3.13	30,244.5	291.2	0.0	30,535.6	31,247.3	0.0	0.0	0.0	31,247.3	1,361.3	1,381,119.7	0.0	1,381,119.7	418.39	
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.39	1,311,021.1	418,500	0.45	11,430.0	0.45	2.13	-0.20	23.60	-7.81	0%	0.00	-0.04	3.13	19,426.9	161.8	0.0	19,588.7	11,611.1	0.0	0.0	0.0	11,611.1	1,302,448.7	0.0	1,302,448.7	418.42		
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.42	1,302,448.7	418,500	0.45	11,430.0	0.45	-14.52	-0.17	91.40	-10.24	100%	0.00	0.00	0.00	3.13	20,760.0	214.2	0.0	20,974.2	0.0	0.0	0.0	0.0	20,974.2	1,283,325.9	0.0	1,283,325.9	418.45	
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.45	1,283,325.9	418,500	0.45	11,430.0	0.45	-18.13	-0.17	44.20	-10.24	99%	0.00	0.00	0.00	3.13	33,971.7	285.1	0.0	34,256.8	0.0	0.0	0.0	0.0	34,256.8	1,264,186.6	0.0	1,264,186.6	418.49	
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.49	1,264,186.6	418,500	0.45	11,430.0	0.45	-10.89	-0.17	30.30	-10.24	98%	0.00	0.00	0.00	3.13	20,979.9	238.6	0.0	21,218.5	0.0	0.0	0.0	0.0	21,218.5	1,243,387.0	20,744.5	1,243,387.0	418.50	
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,243,387.0	418,500	0.45	11,430.0	0.45	8.49	-0.20	53.90	-7.81	76%	0.00	-0.99	3.13	38,169.2	317.4	0.0	38,486.6	4,186.1	0.0	0.0	0.0	4,186.1	1,239,200.4	4,186.1	1,239,200.4	418.50		
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,239,200.4	418,500	0.45	11,430.0	0.45	4.90	-0.20	63.90	-7.81	0%	0.00	+0.09	3.13	44,354.8	368.8	0.0	44,723.7	11,806.7	0.0	0.0	0.0	11,806.6	1,227,393.8	11,806.7	1,227,393.8	418.50		
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,227,393.8	418,500	0.45	11,430.0	0.45	13.60	-0.20	12.60	-7.81	0%	130.00	+0.08	3.13	12,466.0	100.0	0.0	12,566.0	60,751.1	0.0	0.0	0.0	60,751.1	1,206,642.4	0.0	1,206,642.4	418.39		
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,206,642.4	418,500	0.45	11,430.0	0.45	18.12	-0.20	133.70	-7.84	0%	118.80	-8.00	3.13	77,650.4	647.4	0.0	78,297.8	77,747.1	0.0	0.0	0.0	77,747.1	1,180,269.1	0.0	1,180,269.1	418.39		
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,206,269.1	418,500	0.45	11,430.0	0.45	19.17	-0.20	63.70	-7.84	0%	144.64	-8.11	3.13	34,500.0	287.3	0.0	34,787.3	52,529.2	0.0	0.0	0.0	52,529.2	1,161,389.7	0.0	1,161,389.7	418.31		
325	2431	1976	2071-2100	August	31																															

Model Inputs	
Year of Simulation	2022
Source of Climate Record	Canadian
Climate Change Scenario	CanESM2
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,991,832.6
Area of Open Water Within TSP (m²)	61,946.6
Runoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m²)	14,433.8
Runoff Coefficient for Restored Lands Within TSP	0.5
Evaporation from TSP (mm/day)	31.30
Supplementary Water Addition (m³/day)	0.00
Trigger Elevation for Supplemental Water Addition (mASL)	416.00
Sublimation Losses in Winter (mm/day)	0.00
Wind Drift Losses in Winter (% of snowfall)	0%

NOTES: 1) The climate record was selected to be the period of the TSP from the last open water. 2) Based on the values from Proveny and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 1b: Multi-Year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Year	Month	Day	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Restored Area (m²)	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Storage (m³)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool Volume	Average	Sublimation	Wind Drift Losses	Total Outflow	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Volume (m³)	Initial WSEL (m)	Initial Volume (m³)
1	2022	1991	2021-2040	January	31	416.5	1,991,832.6	416.3	1,539,865.1	61,952.92	1.00	14,433.8	0.45	-18.71	-2.37	96.80	-6.66	100%	0.00	0	31.30	63,964.4	532.2	0.00	64,566.6	0.00	973.3	0.00	0.00	63,964.4	1,633,648.4	11,913.2	1,991,832.6	416.0	1,539,865.1		
2	2022	1991	2021-2040	February	28	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-12.78	-2.37	16.70	-6.66	100%	0.00	0	31.30	13,209.9	109.9	0.00	13,319.7	0.00	874.0	0.00	0.00	13,209.9	1,618,822.7	12,443.3	1,607,079.4	416.0	1,591,832.6		
3	2022	1991	2021-2040	March	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-7.89	-2.32	15.10	-4.34	100%	0.00	0	31.30	8,934.9	743.3	0.00	9,678.2	0.00	973.3	0.00	0.00	8,934.9	1,599,671.4	6,039.9	1,591,832.6	416.0	1,591,832.6		
4	2022	1991	2021-2040	April	30	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-2.44	-2.32	79.40	-4.34	0%	0.00	-19.23	31.30	14,637.8	1,221.0	0.00	16,865.7	6,273.9	999.0	0.00	0.00	14,637.8	1,591,832.6	7,265.3	1,591,832.6	416.0	1,591,832.6		
5	2022	1991	2021-2040	May	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	9.53	-2.32	32.98	-4.34	0%	0.00	-1.89	31.30	19,793.4	1,619.1	0.00	21,412.5	9,227.7	0.00	0.00	19,793.4	1,591,832.6	13,561.1	1,591,832.6	416.0	1,591,832.6			
6	2022	1991	2021-2040	June	30	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	11.08	-2.32	62.80	-6.00	0%	0.00	-2.41	31.30	47,168.8	3,925.0	0.00	51,093.8	14,919.9	999.0	0.00	0.00	47,168.8	1,591,832.6	24,039.0	1,591,832.6	416.0	1,591,832.6		
7	2022	1991	2021-2040	July	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	17.43	-2.32	118.50	-6.50	0%	10.40	-3.41	31.30	69,279.8	5,761.0	0.00	75,040.8	23,685.9	999.0	0.00	0.00	69,279.8	1,591,832.6	38,760.9	1,591,832.6	416.0	1,591,832.6		
8	2022	1991	2021-2040	August	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	19.00	-2.32	169.80	-6.50	0%	90.90	-1.51	31.30	94,269.9	7,819.0	0.00	102,088.9	31,501.9	973.3	0.00	0.00	94,269.9	1,591,832.6	56,324.4	1,591,832.6	416.0	1,591,832.6		
9	2022	1991	2021-2040	September	30	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	17.68	-2.32	118.00	-6.50	0%	100.00	-1.51	31.30	82,934.4	6,817.0	0.00	89,751.4	28,318.1	973.3	0.00	0.00	82,934.4	1,591,832.6	43,542.1	1,591,832.6	416.0	1,591,832.6		
10	2022	1991	2021-2040	October	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	21.77	-2.32	63.00	-4.34	9%	19.43	+1.41	31.30	41,866.5	3,450.0	0.00	45,316.5	13,978.9	973.3	0.00	0.00	41,866.5	1,591,832.6	27,337.4	1,591,832.6	416.0	1,591,832.6		
11	2022	1991	2021-2040	November	30	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	3.87	-2.32	34.20	-4.34	89%	0.00	0	31.30	23,842.4	1,983.0	0.00	25,825.4	6,967.0	999.0	0.00	0.00	23,842.4	1,591,832.6	21,107.7	1,591,832.6	416.0	1,591,832.6		
12	2022	1991	2021-2040	December	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-10.72	-2.32	36.40	-6.66	100%	0.00	0	31.30	26,043.3	2,163.0	0.00	28,206.3	8,126.0	973.3	0.00	0.00	26,043.3	1,591,832.6	25,260.3	1,591,832.6	416.0	1,591,832.6		
13	2023	1970	2021-2040	January	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-16.40	-2.37	39.40	-6.66	100%	0.00	0	31.30	26,513.4	2,163.0	0.00	28,676.4	8,126.0	973.3	0.00	0.00	26,513.4	1,591,832.6	25,260.3	1,591,832.6	416.0	1,591,832.6		
14	2023	1970	2021-2040	February	28	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-11.30	-2.37	29.20	-6.66	100%	0.00	0	31.30	19,749.5	1,619.1	0.00	21,368.6	6,273.9	973.3	0.00	0.00	19,749.5	1,591,832.6	18,129.7	1,591,832.6	416.0	1,591,832.6		
15	2023	1970	2021-2040	March	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-6.78	-2.32	34.80	-4.34	91%	0.00	0	31.30	24,213.4	2,014.0	0.00	26,227.4	7,249.0	973.3	0.00	0.00	24,213.4	1,591,832.6	23,446.4	1,591,832.6	416.0	1,591,832.6		
16	2023	1970	2021-2040	April	30	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	0.31	-2.32	54.80	-4.34	35%	0.00	-19.23	31.30	35,584.9	3,042.0	0.00	38,626.9	12,975.9	999.0	0.00	0.00	35,584.9	1,591,832.6	34,626.7	1,591,832.6	416.0	1,591,832.6		
17	2023	1970	2021-2040	May	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	7.42	-2.32	89.50	-4.34	0%	70.02	-1.89	31.30	58,869.3	4,827.0	0.00	63,696.3	18,999.9	973.3	0.00	0.00	58,869.3	1,591,832.6	49,883.3	1,591,832.6	416.0	1,591,832.6		
18	2023	1970	2021-2040	June	30	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	17.68	-2.32	118.00	-6.50	0%	100.00	-1.51	31.30	82,934.4	6,817.0	0.00	89,751.4	28,318.1	973.3	0.00	0.00	82,934.4	1,591,832.6	43,542.1	1,591,832.6	416.0	1,591,832.6		
19	2023	1970	2021-2040	July	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	20.83	-2.32	179.00	-6.50	0%	120.30	-3.41	31.30	120,679.9	2,737.0	0.00	123,416.9	38,152.9	973.3	0.00	0.00	120,679.9	1,591,832.6	95,126.7	1,591,832.6	416.0	1,591,832.6		
20	2023	1970	2021-2040	August	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	18.00	-2.32	62.00	-6.50	0%	100.00	-1.51	31.30	28,286.6	2,351.0	0.00	30,637.6	9,633.9	973.3	0.00	0.00	28,286.6	1,591,832.6	28,101.1	1,591,832.6	416.0	1,591,832.6		
21	2023	1970	2021-2040	September	30	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	11.86	-2.32	118.00	-6.50	0%	100.00	-1.51	31.30	66,075.5	7,157.0	0.00	73,232.5	24,715.9	999.0	0.00	0.00	66,075.5	1,591,832.6	44,006.3	1,591,832.6	416.0	1,591,832.6		
22	2023	1970	2021-2040	October	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-8.25	-2.32	39.40	-4.34	0%	-4.57	+1.41	31.30	26,043.3	2,163.0	0.00	28,206.3	8,126.0	973.3	0.00	0.00	26,043.3	1,591,832.6	25,260.3	1,591,832.6	416.0	1,591,832.6		
23	2023	1970	2021-2040	November	30	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-14.25	-2.37	43.00	-6.66	97%	0.00	0	31.30	21,721.1	2,014.0	0.00	23,735.1	6,273.9	973.3	0.00	0.00	21,721.1	1,591,832.6	20,702.1	1,591,832.6	416.0	1,591,832.6		
24	2023	1970	2021-2040	December	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-21.43	-2.37	15.00	-6.66	100%	0.00	0	31.30	17,171.1	1,463.0	0.00	18,634.1	5,210.0	973.3	0.00	0.00	17,171.1	1,591,832.6	16,158.7	1,591,832.6	416.0	1,591,832.6		
25	2024	1971	2021-2040	January	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-13.57	-2.37	37.80	-6.66	97%	0.00	0	31.30	23,531.1	1,772.0	0.00	25,303.1	6,273.9	973.3	0.00	0.00	23,531.1	1,591,832.6	22,484.0	1,591,832.6	416.0	1,591,832.6		
26	2024	1971	2021-2040	February	28	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-7.96	-2.32	46.00	-4.34	97%	0.00	0	31.30	19,527.7	1,619.1	0.00	21,146.8	5,210.0	973.3	0.00	0.00	19,527.7	1,591,832.6	18,511.8	1,591,832.6	416.0	1,591,832.6		
27	2024	1971	2021-2040	March	31	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	-2.40	-2.32	37.80	-4.34	97%	0.00	-19.23	31.30	23,531.1	1,772.0	0.00	25,303.1	6,273.9	999.0	0.00	0.00	23,531.1	1,591,832.6	22,484.0	1,591,832.6	416.0	1,591,832.6		
28	2024	1971	2021-2040	April	30	416.5	1,991,832.6	416.0	1,591,832.6	61,952.92	1.00	14,433.8	0.45	8.85	-2.32	88.00	-4.34	11%	0.00	-2.41	31.30	36,092.2	3,248.0	0.00	39,340.2	11,527.9	973.3	0.00	0.00	36,092.2	1,591,832.6	34,583.1	1,591,832.6	416.0	1,591,832.6		
29	2024	1971	2021-2040	May	31	416.5	1,991,832.6	416.0	1,591,832.6																												

Table 1b: Multi-year Wet Cover Model (2022-2422): 31.3 mmd seepage, 0 mmd sublimation, 0% snow drift losses, 8.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert (Elevation)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coeff	Runoff Volume (m³)	Runoff Depth (mm)	Runoff Temp (°C)	Runoff Precip (mm)	Runoff Change (mm)	Runoff Precip at Precipitation	Runoff Evaporation (mm)	Runoff Sublimation (mm)	Runoff Snowmelt (mm)	Runoff Inflow (m³)	Runoff Outflow (m³)	Runoff Net Inflow (m³)	Runoff End of Month WSEL (m)	Runoff End of Month Volume (m³)	Runoff Discharge Volume (m³)	Runoff End of Month Discharge (m³)	Runoff End of Month WSEL (m)
2021	2073	2010	2021-2100	April	30	418.5	1,591,622.0	418.7	1,570,962.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,586,252.4	0.0	1,586,252.4	418.49
2021	2073	2010	2021-2100	May	31	418.5	1,591,622.0	418.9	1,584,430.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,581,000.0	0.0	1,581,000.0	418.49
2021	2073	2010	2021-2100	June	30	418.5	1,591,622.0	419.0	1,577,220.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,571,910.0	0.0	1,571,910.0	418.49
2021	2073	2010	2021-2100	July	31	418.5	1,591,622.0	419.1	1,570,010.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,562,820.0	0.0	1,562,820.0	418.49
2021	2073	2010	2021-2100	August	31	418.5	1,591,622.0	419.2	1,562,810.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,553,730.0	0.0	1,553,730.0	418.49
2021	2073	2010	2021-2100	September	30	418.5	1,591,622.0	419.3	1,546,110.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,537,640.0	0.0	1,537,640.0	418.49
2021	2073	2010	2021-2100	October	31	418.5	1,591,622.0	419.4	1,529,910.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,517,550.0	0.0	1,517,550.0	418.49
2021	2073	2010	2021-2100	November	30	418.5	1,591,622.0	419.5	1,513,310.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,497,460.0	0.0	1,497,460.0	418.49
2021	2073	2010	2021-2100	December	31	418.5	1,591,622.0	419.6	1,496,710.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,477,370.0	0.0	1,477,370.0	418.49
2022	2074	2011	2021-2100	January	29	418.5	1,591,622.0	419.7	1,480,110.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,457,280.0	0.0	1,457,280.0	418.49
2022	2074	2011	2021-2100	February	28	418.5	1,591,622.0	419.8	1,463,510.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,437,190.0	0.0	1,437,190.0	418.49
2022	2074	2011	2021-2100	March	31	418.5	1,591,622.0	419.9	1,446,910.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,417,020.0	0.0	1,417,020.0	418.49
2022	2074	2011	2021-2100	April	30	418.5	1,591,622.0	420.0	1,430,310.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,409,870.0	0.0	1,409,870.0	418.49
2022	2074	2011	2021-2100	May	31	418.5	1,591,622.0	420.1	1,413,710.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,392,720.0	0.0	1,392,720.0	418.49
2022	2074	2011	2021-2100	June	30	418.5	1,591,622.0	420.2	1,397,110.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,375,570.0	0.0	1,375,570.0	418.49
2022	2074	2011	2021-2100	July	31	418.5	1,591,622.0	420.3	1,380,510.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,358,420.0	0.0	1,358,420.0	418.49
2022	2074	2011	2021-2100	August	31	418.5	1,591,622.0	420.4	1,363,910.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,341,270.0	0.0	1,341,270.0	418.49
2022	2074	2011	2021-2100	September	30	418.5	1,591,622.0	420.5	1,347,310.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,324,120.0	0.0	1,324,120.0	418.49
2022	2074	2011	2021-2100	October	31	418.5	1,591,622.0	420.6	1,330,710.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,306,970.0	0.0	1,306,970.0	418.49
2022	2074	2011	2021-2100	November	30	418.5	1,591,622.0	420.7	1,314,110.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,293,820.0	0.0	1,293,820.0	418.49
2022	2074	2011	2021-2100	December	31	418.5	1,591,622.0	420.8	1,297,510.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,280,670.0	0.0	1,280,670.0	418.49
2023	2075	2012	2021-2100	January	29	418.5	1,591,622.0	420.9	1,280,910.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,263,520.0	0.0	1,263,520.0	418.49
2023	2075	2012	2021-2100	February	28	418.5	1,591,622.0	421.0	1,264,310.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,246,370.0	0.0	1,246,370.0	418.49
2023	2075	2012	2021-2100	March	31	418.5	1,591,622.0	421.1	1,247,710.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,229,220.0	0.0	1,229,220.0	418.49
2023	2075	2012	2021-2100	April	30	418.5	1,591,622.0	421.2	1,231,110.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,212,070.0	0.0	1,212,070.0	418.49
2023	2075	2012	2021-2100	May	31	418.5	1,591,622.0	421.3	1,214,510.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,194,920.0	0.0	1,194,920.0	418.49
2023	2075	2012	2021-2100	June	30	418.5	1,591,622.0	421.4	1,197,910.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,177,770.0	0.0	1,177,770.0	418.49
2023	2075	2012	2021-2100	July	31	418.5	1,591,622.0	421.5	1,181,310.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,160,620.0	0.0	1,160,620.0	418.49
2023	2075	2012	2021-2100	August	31	418.5	1,591,622.0	421.6	1,164,710.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,143,470.0	0.0	1,143,470.0	418.49
2023	2075	2012	2021-2100	September	30	418.5	1,591,622.0	421.7	1,148,110.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,126,320.0	0.0	1,126,320.0	418.49
2023	2075	2012	2021-2100	October	31	418.5	1,591,622.0	421.8	1,131,510.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,109,170.0	0.0	1,109,170.0	418.49
2023	2075	2012	2021-2100	November	30	418.5	1,591,622.0	421.9	1,114,910.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,092,020.0	0.0	1,092,020.0	418.49
2023	2075	2012	2021-2100	December	31	418.5	1,591,622.0	422.0	1,098,310.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,074,870.0	0.0	1,074,870.0	418.49
2024	2076	2013	2021-2100	January	29	418.5	1,591,622.0	422.1	1,081,710.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,057,720.0	0.0	1,057,720.0	418.49
2024	2076	2013	2021-2100	February	28	418.5	1,591,622.0	422.2	1,065,110.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,040,570.0	0.0	1,040,570.0	418.49
2024	2076	2013	2021-2100	March	31	418.5	1,591,622.0	422.3	1,048,510.0	0.10	15,709.6	0.45	15.71	-0.33	-0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,709.6	1,023,420.0	0.0	1,023,420.0	418.49
2024	2076	2013	2021-2100	April	30	418.5	1,591,622.0	422.4	1,031,910.0	0.10	15,709.6</																

Table 1b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Season	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Precipitation (mm)	Forecast Evaporation (mm)	Precipitation as a % of Evaporation	Evaporation (mm)	Forecast Change (mm)	Forecast Change (m³)	TSF Inflows (m³)				TSF Outflows (m³)				End of Month WSEL (m)	End of Month Volume (m³)						
																		Open Water	Restored	Supplementary	Total	Open Water	Restored	Supplementary	Total								
243	2095	1983	2021-2100	July	31	4185	1,591,622.0	418.0	1,519,914.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	136.60	-0.11	31.30	58,273.0	485.9	0.0	58,132.0	551.29	973.0	0.0	50,463.2	315,570.0	1,487,344.2	0.0	1,487,344.2	418.36
243	2095	1983	2021-2100	August	31	4185	1,591,622.0	418.36	1,487,344.2	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	137.10	-0.17	31.30	18,425.0	155.1	0.0	18,509.0	165.26	973.0	0.0	86,498.9	47,927.9	1,478,466.3	0.0	1,478,466.3	418.27
243	2095	1983	2021-2100	September	30	4185	1,591,622.0	418.7	1,374,288.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	137.60	-0.23	31.30	39,482.0	326.2	0.0	39,774.0	345.54	973.0	0.0	27,423.7	13,277.7	1,458,055.0	0.0	1,458,055.0	418.28
243	2095	1983	2021-2100	October	31	4185	1,591,622.0	419.2	1,248,663.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	138.10	-0.29	31.30	51,583.0	428.5	0.0	51,968.0	411.51	973.0	0.0	4,086.5	17,902.2	1,414,684.8	0.0	1,414,684.8	418.35
243	2095	1983	2021-2100	November	30	4185	1,591,622.0	419.7	1,123,043.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	138.60	-0.35	31.30	63,684.0	521.0	0.0	64,069.0	504.51	973.0	0.0	4,086.5	17,902.2	1,370,141.3	0.0	1,370,141.3	418.42
244	2096	1984	2021-2100	January	31	4185	1,591,622.0	420.2	1,007,404.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	139.10	-0.41	31.30	75,785.0	613.5	0.0	76,170.0	602.02	973.0	0.0	4,086.5	17,902.2	1,325,501.8	0.0	1,325,501.8	418.49
244	2096	1984	2021-2100	February	28	4185	1,591,622.0	420.7	891,925.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	139.60	-0.47	31.30	87,886.0	706.0	0.0	88,271.0	694.53	973.0	0.0	4,086.5	17,902.2	1,280,623.3	0.0	1,280,623.3	418.56
244	2096	1984	2021-2100	March	31	4185	1,591,622.0	421.2	782,446.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	140.10	-0.53	31.30	99,987.0	799.0	0.0	100,372.0	791.55	973.0	0.0	4,086.5	17,902.2	1,235,744.8	0.0	1,235,744.8	418.63
244	2096	1984	2021-2100	April	30	4185	1,591,622.0	421.7	672,967.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	140.60	-0.59	31.30	112,088.0	892.0	0.0	112,473.0	882.57	973.0	0.0	4,086.5	17,902.2	1,190,866.3	0.0	1,190,866.3	418.70
244	2096	1984	2021-2100	May	31	4185	1,591,622.0	422.2	563,488.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	141.10	-0.65	31.30	124,189.0	985.0	0.0	124,574.0	973.60	973.0	0.0	4,086.5	17,902.2	1,146,011.8	0.0	1,146,011.8	418.77
244	2096	1984	2021-2100	June	30	4185	1,591,622.0	422.7	454,009.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	141.60	-0.71	31.30	136,290.0	1,078.0	0.0	136,675.0	1,064.64	973.0	0.0	4,086.5	17,902.2	1,101,167.3	0.0	1,101,167.3	418.84
244	2096	1984	2021-2100	July	31	4185	1,591,622.0	423.2	344,530.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	142.10	-0.77	31.30	148,391.0	1,171.0	0.0	148,776.0	1,155.67	973.0	0.0	4,086.5	17,902.2	1,056,322.8	0.0	1,056,322.8	418.91
244	2096	1984	2021-2100	August	31	4185	1,591,622.0	423.7	235,051.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	142.60	-0.83	31.30	160,492.0	1,264.0	0.0	160,877.0	1,248.70	973.0	0.0	4,086.5	17,902.2	1,011,478.3	0.0	1,011,478.3	418.98
244	2096	1984	2021-2100	September	30	4185	1,591,622.0	424.2	125,572.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	143.10	-0.89	31.30	172,593.0	1,357.0	0.0	172,978.0	1,341.73	973.0	0.0	4,086.5	17,902.2	966,633.8	0.0	966,633.8	419.05
245	2097	1985	2021-2100	January	31	4185	1,591,622.0	424.7	116,093.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	143.60	-0.95	31.30	184,694.0	1,450.0	0.0	185,079.0	1,434.76	973.0	0.0	4,086.5	17,902.2	921,790.3	0.0	921,790.3	419.12
245	2097	1985	2021-2100	February	28	4185	1,591,622.0	425.2	6,614.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	144.10	-1.01	31.30	200,795.0	1,543.0	0.0	201,180.0	1,527.79	973.0	0.0	4,086.5	17,902.2	876,901.8	0.0	876,901.8	419.19
245	2097	1985	2021-2100	March	31	4185	1,591,622.0	425.7	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	144.60	-1.07	31.30	216,896.0	1,636.0	0.0	217,281.0	1,620.82	973.0	0.0	4,086.5	17,902.2	832,013.3	0.0	832,013.3	419.26
245	2097	1985	2021-2100	April	30	4185	1,591,622.0	426.2	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	145.10	-1.13	31.30	232,997.0	1,729.0	0.0	233,382.0	1,713.85	973.0	0.0	4,086.5	17,902.2	787,124.8	0.0	787,124.8	419.33
245	2097	1985	2021-2100	May	31	4185	1,591,622.0	426.7	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	145.60	-1.19	31.30	249,098.0	1,822.0	0.0	249,483.0	1,806.90	973.0	0.0	4,086.5	17,902.2	742,236.3	0.0	742,236.3	419.40
245	2097	1985	2021-2100	June	30	4185	1,591,622.0	427.2	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	146.10	-1.25	31.30	265,200.0	1,915.0	0.0	265,585.0	1,899.95	973.0	0.0	4,086.5	17,902.2	697,347.8	0.0	697,347.8	419.47
245	2097	1985	2021-2100	July	31	4185	1,591,622.0	427.7	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	146.60	-1.31	31.30	281,301.0	2,008.0	0.0	281,686.0	1,983.00	973.0	0.0	4,086.5	17,902.2	652,459.3	0.0	652,459.3	419.54
245	2097	1985	2021-2100	August	31	4185	1,591,622.0	428.2	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	147.10	-1.37	31.30	297,402.0	2,101.0	0.0	297,787.0	2,076.05	973.0	0.0	4,086.5	17,902.2	607,570.8	0.0	607,570.8	419.61
245	2097	1985	2021-2100	September	30	4185	1,591,622.0	428.7	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	147.60	-1.43	31.30	313,503.0	2,194.0	0.0	313,888.0	2,159.10	973.0	0.0	4,086.5	17,902.2	562,682.3	0.0	562,682.3	419.68
246	2098	1986	2021-2100	January	31	4185	1,591,622.0	429.2	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	148.10	-1.49	31.30	329,604.0	2,287.0	0.0	330,000.0	2,248.15	973.0	0.0	4,086.5	17,902.2	517,793.8	0.0	517,793.8	419.75
246	2098	1986	2021-2100	February	28	4185	1,591,622.0	429.7	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	148.60	-1.55	31.30	345,705.0	2,380.0	0.0	346,101.0	2,341.20	973.0	0.0	4,086.5	17,902.2	472,905.3	0.0	472,905.3	419.82
246	2098	1986	2021-2100	March	31	4185	1,591,622.0	430.2	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	149.10	-1.61	31.30	361,806.0	2,473.0	0.0	362,202.0	2,434.25	973.0	0.0	4,086.5	17,902.2	428,016.8	0.0	428,016.8	419.89
246	2098	1986	2021-2100	April	30	4185	1,591,622.0	430.7	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	149.60	-1.67	31.30	377,907.0	2,566.0	0.0	378,303.0	2,527.30	973.0	0.0	4,086.5	17,902.2	383,128.3	0.0	383,128.3	419.96
246	2098	1986	2021-2100	May	31	4185	1,591,622.0	431.2	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	150.10	-1.73	31.30	394,008.0	2,659.0	0.0	394,404.0	2,620.35	973.0	0.0	4,086.5	17,902.2	338,239.8	0.0	338,239.8	420.03
246	2098	1986	2021-2100	June	30	4185	1,591,622.0	431.7	1,123.0	1,616,592.0	1.00	11.50	0.00	<0.00	0.00	0.00	0.00	150.60	-1.79	31.30	410,109.0	2,752.0	0.0	410,505.0	2,713.40	973.0	0.0	4,086.5	17,902.2	293,351.3	0.0	293,351.3	420.10
246	2098	1986	2021-2100	July	31	4185	1,591,622.0	432.2	1,123.0																								

Table 1b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min Augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Season	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water Area (m ²)	Natural Operations Area (m ²)	Temperature (°C)	Forecast Precipitation (mm)	Forecast Evaporation (mm)	Precipitation as a % of Evaporation	Evaporation (mm)	Forecast Change (mm)	Forecast Change (m ³)	TSF Inflows (m ³)		TSF Outflows (m ³)		End of Month WSEL (m)	End of Month Volume (mm)	End of Month Discharge Volume (m ³)	End of Month Discharge Rate (m ³ /day)											
																			Open Water	Restored	Supplementary	Total Inflows					Open Water	Restored	Total Outflows	Average							
2021	2021	2021-2100	July	31	4185	1,591,622.0	4182.1	3,741,915.0	4182.922	100	11,433.0	0.45	17.88	-0.03	23.20	7.84	0%	128.30	-0.11	31.30	30,882.0	3116.0	0.0	40,518.0	3473.2	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15	
2021	2021	2021-2100	August	31	4185	1,591,622.0	4182.1	3,741,915.0	4182.922	100	11,433.0	0.45	17.88	-0.03	23.20	7.84	0%	109.05	-0.17	31.30	30,882.0	3117.0	0.0	40,518.0	3473.2	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15	
2021	2021	2021-2100	September	30	4185	1,591,622.0	4182.1	3,741,915.0	4182.922	100	11,433.0	0.45	17.88	-0.03	23.20	7.84	0%	109.05	-0.17	31.30	30,882.0	3117.0	0.0	40,518.0	3473.2	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15	
2021	2021	2021-2100	October	31	4185	1,591,622.0	4182.1	3,741,915.0	4182.922	100	11,433.0	0.45	17.88	-0.03	23.20	7.84	0%	109.05	-0.17	31.30	30,882.0	3117.0	0.0	40,518.0	3473.2	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15	
2021	2021	2021-2100	November	30	4185	1,591,622.0	4182.1	3,741,915.0	4182.922	100	11,433.0	0.45	17.88	-0.03	23.20	7.84	0%	109.05	-0.17	31.30	30,882.0	3117.0	0.0	40,518.0	3473.2	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15	
2021	2021	2021-2100	December	31	4185	1,591,622.0	4182.1	3,741,915.0	4182.922	100	11,433.0	0.45	17.88	-0.03	23.20	7.84	0%	109.05	-0.17	31.30	30,882.0	3117.0	0.0	40,518.0	3473.2	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15	
2022	2021	2021-2100	January	31	4185	1,591,622.0	4181.1	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	7.00	+0.24	9.80	0.00	0.00	0.00	31.30	1,009.9	12.3	0.0	11,922.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	February	28	4185	1,591,622.0	4181.2	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	22.20	+0.24	9.80	0.00	0.00	0.00	31.30	2,069.1	16.9	0.0	20,266.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	March	31	4185	1,591,622.0	4181.3	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	3,128.3	21.7	0.0	31,300.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	April	30	4185	1,591,622.0	4181.4	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	4,187.5	22.5	0.0	42,439.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	May	31	4185	1,591,622.0	4181.5	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	5,246.7	23.3	0.0	53,578.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	June	30	4185	1,591,622.0	4181.6	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	6,305.9	24.0	0.0	64,717.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	July	31	4185	1,591,622.0	4181.7	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	7,365.1	24.7	0.0	75,856.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	August	31	4185	1,591,622.0	4181.8	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	8,424.3	25.4	0.0	86,997.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	September	30	4185	1,591,622.0	4181.9	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	9,483.5	26.1	0.0	98,138.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	October	31	4185	1,591,622.0	4182.0	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	10,542.7	26.8	0.0	110,279.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	November	30	4185	1,591,622.0	4182.1	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	11,601.9	27.5	0.0	122,420.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2022	2021	2021-2100	December	31	4185	1,591,622.0	4182.2	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	12,661.1	28.2	0.0	134,561.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2023	2021	2021-2100	January	31	4185	1,591,622.0	4182.3	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	13,720.3	28.9	0.0	146,702.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2023	2021	2021-2100	February	28	4185	1,591,622.0	4182.4	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	14,779.5	29.6	0.0	158,843.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2023	2021	2021-2100	March	31	4185	1,591,622.0	4182.5	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	15,838.7	30.3	0.0	170,984.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2023	2021	2021-2100	April	30	4185	1,591,622.0	4182.6	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	16,897.9	31.0	0.0	183,125.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2023	2021	2021-2100	May	31	4185	1,591,622.0	4182.7	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	17,957.1	31.7	0.0	195,266.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2023	2021	2021-2100	June	30	4185	1,591,622.0	4182.8	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	19,016.3	32.4	0.0	207,407.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2023	2021	2021-2100	July	31	4185	1,591,622.0	4182.9	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	20,075.5	33.1	0.0	219,548.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2023	2021	2021-2100	August	31	4185	1,591,622.0	4183.0	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	21,134.7	33.8	0.0	231,689.0	0.0	0.0	0.0	4185.5	4,141.8	1,539,872.0	0.0	1,539,872.0	418.15	418.15	418.15	418.15
2023	2021	2021-2100	September	30	4185	1,591,622.0	4183.1	3,741,915.0	4182.922	100	11,433.0	0.45	18.30	-0.17	18.30	-0.17	9.80	0.00	0.00	0.00	31.30	22,193.9	34.5	0.0	243,830.0												

Table 1b: Multi-year Wet Cover Model (2022-2432): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert (Elevation)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water	Runoff	Runoff Coeff.	Runoff Coeff.	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)				
2021	2027	2001	2021-2020	January	21	4185	1591.622	4186	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	98%	0.00	0.00	0.00	0.00	31.30	134.024	102.724	0.00	0.00	0.00	15.112	151.884	4189	1592.626		
2021	2027	2001	2021-2020	February	28	4185	1591.622	4189	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	94%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4190	1592.626		
2021	2027	2001	2021-2020	March	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	84%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4191	1592.626		
2021	2027	2001	2021-2020	April	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	74%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4192	1592.626		
2021	2027	2001	2021-2020	May	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	64%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4193	1592.626		
2021	2027	2001	2021-2020	June	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	54%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4194	1592.626		
2021	2027	2001	2021-2020	July	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	44%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4195	1592.626		
2021	2027	2001	2021-2020	August	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	34%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4196	1592.626		
2021	2027	2001	2021-2020	September	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	24%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4197	1592.626		
2021	2027	2001	2021-2020	October	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	14%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4198	1592.626		
2021	2027	2001	2021-2020	November	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	4%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4199	1592.626		
2021	2027	2001	2021-2020	December	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	0%	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4200	1592.626		
2022	2028	2002	2021-2020	January	28	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	98%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4201	1592.626	
2022	2028	2002	2021-2020	February	28	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	94%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4202	1592.626	
2022	2028	2002	2021-2020	March	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	84%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4203	1592.626	
2022	2028	2002	2021-2020	April	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	74%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4204	1592.626	
2022	2028	2002	2021-2020	May	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	64%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4205	1592.626	
2022	2028	2002	2021-2020	June	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	54%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4206	1592.626	
2022	2028	2002	2021-2020	July	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	44%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4207	1592.626	
2022	2028	2002	2021-2020	August	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	34%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4208	1592.626	
2022	2028	2002	2021-2020	September	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	24%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4209	1592.626	
2022	2028	2002	2021-2020	October	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	14%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4210	1592.626	
2022	2028	2002	2021-2020	November	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	4%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4211	1592.626	
2022	2028	2002	2021-2020	December	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	0%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4212	1592.626	
2023	2029	2003	2021-2020	January	29	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	98%	0.00	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4213	1592.626
2023	2029	2003	2021-2020	February	28	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	94%	0.00	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4214	1592.626
2023	2029	2003	2021-2020	March	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	84%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4215	1592.626	
2023	2029	2003	2021-2020	April	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	74%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4216	1592.626	
2023	2029	2003	2021-2020	May	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	64%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4217	1592.626	
2023	2029	2003	2021-2020	June	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	54%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4218	1592.626	
2023	2029	2003	2021-2020	July	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	44%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4219	1592.626	
2023	2029	2003	2021-2020	August	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	34%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4220	1592.626	
2023	2029	2003	2021-2020	September	30	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	24%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4221	1592.626	
2023	2029	2003	2021-2020	October	31	4185	1591.622	4190	1592.143	0.00	0.00	11.80	-4.17	22.00	+10.24	14%	0.00	0.00	0.00	0.00	0.00	31.30	134.024	111.9	0.00	0.00	0.00	15.112	151.884	4222	1592.626	
2023	2029	2003	2021-2020	November	30	4185	1591.622	4190	1592.143	0.00	0.00	1																				

Table 11b: Multi-Year Wet Cover Model (2032-2432): 31.3 m³/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Passive Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflow/Outflow (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)	
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pond Evaporation	Average	Sublimation Losses	Wind Drift Losses						Total Outflow
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	-0.33	22.60	-7.81	21%	0.00	+10.00	31.30	48,734.4	415.6	0.0	50,150.0	11,806.7	939.0	0.0	0.0	12,745.7	37,454.3	1,629,039.9	37,454.3	1,591,632.0	418.50		
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	-0.33	100.50	-7.81	7%	82.15	+10.00	31.30	67,241.9	559.2	0.0	67,801.1	62,817.2	970.3	0.0	0.0	63,587.5	4,213.5	1,590,461.1	4,213.5	1,591,632.0	418.50		
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.00	-0.20	117.70	-7.84	0%	130.00	-8.00	31.30	67,653.3	66.1	0.0	68,153.9	60,192.2	959.0	0.0	0.0	61,186.2	2,967.9	1,590,244.7	0.0	1,591,632.0	418.47		
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.47	1,590,024.7	1,430.0	0.45	20.45	-0.03	151.10	-7.84	0%	148.91	-8.11	31.30	71,293.5	552.9	0.0	71,846.4	67,125.6	970.3	0.0	0.0	66,065.9	5,780.5	1,584,244.2	0.0	1,584,244.2	418.44		
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.44	1,582,815.2	1,430.0	0.45	15.84	-0.03	159.30	-7.84	0%	78.40	-6.17	31.30	63,665.7	778.1	0.0	64,443.8	62,309.4	970.3	0.0	0.0	63,279.7	1,164.1	1,584,000.3	0.0	1,584,000.3	418.49		
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.49	1,584,000.3	1,430.0	0.45	8.42	-0.33	97.90	-7.81	0%	47.90	-11.30	31.30	42,634.4	339.0	0.0	43,014.4	38,369.9	939.0	0.0	0.0	37,307.9	3,706.5	1,580,293.8	0.0	1,581,019.3	418.45		
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.49	1,587,913.3	1,430.0	0.45	4.05	-0.33	30.60	-7.81	32%	37.20	+10.00	31.30	26,321.6	243.9	0.0	26,565.5	25,207.7	970.3	0.0	0.0	30,300.0	-3,734.5	1,580,941.3	0.0	1,580,941.3	418.49		
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.49	1,586,941.3	1,430.0	0.45	-3.40	-0.33	20.80	-7.81	93%	0.00	-0.04	31.30	17,854.5	147.1	0.0	17,961.7	3,117.5	939.0	0.0	0.0	4,596.5	13,785.1	1,600,726.4	9,080.8	1,591,632.0	418.50		
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	9.84	-0.17	9.00	+10.24	96%	0.00	0.00	0.00	0.00	-0.00	31.30	19,797.0	139.6	0.0	19,936.6	17,863.3	0.0	0.0	0.0	0.0	1,591,632.0	15,000.0	1,591,632.0	418.50
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-15.20	-0.17	62.60	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	57,430.7	477.6	0.0	57,908.3	0.0	970.3	0.0	0.0	58,930.0	1,648,570.6	58,930.0	1,591,632.0	418.50
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.30	-0.17	24.50	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	21,497.8	178.7	0.0	21,676.6	0.0	876.4	0.0	0.0	22,796.2	1,612,428.7	20,794.2	1,591,632.0	418.50
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-9.92	-0.33	48.60	+7.81	97%	0.00	-0.99	31.30	30,545.5	291.2	0.0	30,836.8	4,186.1	970.3	0.0	0.0	7,158.4	23,195.2	1,619,787.8	21,152.2	1,591,632.0	418.50		
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.27	-0.33	38.90	-7.81	22%	0.00	+10.00	31.30	28,806.6	240.2	0.0	29,109.9	11,808.7	939.0	0.0	0.0	12,745.7	16,363.2	1,608,017.7	16,363.2	1,591,632.0	418.50		
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	-0.33	46.90	-7.81	0%	120.00	+10.00	31.30	32,354.6	280.1	0.0	32,634.7	30,494.2	970.3	0.0	0.0	87,214.5	24,749.8	1,586,881.7	0.0	1,586,881.7	418.43		
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,588,917.1	1,430.0	0.45	16.40	-0.33	96.30	-7.84	0%	100.40	-8.00	31.30	64,759.9	495.0	0.0	65,254.9	62,747.6	939.0	0.0	0.0	66,488.6	-1,232.7	1,587,684.4	0.0	1,587,684.4	418.41		
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.47	1,582,366.6	1,430.0	0.45	21.70	-0.03	89.30	-7.84	0%	137.89	-8.11	31.30	38,914.5	316.1	0.0	39,230.6	40,312.5	970.3	0.0	0.0	97,282.8	42,962.1	1,470,813.9	0.0	1,470,813.9	418.34		
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.44	1,470,813.9	1,430.0	0.45	16.52	-0.03	161.70	-7.84	0%	89.70	-6.17	31.30	41,829.2	683.3	0.0	42,512.5	39,299.2	970.3	0.0	0.0	62,289.5	22,222.0	1,462,839.9	0.0	1,462,839.9	418.37		
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.37	1,462,839.9	1,430.0	0.45	10.56	-0.33	69.90	-7.81	0%	47.90	+11.30	31.30	40,829.1	389.4	0.0	41,218.5	39,317.7	939.0	0.0	0.0	37,251.7	3,966.8	1,458,873.1	0.0	1,458,873.1	418.38		
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.38	1,458,873.1	1,430.0	0.45	6.21	-0.33	48.80	-7.81	0%	40.30	+10.24	31.30	30,514.5	291.2	0.0	30,805.6	31,247.3	970.3	0.0	0.0	32,217.8	1,388.1	1,458,888.8	0.0	1,458,888.8	418.39		
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.39	1,458,888.8	1,430.0	0.45	2.13	-0.33	23.60	-7.81	0%	0.00	-0.04	31.30	19,426.9	161.8	0.0	19,588.7	11,313.8	939.0	0.0	0.0	4,596.5	15,031.9	1,451,420.3	0.0	1,451,420.3	418.41		
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.41	1,451,420.3	1,430.0	0.45	-14.52	-0.17	91.40	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	25,700.0	214.2	0.0	25,914.2	0.0	970.3	0.0	0.0	26,000.0	1,546,424.2	0.0	1,546,424.2	418.44
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.44	1,446,424.2	1,430.0	0.45	-18.10	-0.17	44.20	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	33,877.7	280.1	0.0	34,157.8	0.0	970.3	0.0	0.0	32,887.4	1,576,411.6	0.0	1,576,411.6	418.48
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.48	1,439,411.6	1,430.0	0.45	-10.89	-0.17	30.30	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	25,979.9	239.6	0.0	26,219.5	0.0	876.4	0.0	0.0	26,411.7	1,603,633.3	32,198.8	1,591,632.0	418.50
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-8.49	-0.33	53.90	-7.81	76%	0.00	-0.99	31.30	38,789.2	317.4	0.0	39,106.6	4,180.1	970.3	0.0	0.0	7,150.4	31,336.1	1,622,968.7	31,336.1	1,591,632.0	418.50		
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.90	-0.33	63.90	-7.81	0%	0.00	+10.00	31.30	44,354.8	368.8	0.0	44,723.7	11,806.7	939.0	0.0	0.0	12,745.7	31,978.0	1,623,910.6	31,978.0	1,591,632.0	418.50		
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.60	-0.33	12.60	-7.81	0%	135.76	+10.00	31.30	12,460.0	105.0	0.0	12,565.0	60,751.1	970.3	0.0	0.0	61,761.4	43,803.5	1,607,791.1	0.0	1,607,791.1	418.39		
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,607,791.1	1,430.0	0.45	18.12	-0.00	133.70	-7.84	0%	118.89	-8.00	31.30	77,850.4	647.4	0.0	78,497.8	77,747.1	939.0	0.0	0.0	78,686.1	-188.4	1,597,502.7	0.0	1,597,502.7	418.39		
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,607,502.7	1,430.0	0.45	19.17	-0.03	63.70	-7.84	0%	144.64	-8.11	31.30	34,520.0	281.3	0.0	34,801.8	32,529.2	970.3	0.0	0.0	33,599.5	1,272.3	1,606,230.4	0.0	1,606,230.4	418.31		
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.31	1,488,791.1	1,430.0	0.45	18.62	-0.03	67.00	-7.84	0%	122.40	-8.17	31.30	36,637.7	344.8	0.0	36,982.5	35,253.3	970.3	0.0	0.0	35,494.6	1,493.1	1,485,297.9	0.0	1,485,297.9			

Model Inputs	
Year of Simulation	2022
Source of Climate Record	Canadian
Climate Change Scenario	CanESM2
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,911,622.6
Area of Open Water Within TSP (m²)	61,646.6
Runoff Coefficient for Open Water Within TSP	14.03.8
Area of Restored Lands Within TSP (m²)	14,038.8
Runoff Coefficient for Restored Lands Within TSP	0.5
Evaporation from TSP (mm)	200.0
Supplementary Water Addition (m³/d)	0.0
Trigger Elevation for Supplementary Water Addition (mASL)	416.0
Sublimation Losses in Winter (mm/day)	0.0
Wind Drift Losses in Winter (% of snowfall)	0%

NOTES: 1) The climate record was selected to be the period of the TSP from the last open water. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes in Puff Size".

Table 11c: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Year	Month	Forecast Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Restored Area (m²)	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Average (m/s)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool Evaporation	Average	Sublimation	Wind Drift Losses	Total Outflow	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Volume (m³)	Initial WSEL (m)	Initial Volume (m³)
1	2022	1969	2011-2040	January	31	416.5	1,911,622.6	414.3	1,539,985.1	61,652.92	1.00	14,038.8	0.44	-18.71	-2.37	96.80	-6.66	100%	0.00	0	200.00	63,944.4	532.2	0.0	64,566.6	0.0	6,200.0	0.0	6,200.0	63,526.6	1,581,314.1	6,665.5	1,591,622.6	416.0	1,539,985.1	
2	2022	1969	2011-2040	February	28	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-12.78	-2.37	14.70	-6.66	100%	0.00	0	200.00	10,329.9	109.9	0.0	10,439.8	0.0	5,900.0	0.0	5,900.0	7,719.7	1,591,622.6	7,719.7	1,591,622.6	416.0	1,591,622.6	
3	2022	1969	2011-2040	March	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-7.39	-2.32	15.10	-4.34	100%	0.00	0	200.00	8,934.9	743.3	0.0	9,678.2	0.0	6,200.0	0.0	6,200.0	2,898.2	1,591,622.6	2,898.2	1,591,622.6	416.0	1,591,622.6	
4	2022	1969	2011-2040	April	30	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-2.44	-2.32	19.40	-4.34	0%	0.00	-19.23	200.00	14,637.8	1,221.0	0.0	16,058.7	8,273.5	8,000.0	0.0	12,237.5	2,462.2	1,591,622.6	2,462.2	1,591,622.6	416.0	1,591,622.6	
5	2022	1969	2011-2040	May	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	9.53	-2.32	32.98	-4.34	0%	0.00	-1.89	200.00	19,749.4	1,619.1	0.0	21,368.5	9,227.7	0.0	11,988.8	36,354.4	1,591,622.6	36,354.4	1,591,622.6	416.0	1,591,622.6		
6	2022	1969	2011-2040	June	30	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	11.08	-2.30	40.80	-4.50	0%	0.00	-2.41	200.00	47,168.8	3,925.0	0.0	51,093.8	14,919.9	8,000.0	0.0	7,491.9	40,597.4	1,591,622.6	40,597.4	1,591,622.6	416.0	1,591,622.6	
7	2022	1969	2011-2040	July	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	17.43	-2.20	51.50	-4.50	0%	10.40	-3.41	200.00	69,279.8	5,761.0	0.0	75,040.8	20,598.6	8,000.0	0.0	73,139.8	32,873.7	1,591,622.6	32,873.7	1,591,622.6	416.0	1,591,622.6	
8	2022	1969	2011-2040	August	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	19.00	-2.20	58.90	-4.50	0%	90.90	-4.51	200.00	94,269.9	7,819.0	0.0	102,088.9	23,419.1	8,000.0	0.0	63,309.1	31,894.7	1,591,622.6	31,894.7	1,591,622.6	416.0	1,591,622.6	
9	2022	1969	2011-2040	September	30	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	17.88	-2.20	47.60	-4.50	0%	100.00	-4.51	200.00	83,994.4	6,417.0	0.0	90,411.4	19,834.1	8,000.0	0.0	81,607.4	32,239.9	1,591,622.6	32,239.9	1,591,622.6	416.0	1,591,622.6	
10	2022	1969	2011-2040	October	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	21.77	-2.20	63.50	-4.34	9%	14.34	-4.51	200.00	115,466.4	9,509.0	0.0	124,975.4	29,018.0	8,000.0	0.0	116,977.4	41,247.0	1,591,622.6	41,247.0	1,591,622.6	416.0	1,591,622.6	
11	2022	1969	2011-2040	November	30	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	18.87	-2.30	34.20	-4.34	89%	0.00	0	200.00	102,444.4	1,983.0	0.0	104,427.4	20,007.0	8,000.0	0.0	6,000.0	104,427.4	1,591,622.6	104,427.4	1,591,622.6	416.0	1,591,622.6	
12	2022	1969	2011-2040	December	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-10.72	-2.30	34.20	-6.66	100%	0.00	0	200.00	20,643.4	216.3	0.0	20,859.7	0.0	6,200.0	0.0	6,200.0	20,239.6	1,591,622.6	20,239.6	1,591,622.6	416.0	1,591,622.6	
13	2023	1970	2011-2040	January	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-16.40	-2.37	39.40	-6.66	100%	0.00	0	200.00	20,543.4	216.3	0.0	20,759.7	0.0	6,200.0	0.0	6,200.0	20,338.6	1,591,622.6	20,338.6	1,591,622.6	416.0	1,591,622.6	
14	2023	1970	2011-2040	February	28	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-11.30	-2.37	32.90	-6.66	100%	0.00	0	200.00	19,749.4	1,619.1	0.0	21,368.5	9,227.7	0.0	11,988.8	36,354.4	1,591,622.6	36,354.4	1,591,622.6	416.0	1,591,622.6		
15	2023	1970	2011-2040	March	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-4.78	-2.32	34.80	-4.34	91%	0.00	0	200.00	24,213.5	2,014.0	0.0	26,227.5	0.0	6,200.0	0.0	6,200.0	18,124.9	1,591,622.6	18,124.9	1,591,622.6	416.0	1,591,622.6	
16	2023	1970	2011-2040	April	30	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	0.11	-2.32	34.80	-4.34	3%	0.00	-19.23	200.00	36,584.9	3,042.0	0.0	39,626.9	13,795.0	8,000.0	0.0	12,327.6	24,651.7	1,591,622.6	24,651.7	1,591,622.6	416.0	1,591,622.6	
17	2023	1970	2011-2040	May	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	7.42	-2.32	49.50	-4.34	0%	70.02	-3.89	200.00	58,849.3	4,827.0	0.0	63,676.3	16,620.0	8,000.0	0.0	54,388.0	43,430.0	1,591,622.6	43,430.0	1,591,622.6	416.0	1,591,622.6	
18	2023	1970	2011-2040	June	30	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	17.88	-2.20	47.60	-4.50	0%	100.00	-4.51	200.00	83,994.4	6,417.0	0.0	90,411.4	19,834.1	8,000.0	0.0	81,607.4	32,239.9	1,591,622.6	32,239.9	1,591,622.6	416.0	1,591,622.6	
19	2023	1970	2011-2040	July	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	20.83	-2.20	57.00	-4.50	0%	120.00	-3.41	200.00	120,570.9	7,277.0	0.0	127,847.9	20,094.0	8,000.0	0.0	84,248.4	42,599.9	1,591,622.6	42,599.9	1,591,622.6	416.0	1,591,622.6	
20	2023	1970	2011-2040	August	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	18.00	-2.20	52.00	-4.50	0%	100.00	-4.51	200.00	108,246.4	7,251.0	0.0	115,497.4	20,042.0	8,000.0	0.0	71,833.5	43,238.9	1,591,622.6	43,238.9	1,591,622.6	416.0	1,591,622.6	
21	2023	1970	2011-2040	September	30	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	11.80	-2.30	34.20	-6.66	100%	0.00	0	200.00	102,444.4	1,983.0	0.0	104,427.4	20,007.0	8,000.0	0.0	39,607.3	47,181.9	1,591,622.6	47,181.9	1,591,622.6	416.0	1,591,622.6	
22	2023	1970	2011-2040	October	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-5.85	-2.32	39.40	-6.66	100%	0.00	0	200.00	20,543.4	216.3	0.0	20,759.7	0.0	6,200.0	0.0	6,200.0	19,133.6	1,591,622.6	19,133.6	1,591,622.6	416.0	1,591,622.6	
23	2023	1970	2011-2040	November	30	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-11.30	-2.37	32.90	-6.66	100%	0.00	0	200.00	19,749.4	1,619.1	0.0	21,368.5	9,227.7	0.0	11,988.8	36,354.4	1,591,622.6	36,354.4	1,591,622.6	416.0	1,591,622.6		
24	2023	1970	2011-2040	December	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-16.40	-2.37	39.40	-6.66	97%	0.00	0	200.00	19,721.0	201.0	0.0	19,922.0	0.0	6,200.0	0.0	6,200.0	19,302.0	1,591,622.6	19,302.0	1,591,622.6	416.0	1,591,622.6	
25	2024	1971	2011-2040	January	31	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-21.43	-2.37	43.50	-6.66	97%	0.00	0	200.00	19,721.0	201.0	0.0	19,922.0	0.0	6,200.0	0.0	6,200.0	18,302.0	1,591,622.6	18,302.0	1,591,622.6	416.0	1,591,622.6	
26	2024	1971	2011-2040	February	28	416.5	1,911,622.6	415.0	1,591,622.6	61,652.92	1.00	14,038.8	0.45	-13.57	-2.37	37.80	-6.66	97%	0.00	0	200.00	23,571.1	1,772.0	0.0	25,343.1	0.0	6									

Table 11c: Multi-year Wet Cover Model (2032-2432): 200 m dtd seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Natural Operations Area	Runoff	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation	Forecast Evaporation Change (mm)	Range (mm)	TSF Inflows (mm)		TSF Outflows (mm)		End of Month WSEL (m)	End of Month Volume (mm)										
																				Open Water	Runoff	Runoff	Runoff			Runoff	Runoff	Runoff	Runoff						
205	2017	2006	2017-2010	October	31	418.5	1591.622	418.38	-13.115	0.16922	100	11.303	0.45	4.79	-3.33	42.00	+7.81	23%	29.47	+13.22	200.0	307.862	252.2	0.0	31.844	34,568	4,200.0	0.0	31,748.8	318.6	-12,920.9	0.0	-10,995.5	478.38	
205	2017	2006	2017-2010	November	30	418.5	1591.622	418.38	-12.729	0.16922	100	11.303	0.45	4.14	-3.33	43.00	+7.81	23%	29.47	+13.22	200.0	310.283	263.9	0.0	31.899	34,575	4,200.0	0.0	31,717.5	228.24	-15,993.5	0.0	-10,995.5	478.41	
205	2017	2006	2017-2010	December	31	418.5	1591.622	418.38	-12.296	0.16922	100	11.303	0.45	3.41	-3.33	43.00	+7.81	23%	29.47	+13.22	200.0	312.724	276.6	0.0	31.954	34,582	4,200.0	0.0	31,769.0	158.24	-16,000.0	0.0	-10,995.5	478.44	
206	2018	2006	2017-2010	January	31	418.5	1591.622	418.43	-22.296	0.16922	100	11.303	0.45	9.34	-17.00	20.00	+10.24	94%	0.00	-0.00	-0.00	200.0	205.440	171.0	0.0	20.750	0.0	0.0	0.0	6.000	14,530	60,800.0	0.0	41,852.2	498.45
206	2018	2006	2017-2010	February	29	418.5	1591.622	418.45	-36.846	0.16922	100	11.303	0.45	16.00	-17.00	7.00	+0.24	94%	0.00	-0.00	-0.00	200.0	106.869	88.7	0.0	10.756	0.0	0.0	0.0	5.600	5,156	61,600.0	0.0	41,852.2	498.48
206	2018	2006	2017-2010	March	31	418.5	1591.622	418.48	-41.832	0.16922	100	11.303	0.45	24.48	-17.00	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	63.848	48.8	0.0	6.384	0.0	0.0	0.0	5.600	2,864	61,600.0	0.0	41,852.2	498.51
206	2018	2006	2017-2010	April	30	418.5	1591.622	418.48	-57.897	0.16922	100	11.303	0.45	32.40	-17.00	3.00	+0.24	94%	0.00	-0.00	-0.00	200.0	17.509	12.6	0.0	1.750	0.0	0.0	0.0	5.600	1,000	61,600.0	0.0	41,852.2	498.54
206	2018	2006	2017-2010	May	31	418.5	1591.622	418.47	-62.181	0.16922	100	11.303	0.45	32.40	-17.00	3.00	+0.24	94%	0.00	-0.00	-0.00	200.0	17.509	12.6	0.0	1.750	0.0	0.0	0.0	5.600	1,000	61,600.0	0.0	41,852.2	498.57
206	2018	2006	2017-2010	June	30	418.5	1591.622	418.42	-52.181	0.16922	100	11.303	0.45	21.00	-17.00	3.00	+0.24	94%	0.00	-0.00	-0.00	200.0	20.040	24.6	0.0	2.225	0.0	0.0	0.0	5.600	1,374	61,600.0	0.0	41,852.2	498.60
206	2018	2006	2017-2010	July	31	418.5	1591.622	418.29	-46.129	0.16922	100	11.303	0.45	18.75	-10.00	5.00	+0.24	94%	0.00	-0.00	-0.00	200.0	20.040	24.6	0.0	2.225	0.0	0.0	0.0	5.600	1,374	61,600.0	0.0	41,852.2	498.63
206	2018	2006	2017-2010	August	31	418.5	1591.622	418.29	-46.129	0.16922	100	11.303	0.45	18.75	-10.00	5.00	+0.24	94%	0.00	-0.00	-0.00	200.0	20.040	24.6	0.0	2.225	0.0	0.0	0.0	5.600	1,374	61,600.0	0.0	41,852.2	498.66
206	2018	2006	2017-2010	September	30	418.5	1591.622	418.29	-46.129	0.16922	100	11.303	0.45	18.75	-10.00	5.00	+0.24	94%	0.00	-0.00	-0.00	200.0	20.040	24.6	0.0	2.225	0.0	0.0	0.0	5.600	1,374	61,600.0	0.0	41,852.2	498.69
206	2018	2006	2017-2010	October	31	418.5	1591.622	418.29	-46.129	0.16922	100	11.303	0.45	18.75	-10.00	5.00	+0.24	94%	0.00	-0.00	-0.00	200.0	20.040	24.6	0.0	2.225	0.0	0.0	0.0	5.600	1,374	61,600.0	0.0	41,852.2	498.72
206	2018	2006	2017-2010	November	30	418.5	1591.622	418.29	-46.129	0.16922	100	11.303	0.45	18.75	-10.00	5.00	+0.24	94%	0.00	-0.00	-0.00	200.0	20.040	24.6	0.0	2.225	0.0	0.0	0.0	5.600	1,374	61,600.0	0.0	41,852.2	498.75
206	2018	2006	2017-2010	December	31	418.5	1591.622	418.29	-46.129	0.16922	100	11.303	0.45	18.75	-10.00	5.00	+0.24	94%	0.00	-0.00	-0.00	200.0	20.040	24.6	0.0	2.225	0.0	0.0	0.0	5.600	1,374	61,600.0	0.0	41,852.2	498.78
207	2019	2007	2017-2010	January	31	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	478.81
207	2019	2007	2017-2010	February	29	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	478.84
207	2019	2007	2017-2010	March	31	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	478.87
207	2019	2007	2017-2010	April	30	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	478.90
207	2019	2007	2017-2010	May	31	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	478.93
207	2019	2007	2017-2010	June	30	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	478.96
207	2019	2007	2017-2010	July	31	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	478.99
207	2019	2007	2017-2010	August	31	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	479.02
207	2019	2007	2017-2010	September	30	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	479.05
207	2019	2007	2017-2010	October	31	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	479.08
207	2019	2007	2017-2010	November	30	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	479.11
207	2019	2007	2017-2010	December	31	418.5	1591.622	418.27	-138.492	0.16922	100	11.303	0.45	14.54	-14.17	13.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.783	118.8	0.0	14.879	0.0	0.0	0.0	6.000	2,979	130,161.3	0.0	-10,161.3	479.14
208	2020	2008	2017-2010	January	29	418.5	1591.622	418.26	-100.320	0.16922	100	11.303	0.45	16.43	-11.00	11.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.040	111.9	0.0	13.923	0.0	0.0	0.0	6.000	1,923	130,161.3	0.0	-10,161.3	479.17
208	2020	2008	2017-2010	February	29	418.5	1591.622	418.26	-100.320	0.16922	100	11.303	0.45	16.43	-11.00	11.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.040	111.9	0.0	13.923	0.0	0.0	0.0	6.000	1,923	130,161.3	0.0	-10,161.3	479.20
208	2020	2008	2017-2010	March	31	418.5	1591.622	418.26	-100.320	0.16922	100	11.303	0.45	16.43	-11.00	11.00	+0.24	94%	0.00	-0.00	-0.00	200.0	143.040	111.9	0.0	13.923	0.0	0.0	0.0	6.000	1,923	130,161.3	0.0	-10,161.3	479.23
208	2020	2008	2017-2010																																

Table 1c: Multi-year Wet Cover Model (2032-2432); 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.0 m/Li augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Scenario	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m ³)	Open Water	Runoff	Runoff Coeff	Runoff Change (%)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (%)	Evaporation (mm)	Forecast Evaporation Change (%)	Sublimation (mm)	Forecast Sublimation Change (%)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m ³)	End of Month WSEL Change (m)	End of Month Volume Change (m ³)			
208	2140	1979	2071-2100	January	31	4185	1591.0224	4184	421.0664	0.16092	1.00	0.00	4.22	-0.17	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	969	0.0	6.200	6.555	-414.922	0.0	-414.922	4185
208	2140	1979	2071-2100	February	29	4185	1591.0224	4185	415.4242	0.16092	1.00	0.00	4.17	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	1607	0.0	6.500	6.887	-402.264	0.0	-402.264	4187
208	2140	1979	2071-2100	March	31	4185	1591.0224	4186	409.2514	0.16092	1.00	0.00	4.10	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	2014	0.0	6.800	7.271	-391.001	0.0	-391.001	4189
208	2140	1979	2071-2100	April	30	4185	1591.0224	4187	404.7717	0.16092	1.00	0.00	4.03	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	2356	0.0	7.100	7.635	-380.255	0.0	-380.255	4194
208	2140	1979	2071-2100	May	31	4185	1591.0224	4188	401.5823	0.16092	1.00	0.00	3.97	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	2637	0.0	7.400	8.000	-370.418	0.0	-370.418	4198
208	2140	1979	2071-2100	June	30	4185	1591.0224	4189	400.0000	0.16092	1.00	0.00	3.92	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	2868	0.0	7.700	8.380	-361.386	0.0	-361.386	4203
208	2140	1979	2071-2100	July	31	4185	1591.0224	4190	399.1250	0.16092	1.00	0.00	3.88	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	3054	0.0	8.000	8.760	-353.125	0.0	-353.125	4207
208	2140	1979	2071-2100	August	31	4185	1591.0224	4191	400.0000	0.16092	1.00	0.00	3.85	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	3201	0.0	8.300	9.140	-345.125	0.0	-345.125	4210
208	2140	1979	2071-2100	September	30	4185	1591.0224	4192	401.5823	0.16092	1.00	0.00	3.82	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	3314	0.0	8.600	9.520	-337.429	0.0	-337.429	4213
208	2140	1979	2071-2100	October	31	4185	1591.0224	4193	404.7717	0.16092	1.00	0.00	3.79	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	3398	0.0	8.900	9.900	-330.250	0.0	-330.250	4216
208	2140	1979	2071-2100	November	30	4185	1591.0224	4194	409.2514	0.16092	1.00	0.00	3.76	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	3408	0.0	9.200	10.280	-323.771	0.0	-323.771	4219
208	2140	1979	2071-2100	December	29	4185	1591.0224	4195	415.4242	0.16092	1.00	0.00	3.73	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	3398	0.0	9.500	10.660	-317.500	0.0	-317.500	4222
208	2141	1980	2071-2100	January	31	4185	1591.0224	4196	423.0625	0.16092	1.00	0.00	3.70	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	3276	0.0	9.800	10.940	-311.500	0.0	-311.500	4225
208	2141	1980	2071-2100	February	29	4185	1591.0224	4197	431.7292	0.16092	1.00	0.00	3.67	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	3134	0.0	10.100	11.220	-305.750	0.0	-305.750	4228
208	2141	1980	2071-2100	March	31	4185	1591.0224	4198	440.9375	0.16092	1.00	0.00	3.64	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	2889	0.0	10.400	11.500	-300.250	0.0	-300.250	4231
208	2141	1980	2071-2100	April	30	4185	1591.0224	4199	450.7500	0.16092	1.00	0.00	3.61	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	2654	0.0	10.700	11.780	-295.000	0.0	-295.000	4234
208	2141	1980	2071-2100	May	31	4185	1591.0224	4200	461.1875	0.16092	1.00	0.00	3.58	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	2334	0.0	11.000	12.060	-290.000	0.0	-290.000	4237
208	2141	1980	2071-2100	June	30	4185	1591.0224	4201	472.2500	0.16092	1.00	0.00	3.55	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	1944	0.0	11.300	12.340	-285.125	0.0	-285.125	4240
208	2141	1980	2071-2100	July	31	4185	1591.0224	4202	483.8750	0.16092	1.00	0.00	3.52	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	1494	0.0	11.600	12.620	-280.500	0.0	-280.500	4243
208	2141	1980	2071-2100	August	31	4185	1591.0224	4203	496.0625	0.16092	1.00	0.00	3.49	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	1004	0.0	11.900	12.880	-276.125	0.0	-276.125	4246
208	2141	1980	2071-2100	September	30	4185	1591.0224	4204	508.8125	0.16092	1.00	0.00	3.46	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	504	0.0	12.200	13.100	-272.000	0.0	-272.000	4249
208	2141	1980	2071-2100	October	31	4185	1591.0224	4205	522.1875	0.16092	1.00	0.00	3.43	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	0	0.0	12.500	13.360	-268.000	0.0	-268.000	4252
208	2141	1980	2071-2100	November	30	4185	1591.0224	4206	536.6875	0.16092	1.00	0.00	3.40	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-454	0.0	12.800	13.600	-264.125	0.0	-264.125	4255
208	2141	1980	2071-2100	December	29	4185	1591.0224	4207	552.3125	0.16092	1.00	0.00	3.37	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-1004	0.0	13.100	13.920	-260.500	0.0	-260.500	4258
208	2142	1981	2071-2100	January	31	4185	1591.0224	4208	569.0625	0.16092	1.00	0.00	3.34	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-1574	0.0	13.400	14.140	-257.125	0.0	-257.125	4261
208	2142	1981	2071-2100	February	29	4185	1591.0224	4209	586.9375	0.16092	1.00	0.00	3.31	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-2164	0.0	13.700	14.360	-253.750	0.0	-253.750	4264
208	2142	1981	2071-2100	March	31	4185	1591.0224	4210	605.9375	0.16092	1.00	0.00	3.28	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-2774	0.0	14.000	14.520	-250.500	0.0	-250.500	4267
208	2142	1981	2071-2100	April	30	4185	1591.0224	4211	626.1875	0.16092	1.00	0.00	3.25	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-3404	0.0	14.300	14.640	-247.375	0.0	-247.375	4270
208	2142	1981	2071-2100	May	31	4185	1591.0224	4212	647.6875	0.16092	1.00	0.00	3.22	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-4054	0.0	14.600	14.880	-244.375	0.0	-244.375	4273
208	2142	1981	2071-2100	June	30	4185	1591.0224	4213	670.4375	0.16092	1.00	0.00	3.19	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-4724	0.0	14.900	15.120	-241.500	0.0	-241.500	4276
208	2142	1981	2071-2100	July	31	4185	1591.0224	4214	694.4375	0.16092	1.00	0.00	3.16	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-5414	0.0	15.200	15.360	-238.750	0.0	-238.750	4279
208	2142	1981	2071-2100	August	31	4185	1591.0224	4215	719.9375	0.16092	1.00	0.00	3.13	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-6124	0.0	15.500	15.560	-236.125	0.0	-236.125	4282
208	2142	1981	2071-2100	September	30	4185	1591.0224	4216	746.9375	0.16092	1.00	0.00	3.10	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-6854	0.0	15.800	15.620	-233.625	0.0	-233.625	4285
208	2142	1981	2071-2100	October	31	4185	1591.0224	4217	775.4375	0.16092	1.00	0.00	3.07	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-7604	0.0	16.100	15.540	-231.250	0.0	-231.250	4288
208	2142	1981	2071-2100	November	30	4185	1591.0224	4218	805.4375	0.16092	1.00	0.00	3.04	-0.10	4.00	+0.24	100%	0.00	0.00	0.00	2000	15326.0	-8374	0.0	16.400	15.600	-229.000	0.0	-229.000	4291
208	2142	1981	2071-2100	December	29	4185	1591.0224	4219	837.4375	0.16092	1																			

Table 1c: Multi-year Wet Cover Model (2032-2432): 200 m d/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Runoff Coefficient	Runoff Coefficient	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Exposition (mm)	Forecast Exposition Change (mm)	Change (m/s)	Open Water	Runoff	Sublimation	Supplementary	Total Inflow	Penetration	Average	Sublimation	Net Inflow	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month Discharge (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)
2017	2029	1970	2017-2010	January	21	4185	1,591,620.4	41,522	2,940,703.4	0.150922	1.00	14,303.04	0.45	-19.40	-11.7	40.40	+10.24	100%	0.00	0.00	0.00	200.00	20,242.4	254.8	0.0	24,800.0	0.0	2,000.0	0.0	6,200.0	22,602.0	2,914,434.4	0.0	-2,914,434.4	41,522	2,914,434.4
2017	2029	1970	2017-2010	February	28	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-17.30	-11.7	35.20	+10.24	100%	0.00	0.00	0.00	200.00	21,524.0	272.0	0.0	22,796.0	0.0	2,000.0	0.0	6,500.0	16,502.0	2,917,972.0	0.0	-2,917,972.0	41,522	2,917,972.0
2017	2029	1970	2017-2010	March	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-15.30	-11.7	30.00	+10.24	100%	0.00	0.00	0.00	200.00	22,806.0	289.0	0.0	23,795.0	0.0	2,000.0	0.0	7,000.0	13,796.0	2,921,434.4	0.0	-2,921,434.4	41,522	2,921,434.4
2017	2029	1970	2017-2010	April	30	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-13.30	-11.7	25.00	+10.24	100%	0.00	0.00	0.00	200.00	24,088.0	306.0	0.0	25,087.0	0.0	2,000.0	0.0	7,500.0	11,588.0	2,924,934.4	0.0	-2,924,934.4	41,522	2,924,934.4
2017	2029	1970	2017-2010	May	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-11.30	-11.7	20.00	+10.24	100%	0.00	0.00	0.00	200.00	25,370.0	323.0	0.0	26,369.0	0.0	2,000.0	0.0	8,000.0	9,370.0	2,928,434.4	0.0	-2,928,434.4	41,522	2,928,434.4
2017	2029	1970	2017-2010	June	30	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-9.30	-11.7	15.00	+10.24	100%	0.00	0.00	0.00	200.00	26,654.0	340.0	0.0	27,650.0	0.0	2,000.0	0.0	8,500.0	7,154.0	2,931,934.4	0.0	-2,931,934.4	41,522	2,931,934.4
2017	2029	1970	2017-2010	July	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-7.30	-11.7	10.00	+10.24	100%	0.00	0.00	0.00	200.00	27,938.0	357.0	0.0	28,939.0	0.0	2,000.0	0.0	9,000.0	5,138.0	2,935,434.4	0.0	-2,935,434.4	41,522	2,935,434.4
2017	2029	1970	2017-2010	August	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-5.30	-11.7	5.00	+10.24	100%	0.00	0.00	0.00	200.00	29,222.0	374.0	0.0	30,217.0	0.0	2,000.0	0.0	9,500.0	3,122.0	2,938,934.4	0.0	-2,938,934.4	41,522	2,938,934.4
2017	2029	1970	2017-2010	September	30	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-3.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	30,506.0	391.0	0.0	31,501.0	0.0	2,000.0	0.0	10,000.0	1,106.0	2,942,434.4	0.0	-2,942,434.4	41,522	2,942,434.4
2017	2029	1970	2017-2010	October	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-1.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	31,790.0	408.0	0.0	32,786.0	0.0	2,000.0	0.0	10,500.0	0.0	2,945,934.4	0.0	-2,945,934.4	41,522	2,945,934.4
2017	2029	1970	2017-2010	November	30	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	0.70	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	33,074.0	425.0	0.0	34,071.0	0.0	2,000.0	0.0	11,000.0	0.0	2,949,434.4	0.0	-2,949,434.4	41,522	2,949,434.4
2017	2029	1970	2017-2010	December	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	2.70	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	34,358.0	442.0	0.0	35,356.0	0.0	2,000.0	0.0	11,500.0	0.0	2,952,934.4	0.0	-2,952,934.4	41,522	2,952,934.4
2018	2030	1971	2017-2010	January	28	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-1.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	35,642.0	459.0	0.0	36,641.0	0.0	2,000.0	0.0	12,000.0	0.0	2,956,434.4	0.0	-2,956,434.4	41,522	2,956,434.4
2018	2030	1971	2017-2010	February	28	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-3.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	36,926.0	476.0	0.0	37,925.0	0.0	2,000.0	0.0	12,500.0	0.0	2,959,934.4	0.0	-2,959,934.4	41,522	2,959,934.4
2018	2030	1971	2017-2010	March	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-5.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	38,210.0	493.0	0.0	39,209.0	0.0	2,000.0	0.0	13,000.0	0.0	2,963,434.4	0.0	-2,963,434.4	41,522	2,963,434.4
2018	2030	1971	2017-2010	April	30	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-7.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	39,494.0	510.0	0.0	40,493.0	0.0	2,000.0	0.0	13,500.0	0.0	2,966,934.4	0.0	-2,966,934.4	41,522	2,966,934.4
2018	2030	1971	2017-2010	May	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-9.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	40,778.0	527.0	0.0	41,777.0	0.0	2,000.0	0.0	14,000.0	0.0	2,970,434.4	0.0	-2,970,434.4	41,522	2,970,434.4
2018	2030	1971	2017-2010	June	30	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-11.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	42,062.0	544.0	0.0	43,061.0	0.0	2,000.0	0.0	14,500.0	0.0	2,973,934.4	0.0	-2,973,934.4	41,522	2,973,934.4
2018	2030	1971	2017-2010	July	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-13.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	43,346.0	561.0	0.0	44,345.0	0.0	2,000.0	0.0	15,000.0	0.0	2,977,434.4	0.0	-2,977,434.4	41,522	2,977,434.4
2018	2030	1971	2017-2010	August	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-15.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	44,630.0	578.0	0.0	45,629.0	0.0	2,000.0	0.0	15,500.0	0.0	2,980,934.4	0.0	-2,980,934.4	41,522	2,980,934.4
2018	2030	1971	2017-2010	September	30	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-17.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	45,914.0	595.0	0.0	46,913.0	0.0	2,000.0	0.0	16,000.0	0.0	2,984,434.4	0.0	-2,984,434.4	41,522	2,984,434.4
2018	2030	1971	2017-2010	October	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-19.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	47,198.0	612.0	0.0	48,197.0	0.0	2,000.0	0.0	16,500.0	0.0	2,987,934.4	0.0	-2,987,934.4	41,522	2,987,934.4
2018	2030	1971	2017-2010	November	30	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-21.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	48,482.0	629.0	0.0	49,481.0	0.0	2,000.0	0.0	17,000.0	0.0	2,991,434.4	0.0	-2,991,434.4	41,522	2,991,434.4
2018	2030	1971	2017-2010	December	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-23.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	49,766.0	646.0	0.0	50,765.0	0.0	2,000.0	0.0	17,500.0	0.0	2,994,934.4	0.0	-2,994,934.4	41,522	2,994,934.4
2019	2031	1972	2017-2010	January	28	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-25.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	51,050.0	663.0	0.0	52,049.0	0.0	2,000.0	0.0	18,000.0	0.0	2,998,434.4	0.0	-2,998,434.4	41,522	2,998,434.4
2019	2031	1972	2017-2010	February	28	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-27.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	52,334.0	680.0	0.0	53,333.0	0.0	2,000.0	0.0	18,500.0	0.0	3,001,934.4	0.0	-3,001,934.4	41,522	3,001,934.4
2019	2031	1972	2017-2010	March	31	4185	1,591,620.4	41,522	2,914,434.4	0.150922	1.00	14,303.04	0.45	-29.30	-11.7	0.00	+10.24	100%	0.00	0.00	0.00	200.00	53,618.0	697.0	0.0	54,617.0	0.0	2,000.0	0.0	19,000.0	0.0	3,005,434.4	0.0			

Table 1c: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.0 m/Li augmentation, and Ensemble Climate Change Scenario

Case	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m ³)	Open Water	Natural Operations Area	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Change (m/s)	Open Water	Restored Wetland	Supplementary Wetland	Total Wetland	Wetland Area	Wetland Volume	Wetland Depth	Wetland Slope	Wetland Type	Wetland Use	Wetland Value	Wetland Loss	Wetland Gain	Wetland Change			
399	2021	1992	2021-2100	April	30	418.5	1,591,622.0	412.13	-3,229,204.0	1,616,592.0	1.00	11.53	0.45	-0.00	-3.53	-4.00	-0.47	0.00	-10.00	200.0	33,589.0	278.0	0.0	33,867.0	11,807.0	8,000.0	0.0	0.0	17,806.7	4,002.0	-3,221,207.0	0.0	-3,221,207.0	412.13
399	2021	1992	2021-2100	May	31	418.5	1,591,622.0	412.15	-3,223,202.0	1,616,592.0	1.00	11.53	0.45	1.16	-3.00	-1.84	0.00	-10.00	200.0	33,589.0	348.0	0.0	33,937.0	11,807.0	8,000.0	0.0	0.0	18,014.0	2,584.7	-3,197,354.0	0.0	-3,197,354.0	412.18	
399	2021	1992	2021-2100	June	30	418.5	1,591,622.0	412.16	-3,225,200.0	1,616,592.0	1.00	11.53	0.45	1.68	-2.50	-0.82	0.00	-10.00	200.0	33,589.0	408.0	0.0	33,997.0	11,807.0	8,000.0	0.0	0.0	18,221.0	1,161.3	-3,198,039.0	0.0	-3,198,039.0	412.24	
399	2021	1992	2021-2100	July	31	418.5	1,591,622.0	412.17	-3,227,198.0	1,616,592.0	1.00	11.53	0.45	2.20	-2.00	-0.20	0.00	-10.00	200.0	33,589.0	478.0	0.0	34,057.0	11,807.0	8,000.0	0.0	0.0	18,407.0	0.0	-3,198,827.0	0.0	-3,198,827.0	412.31	
399	2021	1992	2021-2100	August	31	418.5	1,591,622.0	412.18	-3,229,196.0	1,616,592.0	1.00	11.53	0.45	2.72	-1.50	0.30	0.00	-10.00	200.0	33,589.0	548.0	0.0	34,117.0	11,807.0	8,000.0	0.0	0.0	18,597.0	0.0	-3,199,615.0	0.0	-3,199,615.0	412.38	
399	2021	1992	2021-2100	September	30	418.5	1,591,622.0	412.19	-3,231,194.0	1,616,592.0	1.00	11.53	0.45	3.24	-1.00	0.80	0.00	-10.00	200.0	33,589.0	618.0	0.0	34,177.0	11,807.0	8,000.0	0.0	0.0	18,787.0	0.0	-3,200,403.0	0.0	-3,200,403.0	412.45	
399	2021	1992	2021-2100	October	31	418.5	1,591,622.0	412.20	-3,233,192.0	1,616,592.0	1.00	11.53	0.45	3.76	-0.50	1.30	0.00	-10.00	200.0	33,589.0	688.0	0.0	34,237.0	11,807.0	8,000.0	0.0	0.0	19,077.0	0.0	-3,202,190.0	0.0	-3,202,190.0	412.52	
399	2021	1992	2021-2100	November	30	418.5	1,591,622.0	412.21	-3,235,190.0	1,616,592.0	1.00	11.53	0.45	4.28	0.00	1.80	0.00	-10.00	200.0	33,589.0	758.0	0.0	34,297.0	11,807.0	8,000.0	0.0	0.0	19,367.0	0.0	-3,203,978.0	0.0	-3,203,978.0	412.59	
399	2021	1992	2021-2100	December	31	418.5	1,591,622.0	412.22	-3,237,188.0	1,616,592.0	1.00	11.53	0.45	4.80	0.50	2.30	0.00	-10.00	200.0	33,589.0	828.0	0.0	34,357.0	11,807.0	8,000.0	0.0	0.0	19,657.0	0.0	-3,205,766.0	0.0	-3,205,766.0	412.66	
400	2022	1993	2021-2100	January	29	418.5	1,591,622.0	412.23	-3,239,186.0	1,616,592.0	1.00	11.53	0.45	5.32	1.00	2.80	0.00	-10.00	200.0	33,589.0	898.0	0.0	34,417.0	11,807.0	8,000.0	0.0	0.0	19,947.0	0.0	-3,207,554.0	0.0	-3,207,554.0	412.73	
400	2022	1993	2021-2100	February	28	418.5	1,591,622.0	412.24	-3,241,184.0	1,616,592.0	1.00	11.53	0.45	5.84	1.50	3.30	0.00	-10.00	200.0	33,589.0	968.0	0.0	34,477.0	11,807.0	8,000.0	0.0	0.0	20,237.0	0.0	-3,209,342.0	0.0	-3,209,342.0	412.80	
400	2022	1993	2021-2100	March	31	418.5	1,591,622.0	412.25	-3,243,182.0	1,616,592.0	1.00	11.53	0.45	6.36	2.00	3.80	0.00	-10.00	200.0	33,589.0	1,038.0	0.0	34,537.0	11,807.0	8,000.0	0.0	0.0	20,527.0	0.0	-3,211,130.0	0.0	-3,211,130.0	412.87	
400	2022	1993	2021-2100	April	30	418.5	1,591,622.0	412.26	-3,245,180.0	1,616,592.0	1.00	11.53	0.45	6.88	2.50	4.30	0.00	-10.00	200.0	33,589.0	1,108.0	0.0	34,597.0	11,807.0	8,000.0	0.0	0.0	20,817.0	0.0	-3,212,918.0	0.0	-3,212,918.0	412.94	
400	2022	1993	2021-2100	May	31	418.5	1,591,622.0	412.27	-3,247,178.0	1,616,592.0	1.00	11.53	0.45	7.40	3.00	4.80	0.00	-10.00	200.0	33,589.0	1,178.0	0.0	34,657.0	11,807.0	8,000.0	0.0	0.0	21,107.0	0.0	-3,214,706.0	0.0	-3,214,706.0	413.01	
400	2022	1993	2021-2100	June	30	418.5	1,591,622.0	412.28	-3,249,176.0	1,616,592.0	1.00	11.53	0.45	7.92	3.50	5.30	0.00	-10.00	200.0	33,589.0	1,248.0	0.0	34,717.0	11,807.0	8,000.0	0.0	0.0	21,397.0	0.0	-3,216,494.0	0.0	-3,216,494.0	413.08	
400	2022	1993	2021-2100	July	31	418.5	1,591,622.0	412.29	-3,251,174.0	1,616,592.0	1.00	11.53	0.45	8.44	4.00	5.80	0.00	-10.00	200.0	33,589.0	1,318.0	0.0	34,777.0	11,807.0	8,000.0	0.0	0.0	21,687.0	0.0	-3,218,282.0	0.0	-3,218,282.0	413.15	
400	2022	1993	2021-2100	August	31	418.5	1,591,622.0	412.30	-3,253,172.0	1,616,592.0	1.00	11.53	0.45	8.96	4.50	6.30	0.00	-10.00	200.0	33,589.0	1,388.0	0.0	34,837.0	11,807.0	8,000.0	0.0	0.0	21,977.0	0.0	-3,220,070.0	0.0	-3,220,070.0	413.22	
400	2022	1993	2021-2100	September	30	418.5	1,591,622.0	412.31	-3,255,170.0	1,616,592.0	1.00	11.53	0.45	9.48	5.00	6.80	0.00	-10.00	200.0	33,589.0	1,458.0	0.0	34,897.0	11,807.0	8,000.0	0.0	0.0	22,267.0	0.0	-3,221,858.0	0.0	-3,221,858.0	413.29	
400	2022	1993	2021-2100	October	31	418.5	1,591,622.0	412.32	-3,257,168.0	1,616,592.0	1.00	11.53	0.45	10.00	5.50	7.30	0.00	-10.00	200.0	33,589.0	1,528.0	0.0	34,957.0	11,807.0	8,000.0	0.0	0.0	22,557.0	0.0	-3,223,646.0	0.0	-3,223,646.0	413.36	
400	2022	1993	2021-2100	November	30	418.5	1,591,622.0	412.33	-3,259,166.0	1,616,592.0	1.00	11.53	0.45	10.52	6.00	7.80	0.00	-10.00	200.0	33,589.0	1,598.0	0.0	35,017.0	11,807.0	8,000.0	0.0	0.0	22,847.0	0.0	-3,225,434.0	0.0	-3,225,434.0	413.43	
400	2022	1993	2021-2100	December	31	418.5	1,591,622.0	412.34	-3,261,164.0	1,616,592.0	1.00	11.53	0.45	11.04	6.50	8.30	0.00	-10.00	200.0	33,589.0	1,668.0	0.0	35,077.0	11,807.0	8,000.0	0.0	0.0	23,137.0	0.0	-3,227,222.0	0.0	-3,227,222.0	413.50	
401	2023	1994	2021-2100	January	29	418.5	1,591,622.0	412.35	-3,263,162.0	1,616,592.0	1.00	11.53	0.45	11.56	7.00	8.80	0.00	-10.00	200.0	33,589.0	1,738.0	0.0	35,137.0	11,807.0	8,000.0	0.0	0.0	23,427.0	0.0	-3,229,010.0	0.0	-3,229,010.0	413.57	
401	2023	1994	2021-2100	February	28	418.5	1,591,622.0	412.36	-3,265,160.0	1,616,592.0	1.00	11.53	0.45	12.08	7.50	9.30	0.00	-10.00	200.0	33,589.0	1,808.0	0.0	35,197.0	11,807.0	8,000.0	0.0	0.0	23,717.0	0.0	-3,230,798.0	0.0	-3,230,798.0	413.64	
401	2023	1994	2021-2100	March	31	418.5	1,591,622.0	412.37	-3,267,158.0	1,616,592.0	1.00	11.53	0.45	12.60	8.00	9.80	0.00	-10.00	200.0	33,589.0	1,878.0	0.0	35,257.0	11,807.0	8,000.0	0.0	0.0	24,007.0	0.0	-3,232,586.0	0.0	-3,232,586.0	413.71	
401	2023	1994	2021-2100	April	30	418.5	1,591,622.0	412.38	-3,269,156.0	1,616,592.0	1.00	11.53	0.45	13.12	8.50	10.30	0.00	-10.00	200.0	33,589.0	1,948.0	0.0	35,317.0	11,807.0	8,000.0	0.0	0.0	24,297.0	0.0	-3,234,374.0	0.0	-3,234,374.0	413.78	
401	2023	1994	2021-2100	May	31	418.5	1,591,622.0	412.39	-3,271,154.0	1,616,592.0	1.00	11.53	0.45	13.64	9.00	10.80	0.00	-10.00	200.0	33,589.0	2,018.0	0.0	35,377.0	11,807.0	8,000.0	0.0	0.0	24,587.0	0.0	-3,236,162.0	0.0	-3,236,162.0	413.85	
401	2023	1994	2021-2100	June	30	418.5	1,591,622.0	412.40	-3,273,152.0	1,616,592.0	1.00	11.53	0.45	14.16	9.50	11.30	0.00	-10.00	200.0	33,589.0	2,088.0	0.0	35,437.0	11,807.0	8,000.0	0.0	0.0	24,877.0	0.0	-3,237,950.0	0.0	-3,237,950.0	413.92	
401	2023	1994	2021-2100	July	31	418.5	1,591,622.0	412.41	-3,275,150.0	1,616,592.0	1.00	11.53	0.45	14.68	10.00	11.80	0.00	-10.00	200.0	33,589.0	2,158.0	0.0	35,497.0	11,807.0	8,000.0	0.0	0.0	25,167.0	0.0	-3,239,738.0	0.0	-3,239,738.0	413.99	
401	2023	1994	2021-2100	August	31	418.5	1,591,622.0	412.42	-3,277,148.0	1,616,592.0	1.00	11.53	0.45	15.20	10.50	12.30	0.00	-10.00	200.0	33,589.0	2,228.0	0.0	35,557.0	11,807.0	8,000.0	0.0	0.0	25,457.0	0.0	-3,241,526.0	0.0	-3,241,526.0	414.06	
401	2023	1994	2021-2100	September	30	418.5	1,591,622.0	412.43	-3,279,146.0	1,616,592.0																								

Table 1c: Multi-year Wet Cover Model (2032-2432): 200 m d/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Runoff Coefficient	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Extraction (mm)	Forecast Extraction Change (mm)	Change (m³)	Open Water	Restored	Supplementary	Total Inflows	Peak	Average	Sublimation	Wet Loss	Total Outflows	Net Inflow	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Initial WSEL (m)	Initial Volume (m³)		
118	2095	1987	2021-2100	October	31	4185	1,591,632.0	4175	-4,264,951.0	0.15092	1.00	11,433.0	0.43	-2.07	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	36,779.0	3015	0.0	36,825.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,831.0	0.0	-4,260,831.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
119	2095	1987	2021-2100	November	30	4185	1,591,632.0	4178	-4,260,638.0	0.15092	1.00	11,433.0	0.45	-2.42	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	37,213.0	2925	0.0	37,585.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
120	2095	1987	2021-2100	December	29	4185	1,591,632.0	4180	-4,261,010.0	0.15092	1.00	11,433.0	0.47	-2.81	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	37,647.0	2835	0.0	38,019.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
121	2095	1988	2021-2100	January	29	4185	1,591,632.0	4182	-4,260,638.0	0.15092	1.00	11,433.0	0.48	-3.20	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	38,081.0	2745	0.0	38,453.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
122	2095	1988	2021-2100	February	28	4185	1,591,632.0	4184	-4,261,010.0	0.15092	1.00	11,433.0	0.49	-3.59	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	38,515.0	2655	0.0	38,900.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
123	2095	1988	2021-2100	March	28	4185	1,591,632.0	4186	-4,260,638.0	0.15092	1.00	11,433.0	0.50	-3.98	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	38,949.0	2565	0.0	39,346.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
124	2095	1988	2021-2100	April	30	4185	1,591,632.0	4188	-4,261,010.0	0.15092	1.00	11,433.0	0.51	-4.37	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	39,383.0	2475	0.0	39,791.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
125	2095	1988	2021-2100	May	31	4185	1,591,632.0	4190	-4,260,638.0	0.15092	1.00	11,433.0	0.52	-4.76	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	39,817.0	2385	0.0	40,237.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
126	2095	1988	2021-2100	June	30	4185	1,591,632.0	4192	-4,261,010.0	0.15092	1.00	11,433.0	0.53	-5.15	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	40,251.0	2295	0.0	40,683.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
127	2095	1988	2021-2100	July	31	4185	1,591,632.0	4194	-4,260,638.0	0.15092	1.00	11,433.0	0.54	-5.54	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	40,685.0	2205	0.0	41,129.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
128	2095	1988	2021-2100	August	31	4185	1,591,632.0	4196	-4,261,010.0	0.15092	1.00	11,433.0	0.55	-5.93	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	41,119.0	2115	0.0	41,575.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
129	2095	1988	2021-2100	September	30	4185	1,591,632.0	4198	-4,260,638.0	0.15092	1.00	11,433.0	0.56	-6.32	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	41,563.0	2025	0.0	42,021.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
130	2095	1988	2021-2100	October	31	4185	1,591,632.0	4200	-4,261,010.0	0.15092	1.00	11,433.0	0.57	-6.71	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	42,007.0	1935	0.0	42,467.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
131	2095	1988	2021-2100	November	30	4185	1,591,632.0	4202	-4,260,638.0	0.15092	1.00	11,433.0	0.58	-7.10	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	42,451.0	1845	0.0	42,913.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
132	2095	1988	2021-2100	December	29	4185	1,591,632.0	4204	-4,261,010.0	0.15092	1.00	11,433.0	0.59	-7.49	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	42,895.0	1755	0.0	43,359.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
133	2097	1987	2021-2100	January	29	4185	1,591,632.0	4206	-4,260,638.0	0.15092	1.00	11,433.0	0.60	-7.88	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	43,339.0	1665	0.0	43,805.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
134	2097	1987	2021-2100	February	28	4185	1,591,632.0	4208	-4,261,010.0	0.15092	1.00	11,433.0	0.61	-8.27	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	43,783.0	1575	0.0	44,251.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
135	2097	1987	2021-2100	March	28	4185	1,591,632.0	4210	-4,260,638.0	0.15092	1.00	11,433.0	0.62	-8.66	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	44,227.0	1485	0.0	44,697.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
136	2097	1987	2021-2100	April	30	4185	1,591,632.0	4212	-4,261,010.0	0.15092	1.00	11,433.0	0.63	-9.05	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	44,671.0	1395	0.0	45,143.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
137	2097	1987	2021-2100	May	31	4185	1,591,632.0	4214	-4,260,638.0	0.15092	1.00	11,433.0	0.64	-9.44	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	45,115.0	1305	0.0	45,589.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
138	2097	1987	2021-2100	June	30	4185	1,591,632.0	4216	-4,261,010.0	0.15092	1.00	11,433.0	0.65	-9.83	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	45,559.0	1215	0.0	46,035.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
139	2097	1987	2021-2100	July	31	4185	1,591,632.0	4218	-4,260,638.0	0.15092	1.00	11,433.0	0.66	-10.22	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	46,003.0	1125	0.0	46,481.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
140	2097	1987	2021-2100	August	31	4185	1,591,632.0	4220	-4,261,010.0	0.15092	1.00	11,433.0	0.67	-10.61	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	46,447.0	1035	0.0	46,927.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,261,010.0	0.0	-4,261,010.0	41.78	-4,261,010.0	418.0	-4,261,010.0	418.0
141	2097	1987	2021-2100	September	30	4185	1,591,632.0	4222	-4,260,638.0	0.15092	1.00	11,433.0	0.68	-11.00	-3.33	37.20	-7.81	33%	0.00	+0.22	200.0	46,901.0	945	0.0	47,373.0	3,179.0	2,000.0	0.0	15,518.9	24,261.0	-5,500.0	41.80	-4,260,638.0	0.0	-4,260,638.0	41.78	-4,260,638.0	418.0	-4,260,638.0	418.0
142	2097	1987	2021-2100	October	31																																			

Table 11c: Multi-Year Wet Cover Model (2032-2432): 200 m²/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Passive Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of Wet (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m ³ /d)	TSF Inflows (m ³)				TSF Outflows (m ³)				Net Inflow/Outflow (m ³)	End of Month Volume before Discharge (m ³)	Discharge Volume (m ³)	End of Month Volume after Discharge (m ³)	List of Month WSEL after Discharge (m)				
										Area (m ²)	Runoff Coefficients	Area (m ²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pond Evaporation	Average	Sublimation Losses	Wind Drift Losses						Total Outflow			
323	2429	1974	2071-2100	April	30	418.5	1,599,632.0	406.74	7,315,227.6	0.00	11,430.0	0.45	1.48	-0.33	22.60	-7.81	21%	0.00	+10.00	200.00	48,734.4	415.6	0.0	50,150.0	11,806.7	0.000	0.0	0.0	17,806.7	52,343.3	-7,286,843.3	0.0	-7,286,843.3	406.74				
323	2429	1974	2071-2100	May	31	418.5	1,599,632.0	406.79	7,286,884.3	0.00	11,430.0	0.45	1.70	-0.33	10.90	-7.81	7%	82.15	+10.00	200.00	67,241.9	559.2	0.0	67,801.1	62,817.2	0.200	0.0	0.0	68,017.2	1,016.2	-7,287,900.5	0.0	-7,287,900.5	406.78				
323	2429	1974	2071-2100	June	30	418.5	1,599,632.0	406.76	7,287,003.3	0.00	11,430.0	0.45	1.88	-0.33	11.70	-7.84	0%	130.00	+10.00	200.00	67,653.3	661.1	0.0	68,314.4	66,107.2	0.000	0.0	0.0	68,107.2	27,668.9	-7,287,684.4	0.0	-7,287,684.4	406.75				
323	2429	1974	2071-2100	July	31	418.5	1,599,632.0	406.75	7,315,569.6	0.00	11,430.0	0.45	20.42	-0.33	15.10	-7.84	0%	148.91	+11.00	200.00	11,293.5	659.9	0.0	11,953.4	67,186.4	0.125	0.0	0.0	67,263.6	133,325.6	-7,315,006.6	0.0	-7,315,006.6	406.71				
323	2429	1974	2071-2100	August	31	418.5	1,599,632.0	406.71	7,347,008.8	0.00	11,430.0	0.45	15.84	-0.33	19.30	-7.84	0%	78.40	+11.00	200.00	93,665.7	778.1	0.0	94,443.8	92,309.4	0.200	0.0	0.0	92,509.4	7,311,033.2	-7,346,722.2	0.0	-7,346,722.2	406.75				
323	2429	1974	2071-2100	September	30	418.5	1,599,632.0	406.75	7,311,533.3	0.00	11,430.0	0.45	8.42	-0.33	9.70	-7.81	0%	47.90	+11.00	200.00	42,634.4	339.9	0.0	42,974.3	38,368.9	0.000	0.0	0.0	42,368.9	4,387.5	-7,311,445.7	0.0	-7,311,445.7	406.75				
323	2429	1974	2071-2100	October	31	418.5	1,599,632.0	406.75	7,312,440.7	0.00	11,430.0	0.45	4.05	-0.33	9.60	-7.81	0%	37.20	+10.22	200.00	20,521.6	243.9	0.0	20,765.5	20,529.7	0.200	0.0	0.0	20,529.7	1,962.2	-7,310,477.5	0.0	-7,310,477.5	406.74				
323	2429	1974	2071-2100	November	30	418.5	1,599,632.0	406.74	7,318,402.9	0.00	11,430.0	0.45	3.40	-0.33	9.80	-7.81	0%	93.00	+10.00	200.00	17,864.5	147.1	0.0	17,981.7	17,175.5	0.800	0.0	0.0	17,175.5	8,117.5	-7,308,678.8	0.0	-7,308,678.8	406.76				
323	2429	1974	2071-2100	December	31	418.5	1,599,632.0	406.76	7,308,918.8	0.00	11,430.0	0.45	8.96	-0.33	11.70	-7.84	0%	102.40	+10.24	99%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
324	2430	1975	2071-2100	January	31	418.5	1,599,632.0	406.77	7,298,948.4	0.00	11,430.0	0.45	-15.20	-0.17	82.60	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
324	2430	1975	2071-2100	February	29	418.5	1,599,632.0	406.84	7,247,240.1	0.00	11,430.0	0.45	-14.38	-0.17	84.50	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
324	2430	1975	2071-2100	March	31	418.5	1,599,632.0	406.86	7,251,198.6	0.00	11,430.0	0.45	-8.92	-0.33	80.60	+7.81	0%	0.00	+10.00	200.00	30,545.6	291.2	0.0	30,836.8	6,186.1	0.000	0.0	0.0	12,386.1	23,295.5	-7,250,844.0	0.0	-7,250,844.0	406.89				
324	2430	1975	2071-2100	April	30	418.5	1,599,632.0	406.89	7,258,244.6	0.00	11,430.0	0.45	0.27	-0.33	88.90	+7.81	22%	0.00	+10.00	200.00	28,806.6	240.2	0.0	29,046.8	11,806.7	0.000	0.0	0.0	17,806.7	11,324.2	-7,186,918.9	0.0	-7,186,918.9	406.90				
324	2430	1975	2071-2100	May	31	418.5	1,599,632.0	406.90	7,267,240.1	0.00	11,430.0	0.45	12.42	-0.33	86.90	+7.81	0%	120.00	+10.00	200.00	32,354.6	280.1	0.0	32,634.7	38,404.2	0.000	0.0	0.0	32,634.2	19,969.0	-7,265,904.4	0.0	-7,265,904.4	406.83				
324	2430	1975	2071-2100	June	30	418.5	1,599,632.0	406.83	7,256,904.4	0.00	11,430.0	0.45	16.40	-0.33	86.30	-7.84	0%	102.40	+10.00	200.00	34,759.9	469.0	0.0	35,228.9	37,747.6	0.000	0.0	0.0	35,228.9	73,847.6	-7,257,277.1	0.0	-7,257,277.1	406.90				
324	2430	1975	2071-2100	July	31	418.5	1,599,632.0	406.80	7,275,277.1	0.00	11,430.0	0.45	21.70	-0.33	89.30	-7.84	0%	137.88	+11.00	200.00	38,944.5	316.1	0.0	39,260.6	40,321.5	0.200	0.0	0.0	39,521.5	68,181.8	-7,333,468.9	0.0	-7,333,468.9	406.72				
324	2430	1975	2071-2100	August	31	418.5	1,599,632.0	406.72	7,303,468.9	0.00	11,430.0	0.45	16.52	-0.33	141.70	-7.84	0%	89.70	+11.00	200.00	41,829.2	683.3	0.0	42,512.5	39,299.2	0.000	0.0	0.0	42,512.5	65,499.2	-7,302,868.8	0.0	-7,302,868.8	406.75				
324	2430	1975	2071-2100	September	30	418.5	1,599,632.0	406.75	7,274,468.8	0.00	11,430.0	0.45	10.56	-0.33	69.90	-7.81	0%	47.90	+11.00	200.00	46,829.1	389.4	0.0	47,218.5	39,327.7	0.000	0.0	0.0	47,218.5	4,905.8	-7,273,563.0	0.0	-7,273,563.0	406.75				
324	2430	1975	2071-2100	October	31	418.5	1,599,632.0	406.75	7,311,562.8	0.00	11,430.0	0.45	6.21	-0.33	48.80	-7.81	0%	40.30	+10.22	200.00	30,944.5	291.2	0.0	31,235.7	31,247.3	0.000	0.0	0.0	31,247.3	2,441.6	-7,313,014.4	0.0	-7,313,014.4	406.75				
324	2430	1975	2071-2100	November	30	418.5	1,599,632.0	406.75	7,313,244.4	0.00	11,430.0	0.45	2.13	-0.33	23.60	-7.81	0%	0.00	+10.00	200.00	14,235.9	161.8	0.0	14,397.7	14,311.8	0.000	0.0	0.0	14,311.8	4,474.9	-7,308,769.5	0.0	-7,308,769.5	406.76				
324	2430	1975	2071-2100	December	31	418.5	1,599,632.0	406.76	7,303,233.3	0.00	11,430.0	0.45	-14.52	-0.17	91.40	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
325	2431	1976	2071-2100	January	31	418.5	1,599,632.0	406.79	7,283,489.7	0.00	11,430.0	0.45	-18.10	-0.17	44.20	+10.24	99%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
325	2431	1976	2071-2100	February	29	418.5	1,599,632.0	406.83	7,255,702.2	0.00	11,430.0	0.45	-10.89	-0.17	93.30	+10.24	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
325	2431	1976	2071-2100	March	31	418.5	1,599,632.0	406.85	7,250,513.3	0.00	11,430.0	0.45	-8.49	-0.33	53.90	+7.81	0%	0.00	+10.00	200.00	38,169.2	317.4	0.0	38,486.6	6,186.1	0.000	0.0	0.0	12,386.1	26,100.4	-7,250,907.4	0.0	-7,250,907.4	406.89				
325	2431	1976	2071-2100	April	30	418.5	1,599,632.0	406.89	7,259,907.4	0.00	11,430.0	0.45	4.90	-0.33	63.90	+7.81	0%	0.00	+10.00	200.00	44,264.8	368.8	0.0	44,633.7	11,806.7	0.000	0.0	0.0	17,806.7	26,827.0	-7,182,904.4	0.0	-7,182,904.4	406.92				
325	2431	1976	2071-2100	May	31	418.5	1,599,632.0	406.92	7,182,904.4	0.00	11,430.0	0.45	15.60	-0.33	12.60	-7.81	0%	139.76	+10.00	200.00	12,862.0	105.0	0.0	12,967.0	16,751.1	0.000	0.0	0.0	16,751.1	49,123.2	-7,221,131.6	0.0	-7,221,131.6	406.81				
325	2431	1976	2071-2100	June	30	418.5	1,599,632.0	406.81	7,272,113.8	0.00	11,430.0	0.45	18.12	-0.33	133.70	-7.84	0%	139.89	+10.00	200.00	77,850.4	647.4	0.0	78,497.8	77,747.1	0.200	0.0	0.0	78,047.1	1,424.4	-7,277,363.0	0.0	-7,277,363.0	406.80				
325	2431	1976	2071-2100	July	31	418.5	1,599,632.0	406.80	7,277,363.0	0.00	11,430.0	0.45	19.17	-0.33	63.70	-7.84	0%	140.68	+11.00	200.00	34,520.0	287.3	0.0	34,807.3	32,629.2	0.200	0.0	0.0	35,029.2	49,997.4	-7,341,354.4	0.0	-7,341,354.4	406.71				
325	2431	1976	2071-2100	August	31	418.5	1,599,632.0	406.71	7,341,354.4																													

Model Inputs	
Year of Simulation	2032
Source of Climate Record	Actual
Source of Change Scenario	CC-B3
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m)	1,991,622.6
Area of Open Water Within TSP (m ²)	61,666.6
Ruoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m ²)	11,433.8
Ruoff Coefficient for Restored Lands Within TSP	0.1
Evaporation from TSP (mm/day)	3.13
Supplementary Water Addition (m ³ /d)	0
Trigger Elevation for Supplemental Water Addition (mASL)	416.00
Sublimation Losses in Winter (mm/day)	0%
Wind Drift Losses (% of snowfall)	0%

NOTES: 1. The model requires input parameters to be provided in the form of the TSP from the last open water season.
2. Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 2a: Multi-year Wet Cover Model (2032-2432): 3.13 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Count	Year	Month	Forecast Horizon	Day	Invert Elevation (m)	Capacity of TSP (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Restored Area (m ²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Supplementary Water Addition (m ³)	Open Water TSP Inflow (m ³)	Restored TSP Inflow (m ³)	Supplementary Water Inflow (m ³)	Total Inflow (m ³)	Outflow (m ³)	Net Inflow (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)									
1	2032	1999	2011-2040	January	31	416.5	1,991,622.6	414.3	1,539,861.0	416,992.0	1.00	14.50	0.45	-18.01	-2.30	96.80	+7.23	100%	0.00	0	313	64,531.8	531.1	0.0	64,869.9	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6					
2	2032	1999	2011-2040	February	28	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	-17.28	-2.30	14.70	+7.23	100%	0.00	0	313	13,537.3	112.8	0.0	13,650.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6			
3	2032	1999	2011-2040	March	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	-7.89	-2.30	15.10	+7.23	100%	0.00	0	313	17,940.0	64.8	0.0	17,988.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6		
4	2032	1999	2011-2040	April	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	5.44	-2.30	19.40	+2.60	0%	0.00	-8.84	313	17,940.0	112.7	0.0	17,988.8	3,469.0	93.0	0.0	3,503.3	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6	
5	2032	1999	2011-2040	May	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	9.93	-2.30	19.90	+2.60	0%	0.00	-8.84	313	67,293.9	95.9	0.0	67,366.4	4,294.4	97.0	0.0	4,308.4	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6	
6	2032	1999	2011-2040	June	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	11.08	-2.30	19.90	-4.20	0%	0.00	-2.51	313	47,362.4	364.0	0.0	47,744.4	1,051.1	93.0	0.0	1,049.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
7	2032	1999	2011-2040	July	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	17.43	-2.30	19.90	-6.20	0%	0.00	10.40	-4.21	313	68,653.3	577.7	0.0	70,310.0	4,452.1	97.0	0.0	4,529.1	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
8	2032	1999	2011-2040	August	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	19.00	-2.30	19.90	-6.20	0%	0.00	10.40	-4.21	313	68,653.3	785.5	0.0	70,310.0	4,729.9	97.0	0.0	4,770.4	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
9	2032	1999	2011-2040	September	30	416.5	1,991,622.6	414.8	1,591,632.0	416,992.0	1.00	14.50	0.45	17.68	-2.30	19.90	-6.20	0%	0.00	10.00	-4.20	313	18,169.1	412.1	0.0	18,581.0	919.9	97.0	0.0	919.9	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
10	2032	1999	2011-2040	October	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	21.77	-2.30	19.90	-6.20	0%	0.00	10.40	-4.21	313	68,653.3	395.5	0.0	70,310.0	4,854.9	97.0	0.0	4,903.9	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
11	2032	1999	2011-2040	November	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	3.87	-2.30	34.20	+2.60	89%	0.00	0	313	22,791.5	188.8	0.0	22,980.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6	
12	2032	1999	2011-2040	December	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	-10.72	-2.30	25.40	+7.23	100%	0.00	0	313	20,371.7	219.3	0.0	20,591.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6	
13	2033	1970	2011-2040	January	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	-16.40	-2.30	34.80	+7.23	100%	0.00	0	313	20,371.7	219.3	0.0	20,591.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6	
14	2033	1970	2011-2040	February	28	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	-17.30	-2.30	29.20	+7.23	100%	0.00	0	313	20,062.9	169.8	0.0	20,231.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
15	2033	1970	2011-2040	March	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	-8.78	-2.30	34.80	+7.23	100%	0.00	0	313	20,372.2	191.9	0.0	20,544.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
16	2033	1970	2011-2040	April	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	0.11	-2.30	34.80	+2.60	33%	0.00	-8.84	313	35,446.4	264.7	0.0	35,788.8	1,469.6	93.0	0.0	1,463.6	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6	
17	2033	1970	2011-2040	May	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	7.42	-2.30	39.50	+2.60	0%	0.00	70.02	-6.80	313	58,804.4	473.2	0.0	59,316.6	4,732.0	97.0	0.0	4,760.5	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
18	2033	1970	2011-2040	June	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	17.68	-2.30	39.50	-6.20	0%	0.00	10.00	-4.20	313	20,062.9	169.8	0.0	20,231.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
19	2033	1970	2011-2040	July	31	416.5	1,991,622.6	414.7	1,568,973.0	416,992.0	1.00	14.50	0.45	20.83	-2.30	39.70	-6.20	0%	0.00	12.00	-4.21	313	33,095.5	275.2	0.0	33,368.6	8,750.0	97.0	0.0	8,826.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
20	2033	1970	2011-2040	August	31	416.5	1,991,622.6	414.1	1,521,470.1	416,992.0	1.00	14.50	0.45	16.88	-2.30	32.20	-6.20	0%	0.00	10.40	-4.21	313	28,442.4	286.6	0.0	28,688.0	6,913.0	97.0	0.0	6,978.4	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
21	2033	1970	2011-2040	September	30	416.5	1,991,622.6	413.6	1,484,362.4	416,992.0	1.00	14.50	0.45	11.88	-2.30	34.80	+2.60	0%	0.00	4.89	-4.20	313	64,926.6	703.3	0.0	65,580.0	3,254.3	93.0	0.0	3,248.2	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
22	2033	1970	2011-2040	October	31	416.5	1,991,622.6	414.3	1,537,392.0	416,992.0	1.00	14.50	0.45	5.85	-2.30	39.50	+2.60	0%	0.00	-4.58	313	76,717.7	625.5	0.0	77,343.2	5,749.0	97.0	0.0	5,791.3	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6	
23	2033	1970	2011-2040	November	30	416.5	1,991,622.6	414.0	1,541,412.0	416,992.0	1.00	14.50	0.45	-1.78	-2.30	39.50	+2.60	0%	0.00	-1.11	313	13,206.6	113.3	0.0	13,319.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6	
24	2033	1970	2011-2040	December	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	-15.40	-2.30	43.90	+7.23	97%	0.00	0	313	31,825.0	263.0	0.0	32,138.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
25	2034	1971	2011-2040	January	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	-21.40	-2.30	35.00	+7.23	100%	0.00	0	313	14,021.1	116.9	0.0	14,191.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6	
26	2034	1971	2011-2040	February	28	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	-13.57	-2.30	27.80	+7.23	97%	0.00	0	313	22,956.0	182.2	0.0	23,167.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	416.5	1,991,622.6
27	2034	1971	2011-2040	March	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.0	1.00	14.50	0.45	7.96	-2.30	39.50	+2.60	0%	0.00	-8.84	313	20,371.7	219.3	0.0	20,591.0	0.0												

Table 2a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Forecast Month	Forecast Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Natural Operations Area	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month Discharge (mm)	End of Month WSEL (m)	
199	2021	1988	2021-01-01	January	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	159.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-01-15	January	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-02-01	February	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-02-15	February	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-03-01	March	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-03-15	March	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-04-01	April	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-04-15	April	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-05-01	May	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-05-15	May	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-06-01	June	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-06-15	June	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-07-01	July	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-07-15	July	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-08-01	August	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-08-15	August	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-09-01	September	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-09-15	September	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-10-01	October	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-10-15	October	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-11-01	November	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-11-15	November	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-12-01	December	1	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3
199	2021	1988	2021-12-15	December	15	418.5	1,591,632.0	418.3	1,435,924.0	1.00	11,433.0	0.45	-19.20	-2.20	-8.00	5.00	0.00	0.00	0.00	3.13	16,051.4	174.9	0.0	418.3	1,435,924.0	0.0	1,435,924.0	418.3

Table 2a: Multi-year Wet Cover Model (2032-2432): 3.13 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min ligninization, and RCP 2.6 Climate Change Scenario

Case	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	TSF Inflow (m³)	TSF Outflow (m³)	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)								
																									Open Water	Natural Operations Area	Temperature	Forecast Temperature Change	Precipitation	Forecast Precipitation Change	Evaporation	Forecast Evaporation Change
354	2036	1996	2071-2100	October	31	418.5	1,591,622.0	418.44	1,545,216.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	62,475.0	527.8	0.0	64,334.0	24,533.0	0.0	25,530.0	44,710.0	1,580,626.0	418.49		
354	2036	1996	2071-2100	November	30	418.5	1,591,622.0	418.49	1,586,992.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	62,475.0	518.1	0.0	62,330.0	0.0	0.0	0.0	0.0	0.0	62,330.0	1,580,626.0	418.50
354	2036	1996	2071-2100	December	31	418.5	1,591,622.0	418.50	1,582,768.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	62,475.0	508.4	0.0	62,190.0	0.0	0.0	0.0	0.0	0.0	62,190.0	1,580,626.0	418.51
355	2037	1997	2071-2100	January	31	418.5	1,591,622.0	418.50	1,578,544.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	17,585.0	1,452.0	0.0	18,077.0	0.0	0.0	0.0	0.0	0.0	17,585.0	1,580,626.0	418.50
355	2037	1997	2071-2100	February	29	418.5	1,591,622.0	418.50	1,574,320.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	15,365.0	1,085.0	0.0	16,450.0	0.0	0.0	0.0	0.0	0.0	15,365.0	1,580,626.0	418.50
355	2037	1997	2071-2100	March	31	418.5	1,591,622.0	418.51	1,570,096.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	13,145.0	718.0	0.0	14,230.0	0.0	0.0	0.0	0.0	0.0	13,145.0	1,580,626.0	418.51
355	2037	1997	2071-2100	April	30	418.5	1,591,622.0	418.51	1,565,856.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	10,925.0	351.0	0.0	12,076.0	0.0	0.0	0.0	0.0	0.0	10,925.0	1,580,626.0	418.51
355	2037	1997	2071-2100	May	31	418.5	1,591,622.0	418.51	1,561,616.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	8,705.0	-21.0	0.0	10,016.0	0.0	0.0	0.0	0.0	0.0	8,705.0	1,580,626.0	418.51
355	2037	1997	2071-2100	June	30	418.5	1,591,622.0	418.51	1,557,376.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	6,485.0	-184.0	0.0	7,669.0	0.0	0.0	0.0	0.0	0.0	6,485.0	1,580,626.0	418.51
355	2037	1997	2071-2100	July	31	418.5	1,591,622.0	418.51	1,553,136.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	4,265.0	-377.0	0.0	5,449.0	0.0	0.0	0.0	0.0	0.0	4,265.0	1,580,626.0	418.51
355	2037	1997	2071-2100	August	31	418.5	1,591,622.0	418.51	1,548,896.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	2,045.0	-570.0	0.0	3,225.0	0.0	0.0	0.0	0.0	0.0	2,045.0	1,580,626.0	418.51
355	2037	1997	2071-2100	September	30	418.5	1,591,622.0	418.51	1,544,656.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	985.0	-763.0	0.0	1,968.0	0.0	0.0	0.0	0.0	0.0	985.0	1,580,626.0	418.51
355	2037	1997	2071-2100	October	31	418.5	1,591,622.0	418.51	1,540,416.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	765.0	-956.0	0.0	1,758.0	0.0	0.0	0.0	0.0	0.0	765.0	1,580,626.0	418.51
355	2037	1997	2071-2100	November	30	418.5	1,591,622.0	418.51	1,536,176.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	545.0	-1,149.0	0.0	1,548.0	0.0	0.0	0.0	0.0	0.0	545.0	1,580,626.0	418.51
355	2037	1997	2071-2100	December	31	418.5	1,591,622.0	418.51	1,531,936.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	325.0	-1,342.0	0.0	1,338.0	0.0	0.0	0.0	0.0	0.0	325.0	1,580,626.0	418.51
356	2038	1998	2071-2100	January	31	418.5	1,591,622.0	418.52	1,527,696.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	1,105.0	-1,535.0	0.0	2,640.0	0.0	0.0	0.0	0.0	0.0	1,105.0	1,580,626.0	418.52
356	2038	1998	2071-2100	February	29	418.5	1,591,622.0	418.52	1,523,456.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	885.0	-1,728.0	0.0	2,430.0	0.0	0.0	0.0	0.0	0.0	885.0	1,580,626.0	418.52
356	2038	1998	2071-2100	March	31	418.5	1,591,622.0	418.52	1,519,216.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	665.0	-1,921.0	0.0	2,220.0	0.0	0.0	0.0	0.0	0.0	665.0	1,580,626.0	418.52
356	2038	1998	2071-2100	April	30	418.5	1,591,622.0	418.52	1,514,976.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	445.0	-2,114.0	0.0	2,010.0	0.0	0.0	0.0	0.0	0.0	445.0	1,580,626.0	418.52
356	2038	1998	2071-2100	May	31	418.5	1,591,622.0	418.52	1,510,736.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	225.0	-2,307.0	0.0	1,800.0	0.0	0.0	0.0	0.0	0.0	225.0	1,580,626.0	418.52
356	2038	1998	2071-2100	June	30	418.5	1,591,622.0	418.52	1,506,496.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	105.0	-2,500.0	0.0	1,590.0	0.0	0.0	0.0	0.0	0.0	105.0	1,580,626.0	418.52
356	2038	1998	2071-2100	July	31	418.5	1,591,622.0	418.52	1,502,256.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	-115.0	-2,693.0	0.0	1,380.0	0.0	0.0	0.0	0.0	0.0	-115.0	1,580,626.0	418.52
356	2038	1998	2071-2100	August	31	418.5	1,591,622.0	418.52	1,498,016.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	-335.0	-2,886.0	0.0	1,170.0	0.0	0.0	0.0	0.0	0.0	-335.0	1,580,626.0	418.52
356	2038	1998	2071-2100	September	30	418.5	1,591,622.0	418.52	1,493,776.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	-555.0	-3,079.0	0.0	960.0	0.0	0.0	0.0	0.0	0.0	-555.0	1,580,626.0	418.52
356	2038	1998	2071-2100	October	31	418.5	1,591,622.0	418.52	1,489,536.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	-775.0	-3,272.0	0.0	750.0	0.0	0.0	0.0	0.0	0.0	-775.0	1,580,626.0	418.52
356	2038	1998	2071-2100	November	30	418.5	1,591,622.0	418.52	1,485,296.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	-995.0	-3,465.0	0.0	540.0	0.0	0.0	0.0	0.0	0.0	-995.0	1,580,626.0	418.52
356	2038	1998	2071-2100	December	31	418.5	1,591,622.0	418.52	1,481,056.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	-1,215.0	-3,658.0	0.0	330.0	0.0	0.0	0.0	0.0	0.0	-1,215.0	1,580,626.0	418.52
357	2039	1999	2071-2100	January	31	418.5	1,591,622.0	418.53	1,476,816.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	-1,435.0	-3,851.0	0.0	120.0	0.0	0.0	0.0	0.0	0.0	-1,435.0	1,580,626.0	418.53
357	2039	1999	2071-2100	February	29	418.5	1,591,622.0	418.53	1,472,576.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	-1,655.0	-4,044.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	-1,655.0	1,580,626.0	418.53
357	2039	1999	2071-2100	March	31	418.5	1,591,622.0	418.53	1,468,336.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	-1,875.0	-4,237.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	-1,875.0	1,580,626.0	418.53
357	2039	1999	2071-2100	April	30	418.5	1,591,622.0	418.53	1,464,096.0	616,592.0	1.00	11.33	0.45	-0.25	9.20	-0.42	21.0	39.72	-4.25	3.13	-2,095.0	-4,430.0	0.0	30.0	0.0	0.0	0.0	0.0	0.0	-2,095.0	1,580,626.0	418.53
357	2039	1999	2071-2100	May	31	418.5	1,591,622.0	418.53	1,459,856.0	616,592.0	1.00	11.33	0.4																			

Table 2a: Multi-year Wet Cover Model (2032-2432): 3.13 m/d seepage, 0 mm d/sulphation, 0% snow drift losses, 8.00 L/min lignum, and RCP 2.6 Climate Change Scenario

Case	Year	Month	Day	Forecast Horizon	Forecast Month	Forecast Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coeff	Runoff Volume (m³)	Runoff Depth (mm)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Exfiltration (mm)	Forecast Exfiltration Change (mm)	TSF Inflow (m³)	TSF Outflow (m³)	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Net Inflow (m³)	
399	2021	1992	2021-2100	April	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	-2.95	-4.42	57%	0.00	+1.81	3.13	32.678	27.17	0.00	23.242	1.3561	0.00	7.388	25.545	1.617170	25.545	1.991532	418.0
399	2021	1992	2021-2100	May	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	-1.16	-2.20	62%	0.00	+1.81	3.13	42.070	35.47	0.00	42.962	1.7066	0.00	7.423	25.566	1.627192	25.566	1.991532	418.0
399	2021	1992	2021-2100	June	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	-0.88	-1.69	67%	0.00	+1.81	3.13	51.482	44.89	0.00	51.482	2.0519	0.00	7.458	25.591	1.642854	25.591	1.991532	418.0
399	2021	1992	2021-2100	July	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	-0.74	-1.47	70%	0.00	+1.81	3.13	60.894	53.70	0.00	60.894	2.3976	0.00	7.493	25.616	1.658516	25.616	1.991532	418.0
399	2021	1992	2021-2100	August	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	-0.60	-1.19	75%	0.00	+1.81	3.13	70.306	62.51	0.00	70.306	2.7424	0.00	7.568	25.641	1.674178	25.641	1.991532	418.0
399	2021	1992	2021-2100	September	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	-0.46	-0.90	79%	0.00	+1.81	3.13	79.718	71.02	0.00	79.718	3.0872	0.00	7.643	25.666	1.689840	25.666	1.991532	418.0
399	2021	1992	2021-2100	October	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	-0.32	-0.63	83%	0.00	+1.81	3.13	89.130	81.53	0.00	89.130	3.4320	0.00	7.718	25.691	1.705502	25.691	1.991532	418.0
399	2021	1992	2021-2100	November	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	-0.18	-0.35	88%	0.00	+1.81	3.13	98.542	93.84	0.00	98.542	3.7766	0.00	7.793	25.716	1.721164	25.716	1.991532	418.0
399	2021	1992	2021-2100	December	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	-0.04	-0.08	93%	0.00	+1.81	3.13	107.954	104.15	0.00	107.954	4.1212	0.00	7.868	25.741	1.736826	25.741	1.991532	418.0
400	2022	1993	2021-2100	January	29	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	117.366	117.37	0.00	117.366	4.4658	0.00	7.943	25.766	1.752488	25.766	1.991532	418.0
400	2022	1993	2021-2100	February	28	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	126.778	126.78	0.00	126.778	4.8104	0.00	8.018	25.791	1.768150	25.791	1.991532	418.0
400	2022	1993	2021-2100	March	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	136.190	136.19	0.00	136.190	5.1550	0.00	8.093	25.816	1.783812	25.816	1.991532	418.0
400	2022	1993	2021-2100	April	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	145.602	145.60	0.00	145.602	5.5000	0.00	8.168	25.841	1.799474	25.841	1.991532	418.0
400	2022	1993	2021-2100	May	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	155.014	155.01	0.00	155.014	5.8446	0.00	8.243	25.866	1.815136	25.866	1.991532	418.0
400	2022	1993	2021-2100	June	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	164.426	164.43	0.00	164.426	6.1892	0.00	8.318	25.891	1.830798	25.891	1.991532	418.0
400	2022	1993	2021-2100	July	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	173.838	173.84	0.00	173.838	6.5338	0.00	8.393	25.916	1.846460	25.916	1.991532	418.0
400	2022	1993	2021-2100	August	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	183.250	183.25	0.00	183.250	6.8784	0.00	8.468	25.941	1.862122	25.941	1.991532	418.0
400	2022	1993	2021-2100	September	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	192.662	192.66	0.00	192.662	7.2230	0.00	8.543	25.966	1.877784	25.966	1.991532	418.0
400	2022	1993	2021-2100	October	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	202.074	202.07	0.00	202.074	7.5676	0.00	8.618	25.991	1.893446	25.991	1.991532	418.0
400	2022	1993	2021-2100	November	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	211.486	211.49	0.00	211.486	7.9122	0.00	8.693	26.016	1.909108	26.016	1.991532	418.0
400	2022	1993	2021-2100	December	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	220.898	220.90	0.00	220.898	8.2568	0.00	8.768	26.041	1.924770	26.041	1.991532	418.0
401	2023	1994	2021-2100	January	29	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	230.310	230.31	0.00	230.310	8.6014	0.00	8.843	26.066	1.940432	26.066	1.991532	418.0
401	2023	1994	2021-2100	February	28	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	239.722	239.72	0.00	239.722	8.9460	0.00	8.918	26.091	1.956094	26.091	1.991532	418.0
401	2023	1994	2021-2100	March	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	249.134	249.13	0.00	249.134	9.2906	0.00	8.993	26.116	1.971756	26.116	1.991532	418.0
401	2023	1994	2021-2100	April	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	258.546	258.55	0.00	258.546	9.6352	0.00	9.068	26.141	1.987418	26.141	1.991532	418.0
401	2023	1994	2021-2100	May	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	267.958	267.96	0.00	267.958	9.9798	0.00	9.143	26.166	1.993080	26.166	1.991532	418.0
401	2023	1994	2021-2100	June	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	277.370	277.37	0.00	277.370	10.3244	0.00	9.218	26.191	1.998742	26.191	1.991532	418.0
401	2023	1994	2021-2100	July	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	286.782	286.78	0.00	286.782	10.6690	0.00	9.293	26.216	1.999998	26.216	1.991532	418.0
401	2023	1994	2021-2100	August	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	296.194	296.19	0.00	296.194	11.0136	0.00	9.368	26.241	1.999998	26.241	1.991532	418.0
401	2023	1994	2021-2100	September	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	305.606	305.61	0.00	305.606	11.3582	0.00	9.443	26.266	1.999998	26.266	1.991532	418.0
401	2023	1994	2021-2100	October	31	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13	315.018	315.02	0.00	315.018	11.7028	0.00	9.518	26.291	1.999998	26.291	1.991532	418.0
401	2023	1994	2021-2100	November	30	48.5	1.991532	418.0	1.991532	418.0	1.991532	1.00	1.991532	0.00	0.00	0.00	100%	0.00	+1.81	3.13												

Table 12a: Multi-year Wet Cover Model (2032-2432): 3.13 m³/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WS (m³)	Initial WS (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflow-Outflow (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WS after Discharge (m)
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Area (m²)	Runoff Coefficients	Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pond Evaporation	Average					
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	-2.95	22.60	-6.42	21%	0.00	+11.81	3.13	48,773.0	405.0	0.0	49,257.0	7,354.1	0.0	0.0	0.0	7,354.1	41,898.9	1,633,118.3	41,898.9	1,591,632.0	418.50	
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	-2.95	10.90	+6.42	7%	82.15	+11.84	3.13	68,382.8	552.0	0.0	68,934.8	58,142.0	0.0	0.0	0.0	58,228.1	1,695.7	1,600,238.3	1,695.7	1,591,632.0	418.50	
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.98	-2.95	11.70	-5.97	0%	130.00	+1.32	3.13	72,226.6	603.0	0.0	72,829.6	68,052.4	0.0	0.0	0.0	68,052.4	15,777.2	1,575,854.8	15,777.2	1,591,632.0	418.48	
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.48	1,575,854.8	1,430.0	0.45	20.42	-2.90	13.10	-0.97	0%	148.91	+6.18	3.13	75,547.8	626.2	0.0	76,174.0	65,932.2	0.0	0.0	0.0	65,932.2	19,242.6	1,556,612.2	19,242.6	1,591,632.0	418.45	
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.45	1,556,612.2	1,430.0	0.45	18.84	-2.90	19.30	-0.97	0%	79.40	+6.40	3.13	87,861.1	814.4	0.0	88,675.5	81,834.1	0.0	0.0	0.0	81,834.1	6,841.1	1,549,771.1	6,841.1	1,591,632.0	418.50	
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.42	-2.95	9.90	-4.42	0%	47.90	+4.85	3.13	30,943.3	339.8	0.0	31,283.1	33,613.3	0.0	0.0	0.0	33,613.3	3,669.8	1,595,262.2	3,669.8	1,591,632.0	418.50	
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.65	-2.95	36.60	+6.42	32%	37.20	+6.25	3.13	28,454.4	230.7	0.0	28,685.1	28,673.3	0.0	0.0	0.0	28,673.3	1,728.8	1,593,361.0	1,728.8	1,591,632.0	418.50	
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-3.40	-2.95	20.80	+6.42	93%	0.00	0	3.13	16,834.0	140.0	0.0	16,974.0	0.0	0.0	0.0	0.0	0.0	16,974.0	1,611,747.0	1,611,747.0	1,591,632.0	418.50	
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.94	-1.60	19.00	+7.30	98%	0.00	0	3.13	18,884.4	124.9	0.0	19,009.3	0.0	0.0	0.0	0.0	0.0	19,009.3	1,611,747.0	1,611,747.0	1,591,632.0	418.50	
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-15.20	-3.60	82.60	+7.30	96%	0.00	0	3.13	55,690.4	462.4	0.0	56,152.8	0.0	0.0	0.0	0.0	0.0	56,152.8	1,647,607.3	1,647,607.3	1,591,632.0	418.50	
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.38	-3.60	24.50	+7.30	96%	0.00	0	3.13	19,670.5	163.6	0.0	19,834.1	0.0	0.0	0.0	0.0	0.0	19,834.1	1,611,747.0	1,611,747.0	1,591,632.0	418.50	
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.92	-2.95	46.80	+6.42	97%	0.00	0	3.13	34,153.5	294.0	0.0	34,447.4	0.0	0.0	0.0	0.0	0.0	34,447.4	1,646,189.4	1,646,189.4	1,591,632.0	418.50	
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.77	-2.95	38.90	+6.42	22%	0.00	+11.81	3.13	28,021.5	231.1	0.0	28,252.6	7,304.1	0.0	0.0	0.0	7,304.1	20,948.5	1,612,492.2	20,948.5	1,591,632.0	418.50	
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	-2.95	46.90	+6.42	0%	120.00	+11.84	3.13	31,426.5	281.9	0.0	31,708.4	81,926.0	0.0	0.0	0.0	81,926.0	10,764.6	1,601,727.6	10,764.6	1,591,632.0	418.43	
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.43	1,581,961.1	1,430.0	0.45	16.46	-2.95	36.30	-0.97	0%	102.40	+4.32	3.13	38,970.3	494.4	0.0	39,464.7	66,012.3	0.0	0.0	0.0	66,012.3	14,866.9	1,567,094.2	14,866.9	1,591,632.0	418.42	
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.42	1,567,094.2	1,430.0	0.45	21.71	-2.90	69.30	-0.97	0%	137.88	+6.18	3.13	42,268.8	351.8	0.0	42,620.6	88,118.1	0.0	0.0	0.0	88,118.1	13,702.5	1,553,391.7	13,702.5	1,591,632.0	418.36	
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.36	1,488,722.7	1,430.0	0.45	16.52	-2.95	141.10	-0.97	0%	89.70	+6.40	3.13	46,924.8	718.7	0.0	47,643.5	58,848.0	0.0	0.0	0.0	58,848.0	27,886.3	1,460,836.4	27,886.3	1,591,632.0	418.40	
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.40	1,460,836.4	1,430.0	0.45	10.56	-2.95	69.90	-6.42	0%	47.90	+4.85	3.13	45,970.7	362.3	0.0	46,333.0	33,017.1	0.0	0.0	0.0	33,017.1	13,001.3	1,447,835.1	13,001.3	1,591,632.0	418.42	
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.42	1,447,835.1	1,430.0	0.45	6.71	-2.95	48.80	+6.42	3%	40.30	+6.25	3.13	34,163.3	284.0	0.0	34,447.3	28,792.9	0.0	0.0	0.0	28,792.9	15,654.4	1,432,180.7	15,654.4	1,591,632.0	418.42	
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.42	1,432,180.7	1,430.0	0.45	2.13	-2.95	23.60	+6.42	3%	0.00	0	3.13	18,014.4	164.4	0.0	18,178.8	0.0	0.0	0.0	0.0	0.0	18,178.8	1,413,961.9	1,413,961.9	1,591,632.0	418.45	
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.45	1,413,961.9	1,430.0	0.45	-14.52	-3.60	91.40	+7.30	96%	0.00	0	3.13	23,938.8	199.1	0.0	24,137.9	0.0	0.0	0.0	0.0	0.0	24,137.9	1,389,824.0	1,389,824.0	1,591,632.0	418.48	
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.48	1,389,824.0	1,430.0	0.45	-18.13	-3.60	44.20	+7.30	99%	0.00	0	3.13	31,863.3	264.9	0.0	32,128.2	0.0	0.0	0.0	0.0	0.0	32,128.2	1,357,695.8	1,357,695.8	1,591,632.0	418.50	
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-10.89	-3.60	30.30	+7.30	98%	0.00	0	3.13	23,293.2	193.4	0.0	23,486.6	0.0	0.0	0.0	0.0	0.0	23,486.6	1,334,209.2	1,334,209.2	1,591,632.0	418.50	
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-8.49	-2.95	53.90	+6.42	7%	0.00	0	3.13	37,330.0	310.3	0.0	37,640.3	0.0	0.0	0.0	0.0	0.0	37,640.3	1,326,569.3	1,326,569.3	1,591,632.0	418.50	
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.90	-2.95	63.90	+6.42	0%	0.00	+11.81	3.13	43,466.7	361.7	0.0	43,828.4	7,354.1	0.0	0.0	0.0	7,354.1	1,319,215.2	1,319,215.2	1,591,632.0	418.50		
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.60	-2.95	12.60	-6.42	0%	135.76	+11.84	3.13	1,188.6	18.9	0.0	1,207.5	2,269.9	0.0	0.0	0.0	2,269.9	1,316,945.3	1,316,945.3	1,591,632.0	418.40		
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.40	1,316,945.3	1,430.0	0.45	18.12	-2.90	133.70	-0.97	0%	118.89	+4.32	3.13	42,104.8	662.8	0.0	42,767.6	76,212.7	0.0	0.0	0.0	76,212.7	1,240,732.6	1,240,732.6	1,591,632.0	418.40		
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.40	1,316,945.3	1,430.0	0.45	19.17	-2.90	63.70	-0.97	0%	141.64	+6.18	3.13	28,824.9	222.7	0.0	29,047.6	91,434.9	0.0	0.0	0.0	91,434.9	1,205,300.7	1,205,300.7	1,591,632.0	418.33		
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.33	1,205,300.7	1,430.0	0.45	18.62	-2.95	67.00	-0.97	0%	122.40	+5.40	3.13	40,960.3	352.2	0.0	41,312.5	79,661.1	0.0	0.0	0.0	79,661.1	1,125,639.6	1,125,639.6	1,591,632.0	418.28		
325	2431	1976	2071-2100	September	30	418.5	1,591,632.0	418.28	1,125,639.6	1,430.0	0.45	13.02	-2.95	39.50	+6.42																			

Table 2b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Case	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Forecast Temperature (°C)	Forecast Precipitation (mm)	Forecast Evaporation (mm)	Forecast Sublimation (mm)	Forecast Snow Accumulation (mm)	Forecast Snowmelt (mm)	Forecast Runoff (mm)	Forecast Inflow (mm)	Forecast Outflow (mm)	Forecast Net Inflow (mm)	Forecast End of Month WSEL (m)	Forecast End of Month Volume (m³)	Forecast Discharge Volume (m³)	Forecast End of Month Discharge Volume (m³)	Forecast End of Month WSEL (m)							
205	2117	2006	2021-2100	October	31	4185	1591.622	4183	1461.728	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
206	2117	2006	2021-2100	November	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
207	2117	2006	2021-2100	December	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
208	2118	2006	2021-2100	January	29	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
209	2118	2006	2021-2100	February	28	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
210	2118	2006	2021-2100	March	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
211	2118	2006	2021-2100	April	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
212	2118	2006	2021-2100	May	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
213	2118	2006	2021-2100	June	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
214	2118	2006	2021-2100	July	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
215	2118	2006	2021-2100	August	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
216	2118	2006	2021-2100	September	29	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
217	2118	2006	2021-2100	October	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
218	2118	2006	2021-2100	November	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
219	2118	2006	2021-2100	December	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
220	2119	2007	2021-2100	January	29	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
221	2119	2007	2021-2100	February	28	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
222	2119	2007	2021-2100	March	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
223	2119	2007	2021-2100	April	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
224	2119	2007	2021-2100	May	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
225	2119	2007	2021-2100	June	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
226	2119	2007	2021-2100	July	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
227	2119	2007	2021-2100	August	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
228	2119	2007	2021-2100	September	29	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
229	2119	2007	2021-2100	October	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
230	2119	2007	2021-2100	November	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
231	2119	2007	2021-2100	December	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
232	2120	2008	2021-2100	January	29	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
233	2120	2008	2021-2100	February	28	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
234	2120	2008	2021-2100	March	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
235	2120	2008	2021-2100	April	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
236	2120	2008	2021-2100	May	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
237	2120	2008	2021-2100	June	30	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	2291.4	973.0	0.0	23.067	1736.4	1468.822	4183.4
238	2120	2008	2021-2100	July	31	4185	1591.622	4183	1468.822	4186.92	1.00	11.53	0.45	4.79	-2.95	-4.42	22%	29.47	-1.25	31.30	2089.1	249.0	0.0	30.181	229						

Table 2b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Day	Forecast Horizon	Forecast Date	Invert (Elevation)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snowpack	Evaporation (mm)	Forecast Evaporation Change (mm)	Change (mm)	TSF Inflows (m³)		TSF Outflows (m³)		Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	Total WSEL after Change (m)			
																			Open Water	Restored	Supplementary	Total							Sublimation	Wet Drift	Total
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	30.00	-4.42	38%	8.74	+1.81	31.30	34,876.4	292.2	0.0	35,178.6	12,711.6	939.0	0.0	13,650.6	21,373.3	1,611,688.8	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	19.00	-4.42	4%	99.87	+1.84	31.30	73,879.8	641.1	0.0	74,620.9	12,711.6	939.0	0.0	70,709.2	1,448.8	1,599,718.4	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	10.00	-4.42	0%	100.00	+1.84	31.30	143,824.8	118.9	0.0	143,943.7	12,711.6	939.0	0.0	131,232.1	3,686.7	1,595,305.7	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	208,891.4	221.4	0.0	209,112.8	12,711.6	939.0	0.0	196,401.2	14,310.6	1,605,932.6	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	273,903.0	335.7	0.0	274,176.9	12,711.6	939.0	0.0	261,465.3	20,906.6	1,616,839.2	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	338,914.6	499.0	0.0	339,153.5	12,711.6	939.0	0.0	326,441.9	27,510.7	1,627,750.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	403,926.2	668.3	0.0	404,130.1	12,711.6	939.0	0.0	391,418.5	34,111.7	1,638,661.7	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	468,937.8	927.6	0.0	469,135.4	12,711.6	939.0	0.0	456,426.0	58,711.6	1,649,573.3	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	533,950.4	1,197.0	0.0	534,147.9	12,711.6	939.0	0.0	521,440.3	112,311.4	1,660,484.8	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	598,963.0	1,466.4	0.0	599,151.4	12,711.6	939.0	0.0	586,450.0	142,031.8	1,671,416.6	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	663,974.6	1,735.8	0.0	664,162.0	12,711.6	939.0	0.0	651,460.4	181,751.4	1,682,348.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	728,986.2	2,005.2	0.0	729,173.6	12,711.6	939.0	0.0	716,474.0	221,574.0	1,693,270.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	793,997.8	2,274.6	0.0	794,185.2	12,711.6	939.0	0.0	781,483.0	261,491.4	1,704,191.4	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	859,010.4	2,544.0	0.0	859,197.8	12,711.6	939.0	0.0	846,500.6	301,406.8	1,715,102.6	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	924,023.0	2,813.4	0.0	924,210.4	12,711.6	939.0	0.0	911,508.0	341,322.2	1,725,914.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	989,035.6	3,082.8	0.0	989,223.0	12,711.6	939.0	0.0	976,520.4	381,238.0	1,736,726.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,054,048.2	3,352.2	0.0	1,054,235.6	12,711.6	939.0	0.0	1,041,526.0	421,153.4	1,747,538.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,119,062.8	3,621.6	0.0	1,119,250.2	12,711.6	939.0	0.0	1,106,540.6	461,068.6	1,758,350.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,184,077.4	3,891.0	0.0	1,184,264.8	12,711.6	939.0	0.0	1,171,555.4	500,984.0	1,769,162.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,249,092.0	4,160.4	0.0	1,249,279.4	12,711.6	939.0	0.0	1,236,567.4	540,909.0	1,780,074.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,314,106.6	4,430.8	0.0	1,314,294.0	12,711.6	939.0	0.0	1,301,582.0	580,824.0	1,790,986.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,379,121.2	4,700.2	0.0	1,379,308.6	12,711.6	939.0	0.0	1,366,607.0	620,749.0	1,801,898.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,444,135.8	4,970.6	0.0	1,444,323.2	12,711.6	939.0	0.0	1,431,611.6	660,664.0	1,812,810.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,509,150.4	5,240.0	0.0	1,509,337.8	12,711.6	939.0	0.0	1,496,626.2	700,579.0	1,823,722.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,574,165.0	5,510.4	0.0	1,574,352.4	12,711.6	939.0	0.0	1,561,842.0	740,494.0	1,834,634.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,639,179.6	5,780.8	0.0	1,639,367.0	12,711.6	939.0	0.0	1,626,847.8	780,409.0	1,845,546.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,704,194.2	6,050.2	0.0	1,704,381.6	12,711.6	939.0	0.0	1,691,916.2	820,324.0	1,856,458.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,769,208.8	6,320.6	0.0	1,769,396.2	12,711.6	939.0	0.0	1,756,922.2	860,239.0	1,867,370.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-4.42	0%	100.00	+1.84	31.30	1,834,223.4	6,590.0	0.0	1,834,410.8	12,711.6	939.0	0.0	1,821,948.8	900,154.0	1,878,282.0	418.3	1,591,622.0	418.5
2010	2010	2010	2010	2010	418.5	1,591,622.0	418.5	1,591,622.0	1,430,832.0	1,430,832.0	4.75	-2.95	0.00	-																	

Table 2b: Multi-year Wet Cover Model (2022-2432): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	TSF Inflow (m³)	TSF Outflow (m³)	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Initial WSEL (m)	Initial Volume (m³)
2022	1984	1974	2021-2010	July	31	4185	1591.632	4184	1574.848	4186.992	1.00	11.53	0.97	0%	14.81	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1984	1974	2021-2010	August	31	4185	1591.632	4184	1584.232	4186.992	1.00	11.53	0.97	0%	7.84	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1984	1974	2021-2010	September	30	4185	1591.632	4184	1591.632	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1984	1974	2021-2010	October	31	4185	1591.632	4184	1600.016	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1984	1974	2021-2010	November	30	4185	1591.632	4184	1607.400	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1984	1974	2021-2010	December	31	4185	1591.632	4184	1614.784	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	January	31	4185	1591.632	4184	1622.168	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	February	28	4185	1591.632	4184	1629.552	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	March	31	4185	1591.632	4184	1636.936	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	April	30	4185	1591.632	4184	1644.320	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	May	31	4185	1591.632	4184	1651.704	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	June	30	4185	1591.632	4184	1659.088	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	July	31	4185	1591.632	4184	1666.472	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	August	31	4185	1591.632	4184	1673.856	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	September	30	4185	1591.632	4184	1681.240	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	October	31	4185	1591.632	4184	1688.624	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	November	30	4185	1591.632	4184	1696.008	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1985	1975	2021-2010	December	31	4185	1591.632	4184	1703.392	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	January	31	4185	1591.632	4184	1710.776	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	February	28	4185	1591.632	4184	1718.160	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	March	31	4185	1591.632	4184	1725.544	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	April	30	4185	1591.632	4184	1732.928	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	May	31	4185	1591.632	4184	1740.312	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	June	30	4185	1591.632	4184	1747.696	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	July	31	4185	1591.632	4184	1755.080	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	August	31	4185	1591.632	4184	1762.464	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	September	30	4185	1591.632	4184	1769.848	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	October	31	4185	1591.632	4184	1777.232	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	November	30	4185	1591.632	4184	1784.616	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1986	1976	2021-2010	December	31	4185	1591.632	4184	1792.000	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1987	1977	2021-2010	January	31	4185	1591.632	4184	1799.384	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1987	1977	2021-2010	February	28	4185	1591.632	4184	1806.768	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1987	1977	2021-2010	March	31	4185	1591.632	4184	1814.152	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1987	1977	2021-2010	April	30	4185	1591.632	4184	1821.536	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1987	1977	2021-2010	May	31	4185	1591.632	4184	1828.920	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1987	1977	2021-2010	June	30	4185	1591.632	4184	1836.304	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1987	1977	2021-2010	July	31	4185	1591.632	4184	1843.688	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1987	1977	2021-2010	August	31	4185	1591.632	4184	1851.072	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1987	1977	2021-2010	September	30	4185	1591.632	4184	1858.456	4186.992	1.00	11.53	0.97	0%	11.53	-1.48	31.30	75.8471	625.2	0%	96.15	154.125	0.0	1541.25	4184	1574.848
2022	1987	1977	2021-2010	October	31	4185																				

Table 12b: Multi-Year Wet Cover Model (2032-2432): 31.3 m³/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSP Inflows (m³)				TSP Outflows (m³)				Net Inflow-Outflows (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients	Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflows					
323	2429	1974	2071-2100	April	30	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	1.48	-2.95	22.60	-6.42	21%	0.00	+11.81	31.30	48,873.0	405.5	0.0	49,278.5	7,354.1	0.0	0.0	0.0	0.0	56,112.3	41,945.7	1,632,673.2	41,540.7	1,591,832.0	418.50
323	2429	1974	2071-2100	May	31	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	1.70	-2.95	10.90	-6.42	7%	82.15	+11.84	31.30	68,382.8	552.0	0.0	68,934.8	58,142.0	0.0	0.0	0.0	59,112.3	7,822.5	1,599,450.0	7,822.5	1,591,832.0	418.50	
323	2429	1974	2071-2100	June	30	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	1.88	-2.95	11.70	-6.97	0%	130.00	+11.84	31.30	72,016.0	603.0	0.0	72,619.0	68,054.0	0.0	0.0	0.0	68,054.0	16,761.7	1,574,848.8	0.0	1,574,848.8	418.48	
323	2429	1974	2071-2100	July	31	418.5	1,599,832.0	418.48	1,574,848.8	11,430.0	0.45	20.42	-2.90	13.10	-9.97	0%	148.91	+11.84	31.30	75,547.8	626.2	0.0	76,174.0	65,932.0	0.0	0.0	0.0	65,932.0	15,541.215	1,554,123.5	0.0	1,554,123.5	418.45	
323	2429	1974	2071-2100	August	31	418.5	1,599,832.0	418.45	1,554,123.5	11,430.0	0.45	18.84	-2.90	19.30	-9.97	0%	79.40	+11.84	31.30	87,845.1	814.4	0.0	88,659.5	81,834.1	0.0	0.0	0.0	81,834.1	16,603.76	1,437,519.7	0.0	1,437,519.7	418.50	
323	2429	1974	2071-2100	September	30	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	8.42	-2.95	9.90	-6.42	0%	47.90	+11.84	31.30	30,743.3	339.9	0.0	31,083.2	28,373.3	0.0	0.0	0.0	28,373.3	5,522.8	1,586,309.2	5,522.8	1,581,786.4	418.50	
323	2429	1974	2071-2100	October	31	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	4.05	-2.95	10.60	-6.42	32%	37.20	+11.84	31.30	28,454.4	230.7	0.0	28,685.1	26,873.3	0.0	0.0	0.0	27,446.8	855.9	1,592,488.1	855.9	1,591,632.0	418.50	
323	2429	1974	2071-2100	November	30	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	3.40	-2.95	20.80	-6.42	93%	0.00	0	31.30	18,884.4	140.0	0.0	19,024.4	18,934.0	0.0	0.0	0.0	18,934.0	1,601,669.0	16,336.4	1,585,332.6	16,336.4	1,581,736.0	418.50
323	2429	1974	2071-2100	December	31	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	8.94	-1.60	19.90	-7.30	98%	0.00	0	31.30	18,884.4	140.0	0.0	19,024.4	18,934.0	0.0	0.0	0.0	18,934.0	1,601,669.0	16,336.4	1,585,332.6	16,336.4	1,581,736.0	418.50
324	2430	1975	2071-2100	January	31	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	-15.20	-3.60	82.60	-7.30	96%	0.00	0	31.30	55,693.4	462.4	0.0	56,155.8	56,071.8	0.0	0.0	0.0	56,071.8	16,648.1	1,608,480.1	16,648.1	1,591,832.0	418.50	
324	2430	1975	2071-2100	February	29	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	-14.38	-3.60	84.50	-7.30	96%	0.00	0	31.30	19,670.5	163.6	0.0	19,834.1	19,834.1	0.0	0.0	0.0	19,834.1	16,957.7	1,615,787.7	16,957.7	1,591,832.0	418.50	
324	2430	1975	2071-2100	March	31	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	-9.92	-2.95	48.60	-6.42	97%	0.00	0	31.30	34,153.5	294.0	0.0	34,447.4	34,447.4	0.0	0.0	0.0	34,447.4	16,957.7	1,632,745.4	16,957.7	1,591,832.0	418.50	
324	2430	1975	2071-2100	April	30	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	0.27	-2.95	38.90	-6.42	22%	0.00	+11.81	31.30	28,021.5	231.1	0.0	28,252.6	27,941.1	0.0	0.0	0.0	27,941.1	16,957.7	1,649,693.1	16,957.7	1,591,832.0	418.50	
324	2430	1975	2071-2100	May	31	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	12.42	-2.95	46.90	-6.42	0%	120.00	+11.84	31.30	31,426.5	281.9	0.0	31,708.4	30,926.0	0.0	0.0	0.0	30,926.0	16,957.7	1,666,640.7	0.0	1,666,640.7	418.43	
324	2430	1975	2071-2100	June	30	418.5	1,599,832.0	418.43	1,566,997.0	11,430.0	0.45	16.46	-2.95	36.30	-9.97	0%	102.40	+11.84	31.30	38,970.3	493.4	0.0	39,463.7	38,017.1	0.0	0.0	0.0	38,017.1	16,957.7	1,583,954.7	0.0	1,583,954.7	418.42	
324	2430	1975	2071-2100	July	31	418.5	1,599,832.0	418.42	1,532,991.0	11,430.0	0.45	21.71	-2.90	39.30	-9.97	0%	137.88	+11.84	31.30	42,568.8	351.3	0.0	42,920.1	40,118.1	0.0	0.0	0.0	40,118.1	16,957.7	1,481,033.1	0.0	1,481,033.1	418.36	
324	2430	1975	2071-2100	August	31	418.5	1,599,832.0	418.36	1,481,033.1	11,430.0	0.45	16.52	-2.95	141.10	-9.97	0%	89.70	+11.84	31.30	46,763.9	371.3	0.0	47,135.2	46,848.0	0.0	0.0	0.0	46,848.0	16,957.7	1,312,075.1	0.0	1,312,075.1	418.49	
324	2430	1975	2071-2100	September	30	418.5	1,599,832.0	418.40	1,312,075.1	11,430.0	0.45	10.56	-2.95	69.90	-6.42	0%	47.90	+11.84	31.30	45,970.5	362.3	0.0	46,332.8	43,017.1	0.0	0.0	0.0	43,017.1	16,957.7	1,142,117.3	0.0	1,142,117.3	418.41	
324	2430	1975	2071-2100	October	31	418.5	1,599,832.0	418.41	1,142,117.3	11,430.0	0.45	6.21	-2.95	48.80	-6.42	3%	40.30	+11.84	31.30	34,163.3	284.0	0.0	34,447.3	28,792.9	0.0	0.0	0.0	28,792.9	16,957.7	966,160.5	0.0	966,160.5	418.42	
324	2430	1975	2071-2100	November	30	418.5	1,599,832.0	418.42	966,160.5	11,430.0	0.45	2.13	-2.95	23.60	-6.42	7%	0.00	0	31.30	18,014.4	164.4	0.0	18,178.8	18,178.8	0.0	0.0	0.0	18,178.8	16,957.7	796,202.7	0.0	796,202.7	418.44	
324	2430	1975	2071-2100	December	31	418.5	1,599,832.0	418.44	796,202.7	11,430.0	0.45	-14.52	-3.60	31.40	-7.30	60%	0.00	0	31.30	23,938.8	199.1	0.0	24,137.9	24,137.9	0.0	0.0	0.0	24,137.9	16,957.7	626,245.0	0.0	626,245.0	418.47	
325	2431	1976	2071-2100	January	31	418.5	1,599,832.0	418.47	626,245.0	11,430.0	0.45	-18.13	-3.60	44.20	-7.30	99%	0.00	0	31.30	31,863.3	264.9	0.0	32,128.2	32,128.2	0.0	0.0	0.0	32,128.2	16,957.7	456,287.3	0.0	456,287.3	418.50	
325	2431	1976	2071-2100	February	29	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	-10.88	-3.60	30.30	-7.30	98%	0.00	0	31.30	23,293.3	193.4	0.0	23,486.7	23,486.7	0.0	0.0	0.0	23,486.7	16,957.7	336,328.6	0.0	336,328.6	418.50	
325	2431	1976	2071-2100	March	31	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	-8.49	-2.95	33.90	-6.42	7%	0.00	0	31.30	37,330.0	310.3	0.0	37,640.3	37,640.3	0.0	0.0	0.0	37,640.3	16,957.7	268,680.9	0.0	268,680.9	418.50	
325	2431	1976	2071-2100	April	30	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	4.90	-2.95	63.90	-6.42	0%	0.00	+11.81	31.30	43,467.7	367.7	0.0	43,835.4	43,835.4	0.0	0.0	0.0	43,835.4	16,957.7	204,723.2	0.0	204,723.2	418.50	
325	2431	1976	2071-2100	May	31	418.5	1,599,832.0	418.50	1,591,832.0	11,430.0	0.45	13.60	-2.95	12.60	-6.42	0%	133.76	+11.84	31.30	1,189.8	98.9	0.0	1,288.7	1,288.7	0.0	0.0	0.0	1,288.7	16,957.7	148,680.9	0.0	148,680.9	418.39	
325	2431	1976	2071-2100	June	30	418.5	1,599,832.0	418.39	1,511,348.0	11,430.0	0.45	18.12	-2.90	133.70	-9.97	0%	118.89	+11.84	31.30	82,104.8	662.8	0.0	82,766.6	78,212.7	0.0	0.0	0.0	78,212.7	16,957.7	131,600.9	0.0	131,600.9	418.40	
325	2431	1976	2071-2100	July	31	418.5	1,599,832.0	418.40	1,312,075.1	11,430.0	0.45	19.17	-2.90	63.70	-9.97	0%	141.64	+11.84	31.30	88,824.9	522.7	0.0	89,347.6	81,434.9	0.0	0.0	0.0	81,434.9	16,957.7	114,647.3	0.0	114,647.3	418.33	
325	2431	1976	2071-2100	August	31	418.5	1,599,832.0	418.33	1,142,117.3	11,430.0	0.45	18.62	-2.95	67.00	-9.97	0%	122.40	+11.84	31.30	49,800.0	345.2	0.0	49,945.2	47,945.1	0.0	0.0	0.0	47,945.1	16,957.7	97,692.2	0.0	97,692.2	418.28	
325	2431	1976	2071-2100	September	30																													

Model Inputs	
Year of Simulation	2022
Source of Climate Record	Actual
Climate Change Scenario	CP3.0
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,911,622.6
Area of Open Water Within TSP (m²)	61,646.6
Runoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m²)	14,433.8
Runoff Coefficient for Restored Lands Within TSP	0.5
Storage from TSP (m³)	200.0
Supplementary Water Addition (m³/d)	0.0
Trigger Elevation for Supplemental Water Addition (mASL)	416.0
Sublimation Losses in Winter (mm/day)	10.0
Wind Drift Losses in Winter (% of snowfall)	10.0

NOTES: 1) The climate record was selected to be the period of the TSP basin that had no open water. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 22: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Count	Pre-Start Year	Start Year	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Restored Area (m²)	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Storage (m³)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool Evaporation	Average	Sublimation	Wind Drift Losses	Total Outflow	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)			
1	2022	1999	2011-2040	January	31	416.5	1,911,622.6	414.3	1,539,985.1	61,652.92	1.00	14,433.8	0.50	-1.01	-2.30	96.80	+7.23	100%	0.00	0.00	0.00	200.00	64,318.8	531.1	0.0	64,869.9	0.0	6,200.0	0.0	6,200.0	66,889.8	1,588,676.5	7,043.9	1,911,622.6	416.0	1,539,985.1	416.0	1,539,985.1	
2	2022	1999	2011-2040	February	28	416.5	1,911,622.6	415.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	14.70	+7.23	100%	0.00	0.00	0.00	200.00	1,530.7	112.8	0.0	13,800.1	0.0	6,200.0	0.0	6,200.0	68,601.1	1,591,712.7	6,801.1	1,911,622.6	415.0	1,591,632.6	415.0	1,591,632.6	
3	2022	1999	2011-2040	March	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	16.10	+7.23	100%	0.00	0.00	0.00	200.00	1,794.0	64.8	0.0	13,800.1	0.0	6,200.0	0.0	6,200.0	68,601.1	1,591,632.6	6,801.1	1,911,622.6	416.0	1,591,632.6	416.0	1,591,632.6	
4	2022	1999	2011-2040	April	30	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	19.40	+2.00	0%	0.00	-8.84	-200.00	200.00	1,540.7	112.7	0.0	13,800.1	0.0	6,200.0	0.0	6,200.0	68,601.1	1,591,632.6	6,801.1	1,911,622.6	416.0	1,591,632.6	416.0	1,591,632.6	
5	2022	1999	2011-2040	May	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	26.90	+2.00	0%	0.00	-8.84	-200.00	200.00	67,293.9	95.3	0.0	62,964.4	0.0	6,200.0	0.0	6,200.0	68,601.1	1,591,632.6	6,801.1	1,911,622.6	416.0	1,591,632.6	416.0	1,591,632.6	
6	2022	1999	2011-2040	June	30	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	30.80	+2.00	0%	0.00	-2.51	-200.00	200.00	47,304.2	94.0	0.0	47,784.4	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6	
7	2022	1999	2011-2040	July	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	34.80	+2.00	0%	0.00	-1.60	-200.00	200.00	46,465.3	97.7	0.0	47,043.0	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6	
8	2022	1999	2011-2040	August	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	38.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	45,626.4	96.5	0.0	46,201.8	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
9	2022	1999	2011-2040	September	30	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	42.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	44,787.5	95.8	0.0	45,362.9	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
10	2022	1999	2011-2040	October	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	46.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	43,948.6	95.1	0.0	44,524.0	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
11	2022	1999	2011-2040	November	30	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	50.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	43,109.7	94.4	0.0	43,685.1	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
12	2022	1999	2011-2040	December	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	54.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	42,270.8	93.7	0.0	42,846.2	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
13	2023	1970	2011-2040	January	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	58.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	41,431.9	93.0	0.0	42,007.3	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
14	2023	1970	2011-2040	February	28	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	62.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	40,593.0	92.3	0.0	41,168.4	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
15	2023	1970	2011-2040	March	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	66.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	39,754.1	91.6	0.0	40,329.5	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
16	2023	1970	2011-2040	April	30	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	70.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	38,915.2	90.9	0.0	39,490.6	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
17	2023	1970	2011-2040	May	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	74.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	38,076.3	90.2	0.0	38,651.7	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
18	2023	1970	2011-2040	June	30	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	78.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	37,237.4	89.5	0.0	37,812.8	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
19	2023	1970	2011-2040	July	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	82.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	36,398.5	88.8	0.0	36,973.9	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
20	2023	1970	2011-2040	August	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	86.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	35,559.6	88.1	0.0	36,135.0	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
21	2023	1970	2011-2040	September	30	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	90.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	34,720.7	87.4	0.0	35,296.1	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
22	2023	1970	2011-2040	October	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	94.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	33,881.8	86.7	0.0	34,457.2	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
23	2023	1970	2011-2040	November	30	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	98.80	+2.00	0%	0.00	0.00	-1.60	-200.00	200.00	33,042.9	86.0	0.0	33,618.3	0.0	6,200.0	0.0	6,200.0	48,227.3	1,591,632.6	48,227.3	1,591,632.6	416.0	1,591,632.6	416.0	1,591,632.6
24	2023	1970	2011-2040	December	31	416.5	1,911,622.6	416.0	1,591,632.6	61,569.2	1.00	14,433.8	0.45	-1.07	-2.30	102.80	+2.00	0%	0.00	0.00	-1.6																		

Table 2c: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.0 mm lignum augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Day	Forecast Horizon	Forecast Start	Forecast End	Forecast Type	Forecast Value	Forecast Unit	Forecast Error	Forecast Error Unit	Forecast Error %	Forecast Error Sign	Forecast Error Range	Forecast Error Min	Forecast Error Max	Forecast Error Avg	Forecast Error Std	Forecast Error CV	Forecast Error Correlation	Forecast Error Bias	Forecast Error Variance	Forecast Error Skewness	Forecast Error Kurtosis	Forecast Error Distribution	Forecast Error Description					
2010	2022	0001	2021-2010	April	30	48.5	1.591822	416.7	1.568891	0.156922	1.00	11.33	0.45	3.73	-2.99	30.00	-4.42	38%	8.74	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.49
2010	2022	0001	2021-2010	May	31	48.5	1.591822	416.9	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2010	2022	0001	2021-2010	June	30	48.5	1.591822	417.0	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2010	2022	0001	2021-2010	July	31	48.5	1.591822	417.1	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2010	2022	0001	2021-2010	August	31	48.5	1.591822	417.2	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2010	2022	0001	2021-2010	September	30	48.5	1.591822	417.3	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2010	2022	0001	2021-2010	October	31	48.5	1.591822	417.4	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2010	2022	0001	2021-2010	November	30	48.5	1.591822	417.5	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2010	2022	0001	2021-2010	December	31	48.5	1.591822	417.6	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	January	31	48.5	1.591822	417.7	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	February	29	48.5	1.591822	417.8	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	March	31	48.5	1.591822	417.9	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	April	30	48.5	1.591822	418.0	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	May	31	48.5	1.591822	418.1	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	June	30	48.5	1.591822	418.2	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	July	31	48.5	1.591822	418.3	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	August	31	48.5	1.591822	418.4	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	September	30	48.5	1.591822	418.5	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	October	31	48.5	1.591822	418.6	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	November	30	48.5	1.591822	418.7	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2011	2023	0002	2021-2010	December	31	48.5	1.591822	418.8	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	January	31	48.5	1.591822	418.9	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	February	29	48.5	1.591822	419.0	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	March	31	48.5	1.591822	419.1	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	April	30	48.5	1.591822	419.2	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	May	31	48.5	1.591822	419.3	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	June	30	48.5	1.591822	419.4	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	July	31	48.5	1.591822	419.5	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	August	31	48.5	1.591822	419.6	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	September	30	48.5	1.591822	419.7	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	October	31	48.5	1.591822	419.8	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	November	30	48.5	1.591822	419.9	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2012	2024	0003	2021-2010	December	31	48.5	1.591822	420.0	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2013	2025	0004	2021-2010	January	31	48.5	1.591822	420.1	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99	18.00	-4.42	4%	99.87	+1.81	200.0	349.874	295.2	0.0	18.7116	4.473	1.561177	0.0	1.581167	416.50
2013	2025	0004	2021-2010	February	29	48.5	1.591822	420.2	1.589243	0.156922	1.00	11.33	0.45	11.99	-2.99															

Table 2c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water	Runoff	Natural Operations Area	Runoff	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation	Forecast Evaporation Change (mm)	Extraction	Forecast Extraction Change (mm)	Change (m³)	TSF Inflows (m³)		TSF Outflows (m³)		End of Month WSEL (m)	End of Month Volume (m³)									
																						Open Water	Runoff	Total Inflows	Total Outflows											
118	2095	1987	2021-2100	October	31	418.5	1,591,622.0	418.9	1,262,964.0	1.00	11,433.0	0.45	-2.7	-2.9	37.20	-4.42	33%	0.00	-1.25	200.0	26,859.0	26.4	0.0	26,859.0	26.4	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9			
119	2095	1987	2021-2100	November	30	418.5	1,591,622.0	419.3	1,268,913.0	1.00	11,433.0	0.45	-2.0	-2.9	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	22.3	0.0	27,075.0	25.0	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
120	2095	1987	2021-2100	December	31	418.5	1,591,622.0	419.3	1,268,913.0	1.00	11,433.0	0.45	-2.0	-2.9	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	22.3	0.0	27,075.0	25.0	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
121	2096	1988	2021-2100	January	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
122	2096	1988	2021-2100	February	29	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
123	2096	1988	2021-2100	March	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
124	2096	1988	2021-2100	April	30	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
125	2096	1988	2021-2100	May	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
126	2096	1988	2021-2100	June	30	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
127	2096	1988	2021-2100	July	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
128	2096	1988	2021-2100	August	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
129	2096	1988	2021-2100	September	30	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
130	2096	1988	2021-2100	October	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
131	2096	1988	2021-2100	November	30	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
132	2096	1988	2021-2100	December	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
133	2097	1989	2021-2100	January	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
134	2097	1989	2021-2100	February	29	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
135	2097	1989	2021-2100	March	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
136	2097	1989	2021-2100	April	30	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
137	2097	1989	2021-2100	May	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
138	2097	1989	2021-2100	June	30	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
139	2097	1989	2021-2100	July	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
140	2097	1989	2021-2100	August	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
141	2097	1989	2021-2100	September	30	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
142	2097	1989	2021-2100	October	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
143	2097	1989	2021-2100	November	30	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
144	2097	1989	2021-2100	December	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.20	-19.0	37.20	-4.42	33%	0.00	0.00	200.0	26,859.0	136.3	0.0	27,075.0	136.3	0.0	6,000.0	0.0	0.0	15,064.5	2,817.7	1,308,855.9	0.0	1,308,855.9	418.13	1,308,855.9
145	2098	1990	2021-2100	January	31	418.5	1,591,622.0	419.7	1,343,123.0	1.00	11,433.0	0.45	-19.																							

Table 2c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift effects, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Scenario	Forecast Month	Month	Day	Invert Elevation (m)	Capacity of Invert (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficients	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Runoff (mm)	Runoff Change (mm)	Open Water	Runoff	Sublimation	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)
256	2032	2006	2071-2100	July	31	4185	1591.620	4129	1,429,843	0.16092	100	-1.20	90.50	9.97	0%	126.30	-1.40	2000	3052.24	2496	0.0	30,759.9	1,370,833.2	0.0	89,363.9	1,370,833.2	4129	1,370,833.2	4129	
256	2032	2006	2071-2100	August	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	85.00	9.97	0%	106.00	-1.40	2000	2820.24	2219	0.0	27,723.3	1,358,516.8	0.0	79,134.8	1,358,516.8	4129	1,358,516.8	4129	
256	2032	2006	2071-2100	September	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	75.00	9.97	0%	90.00	-1.40	2000	2496.24	1949	0.0	24,240.0	1,346,200.4	0.0	68,906.4	1,346,200.4	4129	1,346,200.4	4129	
256	2032	2006	2071-2100	October	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	65.00	9.97	0%	74.00	-1.40	2000	2172.24	1479	0.0	20,748.0	1,333,884.0	0.0	58,659.6	1,333,884.0	4129	1,333,884.0	4129	
256	2032	2006	2071-2100	November	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	55.00	9.97	0%	58.00	-1.40	2000	1848.24	909	0.0	17,256.0	1,321,567.6	0.0	48,412.8	1,321,567.6	4129	1,321,567.6	4129	
256	2032	2006	2071-2100	December	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	45.00	9.97	0%	42.00	-1.40	2000	1524.24	419	0.0	13,764.0	1,309,251.2	0.0	38,166.0	1,309,251.2	4129	1,309,251.2	4129	
257	2033	2006	2071-2100	January	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	35.00	9.97	0%	26.00	-1.40	2000	1200.24	-771	0.0	10,272.0	1,296,934.8	0.0	27,919.2	1,296,934.8	4129	1,296,934.8	4129	
257	2033	2006	2071-2100	February	28	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	25.00	9.97	0%	16.00	-1.40	2000	876.24	-1281	0.0	6,780.0	1,284,618.4	0.0	17,672.4	1,284,618.4	4129	1,284,618.4	4129	
257	2033	2006	2071-2100	March	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	15.00	9.97	0%	6.00	-1.40	2000	552.24	-1791	0.0	3,288.0	1,272,302.0	0.0	8,178.0	1,272,302.0	4129	1,272,302.0	4129	
257	2033	2006	2071-2100	April	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	5.00	9.97	0%	-4.00	-1.40	2000	228.24	-2301	0.0	-1,796.0	1,260,006.0	0.0	6,682.0	1,260,006.0	4129	1,260,006.0	4129	
257	2033	2006	2071-2100	May	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	0.00	9.97	0%	-9.00	-1.40	2000	0.00	-2811	0.0	-3,306.0	1,247,700.0	0.0	5,576.0	1,247,700.0	4129	1,247,700.0	4129	
257	2033	2006	2071-2100	June	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-5.00	9.97	0%	-14.00	-1.40	2000	-324.00	-3321	0.0	-4,820.0	1,235,384.0	0.0	4,460.0	1,235,384.0	4129	1,235,384.0	4129	
257	2033	2006	2071-2100	July	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-10.00	9.97	0%	-19.00	-1.40	2000	-648.00	-3831	0.0	-6,334.0	1,223,078.0	0.0	3,354.0	1,223,078.0	4129	1,223,078.0	4129	
257	2033	2006	2071-2100	August	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-15.00	9.97	0%	-24.00	-1.40	2000	-972.00	-3941	0.0	-7,848.0	1,210,772.0	0.0	2,248.0	1,210,772.0	4129	1,210,772.0	4129	
257	2033	2006	2071-2100	September	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-20.00	9.97	0%	-29.00	-1.40	2000	-1296.00	-4051	0.0	-9,362.0	1,198,466.0	0.0	1,142.0	1,198,466.0	4129	1,198,466.0	4129	
257	2033	2006	2071-2100	October	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-25.00	9.97	0%	-34.00	-1.40	2000	-1620.00	-4161	0.0	-10,876.0	1,186,160.0	0.0	0.0	1,186,160.0	4129	1,186,160.0	4129	
257	2033	2006	2071-2100	November	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-30.00	9.97	0%	-39.00	-1.40	2000	-1944.00	-4271	0.0	-12,390.0	1,173,854.0	0.0	-1,180.0	1,173,854.0	4129	1,173,854.0	4129	
257	2033	2006	2071-2100	December	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-35.00	9.97	0%	-44.00	-1.40	2000	-2268.00	-4381	0.0	-13,904.0	1,161,548.0	0.0	-2,174.0	1,161,548.0	4129	1,161,548.0	4129	
258	2034	2007	2071-2100	January	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-40.00	9.97	0%	-49.00	-1.40	2000	-2592.00	-4491	0.0	-15,418.0	1,149,242.0	0.0	-3,168.0	1,149,242.0	4129	1,149,242.0	4129	
258	2034	2007	2071-2100	February	28	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-45.00	9.97	0%	-54.00	-1.40	2000	-2916.00	-4601	0.0	-16,932.0	1,136,936.0	0.0	-4,162.0	1,136,936.0	4129	1,136,936.0	4129	
258	2034	2007	2071-2100	March	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-50.00	9.97	0%	-59.00	-1.40	2000	-3240.00	-4711	0.0	-18,446.0	1,124,630.0	0.0	-5,156.0	1,124,630.0	4129	1,124,630.0	4129	
258	2034	2007	2071-2100	April	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-55.00	9.97	0%	-64.00	-1.40	2000	-3564.00	-4821	0.0	-19,960.0	1,112,324.0	0.0	-6,150.0	1,112,324.0	4129	1,112,324.0	4129	
258	2034	2007	2071-2100	May	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-60.00	9.97	0%	-69.00	-1.40	2000	-3888.00	-4931	0.0	-21,474.0	1,100,018.0	0.0	-7,144.0	1,100,018.0	4129	1,100,018.0	4129	
258	2034	2007	2071-2100	June	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-65.00	9.97	0%	-74.00	-1.40	2000	-4212.00	-5041	0.0	-22,988.0	1,087,712.0	0.0	-8,138.0	1,087,712.0	4129	1,087,712.0	4129	
258	2034	2007	2071-2100	July	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-70.00	9.97	0%	-79.00	-1.40	2000	-4536.00	-5151	0.0	-24,502.0	1,075,406.0	0.0	-9,132.0	1,075,406.0	4129	1,075,406.0	4129	
258	2034	2007	2071-2100	August	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-75.00	9.97	0%	-84.00	-1.40	2000	-4860.00	-5261	0.0	-26,016.0	1,063,100.0	0.0	-10,126.0	1,063,100.0	4129	1,063,100.0	4129	
258	2034	2007	2071-2100	September	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-80.00	9.97	0%	-89.00	-1.40	2000	-5184.00	-5371	0.0	-27,530.0	1,050,794.0	0.0	-11,120.0	1,050,794.0	4129	1,050,794.0	4129	
258	2034	2007	2071-2100	October	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-85.00	9.97	0%	-94.00	-1.40	2000	-5508.00	-5481	0.0	-29,044.0	1,038,488.0	0.0	-12,114.0	1,038,488.0	4129	1,038,488.0	4129	
258	2034	2007	2071-2100	November	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-90.00	9.97	0%	-99.00	-1.40	2000	-5832.00	-5591	0.0	-30,558.0	1,026,182.0	0.0	-13,108.0	1,026,182.0	4129	1,026,182.0	4129	
258	2034	2007	2071-2100	December	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-95.00	9.97	0%	-104.00	-1.40	2000	-6156.00	-5701	0.0	-32,072.0	1,013,876.0	0.0	-14,102.0	1,013,876.0	4129	1,013,876.0	4129	
259	2035	2008	2071-2100	January	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-100.00	9.97	0%	-109.00	-1.40	2000	-6480.00	-5811	0.0	-33,586.0	1,001,570.0	0.0	-15,096.0	1,001,570.0	4129	1,001,570.0	4129	
259	2035	2008	2071-2100	February	28	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-105.00	9.97	0%	-114.00	-1.40	2000	-6804.00	-5921	0.0	-35,100.0	989,264.0	0.0	-16,090.0	989,264.0	4129	989,264.0	4129	
259	2035	2008	2071-2100	March	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-110.00	9.97	0%	-119.00	-1.40	2000	-7128.00	-6031	0.0	-36,614.0	976,958.0	0.0	-17,084.0	976,958.0	4129	976,958.0	4129	
259	2035	2008	2071-2100	April	30	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-115.00	9.97	0%	-124.00	-1.40	2000	-7452.00	-6141	0.0	-38,128.0	964,652.0	0.0	-18,078.0	964,652.0	4129	964,652.0	4129	
259	2035	2008	2071-2100	May	31	4185	1591.620	4129	1,370,833	0.16092	100	-1.20	-120.00	9.97	0%	-129.00	-1.40													

Table 12c: Multi-year Wet Cover Model (2032-2432): 200 m² d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of TSP (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m ³ /d)	TSP Inflows (m ³)				TSP Outflows (m ³)				Net Inflow- Outflows (m ³)	End of Month Volume before Discharge (m ³)	Discharge Volume (m ³)	End of Month Volume after Discharge (m ³)	List of Month WSEL after Discharge (m)	
										Area (m ²)	Runoff Coefficients	Area (m ²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflows	Pond Evaporation	Seepage	Sublimation Losses	Wind Drift Losses						Total Outflows
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.41	1,521,038.5	0.10	11,430.8	0.45	1.48	-2.95	72.60	-6.42	21%	0.00	+11.81	200.00	48,973.3	455.5	0.0	49,357.7	7,354.1	0.00	0.0	0.0	13,304.1	35,973.7	1,527,012.2	0.0	1,527,012.2	418.45	
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.45	1,527,012.2	0.10	11,430.8	0.45	1.70	-2.95	100.50	-6.42	7%	0.00	+11.84	200.00	68,382.8	552.0	0.0	68,934.8	58,142.0	0.20	0.0	0.0	64,342.0	2,592.8	1,529,419.4	0.0	1,529,419.4	418.46	
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.46	1,528,111.2	0.10	11,430.8	0.45	1.98	-2.95	117.70	-6.97	0%	130.00	+13.22	200.00	72,226.6	603.0	0.0	72,830.0	68,052.4	0.00	0.0	0.0	64,652.4	2,184.7	1,527,926.7	0.0	1,527,926.7	418.43	
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.43	1,527,926.7	0.10	11,430.8	0.45	20.42	-2.90	151.10	-9.97	0%	148.00	+16.18	200.00	75,547.8	626.2	0.0	76,174.0	65,912.2	0.20	0.0	0.0	122,131.2	55,955.1	1,571,811.2	0.0	1,571,811.2	418.39	
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.39	1,511,811.2	0.10	11,430.8	0.45	15.84	-2.90	159.30	-9.97	0%	78.40	+16.40	200.00	87,840.1	814.4	0.0	88,654.5	81,834.1	0.20	0.0	0.0	88,034.1	8,620.4	1,520,231.6	0.0	1,520,231.6	418.45	
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.45	1,522,914.4	0.10	11,430.8	0.45	8.42	-2.95	97.90	-6.42	0%	47.90	+14.85	200.00	39,744.3	339.9	0.0	40,084.2	38,913.3	0.00	0.0	0.0	39,913.3	461.9	1,523,314.4	0.0	1,523,314.4	418.45	
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.45	1,522,914.4	0.10	11,430.8	0.45	4.65	-2.95	36.60	-6.42	32%	37.20	+16.25	200.00	28,454.4	230.7	0.0	28,685.1	26,873.3	0.20	0.0	0.0	33,073.3	4,204.1	1,527,118.5	0.0	1,527,118.5	418.44	
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.44	1,548,599.3	0.10	11,430.8	0.45	3.40	-2.95	20.80	-6.42	93%	0.00	0	200.00	18,834.4	140.0	0.0	18,974.4	0.0	0.00	0.0	0.00	0.0	18,834.4	1,764.7	1,550,364.0	0.0	1,550,364.0	418.46
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.40	1,593,314.4	0.10	11,430.8	0.45	8.94	-1.60	19.00	-7.30	98%	0.00	0	200.00	18,834.4	124.9	0.0	18,959.3	0.0	0.00	0.0	0.0	0.0	18,834.4	1,684.6	1,595,000.0	0.0	1,595,000.0	418.47
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.47	1,568,468.8	0.10	11,430.8	0.45	-15.20	-3.60	82.60	-7.30	96%	0.00	0	200.00	55,693.4	462.4	0.0	56,155.8	0.0	0.00	0.0	0.00	0.0	56,155.8	1,618,340.3	26,727.8	1,591,632.0	418.50	
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	0.10	11,430.8	0.45	-14.38	-3.60	24.50	-7.30	96%	0.00	0	200.00	18,670.5	163.6	0.0	18,834.1	0.0	0.00	0.0	0.00	0.0	18,670.5	1,603,896.6	14,224.1	1,591,632.0	418.50	
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	0.10	11,430.8	0.45	-8.92	-2.95	48.60	-6.42	97%	0.00	0	200.00	34,153.5	294.0	0.0	34,447.4	0.0	0.00	0.0	0.00	0.0	34,447.4	1,611,911.9	28,274.4	1,591,632.0	418.50	
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	0.10	11,430.8	0.45	0.27	-2.95	38.90	-6.42	22%	0.00	+11.81	200.00	28,021.5	231.1	0.0	28,252.6	7,304.1	0.00	0.0	0.0	13,304.1	14,948.5	1,606,931.1	14,985.0	1,591,632.0	418.50	
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	0.10	11,430.8	0.45	12.42	-2.95	46.90	-6.42	0%	120.00	+11.84	200.00	31,426.5	281.9	0.0	31,708.4	30,926.0	0.00	0.0	0.0	84,290.0	26,317.6	1,620,261.0	0.0	1,620,261.0	418.43	
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,535,011.2	0.10	11,430.8	0.45	16.46	-2.95	36.30	-9.97	0%	102.40	+13.22	200.00	38,970.3	490.4	0.0	39,460.7	36,913.2	0.00	0.0	0.0	72,673.2	12,562.6	1,522,768.4	0.0	1,522,768.4	418.41	
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.41	1,522,768.4	0.10	11,430.8	0.45	21.71	-2.90	89.30	-9.97	0%	137.88	+16.18	200.00	42,268.8	351.3	0.0	42,620.1	38,118.1	0.20	0.0	0.0	93,318.1	32,697.7	1,470,070.7	0.0	1,470,070.7	418.34	
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.34	1,470,070.7	0.10	11,430.8	0.45	16.52	-2.95	141.10	-9.97	0%	89.70	+16.40	200.00	46,933.8	715.7	0.0	47,649.5	38,848.0	0.00	0.0	0.0	85,024.0	27,176.3	1,497,247.0	0.0	1,497,247.0	418.37	
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.37	1,481,766.5	0.10	11,430.8	0.45	10.56	-2.95	67.90	-6.42	0%	47.90	+14.85	200.00	45,970.5	362.3	0.0	46,332.8	33,017.1	0.00	0.0	0.0	39,817.1	6,515.7	1,488,282.2	0.0	1,488,282.2	418.38	
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.38	1,488,282.2	0.10	11,430.8	0.45	6.21	-2.95	48.80	-6.42	3%	40.30	+16.25	200.00	34,163.3	284.0	0.0	34,447.3	28,792.9	0.20	0.0	0.0	34,862.9	563.5	1,487,747.7	0.0	1,487,747.7	418.38	
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.38	1,487,747.7	0.10	11,430.8	0.45	2.13	-2.95	23.60	-6.42	3%	0.00	0	200.00	18,014.4	164.4	0.0	18,178.8	0.0	0.00	0.0	0.00	0.0	18,014.4	1,510,666.6	0.0	1,510,666.6	418.39	
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.39	1,510,666.6	0.10	11,430.8	0.45	-14.52	-3.60	91.40	-7.30	96%	0.00	0	200.00	23,958.8	199.1	0.0	24,157.9	0.0	0.00	0.0	0.00	0.0	23,958.8	1,528,627.2	0.0	1,528,627.2	418.42	
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.42	1,528,627.2	0.10	11,430.8	0.45	-18.13	-3.60	44.20	-7.30	99%	0.00	0	200.00	31,863.3	264.9	0.0	32,128.2	0.0	0.00	0.0	0.00	0.0	32,128.2	1,564,138.4	0.0	1,564,138.4	418.45	
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.45	1,564,138.4	0.10	11,430.8	0.45	-10.89	-3.60	30.30	-7.30	98%	0.00	0	200.00	23,293.2	193.4	0.0	23,486.6	0.0	0.00	0.0	0.00	0.0	23,293.2	1,571,360.0	0.0	1,571,360.0	418.47	
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.47	1,571,360.0	0.10	11,430.8	0.45	-8.49	-3.60	53.90	-6.42	7%	0.00	0	200.00	37,330.0	310.3	0.0	37,640.3	0.0	0.00	0.0	0.00	0.0	37,330.0	1,603,600.3	12,167.7	1,591,632.0	418.50	
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	0.10	11,430.8	0.45	4.90	-2.95	63.90	-6.42	0%	0.00	+11.81	200.00	43,466.7	361.7	0.0	43,828.4	7,354.1	0.00	0.0	0.0	13,304.1	35,524.3	1,622,185.9	35,563.4	1,591,632.0	418.50	
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	0.10	11,430.8	0.45	15.60	-2.95	12.60	-6.42	0%	135.76	+11.84	200.00	1,188.6	18.9	0.0	1,207.5	3,269.9	0.00	0.0	0.0	97,498.9	45,512.2	1,637,198.3	0.0	1,637,198.3	418.39	
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,506,118.3	0.10	11,430.8	0.45	18.12	-2.90	133.70	-9.97	0%	118.89	+16.25	200.00	42,104.8	662.8	0.0	42,767.6	36,212.7	0.00	0.0	0.0	82,212.7	574.8	1,506,693.1	0.0	1,506,693.1	418.39	
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,506,693.1	0.10	11,430.8	0.45	19.17	-2.90	63.70	-9.97	0%	141.64	+16.18	200.00	48,824.9	322.7	0.0	49,146.6	37,434.9	0.20	0.0	0.0	97,634.9	26,202.3	1,480,490.9	0.0	1,480,490.9	418.31	
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.31	1,448,185.9	0.10	11,430.8	0.45	18.62	-2.90																					

Model Inputs	
First Year of Simulation	2032
Source of Climate Record	Actual
Climate Change Scenario	CP2.4.5
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,991,622.6
Area of Open Water Within TSP (m²)	610,665
Rainfall Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m²)	11,433.8
Rainfall Coefficient for Restored Lands Within TSP	0.5
Seepage from TSP (m³/day)	3.3
Supplementary Water Addition (m³/day)	0
Trigger Elevation for Supplemental Water Addition (mASL)	416.0
Sublimation Losses in Winter (mm/day)	0%
Wind Drift Losses in Winter (mm/day)	0%

NOTES: 1. The climate projection was derived from the projection of the TSP basin from the next water year.
2. Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 13a: Multi-year Wet Cover Model (2032-2432): 3.13 m³/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Year	Month	Forecast Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Restored Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	Open Water TSP Inflows (m³)	Restored TSP Inflows (m³)	Supplementary Water Inflows (m³)	Total Inflows (m³)	Pool Evaporation (m³)	Average TSP Outflows (m³)	Sublimation (m³)	Wind Drift Losses (m³)	Total Outflows (m³)	Net Inflows (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	
1	2032	1999	2011-2040	January	31	416.5	1,991,622.6	414.3	1,539,863.0	416,992.2	1.00	14.50	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.33	63,877.6	512.2	0.0	64,489.8	0.0	0.0	0.0	64,517	1,604,201.2	12,688.7	1,991,622.6	416.0	1,539,863.0
2	2032	1999	2011-2040	February	28	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	-12.78	-2.10	14.70	-6.47	100%	0.00	0	3.33	130,830.0	108.9	0.0	131,163.3	0.0	0.0	0.0	131,174	1,604,746.8	13,143.0	1,991,622.6	416.0	1,539,863.0
3	2032	1999	2011-2040	March	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	-7.99	-2.10	15.10	-6.47	100%	0.00	0	3.33	197,674.0	763.0	0.0	198,007.0	0.0	0.0	0.0	198,010	1,605,793.3	13,614.7	1,991,622.6	416.0	1,539,863.0
4	2032	1999	2011-2040	April	30	416.5	1,991,622.6	415.0	1,539,863.0	416,992.2	1.00	14.50	0.45	-2.44	-2.10	19.40	-6.47	0%	-19.32	0	3.33	142,883.0	124.1	0.0	143,216.3	0.0	0.0	0.0	143,219	1,606,932.2	14,082.2	1,991,622.6	416.0	1,539,863.0
5	2032	1999	2011-2040	May	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	9.93	-2.30	30.20	-6.47	0%	-9.12	3.33	158,880.0	294.7	0.0	159,213.3	0.0	0.0	0.0	159,216	1,608,176.0	14,550.9	1,991,622.6	416.0	1,539,863.0	
6	2032	1999	2011-2040	June	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	11.08	-2.10	40.80	-6.37	0%	-10.40	-2.49	3.33	172,793.0	392.2	0.0	173,125.7	0.0	0.0	0.0	173,129	1,610,410.9	15,019.1	1,991,622.6	416.0	1,539,863.0
7	2032	1999	2011-2040	July	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	17.43	-2.10	118.50	-6.37	0%	-10.40	-2.49	3.33	193,622.0	576.8	0.0	193,955.8	0.0	0.0	0.0	193,959	1,612,649.6	15,487.3	1,991,622.6	416.0	1,539,863.0
8	2032	1999	2011-2040	August	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	18.00	-2.10	169.00	-6.37	0%	-10.40	-2.49	3.33	142,824.0	764.6	0.0	143,157.6	0.0	0.0	0.0	143,161	1,614,888.2	15,955.5	1,991,622.6	416.0	1,539,863.0
9	2032	1999	2011-2040	September	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	17.68	-2.10	107.00	-6.37	0%	-10.40	-2.49	3.33	108,808.0	461.1	0.0	109,141.1	0.0	0.0	0.0	109,145	1,617,126.8	16,424.7	1,991,622.6	416.0	1,539,863.0
10	2032	1999	2011-2040	October	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	21.77	-2.30	63.50	-4.73	9%	-10.40	-2.49	3.33	49,250.0	351.0	0.0	49,583.0	0.0	0.0	0.0	49,587	1,619,365.4	16,893.0	1,991,622.6	416.0	1,539,863.0
11	2032	1999	2011-2040	November	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	3.87	-2.30	34.20	-4.73	89%	0.00	0	3.33	24,683.0	203.3	0.0	25,016.3	0.0	0.0	0.0	25,020	1,621,604.0	17,362.0	1,991,622.6	416.0	1,539,863.0
12	2032	1999	2011-2040	December	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	-10.72	-2.10	34.20	-6.47	100%	0.00	0	3.33	25,874.0	215.4	0.0	26,207.3	0.0	0.0	0.0	26,211	1,623,843.6	17,831.0	1,991,622.6	416.0	1,539,863.0
13	2033	1970	2011-2040	January	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	-16.40	-2.10	34.40	-6.47	100%	0.00	0	3.33	24,944.0	215.4	0.0	25,277.3	0.0	0.0	0.0	25,281	1,626,083.2	18,300.0	1,991,622.6	416.0	1,539,863.0
14	2033	1970	2011-2040	February	28	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	-17.30	-2.10	32.20	-6.47	100%	0.00	0	3.33	24,944.0	215.4	0.0	25,277.3	0.0	0.0	0.0	25,281	1,628,322.8	18,769.0	1,991,622.6	416.0	1,539,863.0
15	2033	1970	2011-2040	March	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	-8.78	-2.10	34.80	-4.73	91%	0.00	0	3.33	24,944.0	204.4	0.0	25,277.3	0.0	0.0	0.0	25,281	1,630,562.4	19,238.0	1,991,622.6	416.0	1,539,863.0
16	2033	1970	2011-2040	April	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	-0.31	-2.10	34.80	-4.73	93%	0.00	0	3.33	16,825.5	306.2	0.0	17,158.7	0.0	0.0	0.0	17,162	1,632,802.0	19,707.0	1,991,622.6	416.0	1,539,863.0
17	2033	1970	2011-2040	May	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	7.42	-2.10	49.50	-4.73	0%	-10.40	-2.49	3.33	108,288.0	484.7	0.0	108,621.3	0.0	0.0	0.0	108,625	1,635,041.6	20,176.0	1,991,622.6	416.0	1,539,863.0
18	2033	1970	2011-2040	June	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	17.68	-2.10	107.00	-6.37	0%	-10.40	-2.49	3.33	108,808.0	461.1	0.0	109,141.1	0.0	0.0	0.0	109,145	1,637,280.8	20,645.0	1,991,622.6	416.0	1,539,863.0
19	2033	1970	2011-2040	July	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	20.83	-2.10	167.00	-6.37	0%	-10.40	-2.49	3.33	129,230.0	274.3	0.0	129,563.3	0.0	0.0	0.0	129,567	1,639,519.4	21,114.0	1,991,622.6	416.0	1,539,863.0
20	2033	1970	2011-2040	August	31	416.5	1,991,622.6	414.1	1,622,914.0	416,992.2	1.00	14.50	0.45	18.08	-2.10	122.20	-6.37	0%	-10.40	-2.49	3.33	128,311.0	238.8	0.0	128,549.8	0.0	0.0	0.0	128,553	1,641,758.0	21,583.0	1,991,622.6	416.0	1,539,863.0
21	2033	1970	2011-2040	September	30	416.5	1,991,622.6	414.3	1,485,432.0	416,992.2	1.00	14.50	0.45	11.88	-2.10	134.20	-4.73	2%	-48.89	-4.68	3.33	61,311.0	717.7	0.0	61,644.3	0.0	0.0	0.0	61,648	1,644,000.6	22,052.0	1,991,622.6	416.0	1,539,863.0
22	2033	1970	2011-2040	October	31	416.5	1,991,622.6	414.3	1,539,863.0	416,992.2	1.00	14.50	0.45	-5.65	-2.10	19.30	-4.73	0%	-4.28	-3.33	3.33	83,252.0	674.0	0.0	83,585.3	0.0	0.0	0.0	83,589	1,646,239.2	22,521.0	1,991,622.6	416.0	1,539,863.0
23	2033	1970	2011-2040	November	30	416.5	1,991,622.6	414.3	1,539,863.0	416,992.2	1.00	14.50	0.45	-14.20	-2.10	19.30	-4.73	0%	-4.28	-3.33	3.33	10,891.0	261.1	0.0	11,224.3	0.0	0.0	0.0	11,228	1,648,478.8	22,990.0	1,991,622.6	416.0	1,539,863.0
24	2033	1970	2011-2040	December	31	416.5	1,991,622.6	414.3	1,539,863.0	416,992.2	1.00	14.50	0.45	-15.40	-2.10	43.90	-6.47	97%	0.00	0	3.33	31,153.5	291.1	0.0	31,486.8	0.0	0.0	0.0	31,491	1,650,718.4	23,459.0	1,991,622.6	416.0	1,539,863.0
25	2034	1971	2011-2040	January	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	-21.40	-2.10	15.50	-6.47	100%	0.00	0	3.33	13,589.9	113.0	0.0	13,923.2	0.0	0.0	0.0	13,927	1,652,958.0	23,928.0	1,991,622.6	416.0	1,539,863.0
26	2034	1971	2011-2040	February	28	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	-13.57	-2.10	27.80	-6.47	97%	0.00	0	3.33	21,386.0	176.3	0.0	21,719.3	0.0	0.0	0.0	21,723	1,655,197.6	24,397.0	1,991,622.6	416.0	1,539,863.0
27	2034	1971	2011-2040	March	31	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.00	14.50	0.45	-7.96	-2.10	49.80	-4.73	0%	-10.40	-2.49	3.33	107,823.0	261.1	0.0	108,156.3	0.0	0.0	0.0	108,160	1,657,437.2	24,866.0	1,991,622.6	416.0	1,539,863.0
28	2034	1971	2011-2040	April	30	416.5	1,991,622.6	415.0	1,591,632.0	416,992.2	1.																							

Table 13a: Multi-year Wet Cover Model (2032-2432): 3.13 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Snowmelt (mm)	Open Water	TSF Inflows (m³)		TSF Outflows (m³)		Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)									
																			Open Water	Restored Wetland	Supplementary Wetland	Total Inflow							Restored Wetland	Supplementary Wetland	Total Outflow						
278	2034	1978	2071-2100	October	31	4185	1,591,622.0	418.36	1,488,233.0	1,616,502.0	1.00	11.53	0.45	-0.40	-1.00	-0.55	-0.68	0%	35.84	-8.93	3.13	26,818.0	159.8	0.0	16,864.6	27,652.0	0.0	0.0	0.0	27,780.0	1,634.4	1,477,488.0	0.0	1,477,488.0	418.35	1,477,488.0	
279	2034	1978	2071-2100	November	30	4185	1,591,622.0	418.35	1,477,689.0	1,616,502.0	1.00	11.53	0.45	-0.40	-1.00	-0.55	-0.68	0%	35.84	-8.93	3.13	26,818.0	159.8	0.0	16,864.6	27,652.0	0.0	0.0	0.0	27,780.0	1,634.4	1,477,488.0	0.0	1,477,488.0	418.34	1,477,488.0	
279	2034	1978	2071-2100	December	31	4185	1,591,622.0	418.34	1,463,118.0	1,616,502.0	1.00	11.53	0.45	-0.40	-1.00	-0.55	-0.68	0%	35.84	-8.93	3.13	26,818.0	159.8	0.0	16,864.6	27,652.0	0.0	0.0	0.0	27,780.0	1,634.4	1,463,118.0	0.0	1,463,118.0	418.33	1,463,118.0	
279	2035	1979	2071-2100	January	31	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.43	1,541,651.0
279	2035	1979	2071-2100	February	28	4185	1,591,622.0	418.43	1,541,651.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.44	1,541,651.0
279	2035	1979	2071-2100	March	31	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.43	1,541,651.0
279	2035	1979	2071-2100	April	30	4185	1,591,622.0	418.50	1,591,622.0	1,616,502.0	1.00	11.53	0.45	-0.40	-1.00	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,591,622.0	0.0	1,591,622.0	418.50	1,591,622.0
279	2035	1979	2071-2100	May	31	4185	1,591,622.0	418.50	1,591,622.0	1,616,502.0	1.00	11.53	0.45	-0.40	-1.00	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,591,622.0	0.0	1,591,622.0	418.48	1,591,622.0
279	2035	1979	2071-2100	June	30	4185	1,591,622.0	418.48	1,584,844.0	1,616,502.0	1.00	11.53	0.45	-0.40	-1.00	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,584,844.0	0.0	1,584,844.0	418.46	1,584,844.0
279	2035	1979	2071-2100	July	31	4185	1,591,622.0	418.42	1,541,651.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
279	2035	1979	2071-2100	August	31	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
279	2035	1979	2071-2100	September	30	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
279	2035	1979	2071-2100	October	31	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
279	2035	1979	2071-2100	November	30	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
279	2035	1979	2071-2100	December	31	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
280	2036	1980	2071-2100	January	31	4185	1,591,622.0	418.45	1,565,844.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,565,844.0	0.0	1,565,844.0	418.49	1,565,844.0
280	2036	1980	2071-2100	February	28	4185	1,591,622.0	418.45	1,565,844.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,565,844.0	0.0	1,565,844.0	418.48	1,565,844.0
280	2036	1980	2071-2100	March	31	4185	1,591,622.0	418.45	1,565,844.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,565,844.0	0.0	1,565,844.0	418.48	1,565,844.0
280	2036	1980	2071-2100	April	30	4185	1,591,622.0	418.50	1,591,622.0	1,616,502.0	1.00	11.53	0.45	-0.40	-1.00	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,591,622.0	0.0	1,591,622.0	418.50	1,591,622.0
280	2036	1980	2071-2100	May	31	4185	1,591,622.0	418.50	1,591,622.0	1,616,502.0	1.00	11.53	0.45	-0.40	-1.00	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,591,622.0	0.0	1,591,622.0	418.50	1,591,622.0
280	2036	1980	2071-2100	June	30	4185	1,591,622.0	418.48	1,584,844.0	1,616,502.0	1.00	11.53	0.45	-0.40	-1.00	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,584,844.0	0.0	1,584,844.0	418.48	1,584,844.0
280	2036	1980	2071-2100	July	31	4185	1,591,622.0	418.42	1,541,651.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
280	2036	1980	2071-2100	August	31	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
280	2036	1980	2071-2100	September	30	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
280	2036	1980	2071-2100	October	31	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
280	2036	1980	2071-2100	November	30	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
280	2036	1980	2071-2100	December	31	4185	1,591,622.0	418.42	1,509,911.0	1,616,502.0	1.00	11.53	0.45	-0.20	-0.80	-1.00	-1.00	0%	0.0	0.0	0.0	11,250.0	10.0	0.0	0.0	11,250.0	9.7	0.0	0.0	0.0	0.0	11,250.0	1,541,651.0	0.0	1,541,651.0	418.42	1,541,651.0
281	2037	1981	2071-2100	January	31	4185	1,591,622.0	418.45	1,565,844.0	1,616,502.0</																											

Table 13a: Multi-year Wet Cover Model (2032-2432): 3.13 m³/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSP Inflows (m³)				TSP Outflows (m³)				Net Inflow/Outflow (m³)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Plant Evaporation	Average	Sublimation Losses	Wind Drift Losses					
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	+0.00	22.60	-5.68	21%	82.15	+0.30	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	+0.00	100.90	-5.68	7%	82.15	+0.30	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.98	+0.00	177.70	-5.68	0%	82.15	+0.30	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.47	1,575,122.2	1,430.0	0.45	2.04	+0.00	191.10	-5.68	0%	82.15	+0.30	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.44			
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.44	1,548,912.3	1,430.0	0.45	1.84	+0.00	159.30	-5.68	0%	79.40	+0.34	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.50	1,567,586.4	1,430.0	0.45	1.42	+0.00	97.90	+5.68	0%	47.90	+0.01	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.05	+0.00	36.60	+5.68	32%	37.20	+0.93	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.46	+0.00	20.80	+5.68	93%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.36	+0.00	19.00	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.26	+0.00	16.20	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.26	+0.00	16.20	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.25	+0.00	16.00	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.27	+0.00	16.30	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.24	+0.00	16.00	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,575,122.2	1,430.0	0.45	0.46	+0.00	16.90	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.44			
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.41	1,548,912.3	1,430.0	0.45	0.40	+0.00	16.30	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.34			
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.34	1,471,773.2	1,430.0	0.45	0.32	+0.00	16.10	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.39			
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.38	1,487,287.1	1,430.0	0.45	0.36	+0.00	15.90	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.39			
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.39	1,487,287.1	1,430.0	0.45	0.31	+0.00	15.80	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.39			
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.39	1,487,287.1	1,430.0	0.45	0.23	+0.00	15.60	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.42			
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.42	1,458,977.5	1,430.0	0.45	0.20	+0.00	15.40	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.45			
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.45	1,458,977.5	1,430.0	0.45	0.18	+0.00	15.20	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.18	+0.00	15.20	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.19	+0.00	15.30	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.19	+0.00	15.30	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.18	+0.00	15.20	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.50			
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,487,287.1	1,430.0	0.45	0.18	+0.00	15.20	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.39			
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,487,287.1	1,430.0	0.45	0.17	+0.00	15.10	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.32			
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.35	1,451,947.4	1,430.0	0.45	0.16	+0.00	15.00	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.26			
325	2431	1976	2071-2100	September	30	418.5	1,591,632.0	418.26	1,418,188.9	1,430.0	0.45	0.15	+0.00	14.90	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.23			
325	2431	1976	2071-2100	October	31	418.5	1,591,632.0	418.23	1,386,839.4	1,430.0	0.45	0.14	+0.00	14.80	+10.20	96%	0.00	0	3.13	48,423.7	402.7	0.0	48,826.3	10,102.3	0.0	0.0	10,106.2	38,632.7	38,632.7	1,591,632.0	418.20			
325	2431	1976	2071-2100	November	30	418.5	1,591,632.0	418.20	1																									

Table 13b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Forecast Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Forecast Operations Area (m ²)	Forecast Temperature (C)	Forecast Precipitation (mm)	Forecast Evaporation (mm)	Forecast Sublimation (mm)	Forecast Snow Accumulation (mm)	Forecast Snowmelt (mm)	Forecast Runoff (mm)	Forecast Inflow (mm)	Forecast Outflow (mm)	Forecast Net Inflow (mm)	Forecast End of Month WSEL (m)	Forecast End of Month Volume (m ³)	Forecast Discharge Volume (m ³)	Forecast End of Month Discharge (m ³)	Forecast End of Month WSEL after Discharge (m)						
2021	2023	2010	2021-2010	April	30	4185	1591.622	4184	1577.410	4185.002	1.00	11.53	-0.45	-5.68	3%	8.74	+1.33	37.30	30.033	251.0	0.0	30.673	15.930	930.0	0.0	15.448	4227.5	1.602.181	5.9	1.591.622	4185.0
2021	2023	2010	2021-2010	May	31	4185	1591.622	4185	1591.622	4185.002	1.00	12.00	-0.50	-5.68	4%	9.87	+1.33	37.30	30.033	251.0	0.0	31.019	17.260	930.0	0.0	17.319	4255.6	1.602.181	6.0	1.591.622	4185.0
2021	2023	2010	2021-2010	June	30	4185	1591.622	4185	1591.622	4185.002	1.00	12.50	-0.50	-5.68	5%	11.00	+1.33	37.30	30.033	251.0	0.0	31.365	18.590	930.0	0.0	18.619	4283.7	1.602.181	6.1	1.591.622	4185.0
2021	2023	2010	2021-2010	July	31	4185	1591.622	4185	1591.622	4185.002	1.00	13.00	-0.50	-5.68	6%	12.10	+1.33	37.30	30.033	251.0	0.0	31.711	19.920	930.0	0.0	19.973	4311.8	1.602.181	6.2	1.591.622	4185.0
2021	2023	2010	2021-2010	August	31	4185	1591.622	4185	1591.622	4185.002	1.00	13.50	-0.50	-5.68	7%	13.20	+1.33	37.30	30.033	251.0	0.0	32.057	21.250	930.0	0.0	21.211	4339.9	1.602.181	6.3	1.591.622	4185.0
2021	2023	2010	2021-2010	September	30	4185	1591.622	4185	1591.622	4185.002	1.00	14.00	-0.50	-5.68	8%	14.30	+1.33	37.30	30.033	251.0	0.0	32.403	22.580	930.0	0.0	22.533	4368.0	1.602.181	6.4	1.591.622	4185.0
2021	2023	2010	2021-2010	October	31	4185	1591.622	4185	1591.622	4185.002	1.00	14.50	-0.50	-5.68	9%	15.40	+1.33	37.30	30.033	251.0	0.0	32.749	23.910	930.0	0.0	23.879	4396.1	1.602.181	6.5	1.591.622	4185.0
2021	2023	2010	2021-2010	November	30	4185	1591.622	4185	1591.622	4185.002	1.00	15.00	-0.50	-5.68	10%	16.50	+1.33	37.30	30.033	251.0	0.0	33.095	25.240	930.0	0.0	25.109	4424.2	1.602.181	6.6	1.591.622	4185.0
2021	2023	2010	2021-2010	December	31	4185	1591.622	4185	1591.622	4185.002	1.00	15.50	-0.50	-5.68	11%	17.60	+1.33	37.30	30.033	251.0	0.0	33.441	26.570	930.0	0.0	26.335	4452.3	1.602.181	6.7	1.591.622	4185.0
2022	2014	2011	2021-2010	January	29	4185	1591.622	4185	1591.622	4185.002	1.00	16.00	-0.50	-5.68	12%	18.70	+1.33	37.30	30.033	251.0	0.0	33.787	27.900	930.0	0.0	27.561	4480.4	1.602.181	6.8	1.591.622	4185.0
2022	2014	2011	2021-2010	February	28	4185	1591.622	4185	1591.622	4185.002	1.00	16.50	-0.50	-5.68	13%	19.80	+1.33	37.30	30.033	251.0	0.0	34.133	29.230	930.0	0.0	28.787	4508.5	1.602.181	6.9	1.591.622	4185.0
2022	2014	2011	2021-2010	March	31	4185	1591.622	4185	1591.622	4185.002	1.00	17.00	-0.50	-5.68	14%	20.90	+1.33	37.30	30.033	251.0	0.0	34.479	30.560	930.0	0.0	30.013	4536.6	1.602.181	7.0	1.591.622	4185.0
2022	2014	2011	2021-2010	April	30	4185	1591.622	4185	1591.622	4185.002	1.00	17.50	-0.50	-5.68	15%	22.00	+1.33	37.30	30.033	251.0	0.0	34.825	31.890	930.0	0.0	31.239	4564.7	1.602.181	7.1	1.591.622	4185.0
2022	2014	2011	2021-2010	May	31	4185	1591.622	4185	1591.622	4185.002	1.00	18.00	-0.50	-5.68	16%	23.10	+1.33	37.30	30.033	251.0	0.0	35.171	33.220	930.0	0.0	32.465	4592.8	1.602.181	7.2	1.591.622	4185.0
2022	2014	2011	2021-2010	June	30	4185	1591.622	4185	1591.622	4185.002	1.00	18.50	-0.50	-5.68	17%	24.20	+1.33	37.30	30.033	251.0	0.0	35.517	34.550	930.0	0.0	33.691	4620.9	1.602.181	7.3	1.591.622	4185.0
2022	2014	2011	2021-2010	July	31	4185	1591.622	4185	1591.622	4185.002	1.00	19.00	-0.50	-5.68	18%	25.30	+1.33	37.30	30.033	251.0	0.0	35.863	35.880	930.0	0.0	34.917	4649.0	1.602.181	7.4	1.591.622	4185.0
2022	2014	2011	2021-2010	August	31	4185	1591.622	4185	1591.622	4185.002	1.00	19.50	-0.50	-5.68	19%	26.40	+1.33	37.30	30.033	251.0	0.0	36.209	37.210	930.0	0.0	36.143	4677.1	1.602.181	7.5	1.591.622	4185.0
2022	2014	2011	2021-2010	September	30	4185	1591.622	4185	1591.622	4185.002	1.00	20.00	-0.50	-5.68	20%	27.50	+1.33	37.30	30.033	251.0	0.0	36.555	38.540	930.0	0.0	37.369	4705.2	1.602.181	7.6	1.591.622	4185.0
2022	2014	2011	2021-2010	October	31	4185	1591.622	4185	1591.622	4185.002	1.00	20.50	-0.50	-5.68	21%	28.60	+1.33	37.30	30.033	251.0	0.0	36.901	39.870	930.0	0.0	38.595	4733.3	1.602.181	7.7	1.591.622	4185.0
2022	2014	2011	2021-2010	November	30	4185	1591.622	4185	1591.622	4185.002	1.00	21.00	-0.50	-5.68	22%	29.70	+1.33	37.30	30.033	251.0	0.0	37.247	41.200	930.0	0.0	39.821	4761.4	1.602.181	7.8	1.591.622	4185.0
2022	2014	2011	2021-2010	December	31	4185	1591.622	4185	1591.622	4185.002	1.00	21.50	-0.50	-5.68	23%	30.80	+1.33	37.30	30.033	251.0	0.0	37.593	42.530	930.0	0.0	41.047	4789.5	1.602.181	7.9	1.591.622	4185.0
2023	2015	2012	2021-2010	January	31	4185	1591.622	4185	1591.622	4185.002	1.00	22.00	-0.50	-5.68	24%	31.90	+1.33	37.30	30.033	251.0	0.0	37.939	43.860	930.0	0.0	42.273	4817.6	1.602.181	8.0	1.591.622	4185.0
2023	2015	2012	2021-2010	February	29	4185	1591.622	4185	1591.622	4185.002	1.00	22.50	-0.50	-5.68	25%	33.00	+1.33	37.30	30.033	251.0	0.0	38.285	45.190	930.0	0.0	43.500	4845.7	1.602.181	8.1	1.591.622	4185.0
2023	2015	2012	2021-2010	March	31	4185	1591.622	4185	1591.622	4185.002	1.00	23.00	-0.50	-5.68	26%	34.10	+1.33	37.30	30.033	251.0	0.0	38.631	46.520	930.0	0.0	44.726	4873.8	1.602.181	8.2	1.591.622	4185.0
2023	2015	2012	2021-2010	April	30	4185	1591.622	4185	1591.622	4185.002	1.00	23.50	-0.50	-5.68	27%	35.20	+1.33	37.30	30.033	251.0	0.0	38.977	47.850	930.0	0.0	45.953	4901.9	1.602.181	8.3	1.591.622	4185.0
2023	2015	2012	2021-2010	May	31	4185	1591.622	4185	1591.622	4185.002	1.00	24.00	-0.50	-5.68	28%	36.30	+1.33	37.30	30.033	251.0	0.0	39.323	49.180	930.0	0.0	47.179	4930.0	1.602.181	8.4	1.591.622	4185.0
2023	2015	2012	2021-2010	June	30	4185	1591.622	4185	1591.622	4185.002	1.00	24.50	-0.50	-5.68	29%	37.40	+1.33	37.30	30.033	251.0	0.0	39.669	50.510	930.0	0.0	48.406	4958.1	1.602.181	8.5	1.591.622	4185.0
2023	2015	2012	2021-2010	July	31	4185	1591.622	4185	1591.622	4185.002	1.00	25.00	-0.50	-5.68	30%	38.50	+1.33	37.30	30.033	251.0	0.0	39.995	51.840	930.0	0.0	49.633	5006.2	1.602.181	8.6	1.591.622	4185.0
2023	2015	2012	2021-2010	August	31	4185	1591.622	4185	1591.622	4185.002	1.00	25.50	-0.50	-5.68	31%	39.60	+1.33	37.30	30.033	251.0	0.0	40.341	53.170	930.0	0.0	50.860	5054.3	1.602.181	8.7	1.591.622	4185.0
2023	2015	2012	2021-2010	September	30	4185	1591.622	4185	1591.622	4185.002	1.00	26.00	-0.50	-5.68	32%	40.70	+1.33	37.30	30.033	251.0	0.0	40.687	54.500	930.0	0.0	52.087	5102.4	1.602.181	8.8	1.591.622	4185.0
2023	2015	2012	2021-2010	October	31	4185	1591.622	4185	1591.622	4185.002	1.00	26.50	-0.50	-5.68	33%	41.80	+1.33	37.30	30.033	251.0	0.0	41.033	55.830	930.0	0.0	53.314	5150.5	1.602.181	8.9	1.591.622	4185.0
2023	2015	2012	2021-2010	November	30	4185	1591.622	4185	1591.622	4185.002	1.00	27.00	-0.50	-5.68	34%	42.90	+1.33	37.30	30.033	251.0	0.0	41.380	57.160	930.0	0.0	54.541	5198.6	1.602.181	9.0	1.591.622	4185.0
2023	2015	2012	2021-2010	December	31	4185	1591.622	4185	1591.622	4185.002	1.00	27.50	-0.50	-5.68	35%	44.00	+1.33	37.30	30.033	251.0	0.0	41.726	58.490	930.0	0.0	55.768	5246.7	1.602.181	9.1	1.591.622	4185.0

Table 13b: Multi-year Wet Cover Model (2022-2432): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Case	Scenario	Forecast Horizon	Month	Day	Invert (Elevation)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	Snowmelt (mm)	Forecast Snowmelt Change (mm)	TSF Inflow (m³)	TSF Outflow (m³)	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month WSEL after Discharge (m)
399	2021	1992	2021-2100	April	30	418.5	1,591,622.0	418.0	1,511,374.0	418,500.0	1.00	-0.00	-0.00	-0.00	0.00	-0.00	0.00	-0.00	0.00	-0.00	32,771.0	267.9	0.0	42,881.0	1,532,714.0	0.0	1,532,714.0	418.3
399	2021	1992	2021-2100	May	31	418.5	1,591,622.0	418.3	1,536,374.0	418,500.0	1.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00	-0.00	32,771.0	267.9	0.0	42,881.0	1,537,942.0	0.0	1,537,942.0	418.7
399	2021	1992	2021-2100	June	30	418.5	1,591,622.0	418.3	1,561,374.0	418,500.0	1.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00	-0.00	32,771.0	267.9	0.0	42,881.0	1,562,714.0	0.0	1,562,714.0	419.1
399	2021	1992	2021-2100	July	31	418.5	1,591,622.0	418.3	1,586,374.0	418,500.0	1.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00	-0.00	32,771.0	267.9	0.0	42,881.0	1,587,942.0	0.0	1,587,942.0	419.5
399	2021	1992	2021-2100	August	31	418.5	1,591,622.0	418.3	1,611,374.0	418,500.0	1.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00	-0.00	32,771.0	267.9	0.0	42,881.0	1,612,714.0	0.0	1,612,714.0	419.9
399	2021	1992	2021-2100	September	30	418.5	1,591,622.0	418.3	1,636,374.0	418,500.0	1.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00	-0.00	32,771.0	267.9	0.0	42,881.0	1,637,942.0	0.0	1,637,942.0	420.3
399	2021	1992	2021-2100	October	31	418.5	1,591,622.0	418.3	1,661,374.0	418,500.0	1.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00	-0.00	32,771.0	267.9	0.0	42,881.0	1,662,714.0	0.0	1,662,714.0	420.7
399	2021	1992	2021-2100	November	30	418.5	1,591,622.0	418.3	1,686,374.0	418,500.0	1.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00	-0.00	32,771.0	267.9	0.0	42,881.0	1,687,942.0	0.0	1,687,942.0	421.1
399	2021	1992	2021-2100	December	31	418.5	1,591,622.0	418.3	1,711,374.0	418,500.0	1.00	-0.00	0.00	0.00	-0.00	-0.00	0.00	-0.00	0.00	-0.00	32,771.0	267.9	0.0	42,881.0	1,712,714.0	0.0	1,712,714.0	421.5
400	2022	1993	2021-2100	January	29	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	February	28	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	March	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	April	30	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	May	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	June	30	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	July	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	August	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	September	30	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	October	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	November	30	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
400	2022	1993	2021-2100	December	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	January	29	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	February	28	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	March	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	April	30	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	May	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	June	30	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	July	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	August	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	September	30	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	October	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	November	30	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
401	2023	1994	2021-2100	December	31	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
402	2024	1995	2021-2100	January	29	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-0.00	-0.20	-0.20	0.00	0.00	0.00	0.00	0.00	0.00	32,771.0	267.9	0.0	42,881.0	1,591,622.0	0.0	1,591,622.0	418.5
402	2024	1995	2021-2100	February	28	418.5	1,591,622.0	418.0	1,591,622.0	418,500.0	1.00	-																

Table 13b: Multi-Year Wet Cover Model (2032-2432): 31.3 m³/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSP Inflows (m³)				TSP Outflows (m³)				Net Inflow/Outflow (m³)	End of Month Volume before discharge (m³)	Discharge Volume (m³)	End of Month Volume after discharge (m³)	List of Month WSEL after discharge (m)		
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pond Evaporation	Average	Sublimation Losses	Wind Drift Losses						Total Outflow	
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	+0.00	22.60	-5.68	21%	0.00	+10.33	31.30	0.00	48,423.7	402.7	0.0	48,826.3	15,102.3	939.0	0.0	0.0	11,041.3	37,785.1	1,629,417.6	37,785.1	1,591,632.0	418.50		
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	+0.00	100.50	+5.68	7%	0.00	+10.33	0.00	66,477.4	61,206.2	930.3	0.0	0.0	62,178.5	4,300.9	1,595,933.5	4,300.9	1,591,632.0	418.50						
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.98	+0.00	1,170.0	+5.68	0%	130.00	+10.33	0.00	87,838.4	86.1	0.0	88,924.5	18,915.5	939.0	0.0	0.0	60,765.5	27,368.0	1,595,271.6	0.0	1,591,632.0	418.47			
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.47	1,595,271.6	1,430.0	0.45	20.42	+4.40	151.0	-0.03	0%	140.91	+10.33	0.00	111,767.0	591.9	0.0	112,358.9	96,781.3	930.3	0.0	0.0	57,791.6	55,083.0	1,543,254.5	0.0	1,543,254.5	418.44			
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.44	1,543,254.5	1,430.0	0.45	18.84	+4.40	159.30	-0.03	0%	79.40	+4.54	0.00	83,568.9	778.1	0.0	84,347.0	11,308.4	930.3	0.0	0.0	52,276.7	42,073.3	1,585,364.8	0.0	1,585,364.8	418.49			
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.49	1,585,364.8	1,430.0	0.45	8.42	+0.00	97.90	+5.68	0%	47.90	+10.33	0.00	39,303.9	327.1	0.0	39,631.0	38,624.6	939.0	0.0	0.0	38,571.6	1,066.2	1,584,451.0	0.0	1,584,451.0	418.50			
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.50	1,585,451.0	1,430.0	0.45	4.05	+0.00	20.60	+5.68	32%	37.20	+8.93	0.00	30,000.9	223.9	0.0	30,224.8	28,533.7	930.3	0.0	0.0	29,566.0	1,262.2	1,587,188.9	0.0	1,587,188.9	418.49			
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.49	1,587,188.9	1,430.0	0.45	-3.40	+0.00	20.80	+5.68	93%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18,916.0	0.0	939.0	0.0	0.0	18,916.0	1,862,797.8	11,135.2	1,591,632.0	418.50			
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.96	+0.00	98.00	+10.20	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18,916.0	0.0	930.3	0.0	0.0	19,103.3	1,867,766.9	158.3	1,591,632.0	418.50			
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-15.20	+6.00	82.60	+10.20	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17,402.2	477.4	0.0	17,879.6	0.0	930.3	0.0	0.0	18,810.3	1,648,542.8	68,913.3	1,591,632.0	418.50
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.30	+0.00	24.50	+10.20	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21,464.4	178.5	0.0	21,642.9	0.0	876.4	0.0	0.0	20,766.4	1,612,399.0	20,766.4	1,591,632.0	418.50
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.92	+0.00	48.60	+5.68	97%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33,717.7	290.3	0.0	34,008.0	0.0	930.3	0.0	0.0	33,111.7	1,634,444.2	33,111.7	1,591,632.0	418.50
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.27	+0.00	88.90	+6.68	22%	0.00	+10.33	0.00	37,573.9	229.3	0.0	37,803.2	18,102.3	939.0	0.0	0.0	11,641.9	18,768.9	1,608,398.5	18,768.9	1,591,632.0	418.50			
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	+0.00	46.90	+0.68	0%	120.00	+10.33	0.00	31,041.9	298.1	0.0	31,340.0	38,968.1	930.3	0.0	0.0	86,963.4	34,466.4	1,626,969.2	0.0	1,626,969.2	418.43			
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,586,969.2	1,430.0	0.45	16.40	+4.40	96.30	-0.03	0%	100.40	+0.00	0.00	30,400.0	464.0	0.0	30,864.0	464.0	939.0	0.0	0.0	68,115.9	1,592,568.4	1,592,568.4	0.0	1,592,568.4	418.41			
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.41	1,523,968.4	1,430.0	0.45	21.71	+4.40	89.30	-0.03	0%	137.89	+10.33	0.00	37,607.7	316.1	0.0	37,923.8	89,968.2	930.3	0.0	0.0	90,338.5	62,725.7	1,471,180.7	0.0	1,471,180.7	418.34			
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.34	1,411,180.7	1,430.0	0.45	16.52	+4.40	161.10	-0.03	0%	89.70	+4.54	0.00	41,622.4	676.5	0.0	42,298.9	56,298.3	930.3	0.0	0.0	92,296.6	23,105.1	1,434,295.8	0.0	1,434,295.8	418.37			
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.37	1,404,295.8	1,430.0	0.45	10.58	+0.00	69.90	+5.68	0%	47.90	+10.33	0.00	40,574.4	378.5	0.0	40,952.9	36,563.3	939.0	0.0	0.0	38,515.1	3,737.6	1,408,033.4	0.0	1,408,033.4	418.38			
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.38	1,403,303.4	1,430.0	0.45	6.21	+0.00	48.80	+5.68	0%	40.30	+8.93	0.00	33,701.7	290.3	0.0	33,992.0	30,453.3	930.3	0.0	0.0	31,423.0	2,569.4	1,405,227.7	0.0	1,405,227.7	418.39			
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.39	1,403,227.7	1,430.0	0.45	2.13	+0.00	23.60	+5.68	79%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18,113.8	168.0	0.0	18,281.8	0.0	939.0	0.0	0.0	17,325.4	1,401,548.1	0.0	1,401,548.1	418.41
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.41	1,403,548.1	1,430.0	0.45	-14.52	+0.00	91.40	+10.20	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28,732.8	214.0	0.0	28,946.8	0.0	930.3	0.0	0.0	28,976.2	1,404,525.3	0.0	1,404,525.3	418.44
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.44	1,404,525.3	1,430.0	0.45	-18.13	+0.00	44.20	+10.20	99%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33,865.2	279.8	0.0	34,145.0	0.0	930.3	0.0	0.0	33,997.7	1,401,486.0	0.0	1,401,486.0	418.49
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.49	1,401,486.0	1,430.0	0.45	-10.89	+0.00	90.30	+10.20	98%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29,925.1	299.3	0.0	30,224.4	0.0	876.4	0.0	0.0	29,346.9	1,403,969.0	14,284.4	1,591,632.0	418.50
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,403,969.0	1,430.0	0.45	-8.49	+0.00	53.90	+5.68	76%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30,300.0	300.5	0.0	30,600.5	0.0	930.3	0.0	0.0	30,102.9	1,407,625.2	36,102.6	1,591,632.0	418.50
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,403,969.0	1,430.0	0.45	4.90	+0.00	63.90	+5.68	0%	0.00	+10.33	0.00	30,300.0	300.5	0.0	30,600.5	307.9	0.0	30,908.4	15,102.3	939.0	0.0	0.0	11,041.3	32,359.8	1,403,991.3	32,359.8	1,591,632.0	418.50
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,403,969.0	1,430.0	0.45	15.60	+0.00	12.60	+5.68	0%	119.76	+10.33	0.00	14,612.2	91.1	0.0	14,703.3	36,364.1	930.3	0.0	0.0	95,334.4	41,606.1	1,407,626.5	0.0	1,407,626.5	418.39			
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,407,626.5	1,430.0	0.45	18.12	+4.40	133.70	-0.03	0%	119.89	+0.00	0.00	17,733.5	644.4	0.0	18,377.9	77,376.4	939.0	0.0	0.0	78,315.4	64.5	1,407,991.0	0.0	1,407,991.0	418.39			
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,407,991.0	1,430.0	0.45	19.17	+4.40	63.70	-0.03	0%	141.64	+10.33	0.00	34,220.0	266.3	0.0	34,486.3	82,285.0	930.3	0.0	0.0	92,255.3	48,512.2	1,406,308.8	0.0	1,406,308.8	418.31			
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.31	1,406,308.8	1,430.0	0.45	18.62	+4.40	67.00	-0.03	0%	122.40	+4.54	0.00	36,538.0	303.8	0.0	36,841.8	74,211.3	930.3	0.0										

Model Inputs	
Year of Simulation	2022
Source of Climate Record	Actual
Climate Change Scenario	CP4.5
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,911,822.6
Area of Open Water Within TSP (m²)	61,646.6
Runoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m²)	14,433.8
Runoff Coefficient for Restored Lands Within TSP	0.5
Storage from TSP (m³)	200.0
Supplementary Water Addition (m³/d)	0.0
Trigger Elevation for Supplemental Water Addition (mASL)	416.0
Substation Losses in Winter (mm/day)	0.0
Wind Drift Losses in Winter (% of snowfall)	0%

NOTES:
 1. The climate record was taken from the period of the TSP basin from the open water.
 2. Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Change in Puff Snow".

Table 13: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Year	Month	Forecast Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Restored Lands Area (m²)	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Average (m/s)	Open Water	Restored Lands	Supplementary Water Addition	Total Inflow	Pool Evaporation	Average	TSP Outflows (m³)	Substation Losses	Wind Drift Losses	Total Outflow	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	
1	2022	1989	2011-2040	January	31	416.5	1,911,822.6	414.3	1,539,863.1	61,652.92	1.00	14,433.80	0.50	-1.00	-0.10	96.80	-6.47	100%	0.00	0.00	0.2000	63,677.6	511.2	0.0	64,188.8	0.0	6,200.0	0.0	6,200.0	64,250.8	1,581,183.3	6,667.7	1,911,822.6	416.0	416.0		
2	2022	1989	2011-2040	February	28	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	1,030.3	108.9	0.0	1,139.2	0.0	6,200.0	0.0	6,200.0	65,189.9	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0		
3	2022	1989	2011-2040	March	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	1,175.4	76.3	0.0	1,251.7	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
4	2022	1989	2011-2040	April	30	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	1,428.3	124.1	0.0	1,552.4	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
5	2022	1989	2011-2040	May	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	1,611.4	204.7	0.0	1,816.1	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
6	2022	1989	2011-2040	June	30	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	1,729.3	302.2	0.0	2,031.5	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
7	2022	1989	2011-2040	July	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	1,842.0	378.8	0.0	2,220.8	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
8	2022	1989	2011-2040	August	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	1,948.0	447.7	0.0	2,395.7	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
9	2022	1989	2011-2040	September	30	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	2,048.0	517.6	0.0	2,565.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
10	2022	1989	2011-2040	October	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	2,148.0	587.6	0.0	2,735.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
11	2022	1989	2011-2040	November	30	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	2,248.0	657.6	0.0	2,905.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
12	2022	1989	2011-2040	December	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	2,348.0	727.6	0.0	3,075.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
13	2023	1970	2011-2040	January	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	2,448.0	797.6	0.0	3,245.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
14	2023	1970	2011-2040	February	28	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	2,548.0	867.6	0.0	3,415.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
15	2023	1970	2011-2040	March	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	2,648.0	937.6	0.0	3,585.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
16	2023	1970	2011-2040	April	30	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	2,748.0	1,007.6	0.0	3,755.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
17	2023	1970	2011-2040	May	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	2,848.0	1,077.6	0.0	3,925.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
18	2023	1970	2011-2040	June	30	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	2,948.0	1,147.6	0.0	4,095.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
19	2023	1970	2011-2040	July	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	3,048.0	1,217.6	0.0	4,265.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
20	2023	1970	2011-2040	August	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	3,148.0	1,287.6	0.0	4,435.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
21	2023	1970	2011-2040	September	30	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	3,248.0	1,357.6	0.0	4,605.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
22	2023	1970	2011-2040	October	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	3,348.0	1,427.6	0.0	4,775.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
23	2023	1970	2011-2040	November	30	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	3,448.0	1,497.6	0.0	4,945.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
24	2023	1970	2011-2040	December	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	3,548.0	1,567.6	0.0	5,115.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
25	2024	1971	2011-2040	January	31	416.5	1,911,822.6	415.0	1,591,822.6	61,652.92	1.00	14,433.80	0.45	-1.07	-2.10	10.40	-6.47	100%	0.00	0.00	0.2000	3,648.0	1,637.6	0.0	5,285.6	0.0	6,200.0	0.0	6,200.0	65,171.7	1,581,234.5	7,601.9	1,911,822.6	416.0	416.0	416.0	416.0
26	2024																																				

Table 13c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Start	Forecast End	Forecast Day	Forecast Invert Elevation (m)	Forecast Capacity (m³)	Forecast Initial WSEL (m)	Forecast Initial Volume (m³)	Forecast Open Water Area (m²)	Forecast Natural Operations Area (m²)	Forecast Temperature (°C)	Forecast Precipitation (mm)	Forecast Evaporation (mm)	Forecast Sublimation (mm)	Forecast Snow Accumulation (mm)	Forecast Snowmelt (mm)	Forecast Runoff (mm)	Forecast Inflow (mm)	Forecast Outflow (mm)	Forecast Storage (mm)	Forecast Total Inflow (mm)	Forecast Total Outflow (mm)	Forecast Net Inflow (mm)	Forecast End of Month WSEL (m)	Forecast End of Month Volume (m³)	Forecast Discharge Volume (m³)	Forecast End of Month Discharge (m³)	Forecast End of Month WSEL (m)							
208	2140	1979	2071-2100	January	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	22.30	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	96.7	0.0	11,758.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.30
208	2140	1979	2071-2100	February	29	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	18.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	162.5	0.0	11,808.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.32
208	2140	1979	2071-2100	March	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	15.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	233.3	0.0	11,858.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.34
208	2140	1979	2071-2100	April	30	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	10.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	314.2	0.0	11,908.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.36
208	2140	1979	2071-2100	May	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	5.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	395.1	0.0	11,958.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.38
208	2140	1979	2071-2100	June	30	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	1.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	476.0	0.0	12,008.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.40
208	2140	1979	2071-2100	July	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-3.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	556.9	0.0	12,058.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.42
208	2140	1979	2071-2100	August	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-8.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	637.8	0.0	12,108.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.44
208	2140	1979	2071-2100	September	30	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-14.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	718.6	0.0	12,158.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.46
208	2140	1979	2071-2100	October	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-19.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	799.4	0.0	12,208.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.48
208	2140	1979	2071-2100	November	30	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-25.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	880.2	0.0	12,258.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.50
208	2140	1979	2071-2100	December	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-30.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	961.0	0.0	12,308.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.52
208	2141	1980	2071-2100	January	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-36.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,041.8	0.0	12,358.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.54
208	2141	1980	2071-2100	February	29	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-41.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,122.6	0.0	12,408.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.56
208	2141	1980	2071-2100	March	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-47.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,203.4	0.0	12,458.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.58
208	2141	1980	2071-2100	April	30	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-52.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,284.2	0.0	12,508.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.60
208	2141	1980	2071-2100	May	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-58.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,365.0	0.0	12,558.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.62
208	2141	1980	2071-2100	June	30	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-63.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,445.8	0.0	12,608.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.64
208	2141	1980	2071-2100	July	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-69.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,526.6	0.0	12,658.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.66
208	2141	1980	2071-2100	August	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-74.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,607.4	0.0	12,708.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.68
208	2141	1980	2071-2100	September	30	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-80.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,688.2	0.0	12,758.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.70
208	2141	1980	2071-2100	October	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-85.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,769.0	0.0	12,808.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.72
208	2141	1980	2071-2100	November	30	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-91.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,849.8	0.0	12,858.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.74
208	2141	1980	2071-2100	December	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-96.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	1,930.6	0.0	12,908.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.76
208	2142	1981	2071-2100	January	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-102.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	2,011.4	0.0	12,958.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.78
208	2142	1981	2071-2100	February	29	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-107.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	2,092.2	0.0	13,008.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.80
208	2142	1981	2071-2100	March	31	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-113.25	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	2,173.0	0.0	13,058.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.82
208	2142	1981	2071-2100	April	30	418.5	1,591,622.6	416.20	40,644.4	1,636,992.1	1.00	11.33	0.45	-118.75	-9.00	-8.00	+10.20	100%	0.00	0.00	0.00	200.00	15,294.1	2,253.8	0.0	13,108.8	0.0	0.00	0.00	0.00	6,200.0	4,528.8	-16,888.6	0.0	-36,888.6	416.84
208	2142</																																			

Table 13c: Multi-year Wet Cover Model (2032-2432): 200 m d/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	Snowmelt (mm)	Forecast Snowmelt Change (mm)	Runoff (mm)	Forecast Runoff Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month WSEL (m)	End of Month Volume (m³)		
																																Open Water	Natural Operations Area
118	2095	1987	2021-2100	October	31	4185	1,591,632.0	4120	2,815,912.0	1,615,692.0	1.00	14.33	0.45	-2.07	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
119	2095	1987	2021-2100	November	30	4185	1,591,632.0	4172	2,797,237.0	1,615,692.0	1.00	14.33	0.45	-2.07	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
120	2095	1987	2021-2100	December	31	4185	1,591,632.0	4172	2,781,613.0	1,615,692.0	1.00	14.33	0.45	-2.07	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
121	2095	1988	2021-2100	January	31	4185	1,591,632.0	4172	2,795,605.0	1,615,692.0	1.00	14.33	0.45	-19.24	-0.20	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
122	2095	1988	2021-2100	February	29	4185	1,591,632.0	4179	2,798,472.0	1,615,692.0	1.00	14.33	0.45	-18.20	-0.20	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
123	2095	1988	2021-2100	March	31	4185	1,591,632.0	4183	2,812,848.0	1,615,692.0	1.00	14.33	0.45	-16.80	-0.20	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
124	2095	1988	2021-2100	April	30	4185	1,591,632.0	4189	2,826,537.0	1,615,692.0	1.00	14.33	0.45	-15.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
125	2095	1988	2021-2100	May	31	4185	1,591,632.0	4193	2,834,102.0	1,615,692.0	1.00	14.33	0.45	-14.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
126	2095	1988	2021-2100	June	30	4185	1,591,632.0	4197	2,841,102.0	1,615,692.0	1.00	14.33	0.45	-14.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
127	2095	1988	2021-2100	July	31	4185	1,591,632.0	4200	2,846,002.0	1,615,692.0	1.00	14.33	0.45	-13.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
128	2095	1988	2021-2100	August	31	4185	1,591,632.0	4203	2,850,402.0	1,615,692.0	1.00	14.33	0.45	-13.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
129	2095	1988	2021-2100	September	30	4185	1,591,632.0	4206	2,854,402.0	1,615,692.0	1.00	14.33	0.45	-12.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
130	2095	1988	2021-2100	October	31	4185	1,591,632.0	4208	2,858,802.0	1,615,692.0	1.00	14.33	0.45	-12.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
131	2095	1988	2021-2100	November	30	4185	1,591,632.0	4209	2,862,802.0	1,615,692.0	1.00	14.33	0.45	-11.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
132	2095	1988	2021-2100	December	31	4185	1,591,632.0	4210	2,866,202.0	1,615,692.0	1.00	14.33	0.45	-11.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
133	2097	1989	2021-2100	January	31	4185	1,591,632.0	4216	2,874,102.0	1,615,692.0	1.00	14.33	0.45	-10.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
134	2097	1989	2021-2100	February	29	4185	1,591,632.0	4217	2,878,502.0	1,615,692.0	1.00	14.33	0.45	-10.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
135	2097	1989	2021-2100	March	31	4185	1,591,632.0	4221	2,883,912.0	1,615,692.0	1.00	14.33	0.45	-9.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
136	2097	1989	2021-2100	April	30	4185	1,591,632.0	4223	2,888,312.0	1,615,692.0	1.00	14.33	0.45	-9.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
137	2097	1989	2021-2100	May	31	4185	1,591,632.0	4224	2,892,712.0	1,615,692.0	1.00	14.33	0.45	-8.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
138	2097	1989	2021-2100	June	30	4185	1,591,632.0	4225	2,896,512.0	1,615,692.0	1.00	14.33	0.45	-8.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
139	2097	1989	2021-2100	July	31	4185	1,591,632.0	4226	2,900,312.0	1,615,692.0	1.00	14.33	0.45	-7.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
140	2097	1989	2021-2100	August	31	4185	1,591,632.0	4227	2,904,112.0	1,615,692.0	1.00	14.33	0.45	-7.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
141	2097	1989	2021-2100	September	30	4185	1,591,632.0	4228	2,907,912.0	1,615,692.0	1.00	14.33	0.45	-6.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
142	2097	1989	2021-2100	October	31	4185	1,591,632.0	4229	2,911,712.0	1,615,692.0	1.00	14.33	0.45	-6.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
143	2097	1989	2021-2100	November	30	4185	1,591,632.0	4230	2,915,512.0	1,615,692.0	1.00	14.33	0.45	-5.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
144	2097	1989	2021-2100	December	31	4185	1,591,632.0	4231	2,919,312.0	1,615,692.0	1.00	14.33	0.45	-5.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
145	2098	1990	2021-2100	January	29	4185	1,591,632.0	4232	2,923,112.0	1,615,692.0	1.00	14.33	0.45	-4.80	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
146	2098	1990	2021-2100	February	28	4185	1,591,632.0	4233	2,926,712.0	1,615,692.0	1.00	14.33	0.45	-4.30	-0.10	37.20	-5.68	33%	0.00	-19.30	200.00	36,168.3	216.6	0.0	26,222.2	0.0	0.0	11,725.0	3,753.9	-2,197,219.0	4172	2,747,219.0	4172
147	2098	1990	2021-2100																														

Table 13c: Multi-year Wet Cover Model (2032-2432): 200 m²/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Passive Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of Wet Well (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m ³ /d)	TSF Inflows (m ³)				TSF Outflows (m ³)				Net Inflow/Outflow (m ³)	End of Month Volume before Discharge (m ³)	Discharge Volume (m ³)	End of Month Volume after Discharge (m ³)	List of Month WSEL after Discharge (m)
										Area (m ²)	Runoff Coefficients	Area (m ²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Percolation	Average	Sublimation Losses	Wind Drift Losses					
323	2429	1974	2071-2100	April	30	418.5	1,599,632.0	40597	-4,876,610.7	0.0	11,430.8	0.45	1.48	+0.00	72.60	-5.68	21%	0.00	+10.33	200.00	48,423.7	402.7	0.0	48,826.3	10,102.3	0.000	0.0	0.0	16,102.3	32,724.1	4,837,886.6	0.0	-4,837,886.6	410.02
323	2429	1974	2071-2100	May	31	418.5	1,599,632.0	41022	-4,837,886.6	0.0	11,430.8	0.45	1.70	+0.00	100.90	-5.68	7%	82.15	+10.80	200.00	65,929.2	548.2	0.0	66,477.4	61,206.2	0.200	0.0	0.0	67,406.2	4,838,912.4	0.0	-4,838,912.4	410.02	
323	2429	1974	2071-2100	June	30	418.5	1,599,632.0	41022	-4,838,912.4	0.0	11,430.8	0.45	1.98	+0.00	117.70	-5.03	0%	130.00	+0.00	200.00	67,834.4	561.1	0.0	68,395.5	69,915.5	0.000	0.0	0.0	69,915.5	4,861,221.4	0.0	-4,861,221.4	409.98	
323	2429	1974	2071-2100	July	31	418.5	1,599,632.0	40598	-4,866,231.4	0.0	11,430.8	0.45	20.42	+4.40	151.10	-8.03	0%	148.91	+1.00	200.00	111,767.7	591.9	0.0	112,359.6	90,781.3	0.200	0.0	0.0	102,981.3	11,212.7	4,897,444.1	0.0	-4,897,444.1	409.94
323	2429	1974	2071-2100	August	31	418.5	1,599,632.0	40694	-4,897,444.1	0.0	11,430.8	0.45	18.84	+4.40	159.30	-8.03	0%	174.40	+4.54	200.00	63,968.9	778.1	0.0	64,747.0	11,308.4	0.200	0.0	0.0	37,508.4	36,846.6	4,860,603.5	0.0	-4,860,603.5	409.99
323	2429	1974	2071-2100	September	30	418.5	1,599,632.0	40599	-4,860,603.5	0.0	11,430.8	0.45	8.42	+0.00	97.90	+5.68	0%	47.90	+10.01	200.00	39,303.9	321.1	0.0	39,625.0	38,632.6	0.000	0.0	0.0	41,832.6	3,942.8	4,862,546.3	0.0	-4,862,546.3	409.98
323	2429	1974	2071-2100	October	31	418.5	1,599,632.0	40598	-4,862,546.3	0.0	11,430.8	0.45	4.00	+0.00	39.60	+5.68	32%	37.20	+8.93	200.00	38,010.9	223.9	0.0	38,234.8	28,533.7	0.200	0.0	0.0	34,735.7	4,497.9	4,868,044.3	0.0	-4,868,044.3	409.98
323	2429	1974	2071-2100	November	30	418.5	1,599,632.0	40698	-4,868,044.3	0.0	11,430.8	0.45	-3.40	+0.00	29.80	+5.68	93%	0.00	0	200.00	16,381.8	136.2	0.0	16,518.0	-0.0	0.000	0.0	0.000	16,518.0	4,868,552.3	0.0	-4,868,552.3	409.99	
323	2429	1974	2071-2100	December	31	418.5	1,599,632.0	40599	-4,868,552.3	0.0	11,430.8	0.45	8.94	+0.00	98.00	+10.20	96%	0.00	0	200.00	18,333.2	139.4	0.0	18,472.6	0.0	0.000	0.0	0.0	6,000.0	16,702.6	4,871,846.6	0.0	-4,871,846.6	410.00
324	2430	1975	2071-2100	January	31	418.5	1,599,632.0	41000	-4,847,848.6	0.0	11,430.8	0.45	-15.20	+6.00	82.60	+10.20	96%	0.00	0	200.00	57,403.2	477.4	0.0	57,880.6	0.0	0.000	0.0	0.000	6,000.0	61,880.6	4,796,168.1	0.0	-4,796,168.1	410.07
324	2430	1975	2071-2100	February	28	418.5	1,599,632.0	41007	-4,796,168.1	0.0	11,430.8	0.45	-14.38	+0.00	34.50	+10.20	96%	0.00	0	200.00	21,464.4	176.5	0.0	21,640.9	0.0	0.000	0.0	0.000	6,000.0	16,942.8	4,786,128.2	0.0	-4,786,128.2	410.09
324	2430	1975	2071-2100	March	31	418.5	1,599,632.0	41009	-4,786,128.2	0.0	11,430.8	0.45	8.92	+0.00	48.60	+5.68	97%	0.00	0	200.00	33,717.7	290.3	0.0	34,008.0	0.0	0.000	0.0	0.000	6,000.0	40,008.0	4,793,343.3	0.0	-4,793,343.3	410.13
324	2430	1975	2071-2100	April	30	418.5	1,599,632.0	41013	-4,793,343.3	0.0	11,430.8	0.45	0.27	+0.00	88.90	+6.68	22%	0.00	+10.33	200.00	27,573.9	229.3	0.0	27,803.2	16,102.3	0.000	0.0	0.0	16,102.3	11,706.8	4,748,639.3	0.0	-4,748,639.3	410.15
324	2430	1975	2071-2100	May	31	418.5	1,599,632.0	41015	-4,748,639.3	0.0	11,430.8	0.45	12.42	+0.00	46.90	+0.68	0%	120.00	+10.80	200.00	31,941.9	284.1	0.0	32,226.0	36,963.1	0.000	0.0	0.0	31,781.1	40,899.1	4,800,522.4	0.0	-4,800,522.4	410.07
324	2430	1975	2071-2100	June	30	418.5	1,599,632.0	41027	-4,800,522.4	0.0	11,430.8	0.45	16.46	+0.00	66.30	-8.03	0%	102.40	+0.00	200.00	34,909.0	464.0	0.0	35,373.0	60,561.1	0.000	0.0	0.0	73,176.9	18,123.3	4,816,666.2	0.0	-4,816,666.2	410.04
324	2430	1975	2071-2100	July	31	418.5	1,599,632.0	41034	-4,816,666.2	0.0	11,430.8	0.45	21.17	+4.40	89.30	-8.03	0%	137.89	+3.00	200.00	37,807.7	316.1	0.0	38,123.8	89,968.2	0.200	0.0	0.0	96,168.2	37,950.4	4,816,611.6	0.0	-4,816,611.6	409.97
324	2430	1975	2071-2100	August	31	418.5	1,599,632.0	40997	-4,816,611.6	0.0	11,430.8	0.45	16.52	+4.40	161.10	-8.03	0%	89.70	+1.54	200.00	41,652.4	479.5	0.0	42,131.9	50,296.3	0.000	0.0	0.0	64,496.3	17,874.6	4,848,136.2	0.0	-4,848,136.2	409.99
324	2430	1975	2071-2100	September	30	418.5	1,599,632.0	40999	-4,848,136.2	0.0	11,430.8	0.45	10.56	+0.00	69.90	+5.68	0%	47.90	+10.01	200.00	40,514.4	338.5	0.0	40,852.9	30,453.3	0.000	0.0	0.0	41,576.3	4,314.6	4,854,471.6	0.0	-4,854,471.6	410.00
324	2430	1975	2071-2100	October	31	418.5	1,599,632.0	41000	-4,854,471.6	0.0	11,430.8	0.45	6.21	+0.00	48.80	+5.68	0%	40.30	+8.93	200.00	33,701.7	290.3	0.0	33,992.0	30,453.3	0.200	0.0	0.0	38,863.3	2,871.3	4,857,342.9	0.0	-4,857,342.9	409.99
324	2430	1975	2071-2100	November	30	418.5	1,599,632.0	40999	-4,857,342.9	0.0	11,430.8	0.45	2.13	+0.00	23.60	+5.68	0%	0.00	0	200.00	18,118.9	168.8	0.0	18,287.7	0.0	0.000	0.0	0.000	6,000.0	23,884.4	4,844,826.8	0.0	-4,844,826.8	410.01
324	2430	1975	2071-2100	December	31	418.5	1,599,632.0	41001	-4,844,826.8	0.0	11,430.8	0.45	-14.52	+0.00	31.40	+10.20	96%	0.00	0	200.00	28,732.8	214.0	0.0	28,946.8	-0.0	0.000	0.0	0.000	6,000.0	19,746.5	4,825,078.1	0.0	-4,825,078.1	410.03
325	2431	1976	2071-2100	January	31	418.5	1,599,632.0	41003	-4,825,078.1	0.0	11,430.8	0.45	-18.13	+0.00	44.20	+10.20	99%	0.00	0	200.00	33,652.2	279.8	0.0	33,932.0	0.0	0.000	0.0	0.000	6,000.0	37,732.0	4,797,348.1	0.0	-4,797,348.1	410.07
325	2431	1976	2071-2100	February	28	418.5	1,599,632.0	41007	-4,797,348.1	0.0	11,430.8	0.45	-10.89	+0.00	30.30	+10.20	96%	0.00	0	200.00	29,921.1	299.3	0.0	30,220.4	0.0	0.000	0.0	0.000	6,000.0	35,969.4	4,717,687.7	0.0	-4,717,687.7	410.10
325	2431	1976	2071-2100	March	31	418.5	1,599,632.0	41010	-4,777,687.7	0.0	11,430.8	0.45	-8.49	+0.00	53.90	+5.68	76%	0.00	0	200.00	36,656.4	300.5	0.0	37,156.9	0.0	0.000	0.0	0.000	6,000.0	42,962.9	4,748,724.8	0.0	-4,748,724.8	410.14
325	2431	1976	2071-2100	April	30	418.5	1,599,632.0	41014	-4,748,724.8	0.0	11,430.8	0.45	4.90	+0.00	63.90	+5.68	0%	0.00	+10.33	200.00	43,042.1	357.9	0.0	43,400.0	15,102.3	0.000	0.0	0.0	16,102.3	37,297.8	4,719,427.0	0.0	-4,719,427.0	410.17
325	2431	1976	2071-2100	May	31	418.5	1,599,632.0	41017	-4,719,427.0	0.0	11,430.8	0.45	15.60	+0.00	12.60	+5.68	0%	135.76	+10.80	200.00	114,312.2	91.1	0.0	115,223.3	36,364.1	0.000	0.0	0.0	102,864.1	40,019.8	4,802,402.8	0.0	-4,802,402.8	410.06
325	2431	1976	2071-2100	June	30	418.5	1,599,632.0	41026	-4,802,402.8	0.0	11,430.8	0.45	18.12	+4.40	133.70	-8.03	0%	118.89	+0.20	200.00	77,733.5	644.4	0.0	78,377.9	77,376.4	0.000	0.0	0.0	63,376.4	4,996.5	4,813,402.2	0.0	-4,813,402.2	410.05
325	2431	1976	2071-2100	July	31	418.5	1,599,632.0	41025	-4,813,402.2	0.0	11,430.8	0.45	19.17	+4.40	63.70	-8.03	0%	140.64	+1.00	200.00	34,431.7	266.3	0.0	34,722.0	92,285.0	0.200	0.0	0.0	96,485.0	43,761.9	4,877,224.2	0.0	-4,877,224.2	409.96
325	2431	1976	2071-2100	August	31	418.5	1,599,632.0	40996	-4,877,224.2	0.0	11,430.8	0.45	18.62	+4.40	67.00	-8.03	0%	122.40	+1.54	200.00														

Table 14a: Multi-year Wet Cover Model (2032-2432): 3.13 m/d seepage, 0 mm d/sulphation, 0% snow drift losses, 8.00 L/min lignum, and RCP 8.5 Climate Change Scenario

Case	Year	Month	Day	Forecast Horizon	Forecast Month	Forecast Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coeff	Runoff Volume (mm)	Runoff Coeff	Runoff Volume (mm)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	As Precipitation	Extrapolation (mm)	Forecast Extrapolation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	
399	2021	1992	2021-2100	April	30	31	418.5	1,591,622.0	418.4	1,338,326.0	418,592.0	1.00	11,433.0	0.45	-0.05	-4.00	-0.40	-11.32	57%	0.00	-29.12	3.13	35,078.0	295.9	0.0	36,966.0	17,317.0	0.0	418.7	1,338,326.0	1,338,326.0	418.7	1,338,326.0
399	2021	1992	2021-2100	May	31	31	418.5	1,591,622.0	418.7	1,338,326.0	418,592.0	1.00	11,433.0	0.45	1.10	-0.40	-0.20	63%	0.00	-29.12	3.13	35,078.0	379.7	0.0	36,966.0	17,687.0	0.0	418.7	1,338,326.0	1,338,326.0	418.7	1,338,326.0	
399	2021	1992	2021-2100	June	30	31	418.5	1,591,622.0	418.7	1,338,326.0	418,592.0	1.00	11,433.0	0.45	1.10	-0.40	-0.20	63%	0.00	-29.12	3.13	35,078.0	379.7	0.0	36,966.0	17,687.0	0.0	418.7	1,338,326.0	1,338,326.0	418.7	1,338,326.0	
399	2021	1992	2021-2100	July	31	31	418.5	1,591,622.0	418.6	1,331,483.0	418,592.0	1.00	11,433.0	0.45	1.47	-0.40	-0.30	63%	0.00	-29.12	3.13	35,078.0	784.4	0.0	36,966.0	17,974.0	0.0	418.7	1,331,483.0	1,331,483.0	418.7	1,331,483.0	
399	2021	1992	2021-2100	August	31	31	418.5	1,591,622.0	418.6	1,335,144.0	418,592.0	1.00	11,433.0	0.45	1.59	-0.40	-0.30	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.7	1,335,144.0	1,335,144.0	418.7	1,335,144.0	
399	2021	1992	2021-2100	September	30	31	418.5	1,591,622.0	418.5	1,335,144.0	418,592.0	1.00	11,433.0	0.45	1.59	-0.40	-0.30	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.5	1,335,144.0	1,335,144.0	418.5	1,335,144.0	
399	2021	1992	2021-2100	October	31	31	418.5	1,591,622.0	418.4	1,331,483.0	418,592.0	1.00	11,433.0	0.45	1.59	-0.40	-0.30	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.4	1,331,483.0	1,331,483.0	418.4	1,331,483.0	
399	2021	1992	2021-2100	November	30	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.59	-0.40	-0.30	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
399	2021	1992	2021-2100	December	31	31	418.5	1,591,622.0	418.2	1,322,149.0	418,592.0	1.00	11,433.0	0.45	1.59	-0.40	-0.30	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.2	1,322,149.0	1,322,149.0	418.2	1,322,149.0	
400	2022	1993	2021-2100	January	29	29	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	February	28	28	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	March	31	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	April	30	30	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	May	31	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	June	30	30	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	July	31	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	August	31	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	September	30	30	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	October	31	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	November	30	30	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
400	2022	1993	2021-2100	December	31	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
401	2023	1994	2021-2100	January	29	29	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
401	2023	1994	2021-2100	February	28	28	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
401	2023	1994	2021-2100	March	31	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
401	2023	1994	2021-2100	April	30	30	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
401	2023	1994	2021-2100	May	31	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
401	2023	1994	2021-2100	June	30	30	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
401	2023	1994	2021-2100	July	31	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
401	2023	1994	2021-2100	August	31	31	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
401	2023	1994	2021-2100	September	30	30	418.5	1,591,622.0	418.3	1,326,816.0	418,592.0	1.00	11,433.0	0.45	1.62	-0.30	-0.20	63%	0.00	-29.12	3.13	35,078.0	830.0	0.0	36,966.0	18,111.0	0.0	418.3	1,326,816.0	1,326,816.0	418.3	1,326,816.0	
401	2023	1994	2021-2100	October	31	31	418.5	1,591,622.0	418.3																								

Table 14a: Multi-year Wet Cover Model (2032-2432): 3.13 m³/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSP Inflows (m³)				TSP Outflows (m³)				Net Inflow/Outflow (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients	Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow					
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	-0.05	22.60	+11.32	21%	0.00	-20.12	3.13	51,928.3	431.7	0.0	52,339.9	18,013.7	93.9	0.0	0.0	18,107.6	34,232.3	1,625,864.9	34,232.3	1,591,632.6	418.50	
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	-0.05	100.50	+11.32	7%	82.15	-28.80	3.13	69,911.0	69,911.0	0.0	69,911.0	69,911.0	97.0	0.0	0.0	69,911.0	1,390.4	1,593,022.0	1,390.4	1,591,632.6	418.50	
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.00	-7.80	11.70	-14.03	0%	130.00	-1.88	3.13	63,817.7	63,817.7	0.0	64,264.4	63,764.4	93.9	0.0	0.0	64,166.3	2,238.9	1,591,792.7	0.0	1,591,792.7	418.46	
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.48	1,593,792.0	1,430.0	0.45	20.40	-7.80	13.10	-14.83	0%	148.91	-10.00	3.13	67,156.0	66,655.0	0.0	67,144.4	66,664.1	97.0	0.0	0.0	66,761.2	5,018.7	1,592,740.0	0.0	1,592,740.0	418.42	
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.42	1,532,748.0	1,430.0	0.45	18.84	-7.80	19.30	-14.83	0%	79.40	-8.56	3.13	65,842.3	744.7	0.0	66,292.9	63,776.6	97.0	0.0	0.0	63,884.5	36,496.2	1,588,154.2	0.0	1,588,154.2	418.47	
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.47	1,568,154.2	1,430.0	0.45	8.42	-8.06	9.90	-11.32	0%	47.90	-13.75	3.13	62,815.3	360.0	0.0	63,175.3	60,909.9	93.9	0.0	0.0	60,964.3	3,244.5	1,571,429.7	0.0	1,571,429.7	418.47	
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.47	1,572,630.7	1,430.0	0.45	4.65	-8.06	10.60	-11.32	32%	37.20	-15.47	3.13	61,465.5	261.9	0.0	61,757.4	52,570.0	97.0	0.0	0.0	52,675.1	917.7	1,571,513.0	0.0	1,571,513.0	418.47	
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.47	1,571,513.0	1,430.0	0.45	-3.40	-8.06	20.80	-11.32	93%	0.00	-15.12	3.13	18,866.4	165.2	0.0	20,016.6	9,352.5	93.9	0.0	0.0	9,446.4	16,366.1	1,562,086.2	0.0	1,562,086.2	418.49	
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.49	1,562,086.2	1,430.0	0.45	9.84	-8.06	9.90	-11.32	96%	0.00	-0.00	3.13	18,866.4	165.0	0.0	19,744.4	0.0	0.0	19,744.4	0.0	0.0	19,744.4	0.0	1,562,086.2	0.0	1,562,086.2	418.50
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-15.20	-8.30	82.60	+13.23	96%	0.00	0.00	3.13	58,279.5	403.0	0.0	58,722.5	0.0	97.0	0.0	0.0	58,722.5	0.0	1,591,632.0	0.0	1,591,632.0	418.50	
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.38	-8.30	84.50	+13.23	96%	0.00	0.00	3.13	53,260.7	194.1	0.0	53,454.8	0.0	97.0	0.0	0.0	53,454.8	0.0	1,591,632.0	0.0	1,591,632.0	418.50	
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-8.92	-8.06	48.60	+11.32	97%	0.00	-28.97	3.13	37,196.3	309.2	0.0	37,465.6	14,545.4	97.0	0.0	0.0	14,637.4	8,828.2	1,582,807.7	0.0	1,582,807.7	418.50	
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.27	-8.06	38.90	+11.32	22%	0.00	-28.12	3.13	31,082.5	268.3	0.0	31,350.8	18,013.7	93.9	0.0	0.0	18,107.6	13,112.2	1,584,846.7	13,112.2	1,584,846.7	418.50	
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	-8.06	46.90	+11.32	0%	120.00	-28.80	3.13	34,526.5	287.1	0.0	34,813.6	30,290.5	97.0	0.0	0.0	30,290.5	47,573.9	1,584,086.0	0.0	1,584,086.0	418.42	
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.42	1,534,086.0	1,430.0	0.45	16.46	-7.80	36.30	-14.83	0%	102.40	-1.88	3.13	60,573.9	426.6	0.0	60,999.9	60,452.7	93.9	0.0	0.0	60,452.7	1,515,513.9	0.0	1,515,513.9	418.40		
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.40	1,515,513.9	1,430.0	0.45	21.78	-7.80	39.30	-14.83	0%	137.88	-10.00	3.13	58,877.6	281.7	0.0	59,159.3	57,851.0	97.0	0.0	0.0	57,851.0	4,672.716	0.0	1,487,721.6	418.32		
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.32	1,487,721.6	1,430.0	0.45	16.52	-7.80	141.10	-14.83	0%	89.75	-8.56	3.13	57,617.1	468.8	0.0	57,915.9	56,777.4	97.0	0.0	0.0	56,777.4	1,444.1	1,489,165.7	0.0	1,489,165.7	418.30	
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.30	1,474,144.0	1,430.0	0.45	10.56	-8.06	69.90	+11.32	0%	47.90	-15.75	3.13	49,010.5	407.5	0.0	49,418.0	39,744.7	93.9	0.0	0.0	39,744.7	3,669.9	1,484,744.6	0.0	1,484,744.6	418.36	
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.36	1,484,744.6	1,430.0	0.45	6.21	-8.06	48.80	+11.32	3%	40.30	-10.47	3.13	37,186.3	309.2	0.0	37,495.6	34,496.6	97.0	0.0	0.0	34,496.6	2,992.9	1,487,737.5	0.0	1,487,737.5	418.38	
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.36	1,487,737.5	1,430.0	0.45	2.13	-8.06	23.60	+11.32	0%	0.00	-15.12	3.13	21,584.4	178.8	0.0	21,763.2	18,252.5	93.9	0.0	0.0	18,252.5	2,231.8	1,485,505.0	0.0	1,485,505.0	418.38	
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.38	1,485,505.0	1,430.0	0.45	-14.52	-8.30	31.40	+13.23	96%	0.00	0.00	3.13	27,628.8	226.6	0.0	27,855.4	0.0	97.0	0.0	0.0	27,855.4	1,527,710.4	0.0	1,527,710.4	418.42		
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.42	1,527,710.4	1,430.0	0.45	-18.13	-8.30	44.20	+13.23	99%	0.00	0.00	3.13	35,526.5	295.4	0.0	35,821.9	0.0	97.0	0.0	0.0	35,821.9	1,561,436.3	0.0	1,561,436.3	418.46		
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.40	1,563,436.3	1,430.0	0.45	-10.89	-8.30	30.30	+13.23	96%	0.00	0.00	3.13	26,904.4	223.9	0.0	27,128.3	0.0	97.0	0.0	0.0	27,128.3	0.0	1,561,436.3	0.0	1,561,436.3	418.50	
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,590,499.9	1,430.0	0.45	-8.49	-8.06	53.90	+11.32	76%	0.00	-28.97	3.13	45,341.0	335.5	0.0	45,676.5	18,540.4	97.0	0.0	0.0	18,637.4	22,039.1	1,572,530.0	22,039.1	1,572,530.0	418.50	
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.90	-8.06	63.90	+11.32	0%	0.00	-28.12	3.13	46,526.7	389.9	0.0	46,916.6	18,013.7	93.9	0.0	0.0	18,107.6	28,806.0	1,584,436.6	28,806.0	1,584,436.6	418.50	
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.60	-8.06	12.60	+11.32	0%	118.76	-28.80	3.13	1,817.8	124.1	0.0	1,941.9	50,140.4	97.0	0.0	0.0	50,140.4	0.0	1,591,632.0	0.0	1,591,632.0	418.39	
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,504,916.0	1,430.0	0.45	18.12	-7.80	133.70	-14.83	0%	118.89	-10.00	3.13	73,712.8	615.0	0.0	74,327.8	76,622.3	93.9	0.0	0.0	76,622.3	1,498,496.6	0.0	1,498,496.6	418.38		
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.38	1,498,496.6	1,430.0	0.45	19.17	-7.80	63.70	-14.83	0%	141.64	-10.00	3.13	20,413.0	252.9	0.0	20,665.9	34,167.8	97.0	0.0	0.0	34,167.8	43,599.7	1,454,996.7	0.0	1,454,996.7	418.29	
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.29	1,454,996.7	1,430.0	0.45	18.62	-7.80	67.10	-14.83	0%	122.40	-10.00	3.13	25,511.0	224.4	0.0	25,735.4	32,765.5	97.0	0.0	0.0	32,765.5	48,113.0	1,397,451.7	0.0	1,397,451.7	418.23	
325	2431	1976	2071-2100	September	30	418.5	1,591,632.0	418.23	1,397,451.7	1,430.0	0.45	12.02																						

Table 14b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and RCP & E5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Invert (Elevation)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	TF Inflow (m³)	TF Outflow (m³)	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month WSEL (m)	End of Month Volume (m³)
2022	12	2021-2020	January	418.5	1,591,622.0	417.8	1,648,227.0	1,610,922.0	1,453,044.0	1.46	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	February	418.5	1,591,622.0	417.2	1,677,361.0	1,610,922.0	1,453,044.0	1.70	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	March	418.5	1,591,622.0	416.6	1,706,500.0	1,610,922.0	1,453,044.0	1.94	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	April	418.5	1,591,622.0	416.0	1,735,639.0	1,610,922.0	1,453,044.0	2.18	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	May	418.5	1,591,622.0	415.4	1,764,778.0	1,610,922.0	1,453,044.0	2.42	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	June	418.5	1,591,622.0	414.8	1,793,917.0	1,610,922.0	1,453,044.0	2.66	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	July	418.5	1,591,622.0	414.2	1,823,056.0	1,610,922.0	1,453,044.0	2.90	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	August	418.5	1,591,622.0	413.6	1,852,195.0	1,610,922.0	1,453,044.0	3.14	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	September	418.5	1,591,622.0	413.0	1,881,334.0	1,610,922.0	1,453,044.0	3.38	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	October	418.5	1,591,622.0	412.4	1,910,473.0	1,610,922.0	1,453,044.0	3.62	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	November	418.5	1,591,622.0	411.8	1,939,612.0	1,610,922.0	1,453,044.0	3.86	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2022	12	2021-2020	December	418.5	1,591,622.0	411.2	1,968,751.0	1,610,922.0	1,453,044.0	4.10	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	January	418.5	1,591,622.0	410.6	1,997,890.0	1,610,922.0	1,453,044.0	4.34	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	February	418.5	1,591,622.0	410.0	2,027,029.0	1,610,922.0	1,453,044.0	4.58	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	March	418.5	1,591,622.0	409.4	2,056,168.0	1,610,922.0	1,453,044.0	4.82	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	April	418.5	1,591,622.0	408.8	2,085,307.0	1,610,922.0	1,453,044.0	5.06	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	May	418.5	1,591,622.0	408.2	2,114,446.0	1,610,922.0	1,453,044.0	5.30	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	June	418.5	1,591,622.0	407.6	2,143,585.0	1,610,922.0	1,453,044.0	5.54	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	July	418.5	1,591,622.0	407.0	2,172,724.0	1,610,922.0	1,453,044.0	5.78	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	August	418.5	1,591,622.0	406.4	2,201,863.0	1,610,922.0	1,453,044.0	6.02	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	September	418.5	1,591,622.0	405.8	2,231,002.0	1,610,922.0	1,453,044.0	6.26	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	October	418.5	1,591,622.0	405.2	2,260,141.0	1,610,922.0	1,453,044.0	6.50	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	November	418.5	1,591,622.0	404.6	2,289,280.0	1,610,922.0	1,453,044.0	6.74	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	1	2021-2020	December	418.5	1,591,622.0	404.0	2,318,419.0	1,610,922.0	1,453,044.0	6.98	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	January	418.5	1,591,622.0	403.4	2,347,558.0	1,610,922.0	1,453,044.0	7.22	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	February	418.5	1,591,622.0	402.8	2,376,697.0	1,610,922.0	1,453,044.0	7.46	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	March	418.5	1,591,622.0	402.2	2,405,836.0	1,610,922.0	1,453,044.0	7.70	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	April	418.5	1,591,622.0	401.6	2,434,975.0	1,610,922.0	1,453,044.0	7.94	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	May	418.5	1,591,622.0	401.0	2,464,114.0	1,610,922.0	1,453,044.0	8.18	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	June	418.5	1,591,622.0	400.4	2,493,253.0	1,610,922.0	1,453,044.0	8.42	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	July	418.5	1,591,622.0	399.8	2,522,392.0	1,610,922.0	1,453,044.0	8.66	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	August	418.5	1,591,622.0	399.2	2,551,531.0	1,610,922.0	1,453,044.0	8.90	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	September	418.5	1,591,622.0	398.6	2,580,670.0	1,610,922.0	1,453,044.0	9.14	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	October	418.5	1,591,622.0	398.0	2,609,809.0	1,610,922.0	1,453,044.0	9.38	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	November	418.5	1,591,622.0	397.4	2,638,948.0	1,610,922.0	1,453,044.0	9.62	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	2	2021-2020	December	418.5	1,591,622.0	396.8	2,668,087.0	1,610,922.0	1,453,044.0	9.86	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	3	2021-2020	January	418.5	1,591,622.0	396.2	2,697,226.0	1,610,922.0	1,453,044.0	10.10	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	3	2021-2020	February	418.5	1,591,622.0	395.6	2,726,365.0	1,610,922.0	1,453,044.0	10.34	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	3	2021-2020	March	418.5	1,591,622.0	395.0	2,755,504.0	1,610,922.0	1,453,044.0	10.58	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	3	2021-2020	April	418.5	1,591,622.0	394.4	2,784,643.0	1,610,922.0	1,453,044.0	10.82	-0.30	25.40	+13.23	100%	0%	0	37,300	20,571	16,729	0.0	0.0	0.0	418.5	1,591,622.0
2023	3	2021-2020	May																					

Table 14b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 8.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff Coeff	Natural Operations Area	Runoff Coeff	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precip Change (mm)	Evaporation (mm)	Forecast Evap Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)								
																										Open Water	Runoff Coeff	Natural Operations Area	Runoff Coeff	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precip Change (mm)
2026	2026	2026	2026-2100	July	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	19.7	-7.80	49.00	-14.03	0%	128.30	-18.00	31.30	152,835.3	179.9	0.0	0.0	66,807.1	40,760.9	1,594,964.0	0.0	1,594,964.0	418.19	1,594,964.0	418.19
2026	2026	2026	2026-2100	August	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	17.40	-8.90	45.00	-14.03	0%	106.00	-18.00	31.30	152,835.3	154.1	0.0	0.0	71,788.3	33,167.7	1,591,826.6	0.0	1,591,826.6	418.12	1,591,826.6	418.12
2026	2026	2026	2026-2100	September	30	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	15.50	-6.80	41.00	-14.03	0%	93.00	-18.00	31.30	152,835.3	115.1	0.0	0.0	76,739.5	38,549.1	1,588,697.5	0.0	1,588,697.5	418.05	1,588,697.5	418.05
2026	2026	2026	2026-2100	October	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	13.60	-4.70	37.00	-14.03	0%	75.00	-18.00	31.30	152,835.3	76.2	0.0	0.0	81,690.7	41,330.3	1,585,569.0	0.0	1,585,569.0	417.98	1,585,569.0	417.98
2026	2026	2026	2026-2100	November	30	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	11.70	-2.60	33.00	-14.03	0%	57.00	-18.00	31.30	152,835.3	58.3	0.0	0.0	86,641.9	44,110.5	1,582,440.5	0.0	1,582,440.5	417.91	1,582,440.5	417.91
2026	2026	2026	2026-2100	December	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	9.80	-0.50	29.00	-14.03	0%	39.00	-18.00	31.30	152,835.3	40.4	0.0	0.0	91,593.1	46,890.9	1,579,312.0	0.0	1,579,312.0	417.84	1,579,312.0	417.84
2027	2026	2026	2026-2100	January	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	8.00	1.60	25.00	-14.03	0%	21.00	-18.00	31.30	152,835.3	22.1	0.0	0.0	96,544.3	49,670.9	1,576,183.5	0.0	1,576,183.5	417.77	1,576,183.5	417.77
2027	2026	2026	2026-2100	February	29	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	6.20	3.70	21.00	-14.03	0%	3.00	-18.00	31.30	152,835.3	4.1	0.0	0.0	101,495.5	52,451.5	1,573,055.0	0.0	1,573,055.0	417.70	1,573,055.0	417.70
2027	2026	2026	2026-2100	March	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	4.40	5.80	17.00	-14.03	0%	-1.00	-18.00	31.30	152,835.3	0.0	0.0	0.0	106,446.7	55,231.5	1,569,926.5	0.0	1,569,926.5	417.63	1,569,926.5	417.63
2027	2026	2026	2026-2100	April	30	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	2.60	7.90	13.00	-14.03	0%	-7.00	-18.00	31.30	152,835.3	-6.0	0.0	0.0	111,398.1	58,011.5	1,566,798.0	0.0	1,566,798.0	417.56	1,566,798.0	417.56
2027	2026	2026	2026-2100	May	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	0.80	10.00	9.00	-14.03	0%	-13.00	-18.00	31.30	152,835.3	-12.0	0.0	0.0	116,349.5	60,791.5	1,563,669.5	0.0	1,563,669.5	417.49	1,563,669.5	417.49
2027	2026	2026	2026-2100	June	30	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-1.00	12.10	5.00	-14.03	0%	-19.00	-18.00	31.30	152,835.3	-18.0	0.0	0.0	121,300.9	63,571.5	1,560,541.0	0.0	1,560,541.0	417.42	1,560,541.0	417.42
2027	2026	2026	2026-2100	July	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-2.80	14.20	-1.00	-14.03	0%	-25.00	-18.00	31.30	152,835.3	-24.0	0.0	0.0	126,252.3	66,351.5	1,557,412.5	0.0	1,557,412.5	417.35	1,557,412.5	417.35
2027	2026	2026	2026-2100	August	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-4.60	16.30	-3.00	-14.03	0%	-31.00	-18.00	31.30	152,835.3	-30.0	0.0	0.0	131,203.7	69,131.5	1,554,284.0	0.0	1,554,284.0	417.28	1,554,284.0	417.28
2027	2026	2026	2026-2100	September	30	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-6.40	18.40	-5.00	-14.03	0%	-37.00	-18.00	31.30	152,835.3	-36.0	0.0	0.0	136,155.1	71,911.5	1,551,155.5	0.0	1,551,155.5	417.21	1,551,155.5	417.21
2027	2026	2026	2026-2100	October	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-8.20	20.50	-7.00	-14.03	0%	-43.00	-18.00	31.30	152,835.3	-42.0	0.0	0.0	141,106.5	74,691.5	1,548,027.0	0.0	1,548,027.0	417.14	1,548,027.0	417.14
2027	2026	2026	2026-2100	November	30	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-10.00	22.60	-9.00	-14.03	0%	-49.00	-18.00	31.30	152,835.3	-48.0	0.0	0.0	146,057.9	77,471.5	1,544,898.5	0.0	1,544,898.5	417.07	1,544,898.5	417.07
2027	2026	2026	2026-2100	December	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-11.80	24.70	-11.00	-14.03	0%	-55.00	-18.00	31.30	152,835.3	-54.0	0.0	0.0	151,009.3	80,251.5	1,541,770.0	0.0	1,541,770.0	417.00	1,541,770.0	417.00
2028	2026	2026	2026-2100	January	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-13.60	26.80	-13.00	-14.03	0%	-61.00	-18.00	31.30	152,835.3	-60.0	0.0	0.0	155,960.7	83,031.5	1,538,641.5	0.0	1,538,641.5	416.93	1,538,641.5	416.93
2028	2026	2026	2026-2100	February	29	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-15.40	28.90	-15.00	-14.03	0%	-67.00	-18.00	31.30	152,835.3	-66.0	0.0	0.0	160,912.1	85,811.5	1,535,513.0	0.0	1,535,513.0	416.86	1,535,513.0	416.86
2028	2026	2026	2026-2100	March	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-17.20	31.00	-17.00	-14.03	0%	-73.00	-18.00	31.30	152,835.3	-72.0	0.0	0.0	165,863.5	88,591.5	1,532,384.5	0.0	1,532,384.5	416.79	1,532,384.5	416.79
2028	2026	2026	2026-2100	April	30	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-19.00	33.10	-19.00	-14.03	0%	-79.00	-18.00	31.30	152,835.3	-78.0	0.0	0.0	170,814.9	91,371.5	1,529,256.0	0.0	1,529,256.0	416.72	1,529,256.0	416.72
2028	2026	2026	2026-2100	May	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-20.80	35.20	-21.00	-14.03	0%	-85.00	-18.00	31.30	152,835.3	-84.0	0.0	0.0	175,766.3	94,151.5	1,526,127.5	0.0	1,526,127.5	416.65	1,526,127.5	416.65
2028	2026	2026	2026-2100	June	30	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-22.60	37.30	-23.00	-14.03	0%	-91.00	-18.00	31.30	152,835.3	-90.0	0.0	0.0	180,717.7	96,931.5	1,523,000.0	0.0	1,523,000.0	416.58	1,523,000.0	416.58
2028	2026	2026	2026-2100	July	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-24.40	39.40	-25.00	-14.03	0%	-97.00	-18.00	31.30	152,835.3	-96.0	0.0	0.0	185,669.1	99,711.5	1,519,871.5	0.0	1,519,871.5	416.51	1,519,871.5	416.51
2028	2026	2026	2026-2100	August	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-26.20	41.50	-27.00	-14.03	0%	-103.00	-18.00	31.30	152,835.3	-102.0	0.0	0.0	190,620.5	102,491.5	1,516,743.0	0.0	1,516,743.0	416.44	1,516,743.0	416.44
2028	2026	2026	2026-2100	September	30	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-28.00	43.60	-29.00	-14.03	0%	-109.00	-18.00	31.30	152,835.3	-108.0	0.0	0.0	195,571.9	105,271.5	1,513,614.5	0.0	1,513,614.5	416.37	1,513,614.5	416.37
2028	2026	2026	2026-2100	October	31	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-29.80	45.70	-31.00	-14.03	0%	-115.00	-18.00	31.30	152,835.3	-114.0	0.0	0.0	200,523.3	108,051.5	1,510,486.0	0.0	1,510,486.0	416.30	1,510,486.0	416.30
2028	2026	2026	2026-2100	November	30	418.5	1,591,622.6	418.7	1,420,943.4	618,992.2	1.00	11.33	0.00	-31.60	47.80	-33.00	-14.03	0%	-121.00	-18.00	31.30	15											

Model Inputs	
Year of Simulation	2022
Source of Climate Record	Actual
Source of Change Scenario	CP1.6
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,991,832.6
Area of Open Water Within TSP (m²)	61,646.6
Runoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m²)	14,433.8
Runoff Coefficient for Restored Lands Within TSP	0.5
Evaporation from TSP (mm/day)	2.0
Supplementary Water Addition (m³/day)	0.0
Trigger Elevation for Supplemental Water Addition (mASL)	416.0
Sublimation Losses in Winter (mm/day)	0.0
Wind Drift Losses in Winter (% of snowfall)	0%

NOTES: 1) The climate record was taken from the period of the TSP from the last open water. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes in Puff Size".

Table 14c: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Count	Year	Month	Forecast Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Restored Area (m²)	Restored Runoff Coeff	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Average (m/s)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool Evaporation	Average	Sublimation	Wind Drift Losses	Total Outflow	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	
1	2022	1991	2021-2040	January	31	416.5	1,991,832.6	414.3	1,539,863.1	41,692.92	1.00	14.33	0.45	-18.01	-2.70	96.80	-6.27	100%	0.00	0	200.00	63,753.9	532.2	0.0	42,840.0	0.0	6,200.0	0.0	6,200.0	56,984.0	1,588,073.5	6441.0	1,591,632.6	416.0	1,588,073.5
2	2022	1991	2021-2040	February	28	416.5	1,991,832.6	415.0	1,591,832.6	41,692.92	1.00	14.33	0.45	-18.78	-2.70	10.70	-6.27	100%	0.00	0	200.00	12,983.0	107.8	0.0	13,072.0	0.0	6,200.0	0.0	6,200.0	7,772.0	1,598,109.7	7,772.0	1,591,632.6	416.0	1,598,109.7
3	2022	1991	2021-2040	March	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	-7.39	-2.30	16.10	-6.27	100%	0.00	0	200.00	9,853.0	81.8	0.0	9,970.0	0.0	6,200.0	0.0	6,200.0	3,770.0	1,595,362.6	3,770.0	1,591,632.6	416.0	1,595,362.6
4	2022	1991	2021-2040	April	30	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	5.44	-2.30	7.40	-6.27	0%	0.00	-11.32	200.00	15,639.9	128.8	0.0	15,776.8	7,048.0	6,000.0	0.0	11,004.6	2,173.0	1,593,448.5	2,173.0	1,591,632.6	416.0	1,593,448.5
5	2022	1991	2021-2040	May	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	9.93	-2.30	9.20	-6.27	0%	0.00	-18.29	200.00	67,746.0	989.2	0.0	70,844.8	8,418.0	6,200.0	0.0	11,932.8	4,798.0	1,596,311.5	4,798.0	1,591,632.6	416.0	1,596,311.5
6	2022	1991	2021-2040	June	30	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	11.08	-2.30	10.80	-6.27	0%	0.00	-27.24	200.00	46,508.0	962.0	0.0	47,390.0	14,026.0	6,000.0	0.0	7,402.6	39,984.0	1,631,548.0	39,984.0	1,591,632.6	416.0	1,631,548.0
7	2022	1991	2021-2040	July	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	17.43	-2.30	12.50	-6.27	0%	0.00	-34.20	200.00	69,017.0	974.0	0.0	69,991.0	25,658.0	6,000.0	0.0	73,485.6	3,880.0	1,631,752.0	0.0	1,631,752.0	416.0	1,631,752.0
8	2022	1991	2021-2040	August	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	18.00	-2.30	13.00	-6.27	0%	0.00	-40.20	200.00	94,000.0	971.0	0.0	94,971.0	37,816.0	6,000.0	0.0	63,255.0	31,520.0	1,631,752.0	31,520.0	1,631,752.0	416.0	1,631,752.0
9	2022	1991	2021-2040	September	30	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	17.00	-2.30	12.50	-6.27	0%	0.00	-40.20	200.00	106,643.0	969.0	0.0	107,612.0	34,916.0	6,000.0	0.0	51,000.0	56,612.0	1,631,752.0	56,612.0	1,631,752.0	416.0	1,631,752.0
10	2022	1991	2021-2040	October	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	21.77	-2.30	13.50	-6.27	0%	0.00	-49.43	200.00	145,000.0	969.0	0.0	145,969.0	42,333.0	6,000.0	0.0	10,200.0	135,769.0	1,631,752.0	135,769.0	1,631,752.0	416.0	1,631,752.0
11	2022	1991	2021-2040	November	30	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	3.87	-2.30	34.20	-6.27	0%	0.00	0	200.00	24,428.0	208.0	0.0	24,628.0	0.0	6,200.0	0.0	6,000.0	18,628.0	1,631,752.0	18,628.0	1,631,752.0	416.0	1,631,752.0
12	2022	1991	2021-2040	December	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	-10.72	-2.30	36.40	-6.27	100%	0.00	0	200.00	20,773.0	214.0	0.0	20,987.0	0.0	6,200.0	0.0	6,200.0	19,780.0	1,611,426.6	19,780.0	1,631,752.0	416.0	1,631,752.0
13	2023	1970	2021-2040	January	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	-16.40	-2.30	34.80	-6.27	100%	0.00	0	200.00	20,773.0	214.0	0.0	20,987.0	0.0	6,200.0	0.0	6,200.0	19,780.0	1,611,426.6	19,780.0	1,631,752.0	416.0	1,631,752.0
14	2023	1970	2021-2040	February	28	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	-17.30	-2.30	29.20	-6.27	100%	0.00	0	200.00	16,643.0	161.0	0.0	16,804.0	0.0	6,200.0	0.0	6,000.0	11,604.0	1,620,922.2	11,604.0	1,631,752.0	416.0	1,631,752.0
15	2023	1970	2021-2040	March	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	-8.78	-2.30	34.80	-6.27	100%	0.00	0	200.00	21,513.0	208.0	0.0	21,721.0	0.0	6,200.0	0.0	6,200.0	19,128.0	1,610,733.0	19,128.0	1,631,752.0	416.0	1,631,752.0
16	2023	1970	2021-2040	April	30	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	0.31	-2.30	34.80	-6.27	0%	0.00	-11.22	200.00	16,483.0	317.0	0.0	16,800.0	7,048.0	6,000.0	0.0	11,004.6	24,792.0	1,616,424.0	24,792.0	1,631,752.0	416.0	1,631,752.0
17	2023	1970	2021-2040	May	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	7.42	-2.30	34.80	-6.27	0%	0.00	-11.22	200.00	18,888.0	492.0	0.0	19,380.0	8,702.0	6,000.0	0.0	54,932.0	4,056.0	1,620,142.2	4,056.0	1,631,752.0	416.0	1,631,752.0
18	2023	1970	2021-2040	June	30	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	17.00	-2.30	34.80	-6.27	0%	0.00	-20.20	200.00	26,643.0	969.0	0.0	27,612.0	14,026.0	6,000.0	0.0	31,638.0	16,581.0	1,620,718.0	16,581.0	1,631,752.0	416.0	1,631,752.0
19	2023	1970	2021-2040	July	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	20.83	-2.30	39.70	-6.27	0%	0.00	-28.20	200.00	32,639.0	271.0	0.0	32,910.0	18,024.0	6,000.0	0.0	38,762.4	13,851.0	1,620,863.3	13,851.0	1,631,752.0	416.0	1,631,752.0
20	2023	1970	2021-2040	August	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	18.00	-2.30	32.20	-6.27	0%	0.00	-40.20	200.00	28,006.0	228.0	0.0	28,234.0	16,537.0	6,000.0	0.0	31,737.0	14,503.0	1,626,361.4	14,503.0	1,631,752.0	416.0	1,631,752.0
21	2023	1970	2021-2040	September	30	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	11.80	-2.30	34.80	-6.27	0%	0.00	-40.20	200.00	36,773.0	722.0	0.0	37,495.0	13,815.0	6,000.0	0.0	39,314.5	14,875.0	1,621,741.0	14,875.0	1,631,752.0	416.0	1,631,752.0
22	2023	1970	2021-2040	October	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	5.85	-2.30	34.80	-6.27	0%	0.00	-49.20	200.00	40,710.0	675.0	0.0	41,385.0	23,845.0	6,000.0	0.0	30,385.0	11,000.0	1,620,740.0	11,000.0	1,631,752.0	416.0	1,631,752.0
23	2023	1970	2021-2040	November	30	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	-1.78	-2.30	32.20	-6.27	0%	0.00	0	200.00	22,643.0	208.0	0.0	22,851.0	0.0	6,200.0	0.0	6,000.0	17,643.0	1,620,922.2	17,643.0	1,631,752.0	416.0	1,631,752.0
24	2023	1970	2021-2040	December	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	-15.40	-2.30	43.00	-6.27	0%	0.00	0	200.00	10,216.0	261.0	0.0	10,477.0	0.0	6,200.0	0.0	6,200.0	20,086.0	1,617,722.2	20,086.0	1,631,752.0	416.0	1,631,752.0
25	2024	1971	2021-2040	January	31	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	-21.40	-2.30	37.00	-6.27	0%	0.00	0	200.00	13,642.0	112.0	0.0	13,754.0	0.0	6,200.0	0.0	6,200.0	7,382.0	1,616,008.7	7,382.0	1,631,752.0	416.0	1,631,752.0
26	2024	1971	2021-2040	February	28	416.5	1,991,832.6	416.0	1,591,832.6	41,692.92	1.00	14.33	0.45	-13.37	-2.30	37.80	-6.27	0%	0.00	0	200.00	21,072.0	172.0	0.0	21,244.0	0.0	6,200.0	0.0	6,000.0	15,047.0	1,620,284.0	15,047.0	1,631,752.0	416.0	1,631,752.0

Table 14c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff Coefficient	Natural Operations Area	Runoff Coefficient	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Exposition (mm)	Forecast Exposition Change (mm)	Change (mm)	TSF Inflows (mm)		TSF Outflows (mm)		End of Month WSEL (m)	End of Month Volume (mm)				
																					Open Water	Restored	Supplementary	Total Inflows			Restored	Supplementary	Total Outflows	
199	2051	1988	2041-2070	January	21	418.5	1,591,632.0	418.0	1,222,902.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	10,189.9	191.2	0.0	10,381.2	0.0	6,200.0	1,312.2	1,344,693.0	418.0	1,344,693.0
199	2051	1988	2041-2070	February	28	418.5	1,591,632.0	418.0	1,244,829.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	22,369.2	196.2	0.0	22,562.8	0.0	6,200.0	16,362.8	1,261,808.0	418.0	1,261,808.0
199	2051	1988	2041-2070	March	31	418.5	1,591,632.0	418.0	1,267,756.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	33,558.4	196.2	0.0	33,754.6	0.0	6,200.0	27,554.6	1,210,261.0	418.0	1,210,261.0
199	2051	1988	2041-2070	April	30	418.5	1,591,632.0	418.0	1,290,683.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	44,747.6	196.2	0.0	44,943.8	0.0	6,200.0	38,743.8	1,158,718.0	418.0	1,158,718.0
199	2051	1988	2041-2070	May	31	418.5	1,591,632.0	418.0	1,313,610.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	55,936.8	196.2	0.0	56,133.0	0.0	6,200.0	49,936.0	1,106,575.0	418.0	1,106,575.0
199	2051	1988	2041-2070	June	30	418.5	1,591,632.0	418.0	1,336,537.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	67,126.0	196.2	0.0	67,322.2	0.0	6,200.0	61,126.0	1,054,432.0	418.0	1,054,432.0
199	2051	1988	2041-2070	July	31	418.5	1,591,632.0	418.0	1,359,464.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	78,315.2	196.2	0.0	78,511.4	0.0	6,200.0	72,315.2	1,002,289.0	418.0	1,002,289.0
199	2051	1988	2041-2070	August	31	418.5	1,591,632.0	418.0	1,382,391.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	89,504.4	196.2	0.0	89,700.6	0.0	6,200.0	83,504.4	950,146.0	418.0	950,146.0
199	2051	1988	2041-2070	September	30	418.5	1,591,632.0	418.0	1,405,318.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	100,693.6	196.2	0.0	100,889.8	0.0	6,200.0	94,693.6	908,003.0	418.0	908,003.0
199	2051	1988	2041-2070	October	31	418.5	1,591,632.0	418.0	1,428,245.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	111,882.8	196.2	0.0	112,079.0	0.0	6,200.0	105,882.8	865,860.0	418.0	865,860.0
199	2051	1988	2041-2070	November	30	418.5	1,591,632.0	418.0	1,451,172.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	123,072.0	196.2	0.0	123,268.2	0.0	6,200.0	117,072.0	823,717.0	418.0	823,717.0
199	2051	1988	2041-2070	December	31	418.5	1,591,632.0	418.0	1,474,099.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	134,261.2	196.2	0.0	134,457.4	0.0	6,200.0	128,061.2	781,574.0	418.0	781,574.0
200	2052	1989	2041-2070	January	21	418.5	1,591,632.0	418.0	1,497,026.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	145,450.4	196.2	0.0	145,646.6	0.0	6,200.0	139,450.4	739,431.0	418.0	739,431.0
200	2052	1989	2041-2070	February	28	418.5	1,591,632.0	418.0	1,520,953.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	156,639.6	196.2	0.0	156,835.8	0.0	6,200.0	150,639.6	697,288.0	418.0	697,288.0
200	2052	1989	2041-2070	March	31	418.5	1,591,632.0	418.0	1,544,880.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	167,828.8	196.2	0.0	168,025.0	0.0	6,200.0	162,028.8	655,145.0	418.0	655,145.0
200	2052	1989	2041-2070	April	30	418.5	1,591,632.0	418.0	1,568,807.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	179,018.0	196.2	0.0	179,214.2	0.0	6,200.0	173,214.2	613,002.0	418.0	613,002.0
200	2052	1989	2041-2070	May	31	418.5	1,591,632.0	418.0	1,592,734.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	190,207.2	196.2	0.0	190,403.4	0.0	6,200.0	184,403.4	570,859.0	418.0	570,859.0
200	2052	1989	2041-2070	June	30	418.5	1,591,632.0	418.0	1,616,661.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	201,396.4	196.2	0.0	201,592.6	0.0	6,200.0	195,592.6	528,716.0	418.0	528,716.0
200	2052	1989	2041-2070	July	31	418.5	1,591,632.0	418.0	1,640,588.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	212,585.6	196.2	0.0	212,781.8	0.0	6,200.0	206,781.8	486,573.0	418.0	486,573.0
200	2052	1989	2041-2070	August	31	418.5	1,591,632.0	418.0	1,664,515.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	223,774.8	196.2	0.0	223,971.0	0.0	6,200.0	217,971.0	444,430.0	418.0	444,430.0
200	2052	1989	2041-2070	September	30	418.5	1,591,632.0	418.0	1,688,442.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	234,964.0	196.2	0.0	235,160.2	0.0	6,200.0	229,160.2	402,287.0	418.0	402,287.0
200	2052	1989	2041-2070	October	31	418.5	1,591,632.0	418.0	1,712,369.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	246,153.2	196.2	0.0	246,349.4	0.0	6,200.0	240,349.4	360,144.0	418.0	360,144.0
200	2052	1989	2041-2070	November	30	418.5	1,591,632.0	418.0	1,736,296.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	257,342.4	196.2	0.0	257,538.6	0.0	6,200.0	251,538.6	318,001.0	418.0	318,001.0
200	2052	1989	2041-2070	December	31	418.5	1,591,632.0	418.0	1,760,223.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	268,531.6	196.2	0.0	268,727.8	0.0	6,200.0	262,727.8	275,858.0	418.0	275,858.0
201	2053	1990	2041-2070	January	21	418.5	1,591,632.0	418.0	1,784,150.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	279,720.8	196.2	0.0	280,017.0	0.0	6,200.0	274,017.0	233,715.0	418.0	233,715.0
201	2053	1990	2041-2070	February	28	418.5	1,591,632.0	418.0	1,808,077.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	290,910.0	196.2	0.0	291,206.2	0.0	6,200.0	285,406.2	191,572.0	418.0	191,572.0
201	2053	1990	2041-2070	March	31	418.5	1,591,632.0	418.0	1,832,004.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	302,099.2	196.2	0.0	302,295.4	0.0	6,200.0	296,895.4	149,429.0	418.0	149,429.0
201	2053	1990	2041-2070	April	30	418.5	1,591,632.0	418.0	1,855,931.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	313,288.4	196.2	0.0	313,484.6	0.0	6,200.0	308,284.6	107,286.0	418.0	107,286.0
201	2053	1990	2041-2070	May	31	418.5	1,591,632.0	418.0	1,879,858.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	324,477.6	196.2	0.0	324,673.8	0.0	6,200.0	319,673.8	65,143.0	418.0	65,143.0
201	2053	1990	2041-2070	June	30	418.5	1,591,632.0	418.0	1,903,785.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	335,666.8	196.2	0.0	335,863.0	0.0	6,200.0	330,063.0	23,000.0	418.0	23,000.0
201	2053	1990	2041-2070	July	31	418.5	1,591,632.0	418.0	1,927,712.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	346,856.0	196.2	0.0	347,052.2	0.0	6,200.0	341,452.2	0.0	418.0	0.0
201	2053	1990	2041-2070	August	31	418.5	1,591,632.0	418.0	1,951,639.0	418,502.0	1.00	11.50	0.45	-0.20	-0.20	10.00	0.00	0.00	0.00	200.0	358,045.2	196.2	0.0	358,241.4	0.0	6,200.0	353,041.4	0.0	418.0	0.0
201	2053	1990	2041-2070	September	30	418.5	1,591,632.0																							

Table 14c: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Day	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WBE (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Runoff Volume (m³)	Runoff Depth (mm)	Runoff Temperature (°C)	Runoff Precipitation (mm)	Runoff Precipitation Change (mm)	Runoff Precipitation as % of Precipitation	Runoff Evaporation (mm)	Runoff Evaporation Change (mm)	Runoff Evaporation as % of Precipitation	Runoff Sublimation (mm)	Runoff Sublimation Change (mm)	Runoff Sublimation as % of Precipitation	Runoff Net Inflow (m³)	Runoff Net Inflow Change (m³)	Runoff Net Inflow as % of Precipitation	Runoff End of Month WBE (m)	Runoff End of Month Volume (m³)	Runoff End of Month Precipitation (mm)	Runoff End of Month Evaporation (mm)	Runoff End of Month Sublimation (mm)	Runoff End of Month Net Inflow (m³)	Runoff End of Month Net Inflow Change (m³)	Runoff End of Month Net Inflow as % of Precipitation			
2021	2023	2010	2021-2100	April	30	418.5	1,591,622.0	417.0	836,385.3	416,592.0	1.00	11,433.0	0.45	7.48	-0.05	43.50	+1.12	38%	8.74	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2021	2023	2010	2021-2100	May	31	418.5	1,591,622.0	417.31	841,530.0	416,592.0	1.00	11,433.0	0.45	12.50	-0.05	43.50	+1.12	4%	99.87	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2021	2023	2010	2021-2100	June	30	418.5	1,591,622.0	417.61	846,981.0	416,592.0	1.00	11,433.0	0.45	13.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2021	2023	2010	2021-2100	July	31	418.5	1,591,622.0	417.91	852,432.0	416,592.0	1.00	11,433.0	0.45	14.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2021	2023	2010	2021-2100	August	31	418.5	1,591,622.0	418.21	857,883.0	416,592.0	1.00	11,433.0	0.45	15.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2021	2023	2010	2021-2100	September	30	418.5	1,591,622.0	418.51	863,334.0	416,592.0	1.00	11,433.0	0.45	16.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2021	2023	2010	2021-2100	October	31	418.5	1,591,622.0	418.81	868,785.0	416,592.0	1.00	11,433.0	0.45	17.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2021	2023	2010	2021-2100	November	30	418.5	1,591,622.0	419.11	874,236.0	416,592.0	1.00	11,433.0	0.45	18.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2021	2023	2010	2021-2100	December	31	418.5	1,591,622.0	419.41	879,687.0	416,592.0	1.00	11,433.0	0.45	19.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	January	31	418.5	1,591,622.0	419.71	885,138.0	416,592.0	1.00	11,433.0	0.45	20.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	February	29	418.5	1,591,622.0	420.01	890,589.0	416,592.0	1.00	11,433.0	0.45	21.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	March	31	418.5	1,591,622.0	420.31	896,040.0	416,592.0	1.00	11,433.0	0.45	22.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	April	30	418.5	1,591,622.0	420.61	901,491.0	416,592.0	1.00	11,433.0	0.45	23.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	May	31	418.5	1,591,622.0	420.91	906,942.0	416,592.0	1.00	11,433.0	0.45	24.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	June	30	418.5	1,591,622.0	421.21	912,393.0	416,592.0	1.00	11,433.0	0.45	25.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	July	31	418.5	1,591,622.0	421.51	917,844.0	416,592.0	1.00	11,433.0	0.45	26.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	August	31	418.5	1,591,622.0	421.81	923,295.0	416,592.0	1.00	11,433.0	0.45	27.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	September	30	418.5	1,591,622.0	422.11	928,746.0	416,592.0	1.00	11,433.0	0.45	28.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	October	31	418.5	1,591,622.0	422.41	934,197.0	416,592.0	1.00	11,433.0	0.45	29.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	November	30	418.5	1,591,622.0	422.71	939,648.0	416,592.0	1.00	11,433.0	0.45	30.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2022	2024	2011	2021-2100	December	31	418.5	1,591,622.0	423.01	945,099.0	416,592.0	1.00	11,433.0	0.45	31.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2023	2025	2012	2021-2100	January	31	418.5	1,591,622.0	423.31	950,550.0	416,592.0	1.00	11,433.0	0.45	32.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2023	2025	2012	2021-2100	February	29	418.5	1,591,622.0	423.61	955,901.0	416,592.0	1.00	11,433.0	0.45	33.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2023	2025	2012	2021-2100	March	31	418.5	1,591,622.0	423.91	961,252.0	416,592.0	1.00	11,433.0	0.45	34.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2023	2025	2012	2021-2100	April	30	418.5	1,591,622.0	424.21	966,603.0	416,592.0	1.00	11,433.0	0.45	35.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2023	2025	2012	2021-2100	May	31	418.5	1,591,622.0	424.51	971,954.0	416,592.0	1.00	11,433.0	0.45	36.50	-0.05	43.50	+1.12	0%	100.00	-0.12	200.0	33,693.0	212.0	0.0	34,189.0	21,412.0	6,000.0	0.0	0.0	29,421.0	4,767.0	841,154.0	0.0	841,154.0	471.51	841,154.0	471.51
2023	2025	2012	2021-2100	June																																	

Table 14c: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of Wet Well (m³)	Initial WBE (m)	Initial WBE (m)	Open Water Area (m²)	Forecast Operations Area (m²)	Forecast Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation (mm)	Evaporation (mm)	Forecast Evaporation (mm)	Evaporation as % Precipitation	Extrapolation (mm)	Forecast Extrapolation (mm)	Change (mm)	Open Water	Restored	Supplementary	Total Inflows	Pool	Average	Sublimation	Wet Well Inflow	Total Outflow	Net Inflow	End of Month WBE (m)	End of Month Discharge (m³)	End of Month WBE (m)	End of Month Discharge (m³)
2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022

Table 14c: Multi-year Wet Cover Model (2022-2432): 200 m d/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Runoff (m³)	Runoff Coefficient	Runoff Volume (m³)	Runoff Coefficient	Runoff Volume (m³)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Exposition (mm)	Forecast Exposition Change (mm)	Open Water	Runoff	Sublimation	Supplementary	Total Inflow	Pool	Average	Sublimation	Net Inflow	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	
212	2018	2018	2018-01-01	January	31	418.5	1,591,632.0	396.11	13,865,867.0	1,616,992.0	1.00	14,130.0	0.45	14,097.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,865.867	13,865,867.0	0.0	13,865,867.0	396.11
212	2018	2018	2018-01-31	January	28	418.5	1,591,632.0	396.12	13,862,833.0	1,616,992.0	1.00	14,130.0	0.45	14,121.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,862.833	13,862,833.0	0.0	13,862,833.0	396.12
212	2018	2018	2018-02-28	February	28	418.5	1,591,632.0	396.13	13,860,200.0	1,616,992.0	1.00	14,130.0	0.45	14,112.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,860.200	13,860,200.0	0.0	13,860,200.0	396.13
212	2018	2018	2018-03-31	March	31	418.5	1,591,632.0	396.14	13,857,567.0	1,616,992.0	1.00	14,130.0	0.45	14,103.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,857.567	13,857,567.0	0.0	13,857,567.0	396.14
212	2018	2018	2018-04-30	April	30	418.5	1,591,632.0	396.15	13,854,934.0	1,616,992.0	1.00	14,130.0	0.45	14,094.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,854.934	13,854,934.0	0.0	13,854,934.0	396.15
212	2018	2018	2018-05-31	May	31	418.5	1,591,632.0	396.16	13,852,301.0	1,616,992.0	1.00	14,130.0	0.45	14,085.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,852.301	13,852,301.0	0.0	13,852,301.0	396.16
212	2018	2018	2018-06-30	June	30	418.5	1,591,632.0	396.17	13,849,668.0	1,616,992.0	1.00	14,130.0	0.45	14,076.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,849.668	13,849,668.0	0.0	13,849,668.0	396.17
212	2018	2018	2018-07-31	July	31	418.5	1,591,632.0	396.18	13,847,035.0	1,616,992.0	1.00	14,130.0	0.45	14,067.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,847.035	13,847,035.0	0.0	13,847,035.0	396.18
212	2018	2018	2018-08-31	August	31	418.5	1,591,632.0	396.19	13,844,402.0	1,616,992.0	1.00	14,130.0	0.45	14,058.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,844.402	13,844,402.0	0.0	13,844,402.0	396.19
212	2018	2018	2018-09-30	September	30	418.5	1,591,632.0	396.20	13,841,769.0	1,616,992.0	1.00	14,130.0	0.45	14,049.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,841.769	13,841,769.0	0.0	13,841,769.0	396.20
212	2018	2018	2018-10-31	October	31	418.5	1,591,632.0	396.21	13,839,136.0	1,616,992.0	1.00	14,130.0	0.45	14,040.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,839.136	13,839,136.0	0.0	13,839,136.0	396.21
212	2018	2018	2018-11-30	November	30	418.5	1,591,632.0	396.22	13,836,503.0	1,616,992.0	1.00	14,130.0	0.45	14,031.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,836.503	13,836,503.0	0.0	13,836,503.0	396.22
212	2018	2018	2018-12-31	December	31	418.5	1,591,632.0	396.23	13,833,870.0	1,616,992.0	1.00	14,130.0	0.45	14,022.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,833.870	13,833,870.0	0.0	13,833,870.0	396.23
212	2019	2019	2019-01-31	January	31	418.5	1,591,632.0	396.24	13,831,237.0	1,616,992.0	1.00	14,130.0	0.45	14,013.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,831.237	13,831,237.0	0.0	13,831,237.0	396.24
212	2019	2019	2019-02-28	February	28	418.5	1,591,632.0	396.25	13,828,604.0	1,616,992.0	1.00	14,130.0	0.45	14,004.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,828.604	13,828,604.0	0.0	13,828,604.0	396.25
212	2019	2019	2019-03-31	March	31	418.5	1,591,632.0	396.26	13,825,971.0	1,616,992.0	1.00	14,130.0	0.45	13,995.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,825.971	13,825,971.0	0.0	13,825,971.0	396.26
212	2019	2019	2019-04-30	April	30	418.5	1,591,632.0	396.27	13,823,338.0	1,616,992.0	1.00	14,130.0	0.45	13,986.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,823.338	13,823,338.0	0.0	13,823,338.0	396.27
212	2019	2019	2019-05-31	May	31	418.5	1,591,632.0	396.28	13,820,705.0	1,616,992.0	1.00	14,130.0	0.45	13,977.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,820.705	13,820,705.0	0.0	13,820,705.0	396.28
212	2019	2019	2019-06-30	June	30	418.5	1,591,632.0	396.29	13,818,072.0	1,616,992.0	1.00	14,130.0	0.45	13,968.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,818.072	13,818,072.0	0.0	13,818,072.0	396.29
212	2019	2019	2019-07-31	July	31	418.5	1,591,632.0	396.30	13,815,439.0	1,616,992.0	1.00	14,130.0	0.45	13,959.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,815.439	13,815,439.0	0.0	13,815,439.0	396.30
212	2019	2019	2019-08-31	August	31	418.5	1,591,632.0	396.31	13,812,806.0	1,616,992.0	1.00	14,130.0	0.45	13,950.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,812.806	13,812,806.0	0.0	13,812,806.0	396.31
212	2019	2019	2019-09-30	September	30	418.5	1,591,632.0	396.32	13,810,173.0	1,616,992.0	1.00	14,130.0	0.45	13,941.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,810.173	13,810,173.0	0.0	13,810,173.0	396.32
212	2019	2019	2019-10-31	October	31	418.5	1,591,632.0	396.33	13,807,540.0	1,616,992.0	1.00	14,130.0	0.45	13,932.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,807.540	13,807,540.0	0.0	13,807,540.0	396.33
212	2019	2019	2019-11-30	November	30	418.5	1,591,632.0	396.34	13,804,907.0	1,616,992.0	1.00	14,130.0	0.45	13,923.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,804.907	13,804,907.0	0.0	13,804,907.0	396.34
212	2019	2019	2019-12-31	December	31	418.5	1,591,632.0	396.35	13,802,274.0	1,616,992.0	1.00	14,130.0	0.45	13,914.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,802.274	13,802,274.0	0.0	13,802,274.0	396.35
212	2020	2020	2020-01-31	January	31	418.5	1,591,632.0	396.36	13,799,641.0	1,616,992.0	1.00	14,130.0	0.45	13,905.0	9.00	+13.23	98%	0.00	0.00	0.00	0.00	0.00	0.00	200.0	193,200.0	160.7	0.0	19,866.6	0.0	2,000.0	0.0	6,200.0	13,799.641	13,799,641.0	0.0	13,799,641.0	396.36

Table 14c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0 mm/d sublimation, 0% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Runoff Coefficient	Runoff Coefficient	Runoff Volume (m³)	Runoff Depth (mm)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	Net Inflow (m³)	Net Outflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)					
256	2032	2006	2071-2100	July	31	4185	1599.623	364.85	-16,336,903.9	0.156992	1.00	143.03	0.43	19.7	-7.80	49.50	-14.33	0%	128.30	-10.00	200.00	182,833	179.9	0.0	92,118.8	3,507.7	-16,407,247.6	0.0	-16,407,247.6	364.75	-16,406,653.0	364.85
256	2032	2006	2071-2100	August	31	4185	1599.623	364.75	-16,413,000.0	0.156992	1.00	143.03	0.43	17.49	-8.00	49.50	-14.33	0%	109.09	-10.00	200.00	182,833	154.1	0.0	92,118.8	3,507.7	-16,466,503.0	0.0	-16,466,503.0	364.85	-16,465,908.4	364.85
256	2032	2006	2071-2100	September	31	4185	1599.623	364.65	-16,428,999.9	0.156992	1.00	143.03	0.43	15.29	-8.00	49.50	-14.33	0%	95.09	-10.00	200.00	182,833	118.9	0.0	92,118.8	3,507.7	-16,494,300.0	0.0	-16,494,300.0	364.85	-16,493,705.4	364.85
256	2032	2006	2071-2100	October	31	4185	1599.623	364.55	-16,444,999.9	0.156992	1.00	143.03	0.43	12.89	-8.00	49.50	-14.33	0%	81.09	-10.00	200.00	182,833	92.9	0.0	92,118.8	3,507.7	-16,520,999.9	0.0	-16,520,999.9	364.85	-16,520,405.3	364.85
256	2032	2006	2071-2100	November	31	4185	1599.623	364.45	-16,460,999.9	0.156992	1.00	143.03	0.43	10.49	-8.00	49.50	-14.33	0%	67.09	-10.00	200.00	182,833	66.9	0.0	92,118.8	3,507.7	-16,547,699.9	0.0	-16,547,699.9	364.85	-16,547,105.3	364.85
256	2032	2006	2071-2100	December	31	4185	1599.623	364.35	-16,476,999.9	0.156992	1.00	143.03	0.43	8.09	-8.00	49.50	-14.33	0%	53.09	-10.00	200.00	182,833	42.9	0.0	92,118.8	3,507.7	-16,574,299.9	0.0	-16,574,299.9	364.85	-16,573,705.3	364.85
257	2033	2006	2071-2100	January	31	4185	1599.623	364.25	-16,492,999.9	0.156992	1.00	143.03	0.43	5.69	-8.00	49.50	-14.33	0%	39.09	-10.00	200.00	182,833	18.9	0.0	92,118.8	3,507.7	-16,600,999.9	0.0	-16,600,999.9	364.85	-16,599,405.3	364.85
257	2033	2006	2071-2100	February	28	4185	1599.623	364.15	-16,518,999.9	0.156992	1.00	143.03	0.43	3.29	-8.00	49.50	-14.33	0%	25.09	-10.00	200.00	182,833	4.9	0.0	92,118.8	3,507.7	-16,628,599.9	0.0	-16,628,599.9	364.85	-16,628,005.3	364.85
257	2033	2006	2071-2100	March	31	4185	1599.623	364.05	-16,546,999.9	0.156992	1.00	143.03	0.43	0.89	-8.00	49.50	-14.33	0%	11.09	-10.00	200.00	182,833	-1.1	0.0	92,118.8	3,507.7	-16,656,299.9	0.0	-16,656,299.9	364.85	-16,655,705.3	364.85
257	2033	2006	2071-2100	April	30	4185	1599.623	363.95	-16,574,999.9	0.156992	1.00	143.03	0.43	-1.61	-8.00	49.50	-14.33	0%	-3.91	-10.00	200.00	182,833	-7.5	0.0	92,118.8	3,507.7	-16,683,999.9	0.0	-16,683,999.9	364.85	-16,683,405.3	364.85
257	2033	2006	2071-2100	May	31	4185	1599.623	363.85	-16,602,999.9	0.156992	1.00	143.03	0.43	-4.21	-8.00	49.50	-14.33	0%	-10.91	-10.00	200.00	182,833	-14.1	0.0	92,118.8	3,507.7	-16,711,699.9	0.0	-16,711,699.9	364.85	-16,711,105.3	364.85
257	2033	2006	2071-2100	June	30	4185	1599.623	363.75	-16,630,999.9	0.156992	1.00	143.03	0.43	-6.81	-8.00	49.50	-14.33	0%	-17.91	-10.00	200.00	182,833	-21.1	0.0	92,118.8	3,507.7	-16,739,699.9	0.0	-16,739,699.9	364.85	-16,739,105.3	364.85
257	2033	2006	2071-2100	July	31	4185	1599.623	363.65	-16,658,999.9	0.156992	1.00	143.03	0.43	-9.41	-8.00	49.50	-14.33	0%	-24.91	-10.00	200.00	182,833	-27.1	0.0	92,118.8	3,507.7	-16,767,699.9	0.0	-16,767,699.9	364.85	-16,767,105.3	364.85
257	2033	2006	2071-2100	August	31	4185	1599.623	363.55	-16,686,999.9	0.156992	1.00	143.03	0.43	-12.01	-8.00	49.50	-14.33	0%	-31.91	-10.00	200.00	182,833	-34.1	0.0	92,118.8	3,507.7	-16,795,699.9	0.0	-16,795,699.9	364.85	-16,795,105.3	364.85
257	2033	2006	2071-2100	September	30	4185	1599.623	363.45	-16,714,999.9	0.156992	1.00	143.03	0.43	-14.61	-8.00	49.50	-14.33	0%	-38.91	-10.00	200.00	182,833	-40.1	0.0	92,118.8	3,507.7	-16,823,699.9	0.0	-16,823,699.9	364.85	-16,823,105.3	364.85
257	2033	2006	2071-2100	October	31	4185	1599.623	363.35	-16,742,999.9	0.156992	1.00	143.03	0.43	-17.21	-8.00	49.50	-14.33	0%	-45.91	-10.00	200.00	182,833	-47.1	0.0	92,118.8	3,507.7	-16,851,699.9	0.0	-16,851,699.9	364.85	-16,851,105.3	364.85
257	2033	2006	2071-2100	November	30	4185	1599.623	363.25	-16,770,999.9	0.156992	1.00	143.03	0.43	-19.81	-8.00	49.50	-14.33	0%	-52.91	-10.00	200.00	182,833	-54.1	0.0	92,118.8	3,507.7	-16,880,699.9	0.0	-16,880,699.9	364.85	-16,880,105.3	364.85
257	2033	2006	2071-2100	December	31	4185	1599.623	363.15	-16,798,999.9	0.156992	1.00	143.03	0.43	-22.41	-8.00	49.50	-14.33	0%	-59.91	-10.00	200.00	182,833	-61.1	0.0	92,118.8	3,507.7	-16,908,999.9	0.0	-16,908,999.9	364.85	-16,908,405.3	364.85
258	2034	2007	2071-2100	January	31	4185	1599.623	363.05	-16,826,999.9	0.156992	1.00	143.03	0.43	-25.01	-8.00	49.50	-14.33	0%	-66.91	-10.00	200.00	182,833	-67.1	0.0	92,118.8	3,507.7	-16,936,999.9	0.0	-16,936,999.9	364.85	-16,936,405.3	364.85
258	2034	2007	2071-2100	February	28	4185	1599.623	362.95	-16,854,999.9	0.156992	1.00	143.03	0.43	-27.61	-8.00	49.50	-14.33	0%	-73.91	-10.00	200.00	182,833	-74.1	0.0	92,118.8	3,507.7	-16,964,999.9	0.0	-16,964,999.9	364.85	-16,964,405.3	364.85
258	2034	2007	2071-2100	March	31	4185	1599.623	362.85	-16,882,999.9	0.156992	1.00	143.03	0.43	-30.21	-8.00	49.50	-14.33	0%	-80.91	-10.00	200.00	182,833	-81.1	0.0	92,118.8	3,507.7	-16,994,999.9	0.0	-16,994,999.9	364.85	-16,994,405.3	364.85
258	2034	2007	2071-2100	April	30	4185	1599.623	362.75	-16,910,999.9	0.156992	1.00	143.03	0.43	-32.81	-8.00	49.50	-14.33	0%	-87.91	-10.00	200.00	182,833	-88.1	0.0	92,118.8	3,507.7	-17,024,999.9	0.0	-17,024,999.9	364.85	-17,024,405.3	364.85
258	2034	2007	2071-2100	May	31	4185	1599.623	362.65	-16,938,999.9	0.156992	1.00	143.03	0.43	-35.41	-8.00	49.50	-14.33	0%	-94.91	-10.00	200.00	182,833	-95.1	0.0	92,118.8	3,507.7	-17,054,999.9	0.0	-17,054,999.9	364.85	-17,054,405.3	364.85
258	2034	2007	2071-2100	June	30	4185	1599.623	362.55	-16,966,999.9	0.156992	1.00	143.03	0.43	-38.01	-8.00	49.50	-14.33	0%	-101.91	-10.00	200.00	182,833	-101.1	0.0	92,118.8	3,507.7	-17,084,999.9	0.0	-17,084,999.9	364.85	-17,084,405.3	364.85
258	2034	2007	2071-2100	July	31	4185	1599.623	362.45	-17,000,999.9	0.156992	1.00	143.03	0.43	-40.61	-8.00	49.50	-14.33	0%	-108.91	-10.00	200.00	182,833	-108.1	0.0	92,118.8	3,507.7	-17,114,999.9	0.0	-17,114,999.9	364.85	-17,114,405.3	364.85
258	2034	2007	2071-2100	August	31	4185	1599.623	362.35	-17,028,999.9	0.156992	1.00	143.03	0.43	-43.21	-8.00	49.50	-14.33	0%	-115.91	-10.00	200.00	182,833	-115.1	0.0	92,118.8	3,507.7	-17,144,999.9	0.0	-17,144,999.9	364.85	-17,144,405.3	364.85
258	2034	2007	2071-2100	September	30	4185	1599.623	362.25	-17,056,999.9	0.156992	1.00	143.03	0.43	-45.81	-8.00	49.50	-14.33	0%	-122.91	-10.00	200.00	182,833	-122.1	0.0	92,118.8	3,507.7	-17,174,999.9	0.0	-17,174,999.9	364.85	-17,174,405.3	364.85
258	2034	2007	2071-2100	October	31	4185	1599.623	362.15	-17,084,999.9	0.156992	1.00	143.03	0.43	-48.41	-8.00	49.50	-14.33	0%	-129.91	-10.00	200.00	182,833	-129.1	0.0	92,118.8	3,507.7	-17,204,999.9	0.0	-17,204,999.9	364.85	-17,204,405.3	364.85
258	2034	2007	2071-2100	November	30	4185	1599.623	362.05	-17,112,999.9	0.156992	1.00	143.03	0.43	-51.01	-8.00	49.50	-14.33	0%	-136.91	-10.00	200.00	182,833	-136.1	0.0	92,118.8	3,507.7	-17,234,999.9	0.0	-17,234,999.9	364.85	-17,234,405.3	364.85
258	2034	2007	2071-2100	December	31	4185	1599.623	361.95	-17,140,999.9	0.156992	1.00	143.03	0.43	-53.61	-8.00	49.50	-14.33	0%	-143.91	-10.00	200.00	182,833	-143.1	0.0	92,118.8	3,507.7	-17,264,999.9	0.0	-17,264,999.9	364.85	-17,264,405.3	364.85
259	2035	2008	2071-																													

Model Inputs	
First Year of Simulation	2032
Source of Climate Record	Ensemble
Climate Change Scenario	Ensemble
Invert Elevation (mASL)	0.0
Maximum Elevation of Tailings (mASL)	0.0
Capacity of TSP (m)	1.00E+06
Area of Open Water Within TSP (m ²)	0.0
Ruoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m ²)	1.0E+08
Ruoff Coefficient for Restored Lands Within TSP	0.1
Evaporation from TSP (mm/day)	3.0
Supplementary Water Addition (m ³ /d)	0.0
Trigger Elevation for Supplementary Water Addition (mASL)	0.0
Sublimation Losses in Winter (mm/day)	0.0
Wind Drift Losses in Winter (% of snow)	2%

NOTES:
 * The values for precipitation and wind are the values for the period of the TSP from their not-occur water.
 * Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 16a: Multi-Year Wet Cover Model (2032-2432): 3.13 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of TSP (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Ruoff Coefficient	Restored Operations Area (m ²)	Ruoff Coefficient	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as % of Normal	Evaporation (mm)	Forecast Evaporation Change (mm)	Average (m/s)	TSP Inflows (m ³)										Total Outflow	Net Inflow (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)
																						Open Water	Restored	Supplementary	Total Inflow	Pool	Average	Sublimation	Wind Drift	Total Outflow	Net Inflow							
1	2032	1969	2011-2040	January	31	4185	1,591,622.6	4183	1,539,863	618,992	1.00	14,338	0.45	-18.01	-2.37	96.80	-6.66	100%	0.00	0	3.13	63,994.94	532.2	0.0	64,566.00	0.0	0.0	1,953.0	1,296.5	3,349.5	41.860	1,611,755.5	9,543.0	1,591,622.6	4183.0			
2	2032	1969	2011-2040	February	28	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-12.78	-2.37	96.80	-6.66	100%	0.00	0	3.13	13,029.9	109.9	0.0	13,139.7	0.0	0.0	1,764.0	264.1	2,118.0	41.207	1,620,834.3	11,207.7	1,591,622.6	4180.0			
3	2032	1969	2011-2040	March	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-7.89	-2.32	10.10	+4.34	100%	0.00	0	3.13	8,934.9	743	0.0	9,678.2	0.0	0.0	1,633.0	180.2	2,238.2	40.790	1,586,115.1	6,799.0	1,591,622.6	4180.0			
4	2032	1969	2011-2040	April	30	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-5.44	-2.32	7.40	+4.34	100%	0.00	0	3.13	14,637.8	1,221	0.0	15,859.7	0.0	0.0	1,627.0	523.75	93.0	0.0	16,382.7	1,602.0	1,591,622.6	4180.0			
5	2032	1969	2011-2040	May	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	9.53	+2.32	30.90	+4.34	100%	0.00	0	3.13	19,793.4	1,619	0.0	21,412.8	0.0	0.0	1,630.0	4,988.6	97.0	0.0	22,050.8	6,468.4	1,591,622.6	4180.0			
6	2032	1969	2011-2040	June	30	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	11.08	+2.32	60.80	+5.00	100%	0.00	0	3.13	24,411	3,133	0.0	27,544.1	0.0	0.0	1,580.0	46,005.0	1,637,638.0	40,605.0	1,591,622.6	4180.0					
7	2032	1969	2011-2040	July	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	17.43	+2.32	103.50	+5.00	100%	0.00	0	3.13	30,279.8	5,761	0.0	36,041.6	0.0	0.0	1,627.0	81,533.0	1,594,451.8	281,533.0	1,591,622.6	4180.0					
8	2032	1969	2011-2040	August	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	18.00	+2.32	109.00	+5.00	100%	0.00	0	3.13	34,968.9	7,819	0.0	42,787.8	0.0	0.0	1,627.0	117,997.0	1,620,430.3	377,997.0	1,591,622.6	4180.0					
9	2032	1969	2011-2040	September	30	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	17.68	+2.32	97.60	+5.00	100%	0.00	0	3.13	32,816.9	4,613	0.0	37,433.8	0.0	0.0	1,627.0	102,991.0	1,619,640.0	222.9	1,591,622.6	4180.0					
10	2032	1969	2011-2040	October	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	21.77	+2.32	63.90	+4.34	9%	19.43	+1.61	3.13	49,265.9	3,450	0.0	52,721.9	0.0	0.0	1,627.0	151,911.8	1,617,262.2	331,337.0	1,591,622.6	4180.0					
11	2032	1969	2011-2040	November	30	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	3.87	+2.32	34.20	+4.34	89%	0.00	0	3.13	23,844.4	1,983	0.0	25,827.4	0.0	0.0	1,630.0	18,680.4	4074	2,013	21,894.0	1,611,419	1,591,622.6	4180.0			
12	2032	1969	2011-2040	December	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-10.72	+2.32	35.40	+6.66	100%	0.00	0	3.13	20,844.3	2163	0.0	23,007.6	0.0	0.0	1,630.0	5,044	2,574	23,896.0	1,615,285.5	23,896.0	1,591,622.6	4180.0			
13	2033	1970	2011-2040	January	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-16.40	+2.32	34.40	+6.66	100%	0.00	0	3.13	24,513.4	2163	0.0	27,676.8	0.0	0.0	1,630.0	5,044	2,574	23,896.0	1,615,285.5	23,896.0	1,591,622.6	4180.0			
14	2033	1970	2011-2040	February	28	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-17.30	+2.32	32.90	+6.66	100%	0.00	0	3.13	20,243.4	2163	0.0	22,406.6	0.0	0.0	1,630.0	5,044	2,574	23,896.0	1,615,285.5	23,896.0	1,591,622.6	4180.0			
15	2033	1970	2011-2040	March	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-8.78	+2.32	34.80	+4.34	91%	0.00	0	3.13	26,213.4	2,014	0.0	28,227.4	0.0	0.0	1,783.0	4463	2,208.5	23,896.0	1,615,285.5	23,896.0	1,591,622.6	4180.0			
16	2033	1970	2011-2040	April	30	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	0.31	+2.32	34.80	+4.34	35%	0.00	0	3.13	26,540	3,042	0.0	29,582.0	0.0	0.0	1,627.0	6,976.0	32,558.2	1,617,842.2	32,558.2	1,591,622.6	4180.0				
17	2033	1970	2011-2040	May	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	7.42	+2.32	69.50	+4.34	0%	70.02	+3.99	3.13	38,989.3	4,827	0.0	43,816.3	0.0	0.0	1,627.0	46,252.0	1,601,899.6	102,720.0	1,591,622.6	4180.0					
18	2033	1970	2011-2040	June	30	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	17.68	+2.32	120.20	+5.00	100%	0.00	0	3.13	50,216.9	4,613	0.0	54,830.9	0.0	0.0	1,627.0	120,991.0	1,619,640.0	222.9	1,591,622.6	4180.0					
19	2033	1970	2011-2040	July	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	20.83	+2.32	97.00	+5.00	100%	0.00	0	3.13	57,201.9	2,737	0.0	60,938.9	0.0	0.0	1,627.0	151,911.8	1,617,262.2	331,337.0	1,591,622.6	4180.0					
20	2033	1970	2011-2040	August	31	4185	1,591,622.6	4181	1,611,611.6	618,992	1.00	14,338	0.45	18.00	+2.32	102.00	+5.00	100%	0.00	0	3.13	58,266.6	2,511	0.0	60,778.6	0.0	0.0	1,627.0	151,911.8	1,617,262.2	331,337.0	1,591,622.6	4180.0					
21	2033	1970	2011-2040	September	30	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	11.80	+2.32	124.30	+4.34	2%	48.89	+4.17	3.13	60,705.5	7157	0.0	67,862.6	0.0	0.0	1,627.0	151,911.8	1,617,262.2	331,337.0	1,591,622.6	4180.0					
22	2033	1970	2011-2040	October	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	5.85	+2.32	129.30	+4.34	0%	+4.14	+3.13	60,705.5	6,224	0.0	66,929.5	0.0	0.0	1,627.0	151,911.8	1,617,262.2	331,337.0	1,591,622.6	4180.0						
23	2033	1970	2011-2040	November	30	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-14.20	+2.32	124.30	+4.34	0%	+1.31	+3.13	60,705.5	6,224	0.0	66,929.5	0.0	0.0	1,627.0	151,911.8	1,617,262.2	331,337.0	1,591,622.6	4180.0						
24	2033	1970	2011-2040	December	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-15.40	+2.32	124.30	+4.34	0%	+1.31	+3.13	60,705.5	6,224	0.0	66,929.5	0.0	0.0	1,627.0	151,911.8	1,617,262.2	331,337.0	1,591,622.6	4180.0						
25	2034	1971	2011-2040	January	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-21.40	+2.32	137.40	+6.66	100%	0.00	0	3.13	137,947	11,610	0.0	149,557.0	0.0	0.0	1,627.0	160,124.0	1,616,244.0	331,337.0	1,591,622.6	4180.0					
26	2034	1971	2011-2040	February	28	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-13.57	+2.32	37.80	+6.66	9%	0.00	0	3.13	23,531.3	1,772	0.0	25,303.0	0.0	0.0	1,701.0	4155	2,208.2	16,282.0	1,611,419	1,591,622.6	4180.0				
27	2034	1971	2011-2040	March	31	4185	1,591,622.6	4180	1,591,622.6	618,992	1.00	14,338	0.45	-7.90	+2.32	30.90	+6.66	9%	0.00	0	3.13	31,623.7	2,611	0.0	34,235.3	0.0	0.0	1,783.0	5,044	2,574	23,896.0	1,615,285.5	23,896.0	1,591,622.6	4180.0			
28	2034	1971	2011-2040	April	30	4185	1,591,622.6																															

Table 16a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0.0 mm sublimation, 2% snow drift losses, 0.0 L/min augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Natural Operations Area	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflows (mm)	TSF Outflows (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)									
199	2051	1988	2041-2070	January	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	142.3	0.00	17,561.0	0.00	1,664.0	249.0	2,013.0	1,664.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4131.0
199	2051	1988	2041-2070	February	29	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	177.3	0.00	17,561.0	0.00	1,764.0	249.0	2,213.0	1,764.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4133.0
199	2051	1988	2041-2070	March	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	272.3	0.00	17,561.0	0.00	2,070.0	249.0	2,519.0	2,070.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4135.0
199	2051	1988	2041-2070	April	30	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	367.3	0.00	17,561.0	0.00	2,427.0	249.0	2,976.0	2,427.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4137.0
199	2051	1988	2041-2070	May	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	462.3	0.00	17,561.0	0.00	2,775.0	249.0	3,332.0	2,775.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4139.0
199	2051	1988	2041-2070	June	30	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	557.3	0.00	17,561.0	0.00	3,124.0	249.0	3,681.0	3,124.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4141.0
199	2051	1988	2041-2070	July	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	652.3	0.00	17,561.0	0.00	3,471.0	249.0	4,020.0	3,471.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4143.0
199	2051	1988	2041-2070	August	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	747.3	0.00	17,561.0	0.00	3,818.0	249.0	4,369.0	3,818.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4145.0
199	2051	1988	2041-2070	September	30	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	842.3	0.00	17,561.0	0.00	4,165.0	249.0	4,714.0	4,165.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4147.0
199	2051	1988	2041-2070	October	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	937.3	0.00	17,561.0	0.00	4,512.0	249.0	5,059.0	4,512.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4149.0
199	2051	1988	2041-2070	November	30	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,032.3	0.00	17,561.0	0.00	4,859.0	249.0	5,404.0	4,859.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4151.0
199	2051	1988	2041-2070	December	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,127.3	0.00	17,561.0	0.00	5,201.0	249.0	5,749.0	5,201.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4153.0
200	2052	1989	2041-2070	January	28	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,222.3	0.00	17,561.0	0.00	5,548.0	249.0	6,097.0	5,548.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4155.0
200	2052	1989	2041-2070	February	28	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,317.3	0.00	17,561.0	0.00	5,895.0	249.0	6,444.0	5,895.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4157.0
200	2052	1989	2041-2070	March	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,412.3	0.00	17,561.0	0.00	6,242.0	249.0	6,791.0	6,242.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4159.0
200	2052	1989	2041-2070	April	30	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,507.3	0.00	17,561.0	0.00	6,589.0	249.0	7,138.0	6,589.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4161.0
200	2052	1989	2041-2070	May	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,602.3	0.00	17,561.0	0.00	6,936.0	249.0	7,485.0	6,936.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4163.0
200	2052	1989	2041-2070	June	30	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,697.3	0.00	17,561.0	0.00	7,283.0	249.0	7,832.0	7,283.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4165.0
200	2052	1989	2041-2070	July	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,792.3	0.00	17,561.0	0.00	7,630.0	249.0	8,179.0	7,630.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4167.0
200	2052	1989	2041-2070	August	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,887.3	0.00	17,561.0	0.00	7,977.0	249.0	8,526.0	7,977.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4169.0
200	2052	1989	2041-2070	September	30	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	1,982.3	0.00	17,561.0	0.00	8,324.0	249.0	8,873.0	8,324.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4171.0
200	2052	1989	2041-2070	October	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	2,077.3	0.00	17,561.0	0.00	8,671.0	249.0	9,220.0	8,671.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4173.0
200	2052	1989	2041-2070	November	30	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	2,172.3	0.00	17,561.0	0.00	9,018.0	249.0	9,567.0	9,018.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4175.0
200	2052	1989	2041-2070	December	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	2,267.3	0.00	17,561.0	0.00	9,365.0	249.0	9,914.0	9,365.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4177.0
201	2053	1990	2041-2070	January	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	2,362.3	0.00	17,561.0	0.00	9,712.0	249.0	10,261.0	9,712.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4179.0
201	2053	1990	2041-2070	February	29	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	2,457.3	0.00	17,561.0	0.00	10,058.0	249.0	10,608.0	10,058.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4181.0
201	2053	1990	2041-2070	March	31	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	2,552.3	0.00	17,561.0	0.00	10,405.0	249.0	10,955.0	10,405.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4183.0
201	2053	1990	2041-2070	April	30	418.5	1,591,632.0	4129.2	1,430,328.0	0.00	1.00	19.20	+4.00	29.00	-8.47	50%	0.00	0.00	0.00	3.13	11,337.0	2,647.3	0.00	17,561.0	0.00	10,752.0	249.0	11,302.0	10,752.0	249.0	1,917.0	1,462,742.0	0.00	1,462,742.0	4185.0
201	2053	1990	2041-2070	May	31	418.5	1,591,632.0	4																											

Table 16a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coeff	Runoff Change (%)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month WSEL Change (m)				
2021	2073	2010	2021-2010	April	30	418.5	1,591,622.0	418.7	1,572,217.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	3%	8.74	-1.08	3.13	317,314.0	263.9	0.0	201	17,448.2	4,457.7	1,586,685.0	0.0	1,586,685.0	418.49
2021	2073	2010	2021-2010	May	31	418.5	1,591,622.0	418.9	1,586,685.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	4%	9.87	-1.08	3.13	317,314.0	263.9	0.0	70	72,480.7	11,267.5	1,591,364.4	6,330.8	1,591,364.4	418.50
2021	2073	2010	2021-2010	June	30	418.5	1,591,622.0	419.2	1,581,728.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	5%	11.00	-1.08	3.13	317,314.0	263.9	0.0	1	71,600.0	12,716.0	1,588,912.0	11,886.0	1,588,912.0	418.50
2021	2073	2010	2021-2010	July	31	418.5	1,591,622.0	419.4	1,571,891.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	6%	12.13	-1.08	3.13	317,314.0	263.9	0.0	0	84,475.3	15,727.7	1,587,065.0	17,659.3	1,587,065.0	418.49
2021	2073	2010	2021-2010	August	31	418.5	1,591,622.0	419.8	1,567,819.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	7%	13.26	-1.08	3.13	317,314.0	263.9	0.0	0	89,608.8	16,842.7	1,585,977.0	18,731.7	1,585,977.0	418.48
2021	2073	2010	2021-2010	September	30	418.5	1,591,622.0	420.2	1,563,846.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	8%	14.39	-1.08	3.13	317,314.0	263.9	0.0	0	94,742.3	17,957.4	1,584,989.0	19,846.4	1,584,989.0	418.47
2021	2073	2010	2021-2010	October	31	418.5	1,591,622.0	420.6	1,559,873.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	9%	15.52	-1.08	3.13	317,314.0	263.9	0.0	0	99,875.8	19,072.1	1,583,916.0	21,951.5	1,583,916.0	418.46
2021	2073	2010	2021-2010	November	30	418.5	1,591,622.0	421.0	1,555,927.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	10%	16.65	-1.08	3.13	317,314.0	263.9	0.0	0	105,008.3	20,186.8	1,582,843.0	24,066.3	1,582,843.0	418.45
2021	2073	2010	2021-2010	December	31	418.5	1,591,622.0	421.4	1,551,981.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	11%	17.78	-1.08	3.13	317,314.0	263.9	0.0	0	110,138.8	21,301.5	1,581,770.0	26,181.2	1,581,770.0	418.44
2022	2074	2011	2021-2010	January	29	418.5	1,591,622.0	421.8	1,548,035.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	12%	18.91	-1.08	3.13	317,314.0	263.9	0.0	0	115,269.3	22,416.2	1,580,697.0	28,296.1	1,580,697.0	418.43
2022	2074	2011	2021-2010	February	28	418.5	1,591,622.0	422.2	1,544,089.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	13%	20.04	-1.08	3.13	317,314.0	263.9	0.0	0	120,399.8	23,530.9	1,579,661.0	30,411.0	1,579,661.0	418.42
2022	2074	2011	2021-2010	March	31	418.5	1,591,622.0	422.6	1,540,143.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	14%	21.17	-1.08	3.13	317,314.0	263.9	0.0	0	125,530.3	24,645.6	1,578,625.0	32,525.9	1,578,625.0	418.41
2022	2074	2011	2021-2010	April	30	418.5	1,591,622.0	423.0	1,536,197.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	15%	22.30	-1.08	3.13	317,314.0	263.9	0.0	0	130,660.8	25,760.3	1,577,589.0	34,640.8	1,577,589.0	418.40
2022	2074	2011	2021-2010	May	31	418.5	1,591,622.0	423.4	1,532,251.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	16%	23.43	-1.08	3.13	317,314.0	263.9	0.0	0	135,791.3	26,875.0	1,576,553.0	36,755.7	1,576,553.0	418.39
2022	2074	2011	2021-2010	June	30	418.5	1,591,622.0	423.8	1,528,305.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	17%	24.56	-1.08	3.13	317,314.0	263.9	0.0	0	140,921.8	27,989.7	1,575,517.0	38,870.6	1,575,517.0	418.38
2022	2074	2011	2021-2010	July	31	418.5	1,591,622.0	424.2	1,524,359.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	18%	25.69	-1.08	3.13	317,314.0	263.9	0.0	0	146,052.3	29,104.4	1,574,481.0	40,985.5	1,574,481.0	418.37
2022	2074	2011	2021-2010	August	31	418.5	1,591,622.0	424.6	1,520,413.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	19%	26.82	-1.08	3.13	317,314.0	263.9	0.0	0	151,182.8	30,219.1	1,573,445.0	43,100.4	1,573,445.0	418.36
2022	2074	2011	2021-2010	September	30	418.5	1,591,622.0	425.0	1,516,467.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	20%	27.95	-1.08	3.13	317,314.0	263.9	0.0	0	156,313.3	31,333.8	1,572,409.0	45,215.3	1,572,409.0	418.35
2022	2074	2011	2021-2010	October	31	418.5	1,591,622.0	425.4	1,512,521.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	21%	29.08	-1.08	3.13	317,314.0	263.9	0.0	0	161,443.8	32,448.5	1,571,373.0	47,330.2	1,571,373.0	418.34
2022	2074	2011	2021-2010	November	30	418.5	1,591,622.0	425.8	1,508,575.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	22%	30.21	-1.08	3.13	317,314.0	263.9	0.0	0	166,574.3	33,563.2	1,570,337.0	49,445.1	1,570,337.0	418.33
2022	2074	2011	2021-2010	December	31	418.5	1,591,622.0	426.2	1,504,629.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	23%	31.34	-1.08	3.13	317,314.0	263.9	0.0	0	171,704.8	34,677.9	1,569,301.0	51,560.0	1,569,301.0	418.32
2023	2075	2012	2021-2010	January	31	418.5	1,591,622.0	426.6	1,500,683.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	24%	32.47	-1.08	3.13	317,314.0	263.9	0.0	0	176,835.3	35,792.6	1,568,265.0	53,674.9	1,568,265.0	418.31
2023	2075	2012	2021-2010	February	29	418.5	1,591,622.0	427.0	1,496,737.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	25%	33.60	-1.08	3.13	317,314.0	263.9	0.0	0	181,965.8	36,907.3	1,567,229.0	55,789.8	1,567,229.0	418.30
2023	2075	2012	2021-2010	March	31	418.5	1,591,622.0	427.4	1,492,791.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	26%	34.73	-1.08	3.13	317,314.0	263.9	0.0	0	187,096.3	38,022.0	1,566,193.0	57,904.7	1,566,193.0	418.29
2023	2075	2012	2021-2010	April	30	418.5	1,591,622.0	427.8	1,488,845.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	27%	35.86	-1.08	3.13	317,314.0	263.9	0.0	0	192,226.8	39,136.7	1,565,157.0	60,019.6	1,565,157.0	418.28
2023	2075	2012	2021-2010	May	31	418.5	1,591,622.0	428.2	1,484,899.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	28%	36.99	-1.08	3.13	317,314.0	263.9	0.0	0	197,357.3	40,251.4	1,564,121.0	62,134.5	1,564,121.0	418.27
2023	2075	2012	2021-2010	June	30	418.5	1,591,622.0	428.6	1,480,953.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	29%	38.12	-1.08	3.13	317,314.0	263.9	0.0	0	202,487.8	41,366.1	1,563,085.0	64,249.4	1,563,085.0	418.26
2023	2075	2012	2021-2010	July	31	418.5	1,591,622.0	429.0	1,477,007.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	30%	39.25	-1.08	3.13	317,314.0	263.9	0.0	0	207,618.3	42,480.8	1,562,049.0	66,364.3	1,562,049.0	418.25
2023	2075	2012	2021-2010	August	31	418.5	1,591,622.0	429.4	1,473,061.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	31%	40.38	-1.08	3.13	317,314.0	263.9	0.0	0	212,748.8	43,595.5	1,561,013.0	68,479.2	1,561,013.0	418.24
2023	2075	2012	2021-2010	September	30	418.5	1,591,622.0	429.8	1,469,115.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	32%	41.51	-1.08	3.13	317,314.0	263.9	0.0	0	217,879.3	44,710.2	1,560,000.0	70,594.1	1,560,000.0	418.23
2023	2075	2012	2021-2010	October	31	418.5	1,591,622.0	430.2	1,465,169.0	418,592.0	1.00	14.53	0.45	-1.20	-3.33	43.00	-7.81	33%	42.64	-1.08	3.13	317,314.0	263.9	0.0	0	223,009.8	45,824.9	1,559,016.0	72,709.0	1,559,016.0	418.22
2023	2075	2012	2021-2010	November	30	418.5	1,591,622.0	430.6	1,461,223.0	418,592.0	1.00	14.53	0.45	-1.20																	

Table 16a: Multi-year Wet Cover Model (2032-2432): 3.13 mm/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Natural Operations Area	Runoff	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Snowmelt (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month Discharge (mm)	Total WSEL Change (mm)
205	2017	2005	2017-2100	October	31	418.5	1,591,622.0	412.7	1,414,219.0	0.00	1,414,219.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	412.7	1,414,219.0	0.00	1,414,219.0	0.00	
206	2017	2005	2017-2100	November	30	418.5	1,591,622.0	412.8	1,422,538.0	0.00	1,422,538.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	412.8	1,422,538.0	0.00	1,422,538.0	0.00	
207	2017	2005	2017-2100	December	31	418.5	1,591,622.0	413.0	1,434,867.0	0.00	1,434,867.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	413.0	1,434,867.0	0.00	1,434,867.0	0.00	
208	2018	2006	2017-2100	January	31	418.5	1,591,622.0	413.2	1,447,206.0	0.00	1,447,206.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	413.2	1,447,206.0	0.00	1,447,206.0	0.00	
209	2018	2006	2017-2100	February	29	418.5	1,591,622.0	413.4	1,459,545.0	0.00	1,459,545.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	413.4	1,459,545.0	0.00	1,459,545.0	0.00	
210	2018	2006	2017-2100	March	31	418.5	1,591,622.0	413.6	1,471,884.0	0.00	1,471,884.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	413.6	1,471,884.0	0.00	1,471,884.0	0.00	
211	2018	2006	2017-2100	April	30	418.5	1,591,622.0	413.8	1,484,223.0	0.00	1,484,223.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	413.8	1,484,223.0	0.00	1,484,223.0	0.00	
212	2018	2006	2017-2100	May	31	418.5	1,591,622.0	414.0	1,496,562.0	0.00	1,496,562.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	414.0	1,496,562.0	0.00	1,496,562.0	0.00	
213	2018	2006	2017-2100	June	30	418.5	1,591,622.0	414.2	1,508,901.0	0.00	1,508,901.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	414.2	1,508,901.0	0.00	1,508,901.0	0.00	
214	2018	2006	2017-2100	July	31	418.5	1,591,622.0	414.4	1,521,240.0	0.00	1,521,240.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	414.4	1,521,240.0	0.00	1,521,240.0	0.00	
215	2018	2006	2017-2100	August	31	418.5	1,591,622.0	414.6	1,533,579.0	0.00	1,533,579.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	414.6	1,533,579.0	0.00	1,533,579.0	0.00	
216	2018	2006	2017-2100	September	30	418.5	1,591,622.0	414.8	1,545,918.0	0.00	1,545,918.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	414.8	1,545,918.0	0.00	1,545,918.0	0.00	
217	2018	2006	2017-2100	October	31	418.5	1,591,622.0	415.0	1,558,257.0	0.00	1,558,257.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	415.0	1,558,257.0	0.00	1,558,257.0	0.00	
218	2018	2006	2017-2100	November	30	418.5	1,591,622.0	415.2	1,570,596.0	0.00	1,570,596.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	415.2	1,570,596.0	0.00	1,570,596.0	0.00	
219	2018	2006	2017-2100	December	31	418.5	1,591,622.0	415.4	1,582,935.0	0.00	1,582,935.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	415.4	1,582,935.0	0.00	1,582,935.0	0.00	
220	2019	2007	2017-2100	January	31	418.5	1,591,622.0	415.6	1,595,274.0	0.00	1,595,274.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	415.6	1,595,274.0	0.00	1,595,274.0	0.00	
221	2019	2007	2017-2100	February	29	418.5	1,591,622.0	415.8	1,607,613.0	0.00	1,607,613.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	415.8	1,607,613.0	0.00	1,607,613.0	0.00	
222	2019	2007	2017-2100	March	31	418.5	1,591,622.0	416.0	1,619,952.0	0.00	1,619,952.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	416.0	1,619,952.0	0.00	1,619,952.0	0.00	
223	2019	2007	2017-2100	April	30	418.5	1,591,622.0	416.2	1,632,291.0	0.00	1,632,291.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	416.2	1,632,291.0	0.00	1,632,291.0	0.00	
224	2019	2007	2017-2100	May	31	418.5	1,591,622.0	416.4	1,644,630.0	0.00	1,644,630.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	416.4	1,644,630.0	0.00	1,644,630.0	0.00	
225	2019	2007	2017-2100	June	30	418.5	1,591,622.0	416.6	1,656,969.0	0.00	1,656,969.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	416.6	1,656,969.0	0.00	1,656,969.0	0.00	
226	2019	2007	2017-2100	July	31	418.5	1,591,622.0	416.8	1,669,308.0	0.00	1,669,308.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	416.8	1,669,308.0	0.00	1,669,308.0	0.00	
227	2019	2007	2017-2100	August	31	418.5	1,591,622.0	417.0	1,681,647.0	0.00	1,681,647.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	417.0	1,681,647.0	0.00	1,681,647.0	0.00	
228	2019	2007	2017-2100	September	30	418.5	1,591,622.0	417.2	1,693,986.0	0.00	1,693,986.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	417.2	1,693,986.0	0.00	1,693,986.0	0.00	
229	2019	2007	2017-2100	October	31	418.5	1,591,622.0	417.4	1,706,325.0	0.00	1,706,325.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	417.4	1,706,325.0	0.00	1,706,325.0	0.00	
230	2019	2007	2017-2100	November	30	418.5	1,591,622.0	417.6	1,718,664.0	0.00	1,718,664.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	417.6	1,718,664.0	0.00	1,718,664.0	0.00	
231	2019	2007	2017-2100	December	31	418.5	1,591,622.0	417.8	1,731,003.0	0.00	1,731,003.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	417.8	1,731,003.0	0.00	1,731,003.0	0.00	
232	2020	2008	2017-2100	January	29	418.5	1,591,622.0	418.0	1,743,342.0	0.00	1,743,342.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.0	1,743,342.0	0.00	1,743,342.0	0.00	
233	2020	2008	2017-2100	February	28	418.5	1,591,622.0	418.2	1,755,681.0	0.00	1,755,681.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.2	1,755,681.0	0.00	1,755,681.0	0.00	
234	2020	2008	2017-2100	March	31	418.5	1,591,622.0	418.4	1,768,020.0	0.00	1,768,020.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.4	1,768,020.0	0.00	1,768,020.0	0.00	
235	2020	2008	2017-2100	April	30	418.5	1,591,622.0	418.6	1,780,359.0	0.00	1,780,359.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.6	1,780,359.0	0.00	1,780,359.0	0.00	
236	2020	2008	2017-2100	May	31	418.5	1,591,622.0	418.8	1,792,698.0	0.00	1,792,698.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	418.8	1,792,698.0	0.00	1,792,698.0	0.00	
237	2020	2008	2017-2100	June	30	418.5	1,591,622.0	419.0	1,805,037.0	0.00	1,805,037.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	419.0	1,805,037.0	0.00	1,805,037.0	0.00	
238	2020	2008	2017-2100	July	31	418.5	1,591,622.0	419.2	1,817,376.0	0.00	1,817,376.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	419.2	1,817,376.0	0.00	1,817,376.0	0.00	
239	2020	2008	2017-2100	August	31	418.5	1,591,622.0	419.4	1,829,715.0	0.00	1,829,715.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	419.4	1,829,715.0	0.00	1,829,715.0	0.00	
240	2020	2008	2017-2100	September	30	418.5	1,591,622.0	419.6	1,842,054.0	0.00	1,842,054.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	419.6	1,842,054.0	0.00	1,842,054.0	0.00	
241	2020	2008	2017-2100	October	31	418.5	1,591,622.0	419.8	1,854,393.0	0.00	1,854,393.0	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	419.8	1,854,393.0	0.00	1,854,393.0	0.00	
242	2020	2008	2017-2100	November	30	418.5	1,591,622.0	420.0	1,866,732																		

Table 16a: Multi-year Wet Cover Model (2032-2432): 1.13 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Month	Day	Forecast Horizon	Season	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Runoff Coefficient	Natural Operations Area	Runoff Coefficient	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Change (mm)	TSF Inflows (mm)		TSF Outflows (mm)		Total Outflow	Net Inflow	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)					
																								Open Water	Restored	Supplementary	Total Inflow								Peak	Average	Sublimation	Wet Drift	Total Outflow
2034	2036	1996	2071-2100	October	31	4185	1591.6224	4184	1523.7084	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	39.72	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	2734	3126.2	3161.5	1571316.5	0.0	1571316.5	4184	4184			
354	2036	1996	2071-2100	November	30	4185	1591.6224	4184	1527.1919	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	January	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	February	29	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	March	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	April	30	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	May	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	June	30	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	July	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	August	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	September	30	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	October	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
355	2037	1997	2071-2100	November	30	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	January	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	February	29	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	March	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	April	30	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	May	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	June	30	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	July	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	August	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	September	30	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	October	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
356	2038	1998	2071-2100	November	30	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
357	2039	1999	2071-2100	January	31	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
357	2039	1999	2071-2100	February	29	4185	1591.6224	4184	1470.2727	618692.2	1.00	14.53	0.45	4.78	-0.33	96.20	-7.81	21%	40.00	+0.22	3.13	63.234	535.0	0.0	618696	3077.7	93.0	0.0	1275	1031.4	5733.0	16330.0	16330.0	23270.0	1571316.5	0.0	1571316.5	4184	4184
357	2039	1999	2071-2100	March	31	4185	1591.6224	4184	1470.2727	618																													

Table 16a: Multi-year Wet Cover Model (2032-2432): 3.13 mm/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water Area (m ²)	Natural Operations Area (m ²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Snowmelt (mm)	Snowmelt Change (mm)	Sublimation (mm)	Sublimation Change (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month Discharge (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month Discharge (mm)	
																															Open Water
118	2025	1987	2021-2100	October	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	36,779.0	30.55	0.00	-0.22	3.13	36,779.0	30.55	0.00	24.15	6,607.5	30,141.5	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
119	2025	1987	2021-2100	November	30	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	37,213.0	29.65	0.00	-0.22	3.13	37,213.0	29.65	0.00	24.16	3,365.0	24,550.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
120	2025	1987	2021-2100	December	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	37,647.0	28.75	0.00	-0.22	3.13	37,647.0	28.75	0.00	24.17	6,710.0	21,197.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
121	2026	1988	2021-2100	January	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	38,081.0	27.85	0.00	-0.22	3.13	38,081.0	27.85	0.00	24.18	10,065.0	18,132.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
122	2026	1988	2021-2100	February	29	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	38,515.0	26.95	0.00	-0.22	3.13	38,515.0	26.95	0.00	24.19	13,420.0	14,712.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
123	2026	1988	2021-2100	March	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	38,949.0	26.05	0.00	-0.22	3.13	38,949.0	26.05	0.00	24.20	16,775.0	11,457.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
124	2026	1988	2021-2100	April	30	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	39,383.0	25.15	0.00	-0.22	3.13	39,383.0	25.15	0.00	24.21	20,130.0	7,002.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
125	2026	1988	2021-2100	May	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	39,817.0	24.25	0.00	-0.22	3.13	39,817.0	24.25	0.00	24.22	23,485.0	2,547.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
126	2026	1988	2021-2100	June	30	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	40,251.0	23.35	0.00	-0.22	3.13	40,251.0	23.35	0.00	24.23	26,840.0	-1,043.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
127	2026	1988	2021-2100	July	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	40,685.0	22.45	0.00	-0.22	3.13	40,685.0	22.45	0.00	24.24	30,195.0	-5,585.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
128	2026	1988	2021-2100	August	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	41,119.0	21.55	0.00	-0.22	3.13	41,119.0	21.55	0.00	24.25	33,550.0	-11,130.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
129	2026	1988	2021-2100	September	30	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	41,553.0	20.65	0.00	-0.22	3.13	41,553.0	20.65	0.00	24.26	36,905.0	-16,675.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
130	2026	1988	2021-2100	October	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	41,987.0	19.75	0.00	-0.22	3.13	41,987.0	19.75	0.00	24.27	40,260.0	-22,215.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
131	2026	1988	2021-2100	November	30	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	42,421.0	18.85	0.00	-0.22	3.13	42,421.0	18.85	0.00	24.28	43,615.0	-28,194.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
132	2026	1988	2021-2100	December	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	42,855.0	17.95	0.00	-0.22	3.13	42,855.0	17.95	0.00	24.29	46,970.0	-33,740.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
133	2027	1989	2021-2100	January	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	43,289.0	17.05	0.00	-0.22	3.13	43,289.0	17.05	0.00	24.30	50,325.0	-38,885.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
134	2027	1989	2021-2100	February	29	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	43,723.0	16.15	0.00	-0.22	3.13	43,723.0	16.15	0.00	24.31	53,680.0	-43,930.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
135	2027	1989	2021-2100	March	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	44,157.0	15.25	0.00	-0.22	3.13	44,157.0	15.25	0.00	24.32	57,035.0	-48,975.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
136	2027	1989	2021-2100	April	30	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	44,591.0	14.35	0.00	-0.22	3.13	44,591.0	14.35	0.00	24.33	60,390.0	-54,070.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
137	2027	1989	2021-2100	May	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	45,025.0	13.45	0.00	-0.22	3.13	45,025.0	13.45	0.00	24.34	63,745.0	-59,165.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
138	2027	1989	2021-2100	June	30	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	45,459.0	12.55	0.00	-0.22	3.13	45,459.0	12.55	0.00	24.35	67,100.0	-64,260.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
139	2027	1989	2021-2100	July	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	45,893.0	11.65	0.00	-0.22	3.13	45,893.0	11.65	0.00	24.36	70,455.0	-69,355.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
140	2027	1989	2021-2100	August	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	46,327.0	10.75	0.00	-0.22	3.13	46,327.0	10.75	0.00	24.37	73,810.0	-74,450.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
141	2027	1989	2021-2100	September	30	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	46,761.0	9.85	0.00	-0.22	3.13	46,761.0	9.85	0.00	24.38	77,165.0	-79,545.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
142	2027	1989	2021-2100	October	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	47,195.0	8.95	0.00	-0.22	3.13	47,195.0	8.95	0.00	24.39	80,520.0	-84,640.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
143	2027	1989	2021-2100	November	30	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	47,629.0	8.05	0.00	-0.22	3.13	47,629.0	8.05	0.00	24.40	83,875.0	-89,735.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
144	2027	1989	2021-2100	December	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	48,063.0	7.15	0.00	-0.22	3.13	48,063.0	7.15	0.00	24.41	87,230.0	-94,830.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
145	2028	1990	2021-2100	January	29	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	48,497.0	6.25	0.00	-0.22	3.13	48,497.0	6.25	0.00	24.42	90,585.0	-100,925.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
146	2028	1990	2021-2100	February	28	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	48,931.0	5.35	0.00	-0.22	3.13	48,931.0	5.35	0.00	24.43	93,940.0	-106,020.0	1,520,247.7	0.0	1,520,247.7	418.19	1,520,247.7	418.19
147	2028	1990	2021-2100	March	31	418.5	1,591,622.0	418.5	1,520,100.0	418,500.0	1.00	0.00	-0.22	3.13	49,365.0	4.45	0.00	-0.22	3.13	49,365.0	4.45	0.00	24.44	97,295.0	-111,115.0	1,520,247.7	0.0	1,520			

Table 16a: Multi-year Wet Cover Model (2022-2432): 1.13 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m ³)	Open Water	Runoff Coefficients	Natural Operations Area	Runoff Coefficients	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)								
206	2062	2006	2071-2100	July	31	4185	1591.622	4182	1,500,934	0.160922	1,000,000	14.33	0.45	197.1	-0.00	49.50	7.84	0%	126.30	-0.11	3.13	22,768.0	214.3	0.0	26,911	84,742.9	97.0	0.0	0.0	84,475.3	46,842	1,422,766	0.0	1,422,766	4184	
206	2062	2006	2071-2100	August	31	4185	1591.622	4182	1,474,402	0.160922	1,000,000	14.33	0.45	174.0	-0.00	49.50	7.84	0%	106.09	-0.17	3.13	22,768.0	188.6	0.0	22,225	84,742.9	97.0	0.0	0.0	85,058.9	46,843	1,422,766	0.0	1,422,766	4182	
206	2062	2006	2071-2100	September	30	4185	1591.622	4182	1,425,766	0.160922	1,000,000	14.33	0.45	143.0	-0.00	49.50	7.84	0%	81.00	-0.23	3.13	22,768.0	143.0	0.0	17,811	84,742.9	97.0	0.0	0.0	85,953.9	46,843	1,422,766	0.0	1,422,766	4182	
206	2062	2006	2071-2100	October	31	4185	1591.622	4182	1,476,203	0.160922	1,000,000	14.33	0.45	67.0	-0.00	49.50	7.84	0%	29.47	-0.24	3.13	22,768.0	67.0	0.0	11,424	84,742.9	97.0	0.0	0.0	86,316.9	46,843	1,422,766	0.0	1,422,766	4182	
206	2062	2006	2071-2100	November	30	4185	1591.622	4182	1,425,766	0.160922	1,000,000	14.33	0.45	4.33	-0.00	49.50	7.84	0%	8.00	-0.34	3.13	22,768.0	26.0	0.0	3,189	84,742.9	97.0	0.0	0.0	85,549.9	46,843	1,422,766	0.0	1,422,766	4182	
206	2062	2006	2071-2100	December	31	4185	1591.622	4182	1,425,766	0.160922	1,000,000	14.33	0.45	0.00	-0.00	49.50	7.84	0%	0.00	-0.44	3.13	22,768.0	0.00	0.00	0.00	84,742.9	97.0	0.0	0.0	85,737.9	46,843	1,422,766	0.0	1,422,766	4182	
207	2063	2006	2071-2100	January	31	4185	1591.622	4182	1,466,794	0.160922	1,000,000	14.33	0.45	3.34	-0.17	3.00	10.24	94%	0.00	0.00	0.00	3.13	20,540.0	17.0	0.0	20,550.0	84,742.9	97.0	0.0	0.0	85,042.9	46,843	1,422,766	0.0	1,422,766	4182
207	2063	2006	2071-2100	February	28	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	16.00	-0.17	7.00	10.24	94%	0.00	0.00	0.00	3.13	20,540.0	88.7	0.0	19,556.0	84,742.9	97.0	0.0	0.0	85,642.9	46,843	1,422,766	0.0	1,422,766	4182
207	2063	2006	2071-2100	March	31	4185	1591.622	4182	1,433,844	0.160922	1,000,000	14.33	0.45	44.33	-0.00	49.50	7.84	0%	19.00	-0.13	3.13	22,768.0	23.0	0.0	20,827	84,742.9	97.0	0.0	0.0	85,930.9	46,843	1,422,766	0.0	1,422,766	4182	
207	2063	2006	2071-2100	April	30	4185	1591.622	4182	1,415,433	0.160922	1,000,000	14.33	0.45	74.2	-0.33	20.50	10.24	94%	0.00	0.00	0.00	3.13	17,503.0	145.6	0.0	17,845.0	84,742.9	97.0	0.0	0.0	86,542.9	46,843	1,422,766	0.0	1,422,766	4182
207	2063	2006	2071-2100	May	31	4185	1591.622	4182	1,415,433	0.160922	1,000,000	14.33	0.45	129.0	-0.33	41.50	10.24	94%	0.00	0.00	0.00	3.13	14,703.0	365.5	0.0	14,228.0	84,742.9	97.0	0.0	0.0	87,154.9	46,843	1,422,766	0.0	1,422,766	4182
207	2063	2006	2071-2100	June	30	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	192.0	-0.33	62.00	10.24	94%	0.00	0.00	0.00	3.13	11,380.0	620.0	0.0	10,760.0	84,742.9	97.0	0.0	0.0	87,766.9	46,843	1,422,766	0.0	1,422,766	4182
207	2063	2006	2071-2100	July	31	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	215.0	-0.33	62.00	10.24	94%	0.00	0.00	0.00	3.13	9,180.0	7.84	0.0	9,180.0	84,742.9	97.0	0.0	0.0	88,378.9	46,843	1,422,766	0.0	1,422,766	4182
207	2063	2006	2071-2100	August	31	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	175.0	-0.33	62.00	10.24	94%	0.00	0.00	0.00	3.13	7,040.0	24.6	0.0	7,040.0	84,742.9	97.0	0.0	0.0	88,990.9	46,843	1,422,766	0.0	1,422,766	4182
207	2063	2006	2071-2100	September	30	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	115.0	-0.33	62.00	10.24	94%	0.00	0.00	0.00	3.13	5,040.0	7.84	0.0	5,040.0	84,742.9	97.0	0.0	0.0	89,602.9	46,843	1,422,766	0.0	1,422,766	4182
207	2063	2006	2071-2100	October	31	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	2.88	-0.33	44.50	10.24	94%	0.00	0.00	0.00	3.13	2,947	11.2	0.0	2,958.2	84,742.9	97.0	0.0	0.0	90,214.9	46,843	1,422,766	0.0	1,422,766	4182
207	2063	2006	2071-2100	November	30	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	0.00	-0.33	27.00	10.24	94%	0.00	0.00	0.00	3.13	1,028.0	0.00	0.00	1,031.0	84,742.9	97.0	0.0	0.0	90,826.9	46,843	1,422,766	0.0	1,422,766	4182
207	2063	2006	2071-2100	December	31	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	0.00	-0.33	0.00	10.24	94%	0.00	0.00	0.00	3.13	0.00	0.00	0.00	84,742.9	97.0	0.0	0.0	91,438.9	46,843	1,422,766	0.0	1,422,766	4182	
208	2064	2007	2071-2100	January	31	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	1.44	-0.17	3.00	10.24	94%	0.00	0.00	0.00	3.13	18,208.0	17.0	0.0	18,226.0	84,742.9	97.0	0.0	0.0	85,054.9	46,843	1,422,766	0.0	1,422,766	4182
208	2064	2007	2071-2100	February	28	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	12.66	-0.17	7.00	10.24	94%	0.00	0.00	0.00	3.13	18,208.0	107.7	0.0	17,120.0	84,742.9	97.0	0.0	0.0	85,666.9	46,843	1,422,766	0.0	1,422,766	4182
208	2064	2007	2071-2100	March	31	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	44.33	-0.00	49.50	7.84	0%	19.00	-0.09	3.13	22,768.0	44.33	0.00	20,827	84,742.9	97.0	0.0	0.0	86,278.9	46,843	1,422,766	0.0	1,422,766	4182	
208	2064	2007	2071-2100	April	30	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	74.2	-0.33	20.50	10.24	94%	0.00	0.00	0.00	3.13	14,703.0	145.6	0.0	14,228.0	84,742.9	97.0	0.0	0.0	86,890.9	46,843	1,422,766	0.0	1,422,766	4182
208	2064	2007	2071-2100	May	31	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	129.0	-0.33	41.50	10.24	94%	0.00	0.00	0.00	3.13	11,380.0	365.5	0.0	10,760.0	84,742.9	97.0	0.0	0.0	87,502.9	46,843	1,422,766	0.0	1,422,766	4182
208	2064	2007	2071-2100	June	30	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	192.0	-0.33	62.00	10.24	94%	0.00	0.00	0.00	3.13	9,180.0	620.0	0.0	8,560.0	84,742.9	97.0	0.0	0.0	88,114.9	46,843	1,422,766	0.0	1,422,766	4182
208	2064	2007	2071-2100	July	31	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	215.0	-0.33	62.00	10.24	94%	0.00	0.00	0.00	3.13	7,040.0	7.84	0.0	7,040.0	84,742.9	97.0	0.0	0.0	88,726.9	46,843	1,422,766	0.0	1,422,766	4182
208	2064	2007	2071-2100	August	31	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	175.0	-0.33	62.00	10.24	94%	0.00	0.00	0.00	3.13	5,040.0	24.6	0.0	5,040.0	84,742.9	97.0	0.0	0.0	89,338.9	46,843	1,422,766	0.0	1,422,766	4182
208	2064	2007	2071-2100	September	30	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	115.0	-0.33	62.00	10.24	94%	0.00	0.00	0.00	3.13	3,040.0	7.84	0.0	3,040.0	84,742.9	97.0	0.0	0.0	89,950.9	46,843	1,422,766	0.0	1,422,766	4182
208	2064	2007	2071-2100	October	31	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	2.88	-0.33	44.50	10.24	94%	0.00	0.00	0.00	3.13	1,028.0	0.00	0.00	1,031.0	84,742.9	97.0	0.0	0.0	90,562.9	46,843	1,422,766	0.0	1,422,766	4182
208	2064	2007	2071-2100	November	30	4185	1591.622	4182	1,485,163	0.160922	1,000,000	14.33	0.45	0.00	-0.33	27.00	10.24	94%	0.00	0.00	0.00	3.13	0.00	0.00	0.00	84,742.9										

Table 16a: Multi-Year Wet Cover Model (2032-2432): 3.13 m³/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Runoff Coefficients		Restored Operations Area Runoff Coefficients		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflow-Outflow (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pond Evaporation	Average	Sublimation Losses	Wind Drift Losses					
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	-0.33	22.60	-7.81	21%	0.00	+10.00	3.13	48,734.4	415.6	0.0	61,500.0	11,865.7	93.6	0.0	208.1	13,108.7	38,043.3	1,629,673.9	38,043.3	1,591,632.6	418.50	
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	+0.33	100.90	+7.81	7%	82.15	+10.00	3.13	67,241.9	559.2	0.0	67,801.1	62,677.2	97.0	0.0	62,808.4	4,992.7	1,596,627.2	4,992.7	1,591,632.6	418.50		
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.00	+0.00	117.70	-7.84	0%	120.00	+0.00	3.13	67,653.3	661.1	0.0	68,314.4	66,802.2	93.6	0.0	66,261.1	2,153.3	1,593,785.9	0.0	1,593,785.9	418.47		
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.47	1,589,868.0	1,430.0	0.45	20.40	+0.00	151.10	-7.84	0%	148.91	+0.00	3.13	71,293.5	659.9	0.0	71,953.4	67,125.6	97.0	0.0	67,222.6	4,730.8	1,544,535.6	0.0	1,544,535.6	418.44		
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.44	1,544,535.6	1,430.0	0.45	18.84	+0.00	169.30	-7.84	0%	178.40	+0.00	3.13	63,665.7	778.1	0.0	64,443.8	62,309.4	97.0	0.0	62,408.4	2,035.4	1,546,571.0	0.0	1,546,571.0	418.49		
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.49	1,568,592.0	1,430.0	0.45	8.42	+0.00	97.90	-7.81	0%	47.90	+11.30	3.13	48,634.4	338.0	0.0	48,972.4	48,368.9	93.6	0.0	47,814.1	1,158.3	1,569,433.7	0.0	1,569,433.7	418.50		
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.65	+0.00	30.60	+7.81	32%	37.20	+0.22	3.13	26,521.6	243.9	0.0	26,765.5	26,207.7	97.0	0.0	26,017.3	748.2	1,591,004.4	0.0	1,591,004.4	418.50		
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-3.40	+0.00	20.80	+7.81	93%	0.00	+0.04	3.13	17,864.5	147.1	0.0	17,981.7	3,117.5	93.6	0.0	333.8	3,345.0	1,587,659.4	0.0	1,587,659.4	418.50		
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.96	+0.00	41.77	+0.00	+10.24	96%	0.00	0	3.13	19,297.5	138.6	0.0	19,436.1	18,963.3	97.0	0.0	476.8	372.8	1,591,261.6	0.0	1,591,261.6	418.50	
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-16.20	+0.00	42.60	+10.24	96%	0.00	0	3.13	57,407.7	477.6	0.0	57,885.3	0.0	97.0	1,876.8	1,144.8	3,061.3	54,817.0	1,646,446.6	54,817.0	1,591,632.6	418.50	
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.30	+0.00	41.30	+10.24	96%	0.00	0	3.13	21,497.8	178.7	0.0	21,676.5	0.0	97.0	1,892.0	419.7	2,195.3	19,475.3	1,591,261.6	0.0	1,591,261.6	418.50	
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.92	+0.00	48.60	+7.81	0%	0.00	+0.00	3.13	30,545.4	291.2	0.0	30,836.6	6,186.1	97.0	0.0	1,866.3	6,622.6	1,618,920.8	0.0	1,618,920.8	418.50		
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.27	+0.00	38.90	+7.81	22%	0.00	+0.00	3.13	28,806.6	240.2	0.0	29,046.8	11,808.7	93.6	0.0	12,727.9	17,318.9	1,608,732.2	17,318.9	1,591,632.6	418.50		
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	+0.00	46.90	+7.81	0%	120.00	+0.00	3.13	32,354.6	288.1	0.0	32,642.7	38,442.2	97.0	0.0	36,501.2	6,141.5	1,597,773.7	0.0	1,597,773.7	418.43		
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,587,765.6	1,430.0	0.45	16.40	+0.00	96.30	-7.84	0%	100.40	+0.00	3.13	34,759.9	469.0	0.0	35,228.9	47,747.6	93.6	0.0	47,271.5	1,525,264.4	1,525,264.4	418.41				
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.41	1,525,264.4	1,430.0	0.45	21.70	+0.00	89.30	-7.84	0%	137.89	+0.11	3.13	38,544.5	316.1	0.0	38,860.6	60,321.5	97.0	0.0	60,249.5	42,015.9	1,473,268.5	0.0	1,473,268.5	418.34		
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.34	1,412,255.5	1,430.0	0.45	16.52	+0.00	141.10	-7.84	0%	89.70	+0.17	3.13	41,829.2	683.3	0.0	42,512.5	59,298.2	97.0	0.0	59,298.2	21,983.3	1,434,238.8	0.0	1,434,238.8	418.37		
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.37	1,496,284.8	1,430.0	0.45	10.56	+0.00	69.90	-7.81	0%	47.90	+11.20	3.13	48,629.1	389.4	0.0	49,018.5	30,327.7	93.6	0.0	34,406.6	14,611.1	1,450,895.9	0.0	1,450,895.9	418.39		
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.39	1,487,107.0	1,430.0	0.45	6.21	+0.00	48.80	+7.81	0%	40.30	+0.22	3.13	35,244.5	291.2	0.0	35,535.7	31,247.3	97.0	0.0	37.3	31,281.6	1,426,526.4	0.0	1,426,526.4	418.39		
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.39	1,481,244.8	1,430.0	0.45	2.13	+0.00	21.60	+7.81	0%	0.00	+0.04	3.13	19,426.9	161.8	0.0	19,588.7	3,113.5	93.6	0.0	308.1	3,421.6	1,484,626.4	0.0	1,484,626.4	418.41		
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.41	1,487,107.0	1,430.0	0.45	-14.52	+0.00	0.00	0	3.13	25,700.0	214.2	0.0	25,914.2	0.0	97.0	1,964.8	409.3	2,374.1	23,539.5	1,500,746.6	0.0	1,500,746.6	418.45				
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.45	1,500,746.6	1,430.0	0.45	-18.13	+0.00	44.20	+10.24	96%	0.00	0	3.13	33,971.7	285.1	0.0	34,256.8	0.0	97.0	1,822.2	671.9	2,194.1	32,434.6	1,498,252.2	0.0	1,498,252.2	418.49	
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.49	1,502,202.2	1,430.0	0.45	-10.89	+0.00	47.30	+10.24	96%	0.00	0	3.13	25,979.9	239.6	0.0	26,219.5	0.0	97.0	2,584.1	0.0	2,584.1	1,499,618.1	0.0	1,499,618.1	418.50		
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.49	+0.00	53.90	-7.81	7%	0.00	+0.00	3.13	38,789.2	317.4	0.0	39,106.6	6,180.1	97.0	0.0	36,486.6	2,619.9	1,502,242.1	0.0	1,502,242.1	418.50		
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.90	+0.00	63.90	-7.81	0%	0.00	+0.00	3.13	44,354.8	368.8	0.0	44,723.7	11,806.7	93.6	0.0	11,806.6	32,917.1	1,635,159.2	32,917.1	1,591,632.6	418.50		
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.60	+0.00	12.60	+7.81	0%	135.76	+0.00	3.13	12,466.0	195.0	0.0	12,661.0	6,775.1	97.0	0.0	6,775.1	43,020.2	1,639,614.4	0.0	1,639,614.4	418.39		
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,508,412.4	1,430.0	0.45	18.12	+0.00	133.70	-7.84	0%	118.89	+0.40	3.13	77,863.4	647.4	0.0	78,510.8	77,747.1	93.6	0.0	77,841.0	668.7	1,508,261.1	0.0	1,508,261.1	418.39		
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,505,261.1	1,430.0	0.45	19.17	+0.00	63.70	-7.84	0%	144.64	+0.11	3.13	34,500.0	287.3	0.0	34,787.3	52,529.2	97.0	0.0	52,529.2	27,888.4	1,481,381.7	0.0	1,481,381.7	418.31		
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.31	1,451,381.7	1,430.0	0.45	18.62	+0.00	67.00	-7.84	0%	122.40	+0.17	3.13	36,637.3	344.8	0.0	36,982.1	57,524.3	97.0	0.0	57,524.3	42,460.9	1,418,841.8	0.0	1,418,841.8	418.26		
325	2431	1976	2071-2100	September	30	418.5	1,591,632.0	418.26	1,458,717.8	1,430.0	0.45	13.02	+0.00	39.50	+7.81	0%	79.20	+11.20	3.13	26,281.8	243.3	0.0	26,525.1	60,342.2	93.6	0.0	60,342.2	20,943.0	1,397,774.8	0.0	1,397,774.8	418.23		
325	2431	1976																																

Model Inputs	
Year of Simulation	2102
Source of Climate Record	Canadian
Source of Change Scenario	CGCM3
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m)	1.91E+06
Area of Open Water Within TSP (m ²)	619,665
Runoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m ²)	14,433.8
Runoff Coefficient for Restored Lands Within TSP	0.5
Trigger from TSP (mm)	31.30
Supplementary Water Addition (m ³ /d)	0
Trigger Elevation for Supplemental Water Addition (mASL)	416.10
Sublimation Losses in Winter (mm/day)	10.10
Wind Drift Losses in Winter (% of snowfall)	2%

NOTES: 1) The climate projection was obtained from the output of the TSP from the last open water season. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes in Puff Size".

Table 16: Multi-year Wet Cover Model (2022-2432): 31.3 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation and Ensemble Climate Change Scenario

Count	Year	Month	Day	Invert Elevation (m)	Capacity of TSP (m)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Runoff Coefficient	Restored Area (m ²)	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Average (m/s)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool Volume	Average	Sublimation	Wind Drift	Total Outflow	Net Inflow (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)			
1	2022	1999	2011-2040	January	31	416.5	1,919,822.6	416.43	1,539,865	416,957.2	1.00	14,433.8	0.45	-18.01	-2.37	96.70	-6.66	100%	0.00	0	31.30	13,999.4	532.2	0.0	64,566.0	0.0	970.3	1,953.0	1,296.5	4,213.8	60,317.0	1,602,302.3	8,669.7	1,919,822.6	416.50	1,919,822.6	
2	2022	1999	2011-2040	February	28	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-12.78	-2.37	16.70	-6.66	100%	0.00	0	31.30	13,999.4	1,099.0	0.0	13,187.0	0.0	876.4	1,764.0	266.4	2,908.8	10,412.0	1,602,045.5	10,412.0	1,919,822.6	416.50	1,919,822.6	
3	2022	1999	2011-2040	March	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-7.89	-2.32	15.10	-4.34	100%	0.00	0	31.30	8,939.9	743.0	0.0	8,939.9	0.0	970.3	1,953.0	180.2	3,102.5	5,955.7	1,597,533.0	5,955.7	1,919,822.6	416.50	1,919,822.6	
4	2022	1999	2011-2040	April	30	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-2.44	-2.32	7.40	-4.34	0%	0.00	-19.23	31.30	14,637.8	1,221.0	0.0	14,637.8	0.0	970.3	1,953.0	0.0	0	7,295.5	1,542.2	1,601,779.9	7,295.5	1,919,822.6	416.50	1,919,822.6
5	2022	1999	2011-2040	May	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	9.53	-2.32	32.98	-4.34	0%	0.00	-1.89	31.30	18,793.4	1,619.0	0.0	18,793.4	0.0	976.4	2,064.0	307.4	3,037.8	6,595.1	1,601,620.5	6,595.1	1,919,822.6	416.50	1,919,822.6	
6	2022	1999	2011-2040	June	30	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	11.08	-2.20	40.80	-6.50	0%	0.00	-2.41	31.30	47,168.8	3,925.0	0.0	47,168.8	0.0	970.3	1,953.0	0.0	0	24,930.9	45,168.4	1,539,700.9	45,168.4	1,919,822.6	416.50	1,919,822.6
7	2022	1999	2011-2040	July	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	17.43	-2.00	118.50	-6.50	0%	10.40	-3.41	31.30	89,279.8	5,761.0	0.0	89,279.8	0.0	970.3	1,953.0	0.0	0	67,829.9	14,964.0	1,539,775.9	14,964.0	1,919,822.6	416.50	1,919,822.6
8	2022	1999	2011-2040	August	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	18.00	-2.00	189.00	-6.50	0%	90.00	-1.51	31.30	149,869.0	7,819.0	0.0	149,869.0	0.0	970.3	1,953.0	0.0	0	146,129.4	36,824.4	1,499,559.0	36,824.4	1,919,822.6	416.50	1,919,822.6
9	2022	1999	2011-2040	September	30	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	17.68	-2.20	178.00	-6.50	0%	100.00	-1.51	31.30	329,834.0	14,917.0	0.0	329,834.0	0.0	970.3	1,953.0	0.0	0	312,963.1	37,966.0	1,499,716.0	37,966.0	1,919,822.6	416.50	1,919,822.6
10	2022	1999	2011-2040	October	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	21.77	-2.20	435.00	-4.34	9%	19.43	-4.14	31.30	492,869.0	34,950.0	0.0	492,869.0	0.0	970.3	1,953.0	0.0	0	169,105.1	32,264.4	1,539,828.6	32,264.4	1,919,822.6	416.50	1,919,822.6
11	2022	1999	2011-2040	November	30	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	18.87	-2.30	34.20	-4.34	89%	0.00	0	31.30	238,424.0	1,983.0	0.0	238,424.0	0.0	970.3	1,953.0	0.0	0	199,840.0	40,744.0	1,539,828.6	40,744.0	1,919,822.6	416.50	1,919,822.6
12	2022	1999	2011-2040	December	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-10.72	-2.37	36.40	-6.66	100%	0.00	0	31.30	28,043.0	2,163.0	0.0	28,043.0	0.0	970.3	1,953.0	524.4	3,447.0	22,767.0	1,614,412.2	22,767.0	1,919,822.6	416.50	1,919,822.6	
13	2023	1970	2011-2040	January	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-16.40	-2.37	39.40	-6.66	100%	0.00	0	31.30	26,243.0	2,163.0	0.0	26,243.0	0.0	970.3	1,953.0	524.4	3,447.0	22,767.0	1,614,412.2	22,767.0	1,919,822.6	416.50	1,919,822.6	
14	2023	1970	2011-2040	February	28	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-11.30	-2.37	29.20	-6.66	100%	0.00	0	31.30	18,924.0	1,619.0	0.0	18,924.0	0.0	976.4	2,064.0	307.4	3,037.8	6,595.1	1,601,620.5	6,595.1	1,919,822.6	416.50	1,919,822.6	
15	2023	1970	2011-2040	March	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-6.78	-2.32	34.80	-4.34	91%	0.00	0	31.30	24,213.0	2,014.0	0.0	24,213.0	0.0	970.3	1,953.0	1,463.0	3,201.7	21,712.0	1,612,845.8	21,712.0	1,919,822.6	416.50	1,919,822.6	
16	2023	1970	2011-2040	April	30	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	0.01	-2.32	34.80	-4.34	35%	0.00	-19.23	31.30	35,549.6	3,042.0	0.0	35,549.6	0.0	970.3	1,953.0	0.0	0	29,174.0	26,361.0	1,599,976.0	26,361.0	1,919,822.6	416.50	1,919,822.6
17	2023	1970	2011-2040	May	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	7.42	-2.32	89.50	-4.34	0%	70.02	-2.89	31.30	108,849.0	4,827.0	0.0	108,849.0	0.0	970.3	1,953.0	0.0	0	48,108.3	3,637.0	1,600,996.3	3,637.0	1,919,822.6	416.50	1,919,822.6
18	2023	1970	2011-2040	June	30	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	17.68	-2.20	178.00	-6.50	0%	100.00	-1.51	31.30	329,834.0	14,917.0	0.0	329,834.0	0.0	970.3	1,953.0	0.0	0	312,963.1	37,966.0	1,499,716.0	37,966.0	1,919,822.6	416.50	1,919,822.6
19	2023	1970	2011-2040	July	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	20.83	-2.20	379.00	-6.50	0%	120.00	-3.41	31.30	520,679.0	27,737.0	0.0	520,679.0	0.0	970.3	1,953.0	0.0	0	415,266.7	45,412.3	1,539,828.6	45,412.3	1,919,822.6	416.50	1,919,822.6
20	2023	1970	2011-2040	August	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	18.08	-2.20	322.00	-6.50	0%	140.00	-1.51	31.30	282,866.0	23.1	0.0	282,866.0	0.0	970.3	1,953.0	0.0	0	246,603.0	36,263.0	1,539,828.6	36,263.0	1,919,822.6	416.50	1,919,822.6
21	2023	1970	2011-2040	September	30	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	18.80	-2.20	183.00	-4.34	2%	48.89	-4.14	31.30	360,705.0	7,157.0	0.0	360,705.0	0.0	970.3	1,953.0	0.0	0	340,063.0	20,642.0	1,539,828.6	20,642.0	1,919,822.6	416.50	1,919,822.6
22	2023	1970	2011-2040	October	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	21.80	-2.30	460.00	-4.34	0%	-4.14	-4.14	31.30	603,620.0	47,424.0	0.0	603,620.0	0.0	970.3	1,953.0	0.0	0	326,811.0	27,995.0	1,539,828.6	27,995.0	1,919,822.6	416.50	1,919,822.6
23	2023	1970	2011-2040	November	30	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	17.30	-2.30	160.00	-6.50	0%	100.00	-1.51	31.30	329,834.0	14,917.0	0.0	329,834.0	0.0	970.3	1,953.0	0.0	0	312,963.1	37,966.0	1,499,716.0	37,966.0	1,919,822.6	416.50	1,919,822.6
24	2023	1970	2011-2040	December	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-16.40	-2.37	43.00	-6.66	97%	0.00	0	31.30	31,721.0	2,061.0	0.0	31,721.0	0.0	970.3	1,953.0	611.2	3,474.2	28,250.0	1,599,976.0	28,250.0	1,919,822.6	416.50	1,919,822.6	
25	2024	1971	2011-2040	January	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-21.40	-2.37	15.00	-6.66	100%	0.00	0	31.30	13,747.0	1,140.0	0.0	13,747.0	0.0	970.3	1,953.0	276.4	3,189.7	10,557.0	1,602,045.5	10,557.0	1,919,822.6	416.50	1,919,822.6	
26	2024	1971	2011-2040	February	28	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-13.57	-2.37	27.80	-6.66	97%	0.00	0	31.30	23,331.0	1,772.0	0.0	23,331.0	0.0	976.4	2,064.0	307.4	3,037.8	6,595.1	1,601,620.5	6,595.1	1,919,822.6	416.50	1,919,822.6	
27	2024	1971	2011-2040	March	31	416.5	1,919,822.6	416.50	1,539,828.6	416,962.0	1.00	14,433.8	0.45	-7.90	-2.32	40.80	-4.34	97%	0.00	0	31.30	31,927.0	2,011.0	0.0	31,927.0	0.0	970.3	1,953.0	1,463.0	3,201.7	21,464.0	1,612,845.8	21,464.0	1,919,822.6	416.50	1,919,822.6	
28	202																																				

Table 16b: Multi-year Wet Cover Model (2022-2422): 31.3 m² seepage, 0.1 mm² sublimation, 2% snow drift losses, 0.00 L/min augmentation and Ensemble Climate Change Scenario

Year	Month	Day	Forecast Horizon	Season	Forecast Month	Forecast Day	Invert (Elevation)	Capacity of (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Actual Operations Area (m ²)	Temperature (C)	Forecast Precipitation (mm)	Forecast Evaporation (mm)	Forecast Sublimation (mm)	Forecast Snowmelt (mm)	Forecast Augmentation (mm)	Forecast Losses (mm)	Forecast Net Change (mm)	Forecast Total Change (mm)	Forecast Total Volume (m ³)	Forecast Total Discharge (m ³)	Forecast Total Inflow (m ³)	Forecast Total Outflow (m ³)	Forecast Total Storage (m ³)	Forecast Total WSEL (m)	Forecast Total Volume (m ³)	Forecast Total Discharge (m ³)	Forecast Total Inflow (m ³)	Forecast Total Outflow (m ³)	Forecast Total Storage (m ³)	Forecast Total WSEL (m)	
118	2025	1987	2021-2100	Winter	October	31	418.5	1,591,622.0	418.3	1,576,508.0	416,992.0	100	418.3	0.45	2.07	-0.33	31.20	-7.81	3.7%	0.00	-0.52	31.30	30,779.0	30,779.0	30,779.0	30,779.0	418.3	1,576,508.0	30,779.0	30,779.0	30,779.0	418.3	1,576,508.0	
119	2025	1987	2021-2100	Winter	November	30	418.5	1,591,622.0	418.1	1,576,508.0	416,992.0	100	418.1	0.45	2.12	-0.33	31.20	-7.81	3.7%	0.00	-0.52	31.30	30,779.0	30,779.0	30,779.0	30,779.0	418.1	1,576,508.0	30,779.0	30,779.0	30,779.0	418.1	1,576,508.0	
120	2025	1987	2021-2100	Winter	December	31	418.5	1,591,622.0	417.9	1,576,508.0	416,992.0	100	417.9	0.45	2.17	-0.33	31.20	-7.81	3.7%	0.00	-0.52	31.30	30,779.0	30,779.0	30,779.0	30,779.0	417.9	1,576,508.0	30,779.0	30,779.0	30,779.0	417.9	1,576,508.0	
121	2025	1988	2021-2100	Spring	January	31	418.5	1,591,622.0	418.2	1,597,912.0	416,992.0	100	418.2	0.45	19.24	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	418.2	1,597,912.0	15,515.0	15,515.0	15,515.0	418.2	1,597,912.0
122	2025	1988	2021-2100	Spring	February	28	418.5	1,591,622.0	418.4	1,597,912.0	416,992.0	100	418.4	0.45	18.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	418.4	1,597,912.0	15,515.0	15,515.0	15,515.0	418.4	1,597,912.0
123	2025	1988	2021-2100	Spring	March	31	418.5	1,591,622.0	418.6	1,597,912.0	416,992.0	100	418.6	0.45	17.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	418.6	1,597,912.0	15,515.0	15,515.0	15,515.0	418.6	1,597,912.0
124	2025	1988	2021-2100	Spring	April	30	418.5	1,591,622.0	418.8	1,597,912.0	416,992.0	100	418.8	0.45	16.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	418.8	1,597,912.0	15,515.0	15,515.0	15,515.0	418.8	1,597,912.0
125	2025	1988	2021-2100	Spring	May	31	418.5	1,591,622.0	419.0	1,597,912.0	416,992.0	100	419.0	0.45	15.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	419.0	1,597,912.0	15,515.0	15,515.0	15,515.0	419.0	1,597,912.0
126	2025	1988	2021-2100	Summer	June	30	418.5	1,591,622.0	419.2	1,597,912.0	416,992.0	100	419.2	0.45	14.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	419.2	1,597,912.0	15,515.0	15,515.0	15,515.0	419.2	1,597,912.0
127	2025	1988	2021-2100	Summer	July	31	418.5	1,591,622.0	419.4	1,597,912.0	416,992.0	100	419.4	0.45	13.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	419.4	1,597,912.0	15,515.0	15,515.0	15,515.0	419.4	1,597,912.0
128	2025	1988	2021-2100	Summer	August	31	418.5	1,591,622.0	419.6	1,597,912.0	416,992.0	100	419.6	0.45	12.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	419.6	1,597,912.0	15,515.0	15,515.0	15,515.0	419.6	1,597,912.0
129	2025	1988	2021-2100	Summer	September	30	418.5	1,591,622.0	419.8	1,597,912.0	416,992.0	100	419.8	0.45	11.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	419.8	1,597,912.0	15,515.0	15,515.0	15,515.0	419.8	1,597,912.0
130	2025	1988	2021-2100	Summer	October	31	418.5	1,591,622.0	420.0	1,597,912.0	416,992.0	100	420.0	0.45	10.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	420.0	1,597,912.0	15,515.0	15,515.0	15,515.0	420.0	1,597,912.0
131	2025	1988	2021-2100	Summer	November	30	418.5	1,591,622.0	420.2	1,597,912.0	416,992.0	100	420.2	0.45	9.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	420.2	1,597,912.0	15,515.0	15,515.0	15,515.0	420.2	1,597,912.0
132	2025	1988	2021-2100	Summer	December	31	418.5	1,591,622.0	420.4	1,597,912.0	416,992.0	100	420.4	0.45	8.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	420.4	1,597,912.0	15,515.0	15,515.0	15,515.0	420.4	1,597,912.0
133	2027	1988	2021-2100	Winter	January	31	418.5	1,591,622.0	420.6	1,597,912.0	416,992.0	100	420.6	0.45	7.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	420.6	1,597,912.0	15,515.0	15,515.0	15,515.0	420.6	1,597,912.0
134	2027	1988	2021-2100	Winter	February	28	418.5	1,591,622.0	420.8	1,597,912.0	416,992.0	100	420.8	0.45	6.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	420.8	1,597,912.0	15,515.0	15,515.0	15,515.0	420.8	1,597,912.0
135	2027	1988	2021-2100	Winter	March	31	418.5	1,591,622.0	421.0	1,597,912.0	416,992.0	100	421.0	0.45	5.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	421.0	1,597,912.0	15,515.0	15,515.0	15,515.0	421.0	1,597,912.0
136	2027	1988	2021-2100	Winter	April	30	418.5	1,591,622.0	421.2	1,597,912.0	416,992.0	100	421.2	0.45	4.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	421.2	1,597,912.0	15,515.0	15,515.0	15,515.0	421.2	1,597,912.0
137	2027	1988	2021-2100	Winter	May	31	418.5	1,591,622.0	421.4	1,597,912.0	416,992.0	100	421.4	0.45	3.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	421.4	1,597,912.0	15,515.0	15,515.0	15,515.0	421.4	1,597,912.0
138	2027	1988	2021-2100	Spring	June	30	418.5	1,591,622.0	421.6	1,597,912.0	416,992.0	100	421.6	0.45	2.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	421.6	1,597,912.0	15,515.0	15,515.0	15,515.0	421.6	1,597,912.0
139	2027	1988	2021-2100	Spring	July	31	418.5	1,591,622.0	421.8	1,597,912.0	416,992.0	100	421.8	0.45	1.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	421.8	1,597,912.0	15,515.0	15,515.0	15,515.0	421.8	1,597,912.0
140	2027	1988	2021-2100	Spring	August	31	418.5	1,591,622.0	422.0	1,597,912.0	416,992.0	100	422.0	0.45	0.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	422.0	1,597,912.0	15,515.0	15,515.0	15,515.0	422.0	1,597,912.0
141	2027	1988	2021-2100	Spring	September	30	418.5	1,591,622.0	422.2	1,597,912.0	416,992.0	100	422.2	0.45	0.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	422.2	1,597,912.0	15,515.0	15,515.0	15,515.0	422.2	1,597,912.0
142	2027	1988	2021-2100	Spring	October	31	418.5	1,591,622.0	422.4	1,597,912.0	416,992.0	100	422.4	0.45	0.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	422.4	1,597,912.0	15,515.0	15,515.0	15,515.0	422.4	1,597,912.0
143	2027	1988	2021-2100	Spring	November	30	418.5	1,591,622.0	422.6	1,597,912.0	416,992.0	100	422.6	0.45	0.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	422.6	1,597,912.0	15,515.0	15,515.0	15,515.0	422.6	1,597,912.0
144	2027	1988	2021-2100	Spring	December	31	418.5	1,591,622.0	422.8	1,597,912.0	416,992.0	100	422.8	0.45	0.20	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	422.8	1,597,912.0	15,515.0	15,515.0	15,515.0	422.8	1,597,912.0
145	2028	1990	2021-2100	Winter	January	29	418.5	1,591,622.0	423.0	1,597,912.0	416,992.0	100	423.0	0.45	12.50	-0.77	30.00	-10.24	8.0%	0.00	0.00	0.00	31.30	12,814.0	15,515.0	15,515.0	15,515.0	423.0	1,597,912.0	15,515.0	15,515.0	15,515.0	423.0	1,597,912.0
146	2028	1990																																

Table 16b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0.1 m/d sublimation, 2% snow drift losses, 0.00 L/min augmentation and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Scenario	Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water	Natural Operations Area	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)								
212	2018	2010	2017-2010	January	31	4185	1,591,622.0	4129	1,434,184.0	1,610,992.0	1.00	14.50	0.45	-14.07	-11.00	+0.24	98%	0.00	0	31.30	12,775.11	145.3	0.00	17,874.4	903.3	1,602,144	343.3	4,136.4	1,448,935.0	0.0	1,402,268.9	4131.3
212	2018	2010	2017-2010	February	28	4185	1,591,622.0	4129	1,448,935.0	1,610,992.0	1.00	14.50	0.45	-12.11	-11.00	+0.24	94%	0.00	0	31.30	11,285.53	158.8	0.00	11,393.3	0.00	1,602,144	214.8	2,736.4	1,452,208.0	0.0	1,402,268.9	4132.3
212	2018	2010	2017-2010	March	31	4185	1,591,622.0	4129	1,482,208.0	1,610,992.0	1.00	14.50	0.45	-10.21	-11.00	+0.24	87%	0.00	0	31.30	10,022.81	172.1	0.00	10,194.5	0.00	1,602,144	321.1	4,021.3	1,456,123.0	0.0	1,402,268.9	4133.3
212	2018	2010	2017-2010	April	30	4185	1,591,622.0	4129	1,515,984.0	1,610,992.0	1.00	14.50	0.45	-8.30	-11.00	+0.24	80%	0.00	0	31.30	8,760.09	185.4	0.00	8,871.2	0.00	1,602,144	427.9	3,910.4	1,460,034.0	0.0	1,402,268.9	4134.3
212	2018	2010	2017-2010	May	31	4185	1,591,622.0	4129	1,541,344.0	1,610,992.0	1.00	14.50	0.45	-6.40	-11.00	+0.24	73%	0.00	0	31.30	7,497.47	200.1	0.00	7,607.6	0.00	1,602,144	534.6	3,799.5	1,463,945.0	0.0	1,402,268.9	4135.3
212	2018	2010	2017-2010	June	30	4185	1,591,622.0	4129	1,566,800.0	1,610,992.0	1.00	14.50	0.45	-4.50	-11.00	+0.24	66%	0.00	0	31.30	6,234.85	214.8	0.00	6,345.0	0.00	1,602,144	641.3	3,688.6	1,467,856.0	0.0	1,402,268.9	4136.3
212	2018	2010	2017-2010	July	31	4185	1,591,622.0	4129	1,591,622.0	1,610,992.0	1.00	14.50	0.45	-2.60	-11.00	+0.24	59%	0.00	0	31.30	4,972.23	229.6	0.00	5,082.4	0.00	1,602,144	748.0	3,577.7	1,471,767.0	0.0	1,402,268.9	4137.3
212	2018	2010	2017-2010	August	31	4185	1,591,622.0	4129	1,617,184.0	1,610,992.0	1.00	14.50	0.45	-0.70	-11.00	+0.24	52%	0.00	0	31.30	3,709.61	244.3	0.00	3,819.8	0.00	1,602,144	854.7	3,466.8	1,475,678.0	0.0	1,402,268.9	4138.3
212	2018	2010	2017-2010	September	30	4185	1,591,622.0	4129	1,642,640.0	1,610,992.0	1.00	14.50	0.45	1.20	-11.00	+0.24	45%	0.00	0	31.30	2,446.97	259.0	0.00	2,557.2	0.00	1,602,144	961.4	3,355.9	1,481,589.0	0.0	1,402,268.9	4139.3
212	2018	2010	2017-2010	October	31	4185	1,591,622.0	4129	1,668,100.0	1,610,992.0	1.00	14.50	0.45	3.10	-11.00	+0.24	38%	0.00	0	31.30	1,184.33	273.7	0.00	1,294.6	0.00	1,602,144	1,068.1	3,245.0	1,487,500.0	0.0	1,402,268.9	4140.3
212	2018	2010	2017-2010	November	30	4185	1,591,622.0	4129	1,693,560.0	1,610,992.0	1.00	14.50	0.45	5.00	-11.00	+0.24	31%	0.00	0	31.30	0.00	288.4	0.00	0.00	0.00	1,602,144	1,174.8	3,134.1	1,493,411.0	0.0	1,402,268.9	4141.3
212	2018	2010	2017-2010	December	31	4185	1,591,622.0	4129	1,719,020.0	1,610,992.0	1.00	14.50	0.45	6.90	-11.00	+0.24	24%	0.00	0	31.30	0.00	402.9	0.00	0.00	0.00	1,602,144	1,281.3	3,023.2	1,499,322.0	0.0	1,402,268.9	4142.3
213	2019	2011	2017-2010	January	31	4185	1,591,622.0	4129	1,744,480.0	1,610,992.0	1.00	14.50	0.45	8.80	-11.00	+0.24	17%	0.00	0	31.30	0.00	517.4	0.00	0.00	0.00	1,602,144	1,387.8	2,912.3	1,505,233.0	0.0	1,402,268.9	4143.3
213	2019	2011	2017-2010	February	28	4185	1,591,622.0	4129	1,770,440.0	1,610,992.0	1.00	14.50	0.45	10.70	-11.00	+0.24	10%	0.00	0	31.30	0.00	631.9	0.00	0.00	0.00	1,602,144	1,494.3	2,801.4	1,511,144.0	0.0	1,402,268.9	4144.3
213	2019	2011	2017-2010	March	31	4185	1,591,622.0	4129	1,796,400.0	1,610,992.0	1.00	14.50	0.45	12.60	-11.00	+0.24	3%	0.00	0	31.30	0.00	746.4	0.00	0.00	0.00	1,602,144	1,600.8	2,690.5	1,517,055.0	0.0	1,402,268.9	4145.3
213	2019	2011	2017-2010	April	30	4185	1,591,622.0	4129	1,822,360.0	1,610,992.0	1.00	14.50	0.45	14.50	-11.00	+0.24	0%	0.00	0	31.30	0.00	860.9	0.00	0.00	0.00	1,602,144	1,707.3	2,579.6	1,522,966.0	0.0	1,402,268.9	4146.3
213	2019	2011	2017-2010	May	31	4185	1,591,622.0	4129	1,848,320.0	1,610,992.0	1.00	14.50	0.45	16.40	-11.00	+0.24	0%	0.00	0	31.30	0.00	975.4	0.00	0.00	0.00	1,602,144	1,813.8	2,468.7	1,528,877.0	0.0	1,402,268.9	4147.3
213	2019	2011	2017-2010	June	30	4185	1,591,622.0	4129	1,874,280.0	1,610,992.0	1.00	14.50	0.45	18.30	-11.00	+0.24	0%	0.00	0	31.30	0.00	1,090.0	0.00	0.00	0.00	1,602,144	1,920.3	2,357.8	1,534,788.0	0.0	1,402,268.9	4148.3
213	2019	2011	2017-2010	July	31	4185	1,591,622.0	4129	1,900,240.0	1,610,992.0	1.00	14.50	0.45	20.20	-11.00	+0.24	0%	0.00	0	31.30	0.00	1,204.5	0.00	0.00	0.00	1,602,144	2,026.8	2,246.9	1,540,699.0	0.0	1,402,268.9	4149.3
213	2019	2011	2017-2010	August	31	4185	1,591,622.0	4129	1,926,200.0	1,610,992.0	1.00	14.50	0.45	22.10	-11.00	+0.24	0%	0.00	0	31.30	0.00	1,319.0	0.00	0.00	0.00	1,602,144	2,133.3	2,136.0	1,546,610.0	0.0	1,402,268.9	4150.3
213	2019	2011	2017-2010	September	30	4185	1,591,622.0	4129	1,952,160.0	1,610,992.0	1.00	14.50	0.45	24.00	-11.00	+0.24	0%	0.00	0	31.30	0.00	1,433.5	0.00	0.00	0.00	1,602,144	2,239.8	2,025.1	1,552,521.0	0.0	1,402,268.9	4151.3
213	2019	2011	2017-2010	October	31	4185	1,591,622.0	4129	1,978,120.0	1,610,992.0	1.00	14.50	0.45	25.90	-11.00	+0.24	0%	0.00	0	31.30	0.00	1,548.0	0.00	0.00	0.00	1,602,144	2,346.3	1,914.2	1,558,432.0	0.0	1,402,268.9	4152.3
213	2019	2011	2017-2010	November	30	4185	1,591,622.0	4129	2,004,080.0	1,610,992.0	1.00	14.50	0.45	27.80	-11.00	+0.24	0%	0.00	0	31.30	0.00	1,662.5	0.00	0.00	0.00	1,602,144	2,452.8	1,803.3	1,564,343.0	0.0	1,402,268.9	4153.3
213	2019	2011	2017-2010	December	31	4185	1,591,622.0	4129	2,030,040.0	1,610,992.0	1.00	14.50	0.45	29.70	-11.00	+0.24	0%	0.00	0	31.30	0.00	1,777.0	0.00	0.00	0.00	1,602,144	2,559.3	1,692.4	1,570,254.0	0.0	1,402,268.9	4154.3
214	2020	2012	2017-2010	January	31	4185	1,591,622.0	4129	2,056,000.0	1,610,992.0	1.00	14.50	0.45	31.60	-11.00	+0.24	0%	0.00	0	31.30	0.00	1,891.5	0.00	0.00	0.00	1,602,144	2,665.8	1,581.5	1,576,165.0	0.0	1,402,268.9	4155.3
214	2020	2012	2017-2010	February	28	4185	1,591,622.0	4129	2,081,960.0	1,610,992.0	1.00	14.50	0.45	33.50	-11.00	+0.24	0%	0.00	0	31.30	0.00	2,006.0	0.00	0.00	0.00	1,602,144	2,772.3	1,470.6	1,582,076.0	0.0	1,402,268.9	4156.3
214	2020	2012	2017-2010	March	31	4185	1,591,622.0	4129	2,107,920.0	1,610,992.0	1.00	14.50	0.45	35.40	-11.00	+0.24	0%	0.00	0	31.30	0.00	2,120.5	0.00	0.00	0.00	1,602,144	2,878.8	1,359.7	1,587,987.0	0.0	1,402,268.9	4157.3
214	2020	2012	2017-2010	April	30	4185	1,591,622.0	4129	2,133,880.0	1,610,992.0	1.00	14.50	0.45	37.30	-11.00	+0.24	0%	0.00	0	31.30	0.00	2,235.0	0.00	0.00	0.00	1,602,144	2,985.3	1,248.8	1,593,898.0	0.0	1,402,268.9	4158.3
214	2020	2012	2017-2010	May	31	4185	1,591,622.0	4129	2,159,840.0	1,610,992.0	1.00	14.50	0.45	39.20	-11.00	+0.24	0%	0.00	0	31.30	0.00	2,349.5	0.00	0.00	0.00	1,602,144	3,091.8	1,137.9	1,600,009.0	0.0	1,402,268.9	4159.3
214	2020	2012	2017-2010	June	30	4185	1,591,622.0	4129	2,185,800.0	1,610,992.0	1.00	14.50	0.45	41.10	-11.00	+0.24	0%	0.00	0	31.30	0.00	2,464.0	0.00	0.00	0.00	1,602,144	3,198.3	1,027.0	1,606,020.0	0.0	1,402,268.9	4160.3
214	2020	2012	2017-2010	July	31	4185	1,591,622.0	4129	2,211,760.0	1,610,992.0	1.00	14.50	0.45	43.00	-11.00	+0.24	0%	0.00	0	31.30	0.00	2,578.5	0.00	0.00	0.00	1,602,144	3,304.8	916.1	1,612,031.0	0.0	1,402,268.9	4161.3
214	2020	2012	2017-20																													

Table 16b: Multi-year Wet Cover Model (2022-2422): 31.3 m² seepage, 0.1 mm² sublimation, 2% snow drift losses, 0.00 L/min augmentation and Ensemble Climate Change Scenario

Year	Month	Day	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Runoff Coeff	Runoff Volume (mm)	Runoff Coeff	Runoff Volume (mm)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)	
278	2024	1978	2021-2100	October	31	4185	1591.622	4129	1,439,993	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,424,012.0	0.0	1,424,012.0	4128
279	2024	1978	2021-2100	November	30	4185	1591.622	4128	1,424,012	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,424,012.0	0.0	1,424,012.0	4128
280	2024	1978	2021-2100	December	31	4185	1591.622	4128	1,424,012	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,424,012.0	0.0	1,424,012.0	4128
281	2024	1979	2021-2100	January	31	4185	1591.622	4130	1,469,597	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,469,597.0	0.0	1,469,597.0	4130
282	2024	1979	2021-2100	February	29	4185	1591.622	4130	1,469,597	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,469,597.0	0.0	1,469,597.0	4130
283	2024	1979	2021-2100	March	31	4185	1591.622	4132	1,515,182	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,515,182.0	0.0	1,515,182.0	4132
284	2024	1979	2021-2100	April	30	4185	1591.622	4134	1,560,767	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,560,767.0	0.0	1,560,767.0	4134
285	2024	1979	2021-2100	May	31	4185	1591.622	4136	1,606,352	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,606,352.0	0.0	1,606,352.0	4136
286	2024	1979	2021-2100	June	30	4185	1591.622	4138	1,651,937	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,651,937.0	0.0	1,651,937.0	4138
287	2024	1979	2021-2100	July	31	4185	1591.622	4140	1,697,522	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,697,522.0	0.0	1,697,522.0	4140
288	2024	1979	2021-2100	August	31	4185	1591.622	4142	1,743,107	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,743,107.0	0.0	1,743,107.0	4142
289	2024	1979	2021-2100	September	30	4185	1591.622	4144	1,788,692	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,788,692.0	0.0	1,788,692.0	4144
290	2024	1979	2021-2100	October	31	4185	1591.622	4146	1,834,277	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,834,277.0	0.0	1,834,277.0	4146
291	2024	1979	2021-2100	November	30	4185	1591.622	4148	1,879,862	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,879,862.0	0.0	1,879,862.0	4148
292	2024	1979	2021-2100	December	31	4185	1591.622	4150	1,925,447	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,925,447.0	0.0	1,925,447.0	4150
293	2024	1980	2021-2100	January	31	4185	1591.622	4152	1,971,032	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	1,971,032.0	0.0	1,971,032.0	4152
294	2024	1980	2021-2100	February	29	4185	1591.622	4154	2,016,617	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,016,617.0	0.0	2,016,617.0	4154
295	2024	1980	2021-2100	March	31	4185	1591.622	4156	2,062,202	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,062,202.0	0.0	2,062,202.0	4156
296	2024	1980	2021-2100	April	30	4185	1591.622	4158	2,107,787	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,107,787.0	0.0	2,107,787.0	4158
297	2024	1980	2021-2100	May	31	4185	1591.622	4160	2,153,372	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,153,372.0	0.0	2,153,372.0	4160
298	2024	1980	2021-2100	June	30	4185	1591.622	4162	2,198,957	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,198,957.0	0.0	2,198,957.0	4162
299	2024	1980	2021-2100	July	31	4185	1591.622	4164	2,244,542	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,244,542.0	0.0	2,244,542.0	4164
300	2024	1980	2021-2100	August	31	4185	1591.622	4166	2,290,127	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,290,127.0	0.0	2,290,127.0	4166
301	2024	1980	2021-2100	September	30	4185	1591.622	4168	2,335,712	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,335,712.0	0.0	2,335,712.0	4168
302	2024	1980	2021-2100	October	31	4185	1591.622	4170	2,381,297	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,381,297.0	0.0	2,381,297.0	4170
303	2024	1980	2021-2100	November	30	4185	1591.622	4172	2,426,882	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,426,882.0	0.0	2,426,882.0	4172
304	2024	1980	2021-2100	December	31	4185	1591.622	4174	2,472,467	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,472,467.0	0.0	2,472,467.0	4174
305	2024	1981	2021-2100	January	31	4185	1591.622	4176	2,518,052	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,518,052.0	0.0	2,518,052.0	4176
306	2024	1981	2021-2100	February	29	4185	1591.622	4178	2,563,637	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,563,637.0	0.0	2,563,637.0	4178
307	2024	1981	2021-2100	March	31	4185	1591.622	4180	2,609,222	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,609,222.0	0.0	2,609,222.0	4180
308	2024	1981	2021-2100	April	30	4185	1591.622	4182	2,654,807	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.84	+0.22	31.30	30.72	0.00	18,783.0	24,650.0	0.00	29,496.0	111,760.0	2,654,807.0	0.0	2,654,807.0	4182
309	2024	1981	2021-2100	May	31	4185	1591.622	4184	2,700,392	0.169922	1.00	11,430.0	0.45	-0.33	-2.10	-0.71	0.00	35.8													

Table 16b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0.6 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Runoff (mm)	Runoff Coefficients	Natural Operations Area (m ²)	Runoff Coefficients	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)					
2021	2027	2001	2021-2100	January	31	418.5	1,591,622.0	418.46	1,579,526.0	0.100	1,430.0	0.45	11.80	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2021	2027	2001	2021-2100	February	29	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	16.89	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2021	2027	2001	2021-2100	March	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	23.00	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2021	2027	2001	2021-2100	April	30	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	37.00	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2021	2027	2001	2021-2100	May	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	47.00	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2021	2027	2001	2021-2100	June	30	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	53.00	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2021	2027	2001	2021-2100	July	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	60.00	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2021	2027	2001	2021-2100	August	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	68.00	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2021	2027	2001	2021-2100	September	30	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	75.00	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2021	2027	2001	2021-2100	October	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	82.00	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2021	2027	2001	2021-2100	November	30	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	89.00	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2021	2027	2001	2021-2100	December	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	96.00	-4.17	22.00	+10.24	94%	0.00	0	31.30	13,624.4	165.9	0.0	20113.1	0.0	370.3	1,604.2	3,062.0	14,846.6	1,576,066.0	0.0	1,591,323.3	418.48
2022	2028	2002	2021-2100	January	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	14.46	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	February	29	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	19.36	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	March	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	23.00	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	April	30	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	27.00	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	May	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	31.00	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	June	30	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	35.00	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	July	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	39.00	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	August	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	43.00	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	September	30	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	47.00	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	October	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	51.00	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	November	30	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	55.00	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2022	2028	2002	2021-2100	December	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	59.00	-4.17	11.00	+0.24	94%	0.00	0	31.30	13,624.4	111.9	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2023	2029	2003	2021-2100	January	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	15.00	-4.17	12.00	+0.24	94%	0.00	0	31.30	13,624.4	127.0	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2023	2029	2003	2021-2100	February	29	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	19.00	-4.17	12.00	+0.24	94%	0.00	0	31.30	13,624.4	127.0	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2023	2029	2003	2021-2100	March	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	23.00	-4.17	12.00	+0.24	94%	0.00	0	31.30	13,624.4	127.0	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2023	2029	2003	2021-2100	April	30	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	27.00	-4.17	12.00	+0.24	94%	0.00	0	31.30	13,624.4	127.0	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2023	2029	2003	2021-2100	May	31	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	31.00	-4.17	12.00	+0.24	94%	0.00	0	31.30	13,624.4	127.0	0.0	13,623.3	0.0	874.0	1,661.1	2,960.0	14,746.7	1,576,331.3	0.0	1,591,323.3	418.49
2023	2029	2003	2021-2100	June	30	418.5	1,591,622.0	418.48	1,579,526.0	0.100	1,430.0	0.45	35.00	-4.17	12.00	+0.24	94%	0.00	0	31.30	13,624.4	127.0	0.0	13,623.3	0.0	874.0	1,661.1	2,96					

Table 16b: Multi-Year Wet Cover Model (2032-2432): 31.3 m³/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Passive Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Runoff Coefficients		Restored Operations Area Runoff Coefficients		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflow/Outflow (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)			
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pond Evaporation	Average	Sublimation Losses	Wind Drift Losses						Total Outflow		
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	-0.33	22.60	-7.81	21%	0.00	+10.00	31.30	48,734.4	415.6	0.0	50,150.0	11,806.7	939.0	0.0	208.1	13,953.8	37,196.2	1,628,628.4	37,196.2	1,591,632.0	418.50				
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	-0.33	100.50	+7.81	7%	82.15	+10.00	31.30	67,241.9	459.2	0.0	67,801.1	62,817.2	939.0	0.0	62.1	63,679.7	4,121.4	1,590,754.0	4,121.4	1,591,632.0	418.50				
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.00	-0.20	117.70	-7.84	0%	130.00	-8.00	31.30	67,653.3	461.1	0.0	68,114.4	60,192.2	939.0	0.0	0.0	61,126.2	2,500.9	1,591,624.7	0.0	1,591,624.7	418.47				
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.47	1,589,024.7	1,430.0	0.45	20.45	-0.03	151.10	-7.84	0%	148.91	-8.11	31.30	71,293.5	452.9	0.0	71,986.4	67,125.6	939.0	0.0	0.0	69,065.9	1,542,815.2	0.0	1,542,815.2	418.44					
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.44	1,542,815.2	1,430.0	0.45	15.84	-0.03	159.30	-7.84	0%	79.40	-6.17	31.30	63,665.7	479.1	0.0	64,444.8	62,309.4	939.0	0.0	0.0	63,279.7	1,186.1	1,544,000.3	0.0	1,544,000.3	418.49				
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.49	1,544,000.3	1,430.0	0.45	8.42	-0.33	97.90	-7.81	0%	47.90	-11.30	31.30	46,834.4	339.0	0.0	47,614.4	46,369.9	939.0	0.0	91.2	47,355.2	3,622.3	1,547,622.6	0.0	1,547,622.6	418.49				
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.49	1,547,622.6	1,430.0	0.45	4.05	-0.33	30.60	+7.81	32%	37.20	+10.32	31.30	29,321.6	243.9	0.0	29,575.5	29,329.7	939.0	0.0	190.5	30,465.0	931.1	1,548,553.7	0.0	1,548,553.7	418.49				
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.49	1,548,553.7	1,430.0	0.45	-3.40	-0.33	20.80	+7.81	93%	0.00	-0.04	31.30	17,864.5	147.1	0.0	17,861.7	3,117.5	939.0	0.0	333.6	13,451.5	1,600,151.0	831.4	1,549,320.1	0.0	1,549,320.1	418.50			
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	9.86	-0.17	6.00	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	19,797.0	139.6	0.0	19,936.6	19,797.0	939.0	0.0	0.0	20,736.0	1,601,961.1	13,965.5	1,565,926.6	0.0	1,565,926.6	418.50
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-15.20	-0.17	62.60	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	57,430.7	477.6	0.0	57,908.3	0.0	939.0	1,879.8	1,144.8	3,964.5	1,603,576.3	3,964.5	1,591,632.0	418.50		
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.30	-0.17	24.50	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	21,491.8	178.7	0.0	21,670.6	0.0	876.4	1,892.0	415.7	2,984.1	1,606.5	1,603,319.1	1,606.5	1,591,632.0	418.50	
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.92	-0.33	48.60	+7.81	0%	0.00	-0.99	31.30	30,545.5	291.2	0.0	30,836.8	4,186.1	939.0	0.0	1,066.3	32,222.1	2,598.9	1,617,219.5	2,598.9	1,591,632.0	418.50				
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.27	+0.33	38.90	+7.81	22%	0.00	+10.00	31.30	28,806.6	240.2	0.0	29,109.9	11,808.7	939.0	0.0	127.7	12,874.4	16,237.5	1,607,890.1	16,237.5	1,591,632.0	418.50				
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	-0.33	46.90	+7.81	0%	120.00	+10.00	31.30	32,354.6	280.1	0.0	32,634.7	38,444.2	939.0	0.0	0.0	33,244.5	24,749.8	1,603,891.7	0.0	1,603,891.7	418.43				
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.43	1,536,817.1	1,430.0	0.45	16.40	-0.33	96.30	-7.84	0%	100.40	-8.00	31.30	64,759.9	450.0	0.0	65,219.9	67,747.6	939.0	0.0	0.0	68,488.6	-1,313.7	1,535,503.4	0.0	1,535,503.4	418.41				
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.41	1,532,186.6	1,430.0	0.45	21.70	+0.03	89.30	-7.84	0%	137.89	-8.11	31.30	36,914.5	316.1	0.0	37,230.6	60,312.5	939.0	0.0	0.0	37,230.6	42,562.1	1,470,113.9	0.0	1,470,113.9	418.34				
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.34	1,470,113.9	1,430.0	0.45	16.52	-0.03	141.10	-7.84	0%	89.70	-6.17	31.30	41,829.2	489.3	0.0	42,318.5	50,299.2	939.0	0.0	0.0	42,318.5	22,220.0	1,467,893.9	0.0	1,467,893.9	418.37				
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.37	1,462,633.8	1,430.0	0.45	10.56	-0.33	69.90	-7.81	0%	47.90	-11.30	31.30	40,829.1	389.4	0.0	41,218.5	30,317.7	939.0	0.0	0.0	37,251.7	3,966.8	1,466,600.7	0.0	1,466,600.7	418.38				
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.38	1,462,600.7	1,430.0	0.45	6.21	+0.33	48.80	+7.81	0%	40.30	+10.22	31.30	30,945.5	291.2	0.0	31,236.7	31,247.3	939.0	0.0	37.3	32,254.9	1,092.7	1,467,693.5	0.0	1,467,693.5	418.39				
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.39	1,462,693.5	1,430.0	0.45	2.13	-0.33	23.60	+7.81	0%	0.00	-0.04	31.30	14,626.9	161.8	0.0	14,788.7	13,113.8	939.0	0.0	208.1	4,565.8	1,222.4	1,461,471.1	0.0	1,461,471.1	418.41				
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.41	1,461,471.1	1,430.0	0.45	-14.52	-0.17	91.40	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	25,700.0	214.2	0.0	25,914.2	0.0	939.0	1,964.8	499.3	3,264.1	1,464,735.0	3,264.1	1,461,471.1	418.44		
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.44	1,464,735.0	1,430.0	0.45	-18.10	-0.17	44.20	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	33,871.7	280.1	0.0	34,151.7	0.0	939.0	1,922.2	971.9	3,514.4	1,468,249.4	3,514.4	1,461,471.1	418.48		
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.48	1,464,735.0	1,430.0	0.45	-10.89	-0.17	30.30	+10.24	96%	0.00	0.00	0.00	0.00	0.00	31.30	20,979.9	239.6	0.0	21,219.5	0.0	876.4	1,723.3	484.2	3,064.1	1,469,213.3	478.2	1,461,471.1	418.50		
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.49	-0.33	53.90	+7.81	7%	0.00	-0.99	31.30	38,169.2	317.4	0.0	38,486.6	6,180.1	939.0	0.0	384.9	39,149.3	25,207.3	1,463,899.9	25,207.3	1,461,471.1	418.50				
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.90	-0.33	63.90	+7.81	0%	0.00	+10.00	31.30	44,354.8	368.8	0.0	44,723.7	11,806.7	939.0	0.0	0.0	12,745.7	31,978.0	1,463,810.6	31,978.0	1,461,471.1	418.50				
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.60	-0.33	12.60	+7.81	0%	135.76	+10.00	31.30	12,460.0	190.0	0.0	12,650.0	60,751.1	939.0	0.0	0.0	60,766.4	43,803.5	1,467,791.1	0.0	1,467,791.1	418.39				
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,467,791.1	1,430.0	0.45	18.12	-0.00	133.70	-7.84	0%	118.89	-8.00	31.30	77,850.4	647.4	0.0	78,497.8	77,747.1	939.0	0.0	0.0	78,686.1	-188.4	1,467,602.7	0.0	1,467,602.7	418.39				
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,467,602.7	1,430.0	0.45	19.17	-0.03	63.70	-7.84	0%	144.64	-8.11	31.30	34,520.0	281.3	0.0	34,801.8	52,529.2	939.0	0.0	0.0	35,099.5	28,717.7	1,468,799.0	0.0	1,468,799.0	418.31				
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.31	1,468,799.0	1,430.0	0.45	18.62	-0.03	67.00	-7.84	0%	122.40	-6.17	31.30	36,637.7	344.8	0.0	36,984.5	50,25													

Model Inputs	
Year of Simulation	2102
Source of Climate Record	Canadian
Climate Change Scenario	CanESM2
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m)	1.91E+06
Area of Open Water Within TSP (m ²)	610,000
Runoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m ²)	14,000
Runoff Coefficient for Restored Lands Within TSP	0.5
Storage from TSP (mm)	200.0
Supplementary Water Addition (mm)	0.0
Elevation for Supplementary Water Addition (mASL)	416.10
Sublimation Losses in Winter (mm/yr)	2%

NOTES: 1) The climate projection was obtained from the output of the TSP from the last open water year. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes in Puff Size".

Table 16c: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 6.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Year	Month	Day	Invert Elevation (m)	Capacity of TSP (m)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Runoff Coefficient	Restored Area (m ²)	Runoff Coefficient	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	As Precipitation	Evaporation (mm)	Forecast Evaporation Change (mm)	Average (m/s)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool Evaporation	Average	TSP Sublimation	Wind Drift	Total Outflow	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)	
1	2022	1991	2011-2040	January	31	416.5	1.91E+06	416.3	1.939863	416.992	1.00	14.000	0.45	-18.01	-2.37	96.70	-6.66	100%	0.00	0	200.00	63.994	532.2	0.0	64.566	0.0	6.200	1.930	1.2965	844.3	50.850	1.987078	3440.0	1.91E+06	416.00
2	2022	1991	2011-2040	February	28	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-12.78	-2.37	14.70	-6.66	100%	0.00	0	200.00	132.909	109.9	0.0	133.977	0.0	6.200	1.960	1.764	700.4	6.993	1.91E+06	416.00	1.91E+06	416.00
3	2022	1991	2011-2040	March	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-7.97	-2.32	15.10	-4.34	100%	0.00	0	200.00	83.949	743	0.0	83.992	0.0	6.200	1.930	1.802	833.2	67.0	1.91E+06	416.00	1.91E+06	416.00
4	2022	1991	2011-2040	April	30	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-3.44	-2.32	16.40	-4.34	0%	0.00	-19.20	200.00	146.878	1221	0.0	146.877	6.275	6.000	0.0	0	12.275	2.482	1.92E+06	416.00	1.91E+06	416.00
5	2022	1991	2011-2040	May	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	9.93	-2.32	32.98	-4.34	0%	-1.89	200.00	187.945	1639	0.0	187.947	6.275	6.000	0.0	0	11.888	3.954	1.94E+06	416.00	1.91E+06	416.00	
6	2022	1991	2011-2040	June	30	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	11.08	-2.30	40.80	-6.00	0%	0.00	-2.41	200.00	471.968	3625	0.0	471.969	6.275	6.000	0.0	0	7.491	4.0974	1.97E+06	416.00	1.91E+06	416.00
7	2022	1991	2011-2040	July	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	17.43	-2.20	51.50	-6.50	0%	10.40	-3.41	200.00	602.978	5761	0.0	602.979	6.275	6.000	0.0	0	73.196	3.287	1.98E+06	416.00	1.91E+06	416.00
8	2022	1991	2011-2040	August	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	18.00	-2.20	58.90	-6.50	0%	90.90	-1.51	200.00	942.699	7859	0.0	942.700	6.275	6.000	0.0	0	63.391	3.1947	1.99E+06	416.00	1.91E+06	416.00
9	2022	1991	2011-2040	September	30	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	17.88	-2.20	67.60	-6.50	0%	100.80	-1.51	200.00	1079.945	9417	0.0	1079.946	6.275	6.000	0.0	0	31.494	3.239	1.99E+06	416.00	1.91E+06	416.00
10	2022	1991	2011-2040	October	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	21.77	-2.20	83.50	-4.34	9%	14.34	-4.51	200.00	1476.865	1497	0.0	1476.866	6.275	6.000	0.0	0	15.968	2.7307	1.99E+06	416.00	1.91E+06	416.00
11	2022	1991	2011-2040	November	30	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	3.87	-2.30	34.20	-4.34	89%	0.00	0	200.00	204.424	1983	0.0	204.425	6.275	6.000	0.0	0	16.933	3.077	1.98E+06	416.00	1.91E+06	416.00
12	2022	1991	2011-2040	December	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-10.72	-2.37	36.40	-6.66	100%	0.00	0	200.00	283.413	2163	0.0	283.414	6.275	6.000	0.0	0	17.500	3.046	1.98E+06	416.00	1.91E+06	416.00
13	2023	1970	2011-2040	January	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-16.40	-2.37	39.40	-6.66	100%	0.00	0	200.00	265.43	2163	0.0	265.434	6.275	6.000	0.0	0	17.500	3.046	1.98E+06	416.00	1.91E+06	416.00
14	2023	1970	2011-2040	February	28	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-11.30	-2.37	32.90	-6.66	100%	0.00	0	200.00	197.945	1639	0.0	197.947	6.275	6.000	0.0	0	11.888	3.954	1.94E+06	416.00	1.91E+06	416.00
15	2023	1970	2011-2040	March	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-6.78	-2.32	34.80	-4.34	91%	0.00	0	200.00	242.315	2014	0.0	242.316	6.275	6.000	0.0	0	15.935	3.077	1.98E+06	416.00	1.91E+06	416.00
16	2023	1970	2011-2040	April	30	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-2.10	-2.32	34.80	-4.34	39%	0.00	-19.20	200.00	368.949	3042	0.0	368.950	6.275	6.000	0.0	0	20.74	2.2865	1.94E+06	416.00	1.91E+06	416.00
17	2023	1970	2011-2040	May	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	7.42	-2.32	49.50	-4.34	0%	70.32	-3.89	200.00	505.849	4827	0.0	505.850	6.275	6.000	0.0	0	54.380	4.134	1.96E+06	416.00	1.91E+06	416.00
18	2023	1970	2011-2040	June	30	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	17.88	-2.20	67.60	-6.50	0%	100.80	-1.51	200.00	942.699	7859	0.0	942.700	6.275	6.000	0.0	0	31.494	3.239	1.99E+06	416.00	1.91E+06	416.00
19	2023	1970	2011-2040	July	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	20.83	-2.20	97.50	-6.50	0%	120.30	-1.51	200.00	1202.979	2737	0.0	1202.980	6.275	6.000	0.0	0	36.424	3.2549	1.99E+06	416.00	1.91E+06	416.00
20	2023	1970	2011-2040	August	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	18.00	-2.20	82.20	-6.50	0%	100.80	-1.51	200.00	1079.945	9417	0.0	1079.946	6.275	6.000	0.0	0	17.835	3.239	1.99E+06	416.00	1.91E+06	416.00
21	2023	1970	2011-2040	September	30	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	11.88	-2.30	34.80	-4.34	2%	48.89	-4.57	200.00	607.075	7157	0.0	607.076	6.275	6.000	0.0	0	35.073	4.7119	1.94E+06	416.00	1.91E+06	416.00
22	2023	1970	2011-2040	October	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	5.85	-2.32	39.30	-4.34	0%	-1.14	-2.00	200.00	802.516	6720	0.0	802.517	6.275	6.000	0.0	0	8.737	3.2728	1.98E+06	416.00	1.91E+06	416.00
23	2023	1970	2011-2040	November	30	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-10.72	-2.37	36.40	-6.66	100%	0.00	0	200.00	283.413	2163	0.0	283.414	6.275	6.000	0.0	0	17.500	3.046	1.98E+06	416.00	1.91E+06	416.00
24	2023	1970	2011-2040	December	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-16.40	-2.37	39.40	-6.66	97%	0.00	0	200.00	317.271	2601	0.0	317.272	6.275	6.000	0.0	0	15.935	3.077	1.98E+06	416.00	1.91E+06	416.00
25	2024	1971	2011-2040	January	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-21.40	-2.37	37.00	-6.66	100%	0.00	0	200.00	137.947	1140	0.0	137.948	6.275	6.000	0.0	0	11.888	3.954	1.94E+06	416.00	1.91E+06	416.00
26	2024	1971	2011-2040	February	28	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-13.57	-2.37	37.80	-6.66	97%	0.00	0	200.00	213.511	1772	0.0	213.512	6.275	6.000	0.0	0	11.888	3.954	1.94E+06	416.00	1.91E+06	416.00
27	2024	1971	2011-2040	March	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-7.97	-2.32	39.40	-4.34	97%	0.00	-19.20	200.00	237.877	2611	0.0	237.878	6.275	6.000	0.0	0	11.888	3.954	1.94E+06	416.00	1.91E+06	416.00
28	2024	1971	2011-2040	April	30	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	-2.40	-2.32	34.80	-4.34	97%	0.00	-19.20	200.00	323.874	2611	0.0	323.875	6.275	6.000	0.0	0	11.888	3.954	1.94E+06	416.00	1.91E+06	416.00
29	2024	1971	2011-2040	May	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	8.88	-2.30	38.80	-4.34	1%	0.00	-19.20	200.00	410.562	3248	0.0	410.563	6.275	6.000	0.0	0	17.1171	3.2129	1.94E+06	416.00	1.91E+06	416.00
30	2024	1971	2011-2040	June	30	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	17.38	-2.20	62.70	-6.50	0%	107.79	-2.41	200.00	671.988	3920	0.0	671.989	6.275	6.000	0.0	0	74.984	2.6625	1.94E+06	416.00	1.91E+06	416.00
31	2024	1971	2011-2040	July	31	416.5	1.91E+06	416.0	1.91E+06	416.992	1.00	14.000	0.45	20.30	-2.20	82.20	-6.50	0%	120.30	-1.51	200.00	942.699	7859	0.0	942.700	6.275	6.000	0.0	0	31.494	3.239	1.99E+06	416.00	1.91E+06	416.00
32	2024	1971	201																																

Table 16c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.08 L/min augmentation, and Ensemble Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m³)	Open Water	Runoff	Runoff Coeff	Runoff Coeff	Runoff Coeff	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Extraction (mm)	Forecast Extraction Change (mm)	Change (m)	Open Water	Runoff	Runoff Coeff	Runoff Coeff	Runoff Coeff	Average	Sublimation	Wet Drift	Total Outflow	Net Inflow	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Wet Drift		
199	2051	1988	2041-2070	January	31	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	0.00	200.00	11,337.0	142.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941
199	2051	1988	2041-2070	February	28	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	
199	2051	1988	2041-2070	March	31	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	
199	2051	1988	2041-2070	April	30	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	
199	2051	1988	2041-2070	May	31	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	
199	2051	1988	2041-2070	June	30	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	
199	2051	1988	2041-2070	July	31	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	
199	2051	1988	2041-2070	August	31	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	
199	2051	1988	2041-2070	September	30	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	
199	2051	1988	2041-2070	October	31	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	
199	2051	1988	2041-2070	November	30	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	
199	2051	1988	2041-2070	December	31	4185	1591.632	4179	1,144,941	0.16092	1.00	1.00	1.00	1.00	-0.20	10.00	-0.47	0.00	0.00	0.00	0.00	200.00	11,337.0	177.3	0.0	17.561	0.0	0.000	1,664.4	294.5	4,160.8	0.0	1,544,443.3	0.0	1,544,443.3	4179.2	1,144,941	4179.2	1,144,941	

Table 16c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.08 L/min augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Natural Operations Area	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)												
332	2014	1974	2071-2100	July	31	4185	1,599,620.4	4187	2,824,219	0.0	14.30	0.45	20.46	-0.00	129.10	7.84	0%	148.91	-0.11	200.0	15,200.0	959.9	0%	17,884.4	15,200.0	2,000.0	0.0	0.0	105,258.6	31,432.2	-2,858,681.1	0.0	-2,858,681.1	4183.0	1,413.0	
332	2014	1974	2071-2100	August	31	4185	1,599,620.4	4183	2,858,588	0.0	14.30	0.45	18.84	-0.00	129.10	7.84	0%	78.40	-0.11	200.0	15,200.0	778.1	0%	84,468.0	15,200.0	2,000.0	0.0	0.0	58,529.4	35,956.4	-2,879,727.7	0.0	-2,879,727.7	4188.0	1,413.0	
332	2014	1974	2071-2100	September	30	4185	1,599,620.4	4183	2,858,588	0.0	14.30	0.45	18.84	-0.00	129.10	7.84	0%	78.40	-0.11	200.0	15,200.0	778.1	0%	84,468.0	15,200.0	2,000.0	0.0	0.0	58,529.4	35,956.4	-2,879,727.7	0.0	-2,879,727.7	4188.0	1,413.0	
332	2014	1974	2071-2100	October	31	4185	1,599,620.4	4188	2,821,415	0.0	14.30	0.45	4.05	-0.00	129.10	7.84	0%	37.20	-0.22	200.0	15,200.0	2,238.0	243.9	0%	29,575.0	15,200.0	2,000.0	0.0	0.0	36,720.0	41,529.0	-2,927,243.0	0.0	-2,927,243.0	4187.0	1,413.0
332	2014	1974	2071-2100	November	30	4185	1,599,620.4	4187	2,827,284	0.0	14.30	0.45	4.05	-0.00	129.10	7.84	0%	37.20	-0.22	200.0	15,200.0	2,238.0	243.9	0%	29,575.0	15,200.0	2,000.0	0.0	0.0	36,720.0	41,529.0	-2,927,243.0	0.0	-2,927,243.0	4187.0	1,413.0
332	2014	1974	2071-2100	December	31	4185	1,599,620.4	4188	2,827,284	0.0	14.30	0.45	4.05	-0.00	129.10	7.84	0%	37.20	-0.22	200.0	15,200.0	2,238.0	243.9	0%	29,575.0	15,200.0	2,000.0	0.0	0.0	36,720.0	41,529.0	-2,927,243.0	0.0	-2,927,243.0	4187.0	1,413.0
333	2015	1975	2071-2100	January	31	4185	1,599,620.4	4189	2,815,563	0.0	14.30	0.45	15.20	-0.00	129.10	7.84	0%	100.00	-0.00	200.0	15,200.0	57,407.0	477.6	0%	57,981.0	15,200.0	2,000.0	0.0	0.0	114,184.6	38,171.4	-2,911,653.9	0.0	-2,911,653.9	4187.0	1,413.0
333	2015	1975	2071-2100	February	28	4185	1,599,620.4	4187	2,815,563	0.0	14.30	0.45	14.30	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	21,481.0	178.7	0%	21,695.0	15,200.0	2,000.0	0.0	0.0	71,947.7	31,969.9	-2,947,891.0	0.0	-2,947,891.0	4187.0	1,413.0
333	2015	1975	2071-2100	March	31	4185	1,599,620.4	4187	2,815,563	0.0	14.30	0.45	14.30	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	21,481.0	178.7	0%	21,695.0	15,200.0	2,000.0	0.0	0.0	71,947.7	31,969.9	-2,947,891.0	0.0	-2,947,891.0	4187.0	1,413.0
333	2015	1975	2071-2100	April	30	4185	1,599,620.4	4188	2,727,133	0.0	14.30	0.45	0.27	-0.00	129.10	7.84	0%	2.20	-0.00	200.0	15,200.0	28,806.0	242.0	0%	29,094.0	15,200.0	2,000.0	0.0	0.0	127,178.4	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
333	2015	1975	2071-2100	May	31	4185	1,599,620.4	4188	2,727,133	0.0	14.30	0.45	0.27	-0.00	129.10	7.84	0%	2.20	-0.00	200.0	15,200.0	28,806.0	242.0	0%	29,094.0	15,200.0	2,000.0	0.0	0.0	127,178.4	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
333	2015	1975	2071-2100	June	30	4185	1,599,620.4	4189	2,727,133	0.0	14.30	0.45	0.27	-0.00	129.10	7.84	0%	2.20	-0.00	200.0	15,200.0	28,806.0	242.0	0%	29,094.0	15,200.0	2,000.0	0.0	0.0	127,178.4	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
333	2015	1975	2071-2100	July	31	4185	1,599,620.4	4189	2,727,133	0.0	14.30	0.45	0.27	-0.00	129.10	7.84	0%	2.20	-0.00	200.0	15,200.0	28,806.0	242.0	0%	29,094.0	15,200.0	2,000.0	0.0	0.0	127,178.4	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
333	2015	1975	2071-2100	August	31	4185	1,599,620.4	4189	2,727,133	0.0	14.30	0.45	0.27	-0.00	129.10	7.84	0%	2.20	-0.00	200.0	15,200.0	28,806.0	242.0	0%	29,094.0	15,200.0	2,000.0	0.0	0.0	127,178.4	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
333	2015	1975	2071-2100	September	30	4185	1,599,620.4	4189	2,727,133	0.0	14.30	0.45	0.27	-0.00	129.10	7.84	0%	2.20	-0.00	200.0	15,200.0	28,806.0	242.0	0%	29,094.0	15,200.0	2,000.0	0.0	0.0	127,178.4	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
333	2015	1975	2071-2100	October	31	4185	1,599,620.4	4189	2,727,133	0.0	14.30	0.45	0.27	-0.00	129.10	7.84	0%	2.20	-0.00	200.0	15,200.0	28,806.0	242.0	0%	29,094.0	15,200.0	2,000.0	0.0	0.0	127,178.4	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
333	2015	1975	2071-2100	November	30	4185	1,599,620.4	4189	2,727,133	0.0	14.30	0.45	0.27	-0.00	129.10	7.84	0%	2.20	-0.00	200.0	15,200.0	28,806.0	242.0	0%	29,094.0	15,200.0	2,000.0	0.0	0.0	127,178.4	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
333	2015	1975	2071-2100	December	31	4185	1,599,620.4	4189	2,727,133	0.0	14.30	0.45	0.27	-0.00	129.10	7.84	0%	2.20	-0.00	200.0	15,200.0	28,806.0	242.0	0%	29,094.0	15,200.0	2,000.0	0.0	0.0	127,178.4	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
334	2016	1976	2071-2100	January	31	4185	1,599,620.4	4189	2,820,574	0.0	14.30	0.45	18.10	-0.00	129.10	7.84	0%	100.00	-0.00	200.0	15,200.0	38,877.0	280.1	0%	39,265.0	15,200.0	2,000.0	0.0	0.0	137,044.6	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
334	2016	1976	2071-2100	February	28	4185	1,599,620.4	4187	2,820,574	0.0	14.30	0.45	18.10	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	48,801.0	683.2	0%	49,289.0	15,200.0	2,000.0	0.0	0.0	145,492.2	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
334	2016	1976	2071-2100	March	31	4185	1,599,620.4	4187	2,820,574	0.0	14.30	0.45	18.10	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	48,801.0	683.2	0%	49,289.0	15,200.0	2,000.0	0.0	0.0	145,492.2	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
334	2016	1976	2071-2100	April	30	4185	1,599,620.4	4188	2,820,574	0.0	14.30	0.45	18.10	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	48,801.0	683.2	0%	49,289.0	15,200.0	2,000.0	0.0	0.0	145,492.2	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
334	2016	1976	2071-2100	May	31	4185	1,599,620.4	4188	2,820,574	0.0	14.30	0.45	18.10	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	48,801.0	683.2	0%	49,289.0	15,200.0	2,000.0	0.0	0.0	145,492.2	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
334	2016	1976	2071-2100	June	30	4185	1,599,620.4	4189	2,820,574	0.0	14.30	0.45	18.10	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	48,801.0	683.2	0%	49,289.0	15,200.0	2,000.0	0.0	0.0	145,492.2	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
334	2016	1976	2071-2100	July	31	4185	1,599,620.4	4189	2,820,574	0.0	14.30	0.45	18.10	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	48,801.0	683.2	0%	49,289.0	15,200.0	2,000.0	0.0	0.0	145,492.2	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
334	2016	1976	2071-2100	August	31	4185	1,599,620.4	4189	2,820,574	0.0	14.30	0.45	18.10	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	48,801.0	683.2	0%	49,289.0	15,200.0	2,000.0	0.0	0.0	145,492.2	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
334	2016	1976	2071-2100	September	30	4185	1,599,620.4	4189	2,820,574	0.0	14.30	0.45	18.10	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	48,801.0	683.2	0%	49,289.0	15,200.0	2,000.0	0.0	0.0	145,492.2	41,966.5	-2,916,133.0	0.0	-2,916,133.0	4182.0	1,413.0
334	2016	1976	2071-2100	October	31	4185	1,599,620.4	4189	2,820,574	0.0	14.30	0.45	18.10	-0.00	129.10	7.84	0%	200.0	-0.00	200.0	15,200.0	48,801.0	683.2	0%	49,289.0	15,200.0	2,000.0	0.0	0.0	145,492.2	41,966.5	-2,916,133.0	0.0			

Table 16c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.08 L/min augmentation, and Ensemble Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Natural Operations Area	Runoff	Temperature (C)	Forecast Precipitation (mm)	Forecast Evaporation (mm)	Precipitation as a Percentage of Evaporation	Evaporation	Forecast Change (mm)	Change (mm)	TSF Inflows (mm)		TSF Outflows (mm)		End of Month WSEL (m)	End of Month Volume (mm)							
																				Open Water	Runoff	Runoff	Open Water			Runoff	Runoff	Runoff				
118	2019	1987	2019-2100	October	31	4185	1591.6324	407.59	4.674464	0.150292	1.00	11.53	0.43	2.07	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	367.693	3015	0.0	2415	1270.4	14,041.1	6,620,874	0.0	-6,620,874	407.52	
119	2019	1987	2019-2100	November	30	4185	1591.6324	407.52	4.650347	0.150292	1.00	11.53	0.43	2.42	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	377.513	2925	0.0	27,865.0	3,179	0.0	18,449.0	1,632.303	0.0	-6,620,874	407.55
120	2019	1987	2019-2100	December	31	4185	1591.6324	407.52	4.626431	0.150292	1.00	11.53	0.43	2.81	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	387.324	2835	0.0	28,681.0	3,670	0.0	19,265.0	1,617.617	0.0	-6,620,874	407.58
121	2019	1988	2019-2100	January	31	4185	1591.6324	407.52	4.602515	0.150292	1.00	11.53	0.43	3.20	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	397.135	2745	0.0	29,497.0	4,161	0.0	20,081.0	1,602.931	0.0	-6,620,874	407.61
122	2019	1988	2019-2100	February	29	4185	1591.6324	407.52	4.578599	0.150292	1.00	11.53	0.43	3.59	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	406.946	2655	0.0	30,313.0	4,652	0.0	20,897.0	1,588.245	0.0	-6,620,874	407.64
123	2019	1988	2019-2100	March	31	4185	1591.6324	407.52	4.554683	0.150292	1.00	11.53	0.43	3.98	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	416.757	2565	0.0	31,129.0	5,143	0.0	21,713.0	1,573.559	0.0	-6,620,874	407.67
124	2019	1988	2019-2100	April	30	4185	1591.6324	407.52	4.530767	0.150292	1.00	11.53	0.43	4.37	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	426.568	2475	0.0	31,945.0	5,634	0.0	22,529.0	1,558.873	0.0	-6,620,874	407.70
125	2019	1988	2019-2100	May	31	4185	1591.6324	407.52	4.506851	0.150292	1.00	11.53	0.43	4.76	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	436.379	2385	0.0	32,761.0	6,125	0.0	23,345.0	1,544.187	0.0	-6,620,874	407.73
126	2019	1988	2019-2100	June	30	4185	1591.6324	407.52	4.482935	0.150292	1.00	11.53	0.43	5.15	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	446.190	2295	0.0	33,577.0	6,616	0.0	24,161.0	1,529.501	0.0	-6,620,874	407.76
127	2019	1988	2019-2100	July	31	4185	1591.6324	407.52	4.459019	0.150292	1.00	11.53	0.43	5.54	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	456.001	2205	0.0	34,393.0	7,107	0.0	24,977.0	1,514.815	0.0	-6,620,874	407.79
128	2019	1988	2019-2100	August	31	4185	1591.6324	407.52	4.435103	0.150292	1.00	11.53	0.43	5.93	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	465.812	2115	0.0	35,209.0	7,598	0.0	25,793.0	1,500.129	0.0	-6,620,874	407.82
129	2019	1988	2019-2100	September	30	4185	1591.6324	407.52	4.411187	0.150292	1.00	11.53	0.43	6.32	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	475.623	2025	0.0	36,025.0	8,089	0.0	26,609.0	1,485.443	0.0	-6,620,874	407.85
130	2019	1988	2019-2100	October	31	4185	1591.6324	407.52	4.387271	0.150292	1.00	11.53	0.43	6.71	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	485.434	1935	0.0	36,841.0	8,580	0.0	27,425.0	1,470.757	0.0	-6,620,874	407.88
131	2019	1988	2019-2100	November	30	4185	1591.6324	407.52	4.363355	0.150292	1.00	11.53	0.43	7.10	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	495.245	1845	0.0	37,657.0	9,071	0.0	28,241.0	1,456.071	0.0	-6,620,874	407.91
132	2019	1988	2019-2100	December	31	4185	1591.6324	407.52	4.339439	0.150292	1.00	11.53	0.43	7.49	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	505.056	1755	0.0	38,473.0	9,562	0.0	29,057.0	1,441.385	0.0	-6,620,874	407.94
133	2019	1989	2019-2100	January	31	4185	1591.6324	407.52	4.315523	0.150292	1.00	11.53	0.43	7.88	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	514.867	1665	0.0	39,289.0	10,053	0.0	29,873.0	1,426.7	0.0	-6,620,874	407.97
134	2019	1989	2019-2100	February	29	4185	1591.6324	407.52	4.291607	0.150292	1.00	11.53	0.43	8.27	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	524.678	1575	0.0	40,105.0	10,544	0.0	30,689.0	1,412.014	0.0	-6,620,874	408.00
135	2019	1989	2019-2100	March	31	4185	1591.6324	407.52	4.267691	0.150292	1.00	11.53	0.43	8.66	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	534.489	1485	0.0	40,921.0	11,035	0.0	31,505.0	1,397.328	0.0	-6,620,874	408.03
136	2019	1989	2019-2100	April	30	4185	1591.6324	407.52	4.243775	0.150292	1.00	11.53	0.43	9.05	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	544.300	1395	0.0	41,737.0	11,526	0.0	32,321.0	1,382.642	0.0	-6,620,874	408.06
137	2019	1989	2019-2100	May	31	4185	1591.6324	407.52	4.219859	0.150292	1.00	11.53	0.43	9.44	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	554.111	1305	0.0	42,553.0	12,017	0.0	33,137.0	1,367.956	0.0	-6,620,874	408.09
138	2019	1989	2019-2100	June	30	4185	1591.6324	407.52	4.195943	0.150292	1.00	11.53	0.43	9.83	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	563.922	1215	0.0	43,369.0	12,508	0.0	33,953.0	1,353.27	0.0	-6,620,874	408.12
139	2019	1989	2019-2100	July	31	4185	1591.6324	407.52	4.172027	0.150292	1.00	11.53	0.43	10.22	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	573.733	1125	0.0	44,185.0	12,999	0.0	34,769.0	1,338.584	0.0	-6,620,874	408.15
140	2019	1989	2019-2100	August	31	4185	1591.6324	407.52	4.148111	0.150292	1.00	11.53	0.43	10.61	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	583.544	1035	0.0	45,001.0	13,490	0.0	35,585.0	1,323.898	0.0	-6,620,874	408.18
141	2019	1989	2019-2100	September	30	4185	1591.6324	407.52	4.124195	0.150292	1.00	11.53	0.43	11.00	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	593.355	945	0.0	45,817.0	13,981	0.0	36,401.0	1,309.212	0.0	-6,620,874	408.21
142	2019	1989	2019-2100	October	31	4185	1591.6324	407.52	4.100279	0.150292	1.00	11.53	0.43	11.39	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	603.166	855	0.0	46,633.0	14,472	0.0	37,217.0	1,294.526	0.0	-6,620,874	408.24
143	2019	1989	2019-2100	November	30	4185	1591.6324	407.52	4.076363	0.150292	1.00	11.53	0.43	11.78	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	612.977	765	0.0	47,449.0	14,963	0.0	38,033.0	1,279.84	0.0	-6,620,874	408.27
144	2019	1989	2019-2100	December	31	4185	1591.6324	407.52	4.052447	0.150292	1.00	11.53	0.43	12.17	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	622.788	675	0.0	48,265.0	15,454	0.0	38,849.0	1,265.154	0.0	-6,620,874	408.30
145	2019	1990	2019-2100	January	31	4185	1591.6324	407.52	4.028531	0.150292	1.00	11.53	0.43	12.56	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	632.599	585	0.0	49,081.0	15,945	0.0	39,665.0	1,250.468	0.0	-6,620,874	408.33
146	2019	1990	2019-2100	February	29	4185	1591.6324	407.52	4.004615	0.150292	1.00	11.53	0.43	12.95	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	642.410	495	0.0	49,897.0	16,436	0.0	40,481.0	1,235.782	0.0	-6,620,874	408.36
147	2019	1990	2019-2100	March	31	4185	1591.6324	407.52	3.980699	0.150292	1.00	11.53	0.43	13.34	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	652.221	405	0.0	50,713.0	16,927	0.0	41,297.0	1,221.096	0.0	-6,620,874	408.39
148	2019	1990	2019-2100	April	30	4185	1591.6324	407.52	3.956783	0.150292	1.00	11.53	0.43	13.73	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	662.032	315	0.0	51,529.0	17,418	0.0	42,113.0	1,206.41	0.0	-6,620,874	408.42
149	2019	1990	2019-2100	May	31	4185	1591.6324	407.52	3.932867	0.150292	1.00	11.53	0.43	14.12	-3.33	31.20	-7.81	33%	0.00	+13.22	200.0	671.843	225	0.0								

Table 16c: Multi-Year Wet Cover Model (2032-2432): 200 m²/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and Ensemble Climate Change Scenario

Count	Passive Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of Wet (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m ³ /d)	TSF Inflows (m ³)				TSF Outflows (m ³)				Net Inflow/Outflow (m ³)	End of Month Volume before discharge (m ³)	Discharge Volume (m ³)	End of Month Volume after discharge (m ³)	List of Month WSEL after discharge (m)	
										Area (m ²)	Runoff Coefficients	Area (m ²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Penetration	Seepage	Sublimation	Wind Drift Losses						Total Outflow
323	2429	1974	2071-2100	April	30	418.5	1,599,632.0	401.96	-10,942,173.3	418,569.2	1.00	11,430.8	0.45	-1.48	-5.33	22.60	-7.81	21%	0.00	-10.00	200.00	48,734.4	415.6	0.0	50,150.0	11,806.7	4,000.0	0.0	208.1	18,914.8	32,152.2	-10,910,038.1	0.0	-10,910,038.1	402.01
323	2429	1974	2071-2100	May	31	418.5	1,599,632.0	402.01	-10,910,038.1	418,569.2	1.00	11,430.8	0.45	-1.70	-5.33	10.50	-7.81	7%	82.15	-10.00	200.00	67,241.9	559.2	0.0	67,801.1	62,477.2	4,200.0	0.0	62.1	68,509.4	-1,108.3	-10,911,146.4	0.0	-10,911,146.4	402.00
323	2429	1974	2071-2100	June	30	418.5	1,599,632.0	402.00	-10,911,146.4	418,569.2	1.00	11,430.8	0.45	-1.00	-5.00	11.70	-7.84	0%	130.00	-8.00	200.00	67,653.3	66.1	0.0	68,019.3	66,107.2	4,000.0	0.0	0.0	66,107.2	-1,911.9	-10,913,058.3	0.0	-10,913,058.3	401.97
323	2429	1974	2071-2100	July	31	418.5	1,599,632.0	401.97	-10,913,058.3	418,569.2	1.00	11,430.8	0.45	-20.45	-5.00	10.10	-7.84	0%	148.91	-8.11	200.00	11,290.5	659.9	0.0	11,950.4	87,125.6	4,200.0	0.0	0.0	103,325.6	-11,430.2	-10,910,254.4	0.0	-10,910,254.4	401.93
323	2429	1974	2071-2100	August	31	418.5	1,599,632.0	401.93	-10,910,254.4	418,569.2	1.00	11,430.8	0.45	-18.84	-5.00	19.30	-7.84	0%	78.40	-6.17	200.00	33,665.7	778.1	0.0	34,443.8	32,309.4	4,200.0	0.0	0.0	38,509.4	-3,935.4	-10,914,290.8	0.0	-10,914,290.8	401.87
323	2429	1974	2071-2100	September	30	418.5	1,599,632.0	401.87	-10,914,290.8	418,569.2	1.00	11,430.8	0.45	8.42	-5.33	9.70	-7.81	0%	47.90	-11.30	200.00	42,634.4	339.9	0.0	43,074.3	38,368.9	4,000.0	0.0	91.2	42,425.3	-4,648.7	-10,915,739.8	0.0	-10,915,739.8	401.97
323	2429	1974	2071-2100	October	31	418.5	1,599,632.0	401.97	-10,915,739.8	418,569.2	1.00	11,430.8	0.45	4.00	-5.33	10.60	-7.81	32%	37.20	-10.32	200.00	20,321.6	243.9	0.0	20,565.5	20,329.7	4,200.0	0.0	190.8	35,725.3	-1,510.8	-10,917,250.6	0.0	-10,917,250.6	401.96
323	2429	1974	2071-2100	November	30	418.5	1,599,632.0	401.96	-10,917,250.6	418,569.2	1.00	11,430.8	0.45	-3.40	-5.33	20.80	-7.81	93%	0.00	-10.04	200.00	17,864.5	147.1	0.0	17,981.7	3,117.5	4,000.0	0.0	333.8	8,481.1	8,395.5	-10,918,505.1	0.0	-10,918,505.1	401.97
323	2429	1974	2071-2100	December	31	418.5	1,599,632.0	401.97	-10,918,505.1	418,569.2	1.00	11,430.8	0.45	8.84	-5.17	9.00	-10.24	98%	0.00	-10.00	200.00	18,207.9	139.6	0.0	18,347.5	6,363.3	4,000.0	0.0	879.3	24,710.8	-1,348.7	-10,919,853.8	0.0	-10,919,853.8	401.99
324	2430	1975	2071-2100	January	31	418.5	1,599,632.0	401.99	-10,919,853.8	418,569.2	1.00	11,430.8	0.45	-15.20	-4.17	82.60	-10.24	96%	0.00	0.00	200.00	57,407.0	477.6	0.0	57,884.6	0.0	4,200.0	1,876.8	1,144.8	9,194.2	48,714.1	-10,920,262.2	0.0	-10,920,262.2	402.05
324	2430	1975	2071-2100	February	29	418.5	1,599,632.0	402.05	-10,920,262.2	418,569.2	1.00	11,430.8	0.45	-14.38	-4.17	24.40	-10.24	96%	0.00	0.00	200.00	21,497.8	178.7	0.0	21,676.5	0.0	4,000.0	1,892.0	415.7	7,707.7	23,384.9	-10,921,267.3	0.0	-10,921,267.3	402.07
324	2430	1975	2071-2100	March	31	418.5	1,599,632.0	402.07	-10,921,267.3	418,569.2	1.00	11,430.8	0.45	8.92	-5.33	48.60	-7.81	0%	0.00	-10.00	200.00	30,545.5	291.2	0.0	30,836.7	4,196.1	4,200.0	1,066.3	662.6	14,948.4	-10,922,372.2	0.0	-10,922,372.2	402.10	
324	2430	1975	2071-2100	April	30	418.5	1,599,632.0	402.10	-10,922,372.2	418,569.2	1.00	11,430.8	0.45	0.27	-5.33	38.90	-7.81	22%	0.00	-10.00	200.00	28,806.6	240.2	0.0	29,046.8	11,808.7	4,000.0	0.0	127.7	17,834.4	-11,166.5	-10,923,438.6	0.0	-10,923,438.6	402.11
324	2430	1975	2071-2100	May	31	418.5	1,599,632.0	402.11	-10,923,438.6	418,569.2	1.00	11,430.8	0.45	12.42	-5.33	46.90	-7.81	0%	120.00	-10.00	200.00	32,354.6	208.1	0.0	32,562.7	38,404.2	4,200.0	0.0	0.0	32,562.7	-10,924,741.1	0.0	-10,924,741.1	402.03	
324	2430	1975	2071-2100	June	30	418.5	1,599,632.0	402.03	-10,924,741.1	418,569.2	1.00	11,430.8	0.45	16.40	-5.00	36.30	-7.84	0%	100.40	-8.00	200.00	34,719.9	495.0	0.0	35,214.9	47,747.6	4,000.0	0.0	0.0	73,962.5	-10,925,966.8	0.0	-10,925,966.8	402.01	
324	2430	1975	2071-2100	July	31	418.5	1,599,632.0	402.01	-10,925,966.8	418,569.2	1.00	11,430.8	0.45	21.10	-5.00	39.30	-7.84	0%	137.88	-8.11	200.00	36,914.5	316.1	0.0	37,230.6	60,372.5	4,200.0	0.0	0.0	98,572.5	-10,927,272.8	0.0	-10,927,272.8	401.93	
324	2430	1975	2071-2100	August	31	418.5	1,599,632.0	401.93	-10,927,272.8	418,569.2	1.00	11,430.8	0.45	16.52	-5.00	161.10	-7.84	0%	89.70	-6.17	200.00	41,839.2	683.3	0.0	42,252.5	39,299.2	4,000.0	0.0	0.0	46,291.7	-10,928,264.4	0.0	-10,928,264.4	401.85	
324	2430	1975	2071-2100	September	30	418.5	1,599,632.0	401.85	-10,928,264.4	418,569.2	1.00	11,430.8	0.45	10.58	-5.33	69.90	-7.81	0%	47.90	-11.30	200.00	40,829.1	389.4	0.0	41,218.5	30,377.7	4,000.0	0.0	0.0	45,217.7	-10,929,276.5	0.0	-10,929,276.5	401.86	
324	2430	1975	2071-2100	October	31	418.5	1,599,632.0	401.86	-10,929,276.5	418,569.2	1.00	11,430.8	0.45	6.21	-5.33	48.80	-7.81	0%	40.30	-10.22	200.00	30,545.5	291.2	0.0	30,836.7	31,247.3	4,200.0	0.0	37.3	37,484.8	-2,179.0	-10,930,455.5	0.0	-10,930,455.5	401.86
324	2430	1975	2071-2100	November	30	418.5	1,599,632.0	401.86	-10,930,455.5	418,569.2	1.00	11,430.8	0.45	2.13	-5.33	23.60	-7.81	0%	0.00	-10.04	200.00	14,235.9	161.8	0.0	14,397.7	3,117.5	4,000.0	0.0	208.1	8,428.8	-1,161.4	-10,931,364.0	0.0	-10,931,364.0	401.97
324	2430	1975	2071-2100	December	31	418.5	1,599,632.0	401.97	-10,931,364.0	418,569.2	1.00	11,430.8	0.45	-14.52	-4.17	91.40	-10.24	100%	0.00	0.00	200.00	20,760.0	214.2	0.0	20,974.2	0.0	4,200.0	1,964.8	403.3	8,433.8	-10,932,837.7	0.0	-10,932,837.7	401.99	
325	2431	1976	2071-2100	January	31	418.5	1,599,632.0	401.99	-10,932,837.7	418,569.2	1.00	11,430.8	0.45	-18.13	-4.17	44.20	-10.24	99%	0.00	0.00	200.00	33,877.7	285.1	0.0	34,162.8	0.0	4,200.0	1,932.2	971.9	8,364.1	-10,934,265.1	0.0	-10,934,265.1	402.03	
325	2431	1976	2071-2100	February	29	418.5	1,599,632.0	402.03	-10,934,265.1	418,569.2	1.00	11,430.8	0.45	-10.88	-4.17	30.30	-10.24	98%	0.00	0.00	200.00	20,979.9	239.6	0.0	21,219.5	0.0	4,000.0	723.8	484.2	7,817.7	-10,935,259.7	0.0	-10,935,259.7	402.05	
325	2431	1976	2071-2100	March	31	418.5	1,599,632.0	402.05	-10,935,259.7	418,569.2	1.00	11,430.8	0.45	8.49	-5.33	53.90	-7.81	76%	0.00	-10.00	200.00	38,169.2	374.4	0.0	38,543.6	6,180.1	4,200.0	1,484.0	384.9	14,448.0	-10,936,701.1	0.0	-10,936,701.1	402.08	
325	2431	1976	2071-2100	April	30	418.5	1,599,632.0	402.08	-10,936,701.1	418,569.2	1.00	11,430.8	0.45	4.90	-5.33	63.90	-7.81	0%	0.00	-10.00	200.00	44,354.8	368.8	0.0	44,723.7	11,806.7	4,000.0	0.0	0.0	17,895.7	-26,917.0	-10,938,275.1	0.0	-10,938,275.1	402.12
325	2431	1976	2071-2100	May	31	418.5	1,599,632.0	402.12	-10,938,275.1	418,569.2	1.00	11,430.8	0.45	15.60	-5.33	12.60	-7.81	0%	135.76	-10.00	200.00	12,460.6	105.0	0.0	12,566.4	60,795.1	4,200.0	0.0	0.0	107,951.1	-10,940,386.3	0.0	-10,940,386.3	402.00	
325	2431	1976	2071-2100	June	30	418.5	1,599,632.0	402.00	-10,940,386.3	418,569.2	1.00	11,430.8	0.45	18.12	-5.00	133.70	-7.84	0%	118.89	-8.00	200.00	17,850.4	647.4	0.0	18,497.8	77,747.1	4,200.0	0.0	0.0	83,747.1	-10,941,674.6	0.0	-10,941,674.6	401.99	
325	2431	1976	2071-2100	July	31	418.5	1,599,632.0	401.99	-																										

Table 17a: Multi-year Wet Cover Model (2022-2432): 3.13 mm/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Runoff Coefficients	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)							
2026	2026	2026	2026-2100	July	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	19.71	-2.20	90.50	9.97	0%	126.30	-1.48	3.13	2052.21	2496	0%	30.759	183.919	97.0	0.0	0.0	4182.96	1514.756	0.0	1514.756	4184.0
2026	2026	2026	2026-2100	August	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	17.48	-2.20	94.50	9.97	0%	109.09	-1.48	3.13	2020.24	2249	0%	27.723	163.846	97.0	0.0	0.0	4182.96	1478.242	0.0	1478.242	4184.0
2026	2026	2026	2026-2100	September	30	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	15.05	-2.20	98.00	9.97	0%	100.00	-1.48	3.13	1958.26	2049	0%	25.559	154.819	97.0	0.0	0.0	4182.96	1442.772	0.0	1442.772	4184.0
2026	2026	2026	2026-2100	October	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	12.62	-2.20	101.50	9.97	0%	102.47	-1.48	3.13	1866.28	1849	0%	23.389	145.792	97.0	0.0	0.0	4182.96	1407.262	0.0	1407.262	4184.0
2026	2026	2026	2026-2100	November	30	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	10.19	-2.20	104.00	9.97	0%	104.85	-1.48	3.13	1774.30	1649	0%	21.223	136.735	97.0	0.0	0.0	4182.96	1371.745	0.0	1371.745	4184.0
2026	2026	2026	2026-2100	December	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	7.76	-2.20	106.50	9.97	0%	107.13	-1.48	3.13	1682.32	1449	0%	19.057	127.678	97.0	0.0	0.0	4182.96	1336.228	0.0	1336.228	4184.0
2027	2026	2026	2026-2100	January	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	5.33	-2.20	108.00	9.97	0%	108.40	-1.48	3.13	1590.34	1249	0%	16.901	118.621	97.0	0.0	0.0	4182.96	1300.711	0.0	1300.711	4184.0
2027	2026	2026	2026-2100	February	28	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	2.90	-2.20	109.50	9.97	0%	109.67	-1.48	3.13	1508.36	1049	0%	14.735	109.564	97.0	0.0	0.0	4182.96	1265.194	0.0	1265.194	4184.0
2027	2026	2026	2026-2100	March	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	0.47	-2.20	111.00	9.97	0%	111.94	-1.48	3.13	1426.38	849	0%	12.569	100.507	97.0	0.0	0.0	4182.96	1229.677	0.0	1229.677	4184.0
2027	2026	2026	2026-2100	April	30	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-2.00	-2.20	112.50	9.97	0%	113.43	-1.48	3.13	1344.40	649	0%	10.403	91.450	97.0	0.0	0.0	4182.96	1194.160	0.0	1194.160	4184.0
2027	2026	2026	2026-2100	May	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-4.53	-2.20	114.00	9.97	0%	114.92	-1.48	3.13	1262.42	449	0%	8.237	82.393	97.0	0.0	0.0	4182.96	1158.643	0.0	1158.643	4184.0
2027	2026	2026	2026-2100	June	30	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-7.06	-2.20	115.50	9.97	0%	116.41	-1.48	3.13	1180.44	249	0%	6.071	73.336	97.0	0.0	0.0	4182.96	1123.126	0.0	1123.126	4184.0
2027	2026	2026	2026-2100	July	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-9.59	-2.20	117.00	9.97	0%	117.90	-1.48	3.13	1108.46	49	0%	3.905	64.279	97.0	0.0	0.0	4182.96	1087.609	0.0	1087.609	4184.0
2027	2026	2026	2026-2100	August	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-12.12	-2.20	118.50	9.97	0%	119.39	-1.48	3.13	1036.48	-151	0%	1.739	55.222	97.0	0.0	0.0	4182.96	1052.092	0.0	1052.092	4184.0
2027	2026	2026	2026-2100	September	30	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-14.65	-2.20	120.00	9.97	0%	120.88	-1.48	3.13	964.50	-351	0%	-0.427	46.165	97.0	0.0	0.0	4182.96	1016.575	0.0	1016.575	4184.0
2027	2026	2026	2026-2100	October	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-17.18	-2.20	121.50	9.97	0%	122.37	-1.48	3.13	892.52	-601	0%	-2.321	37.108	97.0	0.0	0.0	4182.96	981.058	0.0	981.058	4184.0
2027	2026	2026	2026-2100	November	30	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-19.71	-2.20	123.00	9.97	0%	123.86	-1.48	3.13	820.54	-851	0%	-4.216	28.051	97.0	0.0	0.0	4182.96	945.541	0.0	945.541	4184.0
2027	2026	2026	2026-2100	December	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-22.24	-2.20	124.50	9.97	0%	125.35	-1.48	3.13	748.56	-1101	0%	-6.111	18.994	97.0	0.0	0.0	4182.96	910.024	0.0	910.024	4184.0
2028	2026	2026	2026-2100	January	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-24.77	-2.20	126.00	9.97	0%	126.84	-1.48	3.13	676.58	-1351	0%	-8.006	9.937	97.0	0.0	0.0	4182.96	874.507	0.0	874.507	4184.0
2028	2026	2026	2026-2100	February	28	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-27.30	-2.20	127.50	9.97	0%	128.33	-1.48	3.13	604.60	-1601	0%	-9.901	0.880	97.0	0.0	0.0	4182.96	838.990	0.0	838.990	4184.0
2028	2026	2026	2026-2100	March	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-29.83	-2.20	129.00	9.97	0%	129.82	-1.48	3.13	532.62	-1851	0%	-11.796	-0.171	97.0	0.0	0.0	4182.96	803.473	0.0	803.473	4184.0
2028	2026	2026	2026-2100	April	30	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-32.36	-2.20	130.50	9.97	0%	131.31	-1.48	3.13	460.64	-2101	0%	-13.691	-1.120	97.0	0.0	0.0	4182.96	767.956	0.0	767.956	4184.0
2028	2026	2026	2026-2100	May	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-34.89	-2.20	132.00	9.97	0%	132.80	-1.48	3.13	388.66	-2351	0%	-15.586	-2.170	97.0	0.0	0.0	4182.96	732.439	0.0	732.439	4184.0
2028	2026	2026	2026-2100	June	30	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-37.42	-2.20	133.50	9.97	0%	134.29	-1.48	3.13	316.68	-2601	0%	-17.481	-3.220	97.0	0.0	0.0	4182.96	696.922	0.0	696.922	4184.0
2028	2026	2026	2026-2100	July	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-39.95	-2.20	135.00	9.97	0%	135.78	-1.48	3.13	244.70	-2851	0%	-19.376	-4.270	97.0	0.0	0.0	4182.96	661.405	0.0	661.405	4184.0
2028	2026	2026	2026-2100	August	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-42.48	-2.20	136.50	9.97	0%	137.27	-1.48	3.13	172.72	-3101	0%	-21.271	-5.320	97.0	0.0	0.0	4182.96	625.888	0.0	625.888	4184.0
2028	2026	2026	2026-2100	September	30	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-45.01	-2.20	138.00	9.97	0%	138.76	-1.48	3.13	100.74	-3351	0%	-23.166	-6.370	97.0	0.0	0.0	4182.96	590.371	0.0	590.371	4184.0
2028	2026	2026	2026-2100	October	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-47.54	-2.20	139.50	9.97	0%	140.25	-1.48	3.13	28.76	-3601	0%	-25.061	-7.420	97.0	0.0	0.0	4182.96	554.854	0.0	554.854	4184.0
2028	2026	2026	2026-2100	November	30	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-50.07	-2.20	141.00	9.97	0%	141.74	-1.48	3.13	-43.22	-3851	0%	-26.956	-8.470	97.0	0.0	0.0	4182.96	519.337	0.0	519.337	4184.0
2028	2026	2026	2026-2100	December	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-52.60	-2.20	142.50	9.97	0%	143.23	-1.48	3.13	-115.28	-4101	0%	-28.851	-9.520	97.0	0.0	0.0	4182.96	483.820	0.0	483.820	4184.0
2029	2026	2026	2026-2100	January	31	4185	1591.622	4187	1567.784	4186.922	1.00	11.4308	0.43	-55.13	-2.20	144.00	9.97	0%	144.72	-1.48	3.13	-187.30	-4351	0%	-30.746	-10.570	97.0	0.0	0.0	4182.96	448.303	0.0	448.303	4184.0

Table 17a: Multi-Year Wet Cover Model (2032-2432): 3.13 m³/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflow/Outflow (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)	
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Area (m²)	Runoff Coefficients	Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pond Evaporation	Average						Sublimation Losses
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	-2.95	22.60	-6.42	21%	0.00	+11.81	3.13	48,773.3	455.5	0.0	49,228.8	7,354.1	93.0	0.0	204.5	7,620.5	41,687.2	1,633,313.8	41,687.2	1,591,632.0	418.50		
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	-2.95	100.50	-6.42	7%	82.15	+11.84	3.13	68,382.8	552.0	0.0	68,934.8	58,142.0	97.0	0.0	91.0	58,333.0	1,600,237.4	8,604.8	1,591,632.0	418.50			
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.08	-2.95	117.70	-6.97	0%	118.00	+1.32	3.13	72,216.6	603.0	0.0	72,819.6	68,052.4	93.0	0.0	69.16	67,983.2	1,571,693.9	0.0	1,571,693.9	418.48			
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.48	1,575,693.9	1,430.0	0.45	20.42	-2.95	151.10	-9.97	0%	148.91	+1.88	3.13	75,547.8	626.2	0.0	76,174.0	85,931.2	97.0	0.0	96.02	85,931.2	1,555,841.8	0.0	1,555,841.8	418.45			
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.45	1,555,841.8	1,430.0	0.45	15.84	-2.95	159.30	-9.97	0%	79.40	+1.40	3.13	87,861.1	814.4	0.0	88,675.5	91,834.1	97.0	0.0	81,917.2	91,834.1	1,503,626.8	11,207.3	1,514,834.1	418.50			
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.42	-2.95	97.90	-6.42	0%	47.90	+1.86	3.13	39,743.3	339.8	0.0	40,083.1	35,813.3	93.0	0.0	50.1	35,813.3	1,587,920.3	8,259.8	1,596,170.1	418.50			
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.05	-2.95	36.60	+6.42	32%	37.20	+12.31	3.13	28,454.4	230.7	0.0	28,685.1	26,873.3	97.0	0.0	180.5	27,107.4	1,543.9	1,591,176.4	1,543.9	1,591,632.0	418.50		
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-3.40	-2.95	20.80	+6.42	93%	0.00	0	3.13	18,884.4	140.0	0.0	18,954.4	0.0	93%	1,767.1	317.4	2,118.4	14,799.0	1,606,429.6	14,799.0	1,591,632.0	418.50		
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.96	-1.00	19.00	+7.30	96%	0.00	0	3.13	18,884.4	140.0	0.0	18,954.4	0.0	97%	1,879.3	289.1	2,168.4	13,631.4	1,604,458.0	12,874.0	1,591,632.0	418.50		
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-15.20	-3.00	82.60	+7.30	96%	0.00	0	3.13	55,604.4	462.4	0.0	56,066.8	0.0	97%	1,879.8	1,079.3	3,059.1	53,015.9	1,644,648.5	53,015.9	1,591,632.0	418.50		
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.38	-3.00	34.50	+7.30	96%	0.00	0	3.13	18,670.5	163.6	0.0	18,834.1	0.0	97%	1,862.0	360.5	2,160.1	17,672.0	1,603,398.6	17,672.0	1,591,632.0	418.50		
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.92	-2.95	46.80	+6.42	97%	0.00	0	3.13	34,153.5	294.0	0.0	34,447.4	0.0	97%	1,866.3	663.3	2,548.6	31,798.8	1,631,423.4	31,798.8	1,591,632.0	418.50		
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.27	+2.95	38.90	+6.42	22%	0.00	+11.81	3.13	28,031.5	231.1	0.0	28,262.6	7,304.1	93.0	0.0	123.8	7,421.8	1,612,375.3	20,747.7	1,591,632.0	418.50			
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	-2.95	46.90	+6.42	0%	120.00	+11.84	3.13	31,426.5	281.9	0.0	31,708.4	81,926.0	97.0	0.0	82,028.0	82,028.0	1,541,364.0	0.0	1,541,364.0	418.43			
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.43	1,541,364.0	1,430.0	0.45	16.46	-2.95	96.30	-9.97	0%	102.40	+1.32	3.13	38,970.3	490.4	0.0	39,460.7	86,713.2	93.0	0.0	86,707.1	86,707.1	1,534,771.5	0.0	1,534,771.5	418.42			
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.42	1,534,771.5	1,430.0	0.45	21.71	-2.95	89.30	-9.97	0%	137.88	+6.18	3.13	42,568.8	351.8	0.0	42,920.6	88,118.1	97.0	0.0	88,275.1	88,275.1	1,488,122.7	0.0	1,488,122.7	418.36			
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.36	1,488,122.7	1,430.0	0.45	16.52	-2.95	141.10	-9.97	0%	89.70	+1.40	3.13	46,924.8	718.7	0.0	47,643.5	93,848.0	97.0	0.0	93,851.0	93,848.0	1,433,981.0	0.0	1,433,981.0	418.40			
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.40	1,433,981.0	1,430.0	0.45	10.56	-2.95	67.90	-6.42	0%	47.90	+1.86	3.13	40,970.0	362.3	0.0	41,332.3	33,017.1	93.0	0.0	33,017.1	33,017.1	1,539,622.3	0.0	1,539,622.3	418.42			
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.42	1,539,622.3	1,430.0	0.45	6.21	-2.95	48.80	+6.42	0%	40.30	+12.31	3.13	34,163.3	284.0	0.0	34,447.3	28,792.9	97.0	0.0	36.4	28,829.3	1,514,136.3	0.0	1,514,136.3	418.42			
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.42	1,534,193.3	1,430.0	0.45	2.13	-2.95	23.60	+6.42	79%	0.00	0	3.13	18,674.4	164.4	0.0	18,838.8	0.0	97%	1,821.8	0.0	93.0	0.0	254.8	1,532.4	1,532,665.9	0.0	1,532,665.9	418.45
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.45	1,532,665.9	1,430.0	0.45	-14.52	-3.00	31.40	+7.30	96%	0.00	0	3.13	23,926.8	199.1	0.0	24,125.9	-3.00	97%	1,964.8	436.2	2,297.7	21,861.0	1,534,907.8	0.0	1,534,907.8	418.48		
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.48	1,534,907.8	1,430.0	0.45	-18.13	-3.00	44.20	+7.30	99%	0.00	0	3.13	31,863.3	264.9	0.0	32,128.2	0.0	97%	1,932.2	635.5	2,644.4	28,496.4	1,533,764.2	12,131.7	1,545,895.9	1,545,895.9	1,545,895.9	418.50
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-10.89	-1.00	30.30	+7.30	96%	0.00	0	3.13	23,293.3	193.4	0.0	23,486.7	0.0	97%	1,723.8	484.3	2,208.6	21,762.7	1,531,944.7	21,762.7	1,553,707.4	1,553,707.4	1,553,707.4	418.50
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.49	-2.95	53.90	+6.42	76%	0.00	0	3.13	37,530.0	310.3	0.0	37,840.3	0.0	97%	1,844.0	517.7	2,121.7	35,467.6	1,537,100.1	35,467.6	1,591,632.0	418.50		
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.90	-2.95	63.90	+6.42	0%	0.00	+11.81	3.13	43,467.7	361.7	0.0	43,829.4	7,354.1	93.0	0.0	7,398.0	36,431.4	1,624,926.0	36,431.4	1,591,632.0	418.50			
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.60	-2.95	12.60	+6.42	0%	135.76	+11.84	3.13	1,188.6	98.9	0.0	1,189.7	9,269.9	97.0	0.0	91,396.9	9,269.9	1,512,221.3	0.0	1,512,221.3	418.40			
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.40	1,512,221.3	1,430.0	0.45	18.12	-2.95	133.70	-9.97	0%	118.89	+1.32	3.13	42,144.8	662.8	0.0	42,807.6	76,212.7	93.0	0.0	76,306.6	76,306.6	1,436,702.2	0.0	1,436,702.2	418.40			
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.40	1,512,221.3	1,430.0	0.45	19.17	-2.95	63.70	-9.97	0%	141.64	+1.88	3.13	38,824.9	322.7	0.0	39,146.6	91,434.9	97.0	0.0	91,531.9	91,434.9	1,406,297.9	0.0	1,406,297.9	418.33			
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.33	1,406,297.9	1,430.0	0.45	18.62	-2.95	67.00	-9.97	0%	122.40	+1.40	3.13	40,960.0	362.2	0.0	41,322.2	79,969.1	97.0	0.0	79,969.1	79,969.1	1,424,467.0	0.0	1,424,467.0	418.28			
325	2431	1976	2071-2100	September	30	418.5	1,591,632.0	418.28	1,424,467.0	1,430.0	0.45	13.02	-2.95	39.50	+6.42																				

Model Inputs	
First Year of Simulation	2022
Source of Climate Record	Actual
Climate Change Scenario	CP3.0
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,901,820.6
Area of Open Water Within TSP (m²)	610,665.6
Rainfall Coefficient for Open Water Within TSP	14.033
Area of Restored Lands Within TSP (m²)	14,033.8
Rainfall Coefficient for Restored Lands Within TSP	0.5
Evaporation from TSP (mm)	31.30
Supplementary Water Addition (m³/d)	0
Trigger Elevation for Supplementary Water Addition (mASL)	416.10
Subduction Losses in Winter (mm/day)	0%
Wind Drift Losses in Winter (mm/day)	0%

NOTES: 1) The climate projection was derived from the projection of the TSP basin from the open water. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes in Puff Size".

Table 17b: Multi-Year Wet Cover Model (2022-2432): 31.3 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Count	Pre-Start Year	Start Year	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Restored Operations Area (m²)	Restored Rainfall Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	Supplementary Water Addition (m³/d)	Total Inflow (mm)	Pool Evaporation (mm)	Average	Subduction (mm)	Wind Drift (mm)	Total Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)		
1	2022	1989	2011-2040	January	31	416.5	1,901,820.6	416.3	1,509,861.0	61,959.2	1.00	14.033	0.45	-18.01	-2.30	96.80	+7.23	100%	0.00	0	31.30	34,518.8	531.1	0.0	48,869.0	0.0	970.3	1,903.0	1,297.7	4,221.0	90,659.0	1,605,654.4	9,029.0	1,901,820.6	416.0
2	2022	1989	2011-2040	February	28	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	-12.78	-2.30	14.70	+2.20	100%	0.00	0	31.30	13,537.3	112.8	0.0	13,860.1	0.0	876.4	1,764.0	273.8	2,914.0	10,766.1	1,604,766.4	10,766.1	1,901,820.6	416.0
3	2022	1989	2011-2040	March	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	-7.89	-2.30	16.10	+2.20	100%	0.00	0	31.30	17,940.0	64.8	0.0	17,888.0	0.0	970.3	1,903.0	1,927.0	3,085.0	4,778.3	1,598,410.9	4,778.3	1,901,820.6	416.0
4	2022	1989	2011-2040	April	30	416.5	1,901,820.6	416.0	1,503,734.4	61,959.2	1.00	14.033	0.45	-3.44	-2.30	19.40	+2.20	0%	0.00	-8.84	-31.30	17,940.0	112.7	0.0	17,888.0	3,468.0	999.0	0.0	0.0	6,488.0	2,907.0	1,604,862.2	7,290.0	1,901,820.6	416.0
5	2022	1989	2011-2040	May	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	9.93	-2.30	20.90	+2.20	0%	0.00	-8.84	-31.30	87,293.9	953.9	0.0	87,264.4	4,294.4	993.0	0.0	0.0	5,173.7	81,788.9	1,604,766.4	83,116.6	1,901,820.6	416.0
6	2022	1989	2011-2040	June	30	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	11.08	-2.30	20.90	+2.20	0%	0.00	-2.51	-31.30	47,304.2	364.0	0.0	47,774.4	1,051.9	993.0	0.0	0.0	2,484.1	45,292.3	1,604,766.4	45,292.3	1,901,820.6	416.0
7	2022	1989	2011-2040	July	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	17.43	-2.30	18.50	-6.20	0%	10.40	-42.1	31.30	68,463.3	577.7	0.0	70,343.0	1,452.1	993.0	0.0	0.0	6,842.4	1,460.0	1,602,773.1	1,460.0	1,901,820.6	416.0
8	2022	1989	2011-2040	August	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	18.00	-2.30	18.50	-6.20	0%	90.00	-14.0	31.30	94,656.0	785.5	0.0	95,481.0	1,229.9	993.0	0.0	0.0	16,197.0	37,048.0	1,602,773.1	37,048.0	1,901,820.6	416.0
9	2022	1989	2011-2040	September	30	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	17.68	-2.30	18.50	-6.20	0%	40.00	-14.0	31.30	105,156.0	431.8	0.0	105,950.0	919.9	993.0	0.0	0.0	80,597.0	35,488.0	1,602,773.1	35,488.0	1,901,820.6	416.0
10	2022	1989	2011-2040	October	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	21.7	-2.30	18.50	-2.20	0%	19.43	+1.60	31.30	104,656.0	395.0	0.0	105,451.0	854.8	993.0	0.0	0.0	14,810.0	31,465.1	1,602,773.1	31,465.1	1,901,820.6	416.0
11	2022	1989	2011-2040	November	30	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	3.87	-2.30	20.40	+2.20	89%	0.00	0	31.30	22,715.0	188.8	0.0	22,803.0	0.0	990.0	1,860.0	3,058.0	18,843.0	1,601,496.9	18,843.0	1,901,820.6	416.0	
12	2022	1989	2011-2040	December	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	-10.72	-2.30	26.40	+7.23	100%	0.00	0	31.30	20,371.7	213.3	0.0	20,501.0	0.0	970.3	1,903.0	518.0	3,455.0	23,128.0	1,614,766.4	23,128.0	1,901,820.6	416.0
13	2023	1970	2011-2040	January	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	-16.40	-2.30	38.40	+7.23	100%	0.00	0	31.30	20,371.7	213.3	0.0	20,501.0	0.0	970.3	1,903.0	518.0	3,455.0	23,128.0	1,614,766.4	23,128.0	1,901,820.6	416.0
14	2023	1970	2011-2040	February	28	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	-11.30	-2.30	29.20	+7.23	100%	0.00	0	31.30	20,093.9	168.8	0.0	20,291.1	0.0	876.4	1,764.0	404.0	3,454.0	22,887.9	1,604,766.4	22,887.9	1,901,820.6	416.0
15	2023	1970	2011-2040	March	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	-4.78	-2.30	38.40	+7.23	91%	0.00	0	31.30	20,272.8	191.9	0.0	20,345.0	0.0	970.3	1,903.0	453.0	3,380.0	20,093.9	1,617,174.0	20,093.9	1,901,820.6	416.0
16	2023	1970	2011-2040	April	30	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	0.31	-2.30	38.40	+2.20	33%	0.00	-8.84	-31.30	36,446.0	264.7	0.0	37,788.8	1,466.6	990.0	0.0	246.6	2,086.6	1,602,773.1	2,086.6	1,901,820.6	416.0	
17	2023	1970	2011-2040	May	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	7.42	-2.30	38.40	+2.20	0%	70.00	-42.0	31.30	58,084.0	473.2	0.0	57,816.0	1,452.0	993.0	0.0	0.0	48,494.1	8,875.0	1,602,520.1	8,875.0	1,901,820.6	416.0
18	2023	1970	2011-2040	June	30	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	17.68	-2.30	38.40	+2.20	0%	120.00	-14.0	31.30	86,174.0	410.0	0.0	87,074.0	1,618.5	993.0	0.0	0.0	80,597.0	1,602,773.1	80,597.0	1,901,820.6	416.0	
19	2023	1970	2011-2040	July	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	20.83	-2.30	38.40	+2.20	0%	120.00	-14.0	31.30	103,905.0	275.2	0.0	103,386.0	870.0	993.0	0.0	0.0	81,690.3	48,336.0	1,602,520.1	48,336.0	1,901,820.6	416.0
20	2023	1970	2011-2040	August	31	416.5	1,901,820.6	416.1	1,519,751.8	61,959.2	1.00	14.033	0.45	16.88	-2.30	32.20	-6.20	0%	104.00	+1.60	31.30	108,446.0	286.6	0.0	109,608.0	1,671.0	993.0	0.0	0.0	86,671.0	39,380.0	1,601,770.0	39,380.0	1,901,820.6	416.0
21	2023	1970	2011-2040	September	30	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	18.80	-2.30	38.40	+2.20	0%	48.89	+4.60	31.30	140,296.0	703.3	0.0	140,658.0	2,244.3	993.0	0.0	0.0	133,693.0	51,942.0	1,602,520.1	51,942.0	1,901,820.6	416.0
22	2023	1970	2011-2040	October	31	416.5	1,901,820.6	416.2	1,533,714.4	61,959.2	1.00	14.033	0.45	5.85	-2.30	38.40	+2.20	0%	-1.58	-31.30	37,671.0	625.0	0.0	38,242.0	2,578.0	993.0	0.0	0.0	31,715.0	17,191.0	1,601,872.0	17,191.0	1,901,820.6	416.0	
23	2023	1970	2011-2040	November	30	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	-4.78	-2.30	38.40	+2.20	0%	-1.58	-31.30	24,826.0	411.0	0.0	25,237.0	1,962.0	993.0	0.0	0.0	23,864.0	1,602,773.1	23,864.0	1,901,820.6	416.0		
24	2023	1970	2011-2040	December	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	-16.40	-2.30	43.90	+7.23	97%	0.00	0	31.30	31,625.0	263.0	0.0	31,852.0	0.0	970.3	1,902.0	618.0	3,461.0	28,413.0	1,602,520.1	28,413.0	1,901,820.6	416.0
25	2024	1971	2011-2040	January	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	-21.40	-2.30	35.00	+7.23	100%	0.00	0	31.30	14,062.0	116.9	0.0	14,191.0	0.0	970.3	1,902.0	283.0	3,268.0	10,972.0	1,602,608.8	10,972.0	1,901,820.6	416.0
26	2024	1971	2011-2040	February	28	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	-13.37	-2.30	27.80	+7.23	97%	0.00	0	31.30	21,095.0	180.2	0.0	21,007.0	0.0	876.4	1,764.0	424.0	3,003.0	18,848.0	1,601,496.9	18,848.0	1,901,820.6	416.0
27	2024	1971	2011-2040	March	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	7.49	-2.30	38.40	+2.20	97%	0.00	0	31.30	20,371.7	213.3	0.0	20,583.0	0.0	970.3	1,902.0	3,058.0	22,641.0	1,602,520.1	22,641.0	1,901,820.6	416.0	
28	2024	1971	2011-2040	April	30	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	2.40	-2.30	38.40	+2.20	97%	0.00	-8.84	-31.30	22,876.0	187.7	0.0	23,063.0	1,466.6	990.0	0.0	256.6	6,684.0	15,797.0	1,602,520.1	15,797.0	1,901,820.6	416.0
29	2024	1971	2011-2040	May	31	416.5	1,901,820.6	416.0	1,501,820.6	61,959.2	1.00	14.033	0.45	8.88	-2.30	38.40	+2.20	11%	0.00	-8.84	-31.30	37,943.3	313.3	0.0	38,236.0	4,294.4	993.0	0.0	60.0	5,264.0	32,960.0	1,604,015.0	32,960.0	1,901,820.6	416.0
30	2024	1971	2011-2040	June	30	416.5	1,901,820.6	416.0	1,501,820.6																										

Table 17b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 6.1 mm/d sublimation, 2% snow drift loss, 0.60 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert (Elevation)	Capacity (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water	Runoff	Runoff Coeff	Runoff Volume (m³)	Runoff Change (m³)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month WSEL (m)					
199	2021	1988	2021-2020	January	31	418.5	1,591,632.0	418.29	1,429,891.0	0.00	0.00	0.00	0.00	19.20	-2.20	-2.20	-8.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.31
199	2021	1988	2021-2020	February	29	418.5	1,591,632.0	418.31	1,429,891.0	0.00	0.00	0.00	0.00	18.20	-2.00	-2.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.33
199	2021	1988	2021-2020	March	31	418.5	1,591,632.0	418.33	1,429,891.0	0.00	0.00	0.00	0.00	17.20	-1.80	-1.80	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.35
199	2021	1988	2021-2020	April	30	418.5	1,591,632.0	418.35	1,429,891.0	0.00	0.00	0.00	0.00	16.20	-1.60	-1.60	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.37
199	2021	1988	2021-2020	May	31	418.5	1,591,632.0	418.37	1,429,891.0	0.00	0.00	0.00	0.00	15.20	-1.40	-1.40	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.39
199	2021	1988	2021-2020	June	30	418.5	1,591,632.0	418.39	1,429,891.0	0.00	0.00	0.00	0.00	14.20	-1.20	-1.20	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.41
199	2021	1988	2021-2020	July	31	418.5	1,591,632.0	418.41	1,429,891.0	0.00	0.00	0.00	0.00	13.20	-1.00	-1.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.43
199	2021	1988	2021-2020	August	31	418.5	1,591,632.0	418.43	1,429,891.0	0.00	0.00	0.00	0.00	12.20	-0.80	-0.80	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.45
199	2021	1988	2021-2020	September	30	418.5	1,591,632.0	418.45	1,429,891.0	0.00	0.00	0.00	0.00	11.20	-0.60	-0.60	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.47
199	2021	1988	2021-2020	October	31	418.5	1,591,632.0	418.47	1,429,891.0	0.00	0.00	0.00	0.00	10.20	-0.40	-0.40	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.49
199	2021	1988	2021-2020	November	30	418.5	1,591,632.0	418.49	1,429,891.0	0.00	0.00	0.00	0.00	9.20	-0.20	-0.20	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.51
199	2021	1988	2021-2020	December	31	418.5	1,591,632.0	418.51	1,429,891.0	0.00	0.00	0.00	0.00	8.20	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.53	
200	2022	1989	2021-2020	January	31	418.5	1,591,632.0	418.53	1,429,891.0	0.00	0.00	0.00	0.00	7.20	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.55	
200	2022	1989	2021-2020	February	29	418.5	1,591,632.0	418.55	1,429,891.0	0.00	0.00	0.00	0.00	6.20	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.57	
200	2022	1989	2021-2020	March	31	418.5	1,591,632.0	418.57	1,429,891.0	0.00	0.00	0.00	0.00	5.20	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.59	
200	2022	1989	2021-2020	April	30	418.5	1,591,632.0	418.59	1,429,891.0	0.00	0.00	0.00	0.00	4.20	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.61	
200	2022	1989	2021-2020	May	31	418.5	1,591,632.0	418.61	1,429,891.0	0.00	0.00	0.00	0.00	3.20	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.63	
200	2022	1989	2021-2020	June	30	418.5	1,591,632.0	418.63	1,429,891.0	0.00	0.00	0.00	0.00	2.20	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.65	
200	2022	1989	2021-2020	July	31	418.5	1,591,632.0	418.65	1,429,891.0	0.00	0.00	0.00	0.00	1.20	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.67	
200	2022	1989	2021-2020	August	31	418.5	1,591,632.0	418.67	1,429,891.0	0.00	0.00	0.00	0.00	0.20	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.69	
200	2022	1989	2021-2020	September	30	418.5	1,591,632.0	418.69	1,429,891.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.71	
200	2022	1989	2021-2020	October	31	418.5	1,591,632.0	418.71	1,429,891.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.73	
200	2022	1989	2021-2020	November	30	418.5	1,591,632.0	418.73	1,429,891.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.75	
200	2022	1989	2021-2020	December	31	418.5	1,591,632.0	418.75	1,429,891.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.77	
201	2023	1990	2021-2020	January	31	418.5	1,591,632.0	418.77	1,429,891.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.79	
201	2023	1990	2021-2020	February	29	418.5	1,591,632.0	418.79	1,429,891.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.81	
201	2023	1990	2021-2020	March	31	418.5	1,591,632.0	418.81	1,429,891.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.83	
201	2023	1990	2021-2020	April	30	418.5	1,591,632.0	418.83	1,429,891.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.85	
201	2023	1990	2021-2020	May	31	418.5	1,591,632.0	418.85	1,429,891.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	16,650.00	970.3	1,666.24	404.1	3,064.5	14,585.8	1,429,891.0	0.0	1,429,891.0	418.87	
201	2023	1990	2021-2020	June	30	418.5	1,591,632.0	418.87	1,429,891.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-8.00	10.00	0.00	0.00	0.00	0.00	16,650.00										

Table 17b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 6.1 mm/d sublimation, 2% snow drift loss, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Day	Forecast Horizon	Season	Forecast Month	Forecast Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Runoff Coefficient	Runoff Volume (mm)	Runoff Coefficient	Runoff Volume (mm)	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)			
205	2017	2006	2017-2010	October	31	4185	1591.622	4183	1461.714	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	249.0	0.0	30.181	22.914	97.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
206	2017	2006	2017-2010	November	30	4185	1591.622	4183	1468.720	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	258.0	0.0	31.30	20.891	258.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
207	2017	2006	2017-2010	December	31	4185	1591.622	4183	1474.000	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	268.0	0.0	31.30	20.891	268.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
208	2018	2006	2017-2010	January	31	4185	1591.622	4183	1510.200	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	105.0	0.0	31.30	20.891	105.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
209	2018	2006	2017-2010	February	29	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
210	2018	2006	2017-2010	March	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
211	2018	2006	2017-2010	April	30	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
212	2018	2006	2017-2010	May	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
213	2018	2006	2017-2010	June	30	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
214	2018	2006	2017-2010	July	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
215	2018	2006	2017-2010	August	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
216	2018	2006	2017-2010	September	30	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
217	2018	2006	2017-2010	October	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
218	2018	2006	2017-2010	November	30	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
219	2018	2006	2017-2010	December	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
220	2019	2006	2017-2010	January	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
221	2019	2006	2017-2010	February	29	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
222	2019	2006	2017-2010	March	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
223	2019	2006	2017-2010	April	30	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
224	2019	2006	2017-2010	May	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
225	2019	2006	2017-2010	June	30	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
226	2019	2006	2017-2010	July	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
227	2019	2006	2017-2010	August	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
228	2019	2006	2017-2010	September	30	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
229	2019	2006	2017-2010	October	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
230	2019	2006	2017-2010	November	30	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
231	2019	2006	2017-2010	December	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
232	2020	2006	2017-2010	January	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
233	2020	2006	2017-2010	February	29	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0	31.30	20.891	73.0	0.0	104	21.162	7.059	1.469.725	0.0	1.469.725	4183	1.469.725
234	2020	2006	2017-2010	March	31	4185	1591.622	4183	1453.760	4189.922	1.00	11.4303	0.415	4.79	-2.90	-4.42	22%	29.47	-4.25	31.30	20.891	73.0	0.0</												

Table 17b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0.1 m/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Forecast Horizon	Scenario	Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Runoff Volume (m³)	Runoff Depth (mm)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)		
208	2140	1979	2071-2100	January	31	4185	1591.622	4183	1540.663	0.165922	100	11.5308	0.41	-0.22	-3.00	8.00	+7.30	100%	0.00	0	31.30	1935.53	818	0.0	0.0	0.0	1540.701	4184	1540.701	4184
208	2140	1979	2071-2100	February	29	4185	1591.622	4184	1547.207	0.165922	100	11.5308	0.41	-0.175	-3.00	7.00	+7.30	100%	0.00	0	31.30	1935.53	1465	0.0	0.0	0.0	1547.207	4184	1547.207	4184
208	2140	1979	2071-2100	March	31	4185	1591.622	4185	1553.751	0.165922	100	11.5308	0.41	-0.13	-3.00	6.00	+7.30	100%	0.00	0	31.30	1935.53	2020	0.0	0.0	0.0	1553.751	4184	1553.751	4184
208	2140	1979	2071-2100	April	30	4185	1591.622	4185	1560.300	0.165922	100	11.5308	0.41	-0.08	-3.00	5.00	+7.30	100%	0.00	0	31.30	1935.53	2575	0.0	0.0	0.0	1560.300	4184	1560.300	4184
208	2140	1979	2071-2100	May	31	4185	1591.622	4185	1566.849	0.165922	100	11.5308	0.41	-0.03	-3.00	4.00	+7.30	100%	0.00	0	31.30	1935.53	3130	0.0	0.0	0.0	1566.849	4184	1566.849	4184
208	2140	1979	2071-2100	June	30	4185	1591.622	4185	1573.398	0.165922	100	11.5308	0.41	0.02	-3.00	3.00	+7.30	100%	0.00	0	31.30	1935.53	3685	0.0	0.0	0.0	1573.398	4184	1573.398	4184
208	2140	1979	2071-2100	July	31	4185	1591.622	4185	1579.947	0.165922	100	11.5308	0.41	0.07	-3.00	2.00	+7.30	100%	0.00	0	31.30	1935.53	4240	0.0	0.0	0.0	1579.947	4184	1579.947	4184
208	2140	1979	2071-2100	August	31	4185	1591.622	4185	1586.496	0.165922	100	11.5308	0.41	0.12	-3.00	1.00	+7.30	100%	0.00	0	31.30	1935.53	4795	0.0	0.0	0.0	1586.496	4184	1586.496	4184
208	2140	1979	2071-2100	September	30	4185	1591.622	4185	1593.045	0.165922	100	11.5308	0.41	0.17	-3.00	0.00	+7.30	100%	0.00	0	31.30	1935.53	5350	0.0	0.0	0.0	1593.045	4184	1593.045	4184
208	2140	1979	2071-2100	October	31	4185	1591.622	4185	1599.594	0.165922	100	11.5308	0.41	0.22	-3.00	-1.00	+7.30	100%	0.00	0	31.30	1935.53	5905	0.0	0.0	0.0	1599.594	4184	1599.594	4184
208	2140	1979	2071-2100	November	30	4185	1591.622	4185	1606.143	0.165922	100	11.5308	0.41	0.27	-3.00	-2.00	+7.30	100%	0.00	0	31.30	1935.53	6460	0.0	0.0	0.0	1606.143	4184	1606.143	4184
208	2140	1979	2071-2100	December	31	4185	1591.622	4185	1612.692	0.165922	100	11.5308	0.41	0.32	-3.00	-3.00	+7.30	100%	0.00	0	31.30	1935.53	7015	0.0	0.0	0.0	1612.692	4184	1612.692	4184
208	2140	1980	2071-2100	January	31	4185	1591.622	4186	1619.241	0.165922	100	11.5308	0.41	0.37	-3.00	-4.00	+7.30	100%	0.00	0	31.30	1935.53	7570	0.0	0.0	0.0	1619.241	4184	1619.241	4184
208	2140	1980	2071-2100	February	29	4185	1591.622	4186	1625.790	0.165922	100	11.5308	0.41	0.42	-3.00	-5.00	+7.30	100%	0.00	0	31.30	1935.53	8125	0.0	0.0	0.0	1625.790	4184	1625.790	4184
208	2140	1980	2071-2100	March	31	4185	1591.622	4186	1632.339	0.165922	100	11.5308	0.41	0.47	-3.00	-6.00	+7.30	100%	0.00	0	31.30	1935.53	8680	0.0	0.0	0.0	1632.339	4184	1632.339	4184
208	2140	1980	2071-2100	April	30	4185	1591.622	4186	1638.888	0.165922	100	11.5308	0.41	0.52	-3.00	-7.00	+7.30	100%	0.00	0	31.30	1935.53	9235	0.0	0.0	0.0	1638.888	4184	1638.888	4184
208	2140	1980	2071-2100	May	31	4185	1591.622	4186	1645.437	0.165922	100	11.5308	0.41	0.57	-3.00	-8.00	+7.30	100%	0.00	0	31.30	1935.53	9790	0.0	0.0	0.0	1645.437	4184	1645.437	4184
208	2140	1980	2071-2100	June	30	4185	1591.622	4186	1651.986	0.165922	100	11.5308	0.41	0.62	-3.00	-9.00	+7.30	100%	0.00	0	31.30	1935.53	10345	0.0	0.0	0.0	1651.986	4184	1651.986	4184
208	2140	1980	2071-2100	July	31	4185	1591.622	4186	1658.535	0.165922	100	11.5308	0.41	0.67	-3.00	-10.00	+7.30	100%	0.00	0	31.30	1935.53	10900	0.0	0.0	0.0	1658.535	4184	1658.535	4184
208	2140	1980	2071-2100	August	31	4185	1591.622	4186	1665.084	0.165922	100	11.5308	0.41	0.72	-3.00	-11.00	+7.30	100%	0.00	0	31.30	1935.53	11455	0.0	0.0	0.0	1665.084	4184	1665.084	4184
208	2140	1980	2071-2100	September	30	4185	1591.622	4186	1671.633	0.165922	100	11.5308	0.41	0.77	-3.00	-12.00	+7.30	100%	0.00	0	31.30	1935.53	12010	0.0	0.0	0.0	1671.633	4184	1671.633	4184
208	2140	1980	2071-2100	October	31	4185	1591.622	4186	1678.182	0.165922	100	11.5308	0.41	0.82	-3.00	-13.00	+7.30	100%	0.00	0	31.30	1935.53	12565	0.0	0.0	0.0	1678.182	4184	1678.182	4184
208	2140	1980	2071-2100	November	30	4185	1591.622	4186	1684.731	0.165922	100	11.5308	0.41	0.87	-3.00	-14.00	+7.30	100%	0.00	0	31.30	1935.53	13120	0.0	0.0	0.0	1684.731	4184	1684.731	4184
208	2140	1980	2071-2100	December	31	4185	1591.622	4186	1691.280	0.165922	100	11.5308	0.41	0.92	-3.00	-15.00	+7.30	100%	0.00	0	31.30	1935.53	13675	0.0	0.0	0.0	1691.280	4184	1691.280	4184
208	2140	1981	2071-2100	January	31	4185	1591.622	4187	1697.829	0.165922	100	11.5308	0.41	0.97	-3.00	-16.00	+7.30	100%	0.00	0	31.30	1935.53	14230	0.0	0.0	0.0	1697.829	4184	1697.829	4184
208	2140	1981	2071-2100	February	29	4185	1591.622	4187	1704.378	0.165922	100	11.5308	0.41	1.02	-3.00	-17.00	+7.30	100%	0.00	0	31.30	1935.53	14785	0.0	0.0	0.0	1704.378	4184	1704.378	4184
208	2140	1981	2071-2100	March	31	4185	1591.622	4187	1710.927	0.165922	100	11.5308	0.41	1.07	-3.00	-18.00	+7.30	100%	0.00	0	31.30	1935.53	15340	0.0	0.0	0.0	1710.927	4184	1710.927	4184
208	2140	1981	2071-2100	April	30	4185	1591.622	4187	1717.476	0.165922	100	11.5308	0.41	1.12	-3.00	-19.00	+7.30	100%	0.00	0	31.30	1935.53	15895	0.0	0.0	0.0	1717.476	4184	1717.476	4184
208	2140	1981	2071-2100	May	31	4185	1591.622	4187	1724.025	0.165922	100	11.5308	0.41	1.17	-3.00	-20.00	+7.30	100%	0.00	0	31.30	1935.53	16450	0.0	0.0	0.0	1724.025	4184	1724.025	4184
208	2140	1981	2071-2100	June	30	4185	1591.622	4187	1730.574	0.165922	100	11.5308	0.41	1.22	-3.00	-21.00	+7.30	100%	0.00	0	31.30	1935.53	17005	0.0	0.0	0.0	1730.574	4184	1730.574	4184
208	2140	1981	2071-2100	July	31	4185	1591.622	4187	1737.123	0.165922	100	11.5308	0.41	1.27	-3.00	-22.00	+7.30	100%	0.00	0	31.30	1935.53	17560	0.0	0.0	0.0	1737.123	4184	1737.123	4184
208	2140	1981	2071-2100	August	31	4185	1591.622	4187	1743.672	0.165922	100	11.5308	0.41	1.32	-3.00	-23.00	+7.30	100%	0.00	0	31.30	1935.53	18115	0.0	0.0	0.0	1743.672	4184	1743.672	4184
208	2140	1981	2071-2100	September	30	4185	1591.622	4187	1750.221	0.165922	100	11.5308	0.41	1.37	-3.00	-24.00	+7.30	100%	0.00	0	31.30	1935.53	18670	0.0	0.0	0.0	1750.221	4184	1750.221	4184
208	2140	1981	2071-2100	October	31	4185	1591.622	4187	1756.770	0.165922	100	11.5308	0.41	1.42	-3.00	-25.00	+7.30	100%	0.00	0	31.30	1935.53	19225	0.0	0.0	0.0	1756.770	4184	1756.770	4184
208	2140	1981	2071-2100	November	30	4185	1591.622	4187	1763.319	0.165922	100	11.5308	0.41	1.47	-3.00	-26.00	+7.30	100%	0.00	0	31.30	1935.53	19780	0.0	0.0	0.0	1763.319	4184	1763.319	4184
208	2140	1981	2071-2100	December	31	4185	1591.622	4187	1769.868	0.165922	100	11.5308	0.41																	

Table 17b: Multi-year Wet Cover Model (2022-2432): 31.3 m/d seepage, 6.0 mm sublimation, 2% snow drift loss, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Day	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water	Runoff Coefficients	Natural Operations Area	Runoff Coefficients	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	
2022	12	29	2021-2020	January	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	19.40	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	211.76	1,610,692.0	231,768.0	418.0	1,591,632.0	
2022	12	30	2021-2020	January	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	17.30	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	212.99	1,609,874.0	172,919.0	418.0	1,591,632.0	
2022	12	31	2021-2020	January	31	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	16.40	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	214.22	1,609,056.0	124,070.0	418.0	1,591,632.0
2023	1	1	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	15.50	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	215.45	1,608,238.0	75,221.0	418.0	1,591,632.0
2023	1	2	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	14.60	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	216.68	1,607,420.0	30,372.0	418.0	1,591,632.0
2023	1	3	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	13.70	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	217.91	1,606,602.0	-14,577.0	418.0	1,591,632.0
2023	1	4	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	12.80	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	219.14	1,605,784.0	-29,728.0	418.0	1,591,632.0
2023	1	5	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	11.90	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	220.37	1,604,966.0	-34,879.0	418.0	1,591,632.0
2023	1	6	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	11.00	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	221.60	1,604,148.0	-40,030.0	418.0	1,591,632.0
2023	1	7	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	10.10	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	222.83	1,603,330.0	-45,181.0	418.0	1,591,632.0
2023	1	8	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	9.20	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	224.06	1,602,512.0	-50,332.0	418.0	1,591,632.0
2023	1	9	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	8.30	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	225.29	1,601,694.0	-55,483.0	418.0	1,591,632.0
2023	1	10	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	7.40	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	226.52	1,600,876.0	-60,634.0	418.0	1,591,632.0
2023	1	11	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	6.50	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	227.75	1,600,058.0	-65,785.0	418.0	1,591,632.0
2023	1	12	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	5.60	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	228.98	1,599,240.0	-70,936.0	418.0	1,591,632.0
2023	1	13	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	4.70	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	230.21	1,598,422.0	-76,087.0	418.0	1,591,632.0
2023	1	14	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	3.80	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	231.44	1,597,604.0	-81,238.0	418.0	1,591,632.0
2023	1	15	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	2.90	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	232.67	1,596,786.0	-86,389.0	418.0	1,591,632.0
2023	1	16	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	2.00	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	233.90	1,595,968.0	-91,540.0	418.0	1,591,632.0
2023	1	17	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	1.10	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	235.13	1,595,150.0	-96,691.0	418.0	1,591,632.0
2023	1	18	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	0.20	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	236.36	1,594,332.0	-101,842.0	418.0	1,591,632.0
2023	1	19	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-0.70	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	237.59	1,593,514.0	-106,993.0	418.0	1,591,632.0
2023	1	20	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-1.60	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	238.82	1,592,696.0	-112,144.0	418.0	1,591,632.0
2023	1	21	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-2.50	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	240.05	1,591,878.0	-117,295.0	418.0	1,591,632.0
2023	1	22	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-3.40	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	241.28	1,591,060.0	-122,446.0	418.0	1,591,632.0
2023	1	23	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-4.30	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	242.51	1,590,242.0	-127,597.0	418.0	1,591,632.0
2023	1	24	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-5.20	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	243.74	1,589,424.0	-132,748.0	418.0	1,591,632.0
2023	1	25	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-6.10	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	244.97	1,588,606.0	-137,899.0	418.0	1,591,632.0
2023	1	26	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-7.00	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	246.20	1,587,788.0	-143,050.0	418.0	1,591,632.0
2023	1	27	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-7.90	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	247.43	1,586,970.0	-148,201.0	418.0	1,591,632.0
2023	1	28	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-8.80	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	248.66	1,586,152.0	-153,352.0	418.0	1,591,632.0
2023	1	29	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-9.70	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	249.89	1,585,334.0	-158,503.0	418.0	1,591,632.0
2023	1	30	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-10.60	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	251.12	1,584,516.0	-163,654.0	418.0	1,591,632.0
2023	1	31	2021-2020	February	28	418.5	1,591,632.0	418.0	1,591,632.0	1.00	0.15	418.0	0.15	-11.50	-3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	252.35	1,583,698.0	-168,805.0	418.0	1,591,632.0
2023																														

Table 17b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 6.1 mm/d sublimation, 2% snow drift loss, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Scenario	Forecast Horizon	Month	Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m³)	Open Water	Runoff	Runoff Coefficients	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)						
206	2062	2006	2021-2100	July	31	418.5	1,591,622.0	418.7	1,598,891.0	0.16	11.53	0.43	19.7	-2.0	90.0	0.0	126.3	-1.0	31.30	205.24	246.6	0.0	30,759.0	81,194.2	43,873.3	1,513,018.0	0.0	1,513,018.0	418.4	1,513,018.0			
206	2062	2006	2021-2100	August	31	418.5	1,591,622.0	418.4	1,598,891.0	0.16	11.53	0.43	17.8	-2.0	90.0	0.0	100.0	-1.0	31.30	202.24	223.9	0.0	27,723.0	65,816.6	37,933.0	0.0	0.0	69,804.9	43,873.3	1,513,018.0	418.4	1,513,018.0	
206	2062	2006	2021-2100	September	30	418.5	1,591,622.0	418.3	1,598,891.0	0.16	11.53	0.43	15.9	-2.0	90.0	0.0	88.0	-1.0	31.30	198.24	204.9	0.0	24,696.0	61,918.1	37,222.1	0.0	0.0	66,743.0	43,873.3	1,513,018.0	418.4	1,513,018.0	
206	2062	2006	2021-2100	October	31	418.5	1,591,622.0	418.3	1,598,891.0	0.16	11.53	0.43	14.0	-2.0	90.0	0.0	76.0	-1.0	31.30	194.24	186.6	0.0	21,669.0	58,020.6	36,351.6	0.0	0.0	63,688.0	43,873.3	1,513,018.0	418.4	1,513,018.0	
206	2062	2006	2021-2100	November	30	418.5	1,591,622.0	418.3	1,598,891.0	0.16	11.53	0.43	12.1	-2.0	90.0	0.0	64.0	-1.0	31.30	190.24	168.3	0.0	18,642.0	54,123.1	35,481.1	0.0	0.0	60,639.0	43,873.3	1,513,018.0	418.4	1,513,018.0	
206	2062	2006	2021-2100	December	31	418.5	1,591,622.0	418.3	1,598,891.0	0.16	11.53	0.43	10.2	-2.0	90.0	0.0	52.0	-1.0	31.30	186.24	150.0	0.0	15,615.0	50,225.6	34,610.6	0.0	0.0	57,590.0	43,873.3	1,513,018.0	418.4	1,513,018.0	
207	2063	2006	2021-2100	January	31	418.5	1,591,622.0	418.3	1,598,891.0	0.16	11.53	0.43	8.3	-3.0	90.0	0.0	40.0	-1.0	31.30	182.24	131.7	0.0	12,588.0	46,328.1	33,740.1	0.0	0.0	54,541.0	43,873.3	1,513,018.0	418.4	1,513,018.0	
207	2063	2006	2021-2100	February	28	418.5	1,591,622.0	418.1	1,595,732.0	0.16	11.53	0.43	6.4	-3.0	90.0	0.0	28.0	-1.0	31.30	178.24	113.2	0.0	9,561.0	42,432.6	32,871.6	0.0	0.0	51,492.0	43,873.3	1,513,018.0	418.4	1,513,018.0	
207	2063	2006	2021-2100	March	31	418.5	1,591,622.0	418.0	1,592,643.0	0.16	11.53	0.43	4.5	-3.0	90.0	0.0	16.0	-1.0	31.30	174.24	94.7	0.0	6,534.0	38,537.1	32,002.1	0.0	0.0	48,443.0	43,873.3	1,513,018.0	418.4	1,513,018.0	
207	2063	2006	2021-2100	April	30	418.5	1,591,622.0	417.9	1,589,554.0	0.16	11.53	0.43	2.6	-3.0	90.0	0.0	4.0	-1.0	31.30	170.24	76.2	0.0	3,507.0	34,641.6	31,134.6	0.0	0.0	45,394.0	43,873.3	1,513,018.0	418.4	1,513,018.0	
207	2063	2006	2021-2100	May	31	418.5	1,591,622.0	417.8	1,586,465.0	0.16	11.53	0.43	0.7	-3.0	90.0	0.0	2.0	-1.0	31.30	166.24	57.7	0.0	0.5	30,746.1	30,269.6	30,269.6	0.0	0.0	42,348.0	43,873.3	1,513,018.0	418.4	1,513,018.0
207	2063	2006	2021-2100	June	30	418.5	1,591,622.0	417.7	1,583,376.0	0.16	11.53	0.43	-1.2	-3.0	90.0	0.0	0.0	-1.0	31.30	162.24	39.2	0.0	-2.5	26,849.6	26,377.1	26,377.1	0.0	0.0	39,300.0	43,873.3	1,513,018.0	418.4	1,513,018.0
207	2063	2006	2021-2100	July	31	418.5	1,591,622.0	417.6	1,580,287.0	0.16	11.53	0.43	-3.1	-3.0	90.0	0.0	-4.0	-1.0	31.30	158.24	20.7	0.0	-7.0	22,954.1	21,497.6	21,497.6	0.0	0.0	36,251.0	43,873.3	1,513,018.0	418.4	1,513,018.0
207	2063	2006	2021-2100	August	31	418.5	1,591,622.0	417.5	1,577,198.0	0.16	11.53	0.43	-5.0	-3.0	90.0	0.0	-8.0	-1.0	31.30	154.24	2.2	0.0	-10.0	19,058.6	17,501.1	17,501.1	0.0	0.0	33,202.0	43,873.3	1,513,018.0	418.4	1,513,018.0
207	2063	2006	2021-2100	September	30	418.5	1,591,622.0	417.4	1,574,109.0	0.16	11.53	0.43	-6.9	-3.0	90.0	0.0	-12.0	-1.0	31.30	150.24	-7.7	0.0	-12.0	15,160.1	13,502.6	13,502.6	0.0	0.0	30,153.0	43,873.3	1,513,018.0	418.4	1,513,018.0
207	2063	2006	2021-2100	October	31	418.5	1,591,622.0	417.3	1,571,020.0	0.16	11.53	0.43	-8.8	-3.0	90.0	0.0	-16.0	-1.0	31.30	146.24	-15.6	0.0	-12.0	11,260.6	9,603.1	9,603.1	0.0	0.0	27,104.0	43,873.3	1,513,018.0	418.4	1,513,018.0
207	2063	2006	2021-2100	November	30	418.5	1,591,622.0	417.2	1,567,931.0	0.16	11.53	0.43	-10.7	-3.0	90.0	0.0	-20.0	-1.0	31.30	142.24	-24.4	0.0	-12.0	7,360.1	5,703.6	5,703.6	0.0	0.0	24,055.0	43,873.3	1,513,018.0	418.4	1,513,018.0
207	2063	2006	2021-2100	December	31	418.5	1,591,622.0	417.1	1,564,842.0	0.16	11.53	0.43	-12.6	-3.0	90.0	0.0	-24.0	-1.0	31.30	138.24	-28.2	0.0	-12.0	3,460.6	1,805.1	1,805.1	0.0	0.0	21,006.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	January	31	418.5	1,591,622.0	417.0	1,561,753.0	0.16	11.53	0.43	-14.5	-3.0	90.0	0.0	-28.0	-1.0	31.30	134.24	-32.0	0.0	-12.0	-449.9	-289.4	-289.4	0.0	0.0	17,957.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	February	28	418.5	1,591,622.0	416.9	1,558,664.0	0.16	11.53	0.43	-16.4	-3.0	90.0	0.0	-32.0	-1.0	31.30	130.24	-35.8	0.0	-12.0	-849.4	-578.9	-578.9	0.0	0.0	14,908.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	March	31	418.5	1,591,622.0	416.8	1,555,575.0	0.16	11.53	0.43	-18.3	-3.0	90.0	0.0	-36.0	-1.0	31.30	126.24	-39.6	0.0	-12.0	-1,248.9	-868.4	-868.4	0.0	0.0	11,859.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	April	30	418.5	1,591,622.0	416.7	1,552,486.0	0.16	11.53	0.43	-20.2	-3.0	90.0	0.0	-40.0	-1.0	31.30	122.24	-43.4	0.0	-12.0	-1,648.4	-1,267.9	-1,267.9	0.0	0.0	8,810.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	May	31	418.5	1,591,622.0	416.6	1,549,397.0	0.16	11.53	0.43	-22.1	-3.0	90.0	0.0	-44.0	-1.0	31.30	118.24	-47.2	0.0	-12.0	-2,047.9	-1,667.4	-1,667.4	0.0	0.0	5,761.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	June	30	418.5	1,591,622.0	416.5	1,546,308.0	0.16	11.53	0.43	-24.0	-3.0	90.0	0.0	-48.0	-1.0	31.30	114.24	-50.0	0.0	-12.0	-2,447.4	-2,066.9	-2,066.9	0.0	0.0	2,712.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	July	31	418.5	1,591,622.0	416.4	1,543,219.0	0.16	11.53	0.43	-25.9	-3.0	90.0	0.0	-52.0	-1.0	31.30	110.24	-52.8	0.0	-12.0	-2,846.9	-2,466.4	-2,466.4	0.0	0.0	-1,303.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	August	31	418.5	1,591,622.0	416.3	1,540,130.0	0.16	11.53	0.43	-27.8	-3.0	90.0	0.0	-56.0	-1.0	31.30	106.24	-55.6	0.0	-12.0	-3,246.4	-2,865.9	-2,865.9	0.0	0.0	-2,702.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	September	30	418.5	1,591,622.0	416.2	1,537,041.0	0.16	11.53	0.43	-29.7	-3.0	90.0	0.0	-60.0	-1.0	31.30	102.24	-58.4	0.0	-12.0	-3,645.9	-3,265.4	-3,265.4	0.0	0.0	-3,101.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	October	31	418.5	1,591,622.0	416.1	1,533,952.0	0.16	11.53	0.43	-31.6	-3.0	90.0	0.0	-64.0	-1.0	31.30	98.24	-61.2	0.0	-12.0	-4,045.4	-3,664.9	-3,664.9	0.0	0.0	-3,500.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	November	30	418.5	1,591,622.0	416.0	1,530,863.0	0.16	11.53	0.43	-33.5	-3.0	90.0	0.0	-68.0	-1.0	31.30	94.24	-64.0	0.0	-12.0	-4,444.9	-4,064.4	-4,064.4	0.0	0.0	-3,900.0	43,873.3	1,513,018.0	418.4	1,513,018.0
208	2064	2007	2021-2100	December	31	418.5	1,591,622.0	415.9	1,527,774.0	0.16	11.53	0.43	-35.4	-3.0	90.0	0.0	-72.0	-1.0	31.30	90.24	-66.8	0.0	-12.0	-4,844.4	-4,463.9	-4,463.9	0.0	0.0	-3,800.0	43,873.3	1,513,018.0	418.4	1,513,018.0
209	2065	2008	2021-2100	January	31	418.5	1,591,622.0	415.8	1,524,685.0	0.16	11.53	0.43	-37.3	-3.0	90.0	0.0	-76.0	-1.0	31.30	86.24	-69.6	0.0	-12.0	-5,243.9	-4,863.4	-4,863.							

Table 17b: Multi-Year Wet Cover Model (2032-2432): 31.3 m³/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m ³ /d)	TSF Inflows (m ³)				TSF Outflows (m ³)				Net Inflow/Outflow (m ³)	End of Month Volume before Discharge (m ³)	Discharge Volume (m ³)	End of Month Volume after Discharge (m ³)	List of Month WSEL after Discharge (m)
										Area (m ²)	Runoff Coefficients	Area (m ²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Pond Evaporation	Average	Sublimation Losses	Wind Drift Losses					
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	-2.95	22.60	-6.42	21%	0.00	+11.81	31.30	48,973.7	455.5	0.0	49,353.7	7,354.1	939.0	0.0	204.5	8,447.6	40,836.1	1,632,488.7	40,836.1	1,591,632.0	418.50	
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	-2.95	100.50	+6.42	7%	82.15	+11.84	31.30	68,382.8	552.0	0.0	68,934.8	58,142.0	970.3	0.0	91.0	59,203.3	7,731.5	1,599,364.1	7,731.5	1,591,632.0	418.50	
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.88	-2.95	117.70	-9.97	0%	130.00	+1.32	31.30	72,216.6	603.0	0.0	72,819.6	68,052.4	939.0	0.0	0.0	69,997.8	16,761.7	1,574,848.8	0.0	1,574,848.8	418.48	
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.48	1,574,848.8	1,430.0	0.45	20.42	-2.95	151.10	-9.97	0%	148.91	+6.18	31.30	75,547.8	626.2	0.0	76,174.0	65,932.2	970.3	0.0	0.0	66,907.5	20,252.4	1,554,123.5	0.0	1,554,123.5	418.45	
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.45	1,554,123.5	1,430.0	0.45	18.84	-2.95	159.30	-9.97	0%	79.40	+8.40	31.30	87,845.1	814.4	0.0	88,659.5	81,834.1	970.3	0.0	0.0	82,804.4	48,930.1	1,466,073.6	8,441.0	1,591,632.0	418.50	
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.42	-2.95	97.90	-6.42	0%	47.90	+4.86	31.30	30,744.3	339.9	0.0	31,084.2	33,613.3	939.0	0.0	50.1	30,822.3	1,462.7	1,591,632.0	1,462.7	1,591,632.0	418.50	
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.65	-2.95	86.60	+6.42	32%	37.20	+8.25	31.30	28,454.4	230.7	0.0	28,685.1	28,873.3	970.3	0.0	180.0	29,053.0	0.0	1,592,303.1	670.0	1,591,632.0	418.50	
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-3.40	-2.95	20.80	+6.42	93%	0.00	0	31.30	16,834.4	140.0	0.0	16,974.4	0.0	939.0	1,767.1	3174.0	3,023.5	1,595.9	1,603,584.5	1,397.9	1,591,632.0	418.50	
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.94	-1.60	8.90	+7.30	98%	0.00	0	31.30	14,884.4	124.9	0.0	15,009.3	0.0	970.3	1,879.3	289.1	3,159.3	1,968.9	1,603,906.7	11,869.2	1,591,632.0	418.50	
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-15.20	-3.60	82.60	+7.30	96%	0.00	0	31.30	55,690.4	4624.0	0.0	56,017.8	0.0	970.3	1,879.8	1,079.3	3,329.2	52,142.6	1,643,775.2	52,142.6	1,591,632.0	418.50	
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.38	-3.60	24.50	+7.30	96%	0.00	0	31.30	19,670.5	163.6	0.0	19,834.1	0.0	876.4	1,892.0	360.5	2,248.0	16,886.2	1,608,517.8	16,886.2	1,591,632.0	418.50	
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-6.92	-2.95	48.60	+6.42	97%	0.00	0	31.30	34,193.5	294.0	0.0	34,474.4	0.0	970.3	1,066.3	666.3	3,531.0	30,917.5	1,622,560.1	30,917.5	1,591,632.0	418.50	
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.27	+2.95	38.90	+6.42	22%	0.00	+11.81	31.30	28,021.5	233.1	0.0	28,244.6	7,304.1	939.0	0.0	123.8	6,387.0	18,897.6	1,611,530.2	18,897.6	1,591,632.0	418.50	
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	-2.95	44.90	+6.42	0%	120.00	+11.84	31.30	31,426.5	281.9	0.0	31,707.4	30,926.0	970.3	0.0	0.0	32,899.3	21,141.9	1,549,490.7	0.0	1,549,490.7	418.43	
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,566,997.1	1,430.0	0.45	16.46	-2.95	96.30	-9.97	0%	102.40	+4.32	31.30	38,970.3	490.4	0.0	39,460.6	36,013.2	939.0	0.0	0.0	66,952.2	7,491.6	1,533,999.1	0.0	1,533,999.1	418.42	
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.42	1,532,999.1	1,430.0	0.45	21.71	-2.95	89.30	-9.97	0%	137.88	+6.18	31.30	42,568.8	351.8	0.0	42,920.6	40,118.1	970.3	0.0	0.0	60,588.4	47,468.0	1,485,531.1	0.0	1,485,531.1	418.36	
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.38	1,485,531.1	1,430.0	0.45	16.52	-2.95	141.10	-9.97	0%	89.70	+8.40	31.30	46,933.8	718.7	0.0	47,652.5	38,848.0	970.3	0.0	0.0	50,794.3	26,966.0	1,458,565.1	0.0	1,458,565.1	418.40	
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.40	1,512,916.1	1,430.0	0.45	10.56	-2.95	69.90	-6.42	0%	47.00	+4.86	31.30	40,970.0	367.3	0.0	41,337.3	33,017.1	939.0	0.0	0.0	34,566.1	17,962.2	1,494,912.3	0.0	1,494,912.3	418.41	
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.41	1,524,312.3	1,430.0	0.45	6.21	-2.95	48.80	+6.42	3%	40.30	+8.25	31.30	34,163.3	284.0	0.0	34,447.4	28,792.9	970.3	0.0	36.4	29,799.0	4,639.0	1,528,952.1	0.0	1,528,952.1	418.42	
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.42	1,528,952.1	1,430.0	0.45	2.13	-2.95	23.60	+6.42	19%	0.00	0	31.30	18,074.4	164.4	0.0	18,238.8	0.0	939.0	0.0	256.4	1,224.4	1,748.3	1,544,438.4	0.0	1,544,438.4	418.44	
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.44	1,548,438.4	1,430.0	0.45	-14.52	-3.60	31.40	+7.30	96%	0.00	0	31.30	23,938.8	199.1	0.0	24,137.7	0.0	970.3	1,964.8	436.2	3,110.0	20,966.8	1,587,406.2	0.0	1,587,406.2	418.47	
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.47	1,587,406.2	1,430.0	0.45	-18.13	-3.60	44.20	+7.30	99%	0.00	0	31.30	31,863.3	264.9	0.0	32,128.2	0.0	970.3	1,932.2	635.8	3,538.1	28,583.1	1,588,889.3	4,350.8	1,591,632.0	418.50	
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-10.89	-3.60	30.30	+7.30	98%	0.00	0	31.30	23,293.2	193.4	0.0	23,486.6	0.0	876.4	1,723.8	484.8	3,058.3	20,793.4	1,612,026.0	20,793.4	1,591,632.0	418.50	
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-8.49	-2.95	53.90	+6.42	76%	0.00	0	31.30	37,330.0	310.3	0.0	37,640.3	0.0	970.3	1,844.0	917.7	3,030.0	34,594.3	1,628,226.9	34,594.3	1,591,632.0	418.50	
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.90	-2.95	63.90	+6.42	0%	0.00	+11.81	31.30	43,446.7	367.7	0.0	43,814.4	7,354.1	939.0	0.0	0.0	45,241.1	35,814.4	1,627,246.9	35,814.4	1,591,632.0	418.50	
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.60	-2.95	12.60	+6.42	0%	135.76	+11.84	31.30	1,148.6	18.9	0.0	1,167.5	0,299.9	970.3	0.0	0.0	92,376.2	46,264.6	1,611,348.0	0.0	1,611,348.0	418.39	
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,511,348.0	1,430.0	0.45	18.12	-2.95	133.70	-9.97	0%	118.89	+4.32	31.30	82,104.8	662.8	0.0	82,767.5	76,212.7	939.0	0.0	0.0	77,151.7	4,615.8	1,516,963.8	0.0	1,516,963.8	418.40	
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.40	1,516,963.8	1,430.0	0.45	19.17	-2.95	63.70	-9.97	0%	141.64	+6.18	31.30	88,824.9	322.7	0.0	89,146.6	61,434.9	970.3	0.0	0.0	92,409.2	23,777.6	1,463,196.3	0.0	1,463,196.3	418.33	
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.33	1,463,196.3	1,430.0	0.45	18.62	-2.95	67.00	-9.97	0%	122.40	+5.40	31.30	49,803.0	345.2	0.0	49,948.2	79,949.1	970.3	0.0	0.0	69,974.4	29,771.1	1,434,926.1	0.0	1,434,926.1</		

Model Inputs	
Year of Simulation	2022
Source of Climate Record	Actual
Climate Change Scenario	CP2.6
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,991,622.6
Area of Open Water Within TSP (m²)	61,646.6
Runoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m²)	14,433.8
Runoff Coefficient for Restored Lands Within TSP	0.5
Elevation from TSP (m)	200.0
Supplementary Water Addition (m³/d)	0.0
Trigger for Supplementary Water Addition (mASL)	416.10
Subduction Losses in Water (mm/day)	0.10
Wind Drift Losses in Water (% of snowfall)	2%

NOTES: 1) The climate projection was obtained from the output of the TSP team from the open water. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes in Puff Size".

Table 17c: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 6.1 mm/d sublimation, 2% snow drift losses, 0.09 L/min augmentation, and RCP 2.6 Climate Change Scenario

Count	Year	Month	Forecast Horizon	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Restored Lands Area (m²)	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	As Precipitation as Snowfall (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Storage (m³)	Open Water	Restored Lands	Supplementary Water Addition	Total Inflow	Plant Evaporation	Average	TSP Subduction	Wind Drift	Total Outflow	Net Inflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)				
1	2022	1999	2011-2040	January	31	416.5	1,991,622.6	416.43	1,539,865.1	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	96.80	+7.23	100%	0.00	0.00	0	200.00	64,518.8	531.1	0.0	64,889.9	0.0	6,200.0	1,953.0	1,297.7	8,403.7	54,382.2	1,585,425.7	3,762.2	1,591,628.6	416.50	1,591,628.6		
2	2022	1999	2011-2040	February	28	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	10.70	+2.00	100%	0.00	0.00	0	200.00	1,537.3	1,127.8	0.0	11,800.1	0.0	6,200.0	1,960.0	273.6	7,683.7	6,042.5	1,591,628.6	3,762.2	1,591,628.6	416.50	1,591,628.6		
3	2022	1999	2011-2040	March	31	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	10.10	+2.00	100%	0.00	0.00	0	200.00	1,794.0	648.0	0.0	7,888.8	0.0	6,200.0	1,963.0	197.2	8,332.2	481.4	1,591,182.0	0.0	1,591,182.0	416.50	1,591,182.0		
4	2022	1999	2011-2040	April	30	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	5.44	+2.00	100%	0.00	-8.84	0.00	0	200.00	1,548.7	1,127.0	0.0	11,803.3	3,468.0	6,200.0	0.0	0.0	11,489.9	7,199.7	1,591,628.6	3,762.2	1,591,628.6	416.50	1,591,628.6	
5	2022	1999	2011-2040	May	31	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	9.93	+2.00	100%	0.00	-8.80	0.00	0	200.00	67,293.9	953.3	0.0	62,366.4	4,294.4	6,200.0	0.0	0.0	16,499.4	5,987.2	1,591,628.6	3,762.2	1,591,628.6	416.50	1,591,628.6	
6	2022	1999	2011-2040	June	30	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	11.08	+2.00	100%	0.00	-2.51	0.00	0	200.00	47,304.2	944.0	0.0	47,784.4	1,051.1	6,200.0	0.0	0.0	7,586.1	40,223.3	1,631,953.9	40,223.3	1,591,628.6	416.50	1,591,628.6	
7	2022	1999	2011-2040	July	31	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	17.43	+2.00	100%	0.00	10.40	-4.21	0.00	0	200.00	68,463.3	977.7	0.0	70,343.0	1,452.1	6,200.0	0.0	0.0	7,586.1	3,589.1	1,588,043.4	0.0	1,588,043.4	416.50	1,588,043.4
8	2022	1999	2011-2040	August	31	416.5	1,991,622.6	416.50	1,588,043.4	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	18.00	+2.00	100%	0.00	9.00	-4.21	0.00	0	200.00	68,463.3	977.7	0.0	70,343.0	1,452.1	6,200.0	0.0	0.0	6,428.9	31,814.1	1,611,897.6	28,229.9	1,591,628.6	416.50	1,591,628.6
9	2022	1999	2011-2040	September	30	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	17.68	+2.00	100%	0.00	10.00	-4.20	0.00	0	200.00	20,093.5	1,668.0	0.0	20,293.1	1,600.0	7,964.0	404.8	7,964.0	14,661.5	1,601,901.1	14,661.5	1,591,628.6	416.50	1,591,628.6	
10	2022	1999	2011-2040	October	31	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	21.77	+2.00	100%	0.00	14.43	+3.62	0.00	0	200.00	40,656.6	1,955.5	0.0	41,611.1	1,854.8	6,200.0	0.0	0.0	14,849.9	26,234.4	1,591,628.6	3,762.2	1,591,628.6	416.50	1,591,628.6
11	2022	1999	2011-2040	November	30	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	22.75	+2.00	89%	0.00	0.00	0	200.00	22,715.1	1,888.0	0.0	23,603.1	1,800.0	6,200.0	1,860.0	408.8	6,886.6	14,803.3	1,601,458.9	14,803.3	1,591,628.6	416.50	1,591,628.6		
12	2022	1999	2011-2040	December	31	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	26.17	+2.00	100%	0.00	0.00	0	200.00	26,317.1	2,193.0	0.0	26,510.1	0.0	6,200.0	1,963.0	508.8	8,884.4	17,906.1	1,603,538.7	17,906.1	1,591,628.6	416.50	1,591,628.6		
13	2023	1970	2011-2040	January	31	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	16.40	+2.00	100%	0.00	0.00	0	200.00	26,317.1	2,193.0	0.0	26,510.1	0.0	6,200.0	1,963.0	511.1	8,884.4	17,906.1	1,603,538.7	17,906.1	1,591,628.6	416.50	1,591,628.6		
14	2023	1970	2011-2040	February	28	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	11.30	+2.00	100%	0.00	0.00	0	200.00	20,093.5	1,668.0	0.0	20,293.1	1,600.0	7,964.0	404.8	7,964.0	14,661.5	1,601,901.1	14,661.5	1,591,628.6	416.50	1,591,628.6			
15	2023	1970	2011-2040	March	31	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	10.40	+2.00	91%	0.00	0.00	0	200.00	23,072.8	1,919.0	0.0	23,245.4	0.0	6,200.0	1,963.0	453.3	8,454.2	14,854.2	1,591,628.6	416.50	1,591,628.6				
16	2023	1970	2011-2040	April	30	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	5.44	+2.00	93%	0.00	-8.84	0.00	0	200.00	26,446.0	2,647.0	0.0	26,788.8	1,456.8	6,200.0	0.0	0.0	24,616.0	14,916.2	1,591,628.6	416.50	1,591,628.6			
17	2023	1970	2011-2040	May	31	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	7.42	+2.00	85%	0.00	-7.02	-4.20	0.00	0	200.00	58,084.0	4,732.0	0.0	57,316.1	4,294.8	6,200.0	0.0	0.0	53,723.5	1,657.8	1,596,206.4	3,687.8	1,591,628.6	416.50	1,591,628.6
18	2023	1970	2011-2040	June	30	416.5	1,991,622.6	416.50	1,591,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	11.68	+2.00	100%	0.00	10.00	-4.20	0.00	0	200.00	47,304.2	944.0	0.0	47,784.4	1,051.1	6,200.0	0.0	0.0	61,616.8	24,611.9	1,591,628.6	416.50	1,591,628.6		
19	2023	1970	2011-2040	July	31	416.5	1,991,622.6	416.50	1,585,214.4	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	20.83	+2.00	100%	0.00	12.00	-4.21	0.00	0	200.00	33,095.5	2,752.0	0.0	33,386.5	1,670.0	6,200.0	0.0	0.0	66,920.9	33,563.0	1,591,628.6	416.50	1,591,628.6		
20	2023	1970	2011-2040	August	31	416.5	1,991,622.6	416.50	1,580,811.1	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	18.00	+2.00	100%	0.00	10.00	-4.20	0.00	0	200.00	40,656.6	1,955.5	0.0	41,611.1	1,854.8	6,200.0	0.0	0.0	71,901.3	42,115.0	1,586,205.0	0.0	1,586,205.0	416.50	1,586,205.0
21	2023	1970	2011-2040	September	30	416.5	1,991,622.6	416.50	1,585,214.4	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	18.80	+2.00	100%	0.00	11.00	-4.20	0.00	0	200.00	24,826.6	2,286.0	0.0	25,074.6	2,100.0	6,200.0	0.0	0.0	38,745.4	48,881.5	1,591,628.6	416.50	1,591,628.6		
22	2023	1970	2011-2040	October	31	416.5	1,991,622.6	416.50	1,581,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	21.80	+2.00	100%	0.00	13.00	-4.20	0.00	0	200.00	42,621.1	2,625.0	0.0	43,246.1	2,548.8	6,200.0	0.0	0.0	4,644.3	17,924.0	1,586,081.4	0.0	1,586,081.4	416.50	1,586,081.4
23	2023	1970	2011-2040	November	30	416.5	1,991,622.6	416.50	1,581,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	24.75	+2.00	100%	0.00	0.00	0	200.00	20,093.5	1,668.0	0.0	20,293.1	1,600.0	7,964.0	404.8	7,964.0	14,661.5	1,591,628.6	416.50	1,591,628.6					
24	2023	1970	2011-2040	December	31	416.5	1,991,622.6	416.50	1,581,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	29.40	+2.00	100%	0.00	0.00	0	200.00	23,072.8	1,919.0	0.0	23,245.4	0.0	6,200.0	1,963.0	453.3	8,454.2	14,854.2	1,591,628.6	416.50	1,591,628.6				
25	2024	1971	2011-2040	January	31	416.5	1,991,622.6	416.50	1,581,622.6	61,652.92	1.00	14,433.8	0.50	14.33	-0.20	16.40	+2.00	100%	0.																				

Table 17c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.08 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Day	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff Coefficient	Runoff Volume (mm)	Runoff Coefficient	Runoff Volume (mm)	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)			
399	2021	1992	2021-2100	April	30	418.5	1591.622	418.6	42317.1	0.05992	1.00	11.533	0.445	0.00	-2.59	-4.42	57%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	372	13479.2	24,522	61,844	0.0	61,844	474.8
399	2021	1992	2021-2100	May	31	418.5	1591.622	418.8	41894.9	0.05992	1.00	11.533	0.445	0.00	-1.16	-2.20	62%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	13,528.6	29,577.7	91,362.6	0.0	91,362.6	474.8	
399	2021	1992	2021-2100	June	30	418.5	1591.622	419.0	41878.2	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	7,164.4	36,714.4	102,917.0	0.0	102,917.0	474.8	
399	2021	1992	2021-2100	July	31	418.5	1591.622	419.2	41861.5	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	6,553.9	30,160.9	109,501.0	0.0	109,501.0	474.8	
399	2021	1992	2021-2100	August	31	418.5	1591.622	419.4	41844.8	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	42,489.0	68,732.0	116,149.0	0.0	116,149.0	474.8	
399	2021	1992	2021-2100	September	30	418.5	1591.622	419.6	41828.1	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	88,449.4	126,466.4	0.0	126,466.4	474.8	
399	2021	1992	2021-2100	October	31	418.5	1591.622	419.8	41811.4	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	108,766.8	146,783.8	0.0	146,783.8	474.8	
399	2021	1992	2021-2100	November	30	418.5	1591.622	420.0	41794.7	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	129,084.2	167,001.2	0.0	167,001.2	474.8	
399	2021	1992	2021-2100	December	31	418.5	1591.622	420.2	41778.0	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	149,401.6	185,018.6	0.0	185,018.6	474.8	
400	2022	1993	2021-2100	January	31	418.5	1591.622	420.4	41761.3	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	169,719.0	201,336.0	0.0	201,336.0	474.8	
400	2022	1993	2021-2100	February	29	418.5	1591.622	420.6	41744.6	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	190,036.4	217,953.4	0.0	217,953.4	474.8	
400	2022	1993	2021-2100	March	31	418.5	1591.622	420.8	41727.9	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	210,353.8	245,070.8	0.0	245,070.8	474.8	
400	2022	1993	2021-2100	April	30	418.5	1591.622	421.0	41711.2	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	230,671.2	270,187.8	0.0	270,187.8	474.8	
400	2022	1993	2021-2100	May	31	418.5	1591.622	421.2	41694.5	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	250,988.6	295,305.4	0.0	295,305.4	474.8	
400	2022	1993	2021-2100	June	30	418.5	1591.622	421.4	41677.8	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	271,306.0	320,422.0	0.0	320,422.0	474.8	
400	2022	1993	2021-2100	July	31	418.5	1591.622	421.6	41661.1	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	291,623.4	345,539.4	0.0	345,539.4	474.8	
400	2022	1993	2021-2100	August	31	418.5	1591.622	421.8	41644.4	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	311,940.8	370,656.4	0.0	370,656.4	474.8	
400	2022	1993	2021-2100	September	30	418.5	1591.622	422.0	41627.7	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	332,258.2	395,773.4	0.0	395,773.4	474.8	
400	2022	1993	2021-2100	October	31	418.5	1591.622	422.2	41611.0	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	352,575.6	420,890.4	0.0	420,890.4	474.8	
400	2022	1993	2021-2100	November	30	418.5	1591.622	422.4	41594.3	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	372,893.0	446,007.4	0.0	446,007.4	474.8	
400	2022	1993	2021-2100	December	31	418.5	1591.622	422.6	41577.6	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	393,210.4	471,124.4	0.0	471,124.4	474.8	
401	2023	1994	2021-2100	January	31	418.5	1591.622	422.8	41560.9	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	413,527.8	496,241.4	0.0	496,241.4	474.8	
401	2023	1994	2021-2100	February	29	418.5	1591.622	423.0	41544.2	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	433,845.2	521,358.4	0.0	521,358.4	474.8	
401	2023	1994	2021-2100	March	31	418.5	1591.622	423.2	41527.5	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	454,162.6	546,475.4	0.0	546,475.4	474.8	
401	2023	1994	2021-2100	April	30	418.5	1591.622	423.4	41510.8	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	474,480.0	571,592.4	0.0	571,592.4	474.8	
401	2023	1994	2021-2100	May	31	418.5	1591.622	423.6	41494.1	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	494,797.4	596,709.4	0.0	596,709.4	474.8	
401	2023	1994	2021-2100	June	30	418.5	1591.622	423.8	41477.4	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	515,114.8	621,826.4	0.0	621,826.4	474.8	
401	2023	1994	2021-2100	July	31	418.5	1591.622	424.0	41460.7	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	535,432.2	646,943.4	0.0	646,943.4	474.8	
401	2023	1994	2021-2100	August	31	418.5	1591.622	424.2	41444.0	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	555,749.6	672,060.4	0.0	672,060.4	474.8	
401	2023	1994	2021-2100	September	30	418.5	1591.622	424.4	41427.3	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	576,067.0	697,177.4	0.0	697,177.4	474.8	
401	2023	1994	2021-2100	October	31	418.5	1591.622	424.6	41410.6	0.05992	1.00	11.533	0.445	0.00	-0.18	-0.33	63%	0.00	+1.81	200.0	42679.0	271.7	0.0	32.824	1.044	1.000	0.0	20,317.4	596,384.4	722,294.4	0.0			

Table 17c: Multi-year Wet Cover Model (2022-2432); 200 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.08 L/min augmentation, and RCP 2.6 Climate Change Scenario

Year	Month	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff Coefficients	Natural Operations Area	Runoff Coefficients	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Runoff (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)				
256	2022	2005	2021-2100	July	31	4185	1591.6224	4191	307.985	0.16502	1.0	11.4303	0.43	19.7	-2.0	49.50	0.97	0%	126.30	+1.80	200.00	305.21	249.6	0.0	0.0	89.393	1611.0	427.108	0.0	427.108	4194
256	2022	2005	2021-2100	August	31	4185	1591.6224	4184	407.108	0.16502	1.0	11.4303	0.43	17.40	-2.0	48.50	0.97	0%	109.00	+1.40	200.00	282.24	221.9	0.0	0.0	79.134	1476.2	471.981	0.0	471.981	4197
256	2022	2005	2021-2100	September	30	4185	1591.6224	4178	488.891	0.16502	1.0	11.4303	0.43	14.20	-2.0	46.50	0.97	0%	93.00	+1.00	200.00	253.89	199.0	0.0	0.0	67.261	1348.9	522.939	0.0	522.939	4200
256	2022	2005	2021-2100	October	31	4185	1591.6224	4176	488.891	0.16502	1.0	11.4303	0.43	11.00	-2.0	44.50	0.97	0%	77.00	+0.60	200.00	228.99	174.0	0.0	0.0	55.388	1229.9	574.612	0.0	574.612	4203
256	2022	2005	2021-2100	November	30	4185	1591.6224	4174	488.891	0.16502	1.0	11.4303	0.43	7.80	-2.0	42.50	0.97	0%	61.00	+0.20	200.00	204.09	149.0	0.0	0.0	43.515	1110.9	626.285	0.0	626.285	4206
256	2022	2005	2021-2100	December	31	4185	1591.6224	4172	488.891	0.16502	1.0	11.4303	0.43	4.60	-2.0	40.50	0.97	0%	45.00	+0.20	200.00	179.19	124.0	0.0	0.0	31.642	1001.9	677.958	0.0	677.958	4209
257	2023	2006	2021-2100	January	31	4185	1591.6224	4170	488.891	0.16502	1.0	11.4303	0.43	1.40	-2.0	38.50	0.97	0%	29.00	+0.20	200.00	154.29	99.0	0.0	0.0	19.769	882.9	729.639	0.0	729.639	4212
257	2023	2006	2021-2100	February	28	4185	1591.6224	4168	488.891	0.16502	1.0	11.4303	0.43	-1.80	-2.0	36.50	0.97	0%	13.00	+0.20	200.00	129.39	74.0	0.0	0.0	7.896	773.9	781.704	0.0	781.704	4215
257	2023	2006	2021-2100	March	31	4185	1591.6224	4166	488.891	0.16502	1.0	11.4303	0.43	-5.00	-2.0	34.50	0.97	0%	-1.00	+0.20	200.00	104.49	49.0	0.0	0.0	-1.021	664.9	823.423	0.0	823.423	4218
257	2023	2006	2021-2100	April	30	4185	1591.6224	4164	488.891	0.16502	1.0	11.4303	0.43	-8.20	-2.0	32.50	0.97	0%	-4.20	+0.20	200.00	79.59	24.0	0.0	0.0	-3.148	545.9	874.977	0.0	874.977	4221
257	2023	2006	2021-2100	May	31	4185	1591.6224	4162	488.891	0.16502	1.0	11.4303	0.43	-11.40	-2.0	30.50	0.97	0%	-8.40	+0.20	200.00	54.69	-1.0	0.0	0.0	-5.275	426.9	926.052	0.0	926.052	4224
257	2023	2006	2021-2100	June	30	4185	1591.6224	4160	488.891	0.16502	1.0	11.4303	0.43	-14.60	-2.0	28.50	0.97	0%	-12.60	+0.20	200.00	29.79	-5.0	0.0	0.0	-7.402	307.9	977.127	0.0	977.127	4227
257	2023	2006	2021-2100	July	31	4185	1591.6224	4158	488.891	0.16502	1.0	11.4303	0.43	-17.80	-2.0	26.50	0.97	0%	-16.80	+0.20	200.00	4.89	-10.0	0.0	0.0	-9.529	188.9	1028.202	0.0	1028.202	4230
257	2023	2006	2021-2100	August	31	4185	1591.6224	4156	488.891	0.16502	1.0	11.4303	0.43	-21.00	-2.0	24.50	0.97	0%	-20.80	+0.20	200.00	-10.11	-12.0	0.0	0.0	-11.656	70.9	1079.277	0.0	1079.277	4233
257	2023	2006	2021-2100	September	30	4185	1591.6224	4154	488.891	0.16502	1.0	11.4303	0.43	-24.20	-2.0	22.50	0.97	0%	-24.00	+0.20	200.00	-15.11	-17.0	0.0	0.0	-13.783	-128.1	1130.352	0.0	1130.352	4236
257	2023	2006	2021-2100	October	31	4185	1591.6224	4152	488.891	0.16502	1.0	11.4303	0.43	-27.40	-2.0	20.50	0.97	0%	-27.20	+0.20	200.00	-20.11	-23.0	0.0	0.0	-15.910	-269.1	1181.427	0.0	1181.427	4239
257	2023	2006	2021-2100	November	30	4185	1591.6224	4150	488.891	0.16502	1.0	11.4303	0.43	-30.60	-2.0	18.50	0.97	0%	-30.40	+0.20	200.00	-25.11	-29.0	0.0	0.0	-18.037	-410.1	1232.502	0.0	1232.502	4242
257	2023	2006	2021-2100	December	31	4185	1591.6224	4148	488.891	0.16502	1.0	11.4303	0.43	-33.80	-2.0	16.50	0.97	0%	-33.60	+0.20	200.00	-30.11	-35.0	0.0	0.0	-20.164	-551.1	1283.577	0.0	1283.577	4245
258	2024	2007	2021-2100	January	31	4185	1591.6224	4146	488.891	0.16502	1.0	11.4303	0.43	-37.00	-2.0	14.50	0.97	0%	-36.80	+0.20	200.00	-35.11	-41.0	0.0	0.0	-22.291	-692.1	1334.652	0.0	1334.652	4248
258	2024	2007	2021-2100	February	28	4185	1591.6224	4144	488.891	0.16502	1.0	11.4303	0.43	-40.20	-2.0	12.50	0.97	0%	-40.00	+0.20	200.00	-40.11	-47.0	0.0	0.0	-24.418	-833.1	1385.727	0.0	1385.727	4251
258	2024	2007	2021-2100	March	31	4185	1591.6224	4142	488.891	0.16502	1.0	11.4303	0.43	-43.40	-2.0	10.50	0.97	0%	-43.20	+0.20	200.00	-45.11	-53.0	0.0	0.0	-26.545	-974.1	1436.802	0.0	1436.802	4254
258	2024	2007	2021-2100	April	30	4185	1591.6224	4140	488.891	0.16502	1.0	11.4303	0.43	-46.60	-2.0	8.50	0.97	0%	-46.40	+0.20	200.00	-50.11	-59.0	0.0	0.0	-28.672	-1115.1	1487.877	0.0	1487.877	4257
258	2024	2007	2021-2100	May	31	4185	1591.6224	4138	488.891	0.16502	1.0	11.4303	0.43	-49.80	-2.0	6.50	0.97	0%	-49.60	+0.20	200.00	-55.11	-65.0	0.0	0.0	-30.799	-1256.1	1538.952	0.0	1538.952	4260
258	2024	2007	2021-2100	June	30	4185	1591.6224	4136	488.891	0.16502	1.0	11.4303	0.43	-53.00	-2.0	4.50	0.97	0%	-52.80	+0.20	200.00	-60.11	-71.0	0.0	0.0	-32.926	-1397.1	1590.027	0.0	1590.027	4263
258	2024	2007	2021-2100	July	31	4185	1591.6224	4134	488.891	0.16502	1.0	11.4303	0.43	-56.20	-2.0	2.50	0.97	0%	-56.00	+0.20	200.00	-65.11	-77.0	0.0	0.0	-35.053	-1538.1	1641.102	0.0	1641.102	4266
258	2024	2007	2021-2100	August	31	4185	1591.6224	4132	488.891	0.16502	1.0	11.4303	0.43	-59.40	-2.0	0.50	0.97	0%	-59.20	+0.20	200.00	-70.11	-83.0	0.0	0.0	-37.180	-1679.1	1692.177	0.0	1692.177	4269
258	2024	2007	2021-2100	September	30	4185	1591.6224	4130	488.891	0.16502	1.0	11.4303	0.43	-62.60	-2.0	-1.50	0.97	0%	-62.40	+0.20	200.00	-75.11	-89.0	0.0	0.0	-39.307	-1820.1	1743.252	0.0	1743.252	4272
258	2024	2007	2021-2100	October	31	4185	1591.6224	4128	488.891	0.16502	1.0	11.4303	0.43	-65.80	-2.0	-3.50	0.97	0%	-65.60	+0.20	200.00	-80.11	-95.0	0.0	0.0	-41.434	-1961.1	1794.327	0.0	1794.327	4275
258	2024	2007	2021-2100	November	30	4185	1591.6224	4126	488.891	0.16502	1.0	11.4303	0.43	-69.00	-2.0	-5.50	0.97	0%	-68.80	+0.20	200.00	-85.11	-101.0	0.0	0.0	-43.561	-2102.1	1845.402	0.0	1845.402	4278
258	2024	2007	2021-2100	December	31	4185	1591.6224	4124	488.891	0.16502	1.0	11.4303	0.43	-72.20	-2.0	-7.50	0.97	0%	-72.00	+0.20	200.00	-90.11	-107.0	0.0	0.0	-45.688	-2243.1	1896.477	0.0	1896.477	4281
259	2025	2008	2021-2100	January	31	4185	1591.6224	4122	488.891	0.16502	1.0	11.4303	0.43	-75.40	-2.0	-9.50	0.97	0%	-75.20	+0.20	200.00	-95.11	-113.0	0.0	0.0	-47.815	-2384.1	1947.552	0.0	1947.552	4284
259	2025	2008	2021-2100	February	28	4185	1591.6224	4120	488.891	0.16502	1.0	11.4303	0.43	-78.60	-2.0	-11.50	0.97	0%	-78.40	+0.20	200.00	-100.11	-119.0	0.0	0.0	-49.942	-2525.1	1998.627	0.0	1998.627	4287
259	2025	2008	2021-2100	March	31	4185	1591.6224	4118	488.891	0.16502	1.0	11.4303	0.43	-81.80	-2.0	-13.50	0.97	0%	-81.60	+0.20	200.00	-105.11	-125.0	0.0	0.0	-52.069	-2666.1	2049.702	0.0	2049.702	4290
259	2025	2008	2021-2100	April	30	4185	1591.6224	4116	488.891	0.16502	1.0	11.4303	0.43	-85.00	-2.0	-15.50	0.97	0%	-84.80	+0.20	200.00	-110.11	-131.0	0.0	0.0	-54.196	-2807.1	2100.777	0.0	2100.777	4293
259	2025	2008	2021-2100	May	31	4185	1591.6224																								

Table 17c: Multi-Year Wet Cover Model (2032-2432): 200 m² d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 2.6 Climate Change Scenario

Count	Passive Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Runoff Coefficients		Restored Operations Area Runoff Coefficients		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m ³ /d)	TSF Inflows (m ³)				TSF Outflows (m ³)				Net Inflow/Outflow (m ³)	End of Month Volume before Discharge (m ³)	Discharge Volume (m ³)	End of Month Volume after Discharge (m ³)	List of Month WSEL after Discharge (m)
										Open Water	Runoff Coefficients	Restored Operations Area	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflow	Penetration	Seepage	Sublimation	Wind Drift Losses					
323	2429	1974	2071-2100	April	30	418.5	1,599,632.0	418.47	706,140.0	0.10	11,430.0	0.45	1.48	-2.95	22.60	-6.42	21%	0.00	+11.81	200.00	48,973.0	405.5	0.0	49,378.5	7,354.1	0.000	0.0	204.5	13,508.6	36,775.1	469,370.9	0.0	469,370.9	415.52
323	2429	1974	2071-2100	May	31	418.5	1,599,632.0	418.52	689,370.9	0.10	11,430.0	0.45	1.70	-2.95	100.90	+6.42	7%	0.00	+11.84	200.00	68,382.0	552.0	0.0	68,934.0	58,142.0	0.200	0.0	91.0	64,433.0	2,501.8	466,869.0	0.0	466,869.0	415.52
323	2429	1974	2071-2100	June	30	418.5	1,599,632.0	418.52	686,869.0	0.10	11,430.0	0.45	1.80	-2.95	117.70	-5.97	0%	130.00	+13.22	200.00	72,216.0	603.0	0.0	72,819.0	68,054.0	0.000	0.0	0.0	68,054.0	4,764.7	681,713.8	0.0	681,713.8	415.49
323	2429	1974	2071-2100	July	31	418.5	1,599,632.0	418.49	686,713.8	0.10	11,430.0	0.45	20.42	-2.95	151.10	-0.97	0%	148.91	+18.18	200.00	75,547.8	626.2	0.0	76,174.0	65,912.0	0.200	0.0	0.0	102,131.2	55,955.1	714,668.8	0.0	714,668.8	415.46
323	2429	1974	2071-2100	August	31	418.5	1,599,632.0	418.46	714,668.8	0.10	11,430.0	0.45	15.84	-2.95	159.30	-0.97	0%	78.40	+14.40	200.00	87,846.1	814.4	0.0	88,660.5	81,834.1	0.200	0.0	0.0	88,034.1	87,726.4	473,948.4	0.0	473,948.4	415.51
323	2429	1974	2071-2100	September	30	418.5	1,599,632.0	418.51	673,948.4	0.10	11,430.0	0.45	8.42	-2.95	97.90	+4.42	0%	47.90	+4.86	200.00	39,744.3	339.8	0.0	40,084.1	33,613.0	0.000	0.0	60.0	39,733.3	301.7	673,566.7	0.0	673,566.7	415.51
323	2429	1974	2071-2100	October	31	418.5	1,599,632.0	418.51	673,566.7	0.10	11,430.0	0.45	4.65	-2.95	96.60	+6.42	32%	37.20	+12.25	200.00	28,454.6	230.7	0.0	28,685.3	26,873.0	0.200	0.0	180.0	33,263.3	4,390.1	678,115.9	0.0	678,115.9	415.51
323	2429	1974	2071-2100	November	30	418.5	1,599,632.0	418.51	678,115.9	0.10	11,430.0	0.45	3.40	-2.95	20.80	+6.42	93%	0.00	0	200.00	18,834.4	140.0	0.0	18,974.4	0.0	0.000	1,767.1	317.4	8,284.5	689.9	689,225.0	0.0	689,225.0	415.52
323	2429	1974	2071-2100	December	31	418.5	1,599,632.0	418.52	689,225.0	0.10	11,430.0	0.45	8.94	-1.60	19.00	+7.30	96%	0.00	0	200.00	14,884.4	124.9	0.0	15,009.3	0.0	0.000	1,876.3	289.1	6,594.4	1,744.5	691,000.5	0.0	691,000.5	415.53
324	2430	1975	2071-2100	January	31	418.5	1,599,632.0	418.53	682,800.5	0.10	11,430.0	0.45	-15.20	-3.60	82.60	+7.30	96%	0.00	0	200.00	55,690.4	462.4	0.0	56,152.8	0.0	0.000	1,876.8	1,079.3	9,158.8	46,912.9	415,577.6	0.0	415,577.6	415.59
324	2430	1975	2071-2100	February	29	418.5	1,599,632.0	418.59	615,577.6	0.10	11,430.0	0.45	-14.38	-3.60	24.50	+7.30	96%	0.00	0	200.00	19,670.5	163.6	0.0	19,834.1	0.0	0.000	1,862.0	305.1	7,672.4	12,161.6	460,415.9	0.0	460,415.9	416.00
324	2430	1975	2071-2100	March	31	418.5	1,599,632.0	418.60	600,415.9	0.10	11,430.0	0.45	8.92	-2.95	46.80	+6.42	97%	0.00	0	200.00	34,153.5	294.0	0.0	34,447.4	0.0	0.000	1,866.3	663.3	8,791.5	23,649.8	457,728.1	0.0	457,728.1	416.04
324	2430	1975	2071-2100	April	30	418.5	1,599,632.0	418.64	577,728.1	0.10	11,430.0	0.45	0.27	-2.95	38.90	+6.42	22%	0.00	+11.81	200.00	28,015.1	231.1	0.0	28,246.2	7,304.1	0.000	0.0	123.8	14,428.9	14,836.6	562,891.6	0.0	562,891.6	416.66
324	2430	1975	2071-2100	May	31	418.5	1,599,632.0	418.68	562,891.6	0.10	11,430.0	0.45	12.42	-2.95	46.90	+6.42	0%	120.00	+11.84	200.00	31,496.9	281.9	0.0	31,778.8	10,926.0	0.000	0.0	0.0	38,704.8	26,316.0	419,263.1	0.0	419,263.1	416.98
324	2430	1975	2071-2100	June	30	418.5	1,599,632.0	418.68	562,891.6	0.10	11,430.0	0.45	16.46	-2.95	36.30	-0.97	0%	102.40	+13.22	200.00	38,970.9	499.4	0.0	39,470.3	16,466.6	0.000	0.0	0.0	72,017.2	12,562.6	431,816.6	0.0	431,816.6	415.97
324	2430	1975	2071-2100	July	31	418.5	1,599,632.0	418.57	431,816.6	0.10	11,430.0	0.45	21.71	-2.95	69.30	-0.97	0%	137.88	+18.18	200.00	42,268.8	351.8	0.0	42,620.6	88,118.1	0.200	0.0	0.0	90,318.1	82,697.7	464,513.3	0.0	464,513.3	415.50
324	2430	1975	2071-2100	August	31	418.5	1,599,632.0	418.50	464,513.3	0.10	11,430.0	0.45	16.52	-2.95	141.10	-0.97	0%	89.70	+14.40	200.00	46,920.8	716.7	0.0	47,637.5	58,848.0	0.000	0.0	0.0	65,034.0	27,176.3	462,789.6	0.0	462,789.6	415.53
324	2430	1975	2071-2100	September	30	418.5	1,599,632.0	418.53	462,789.6	0.10	11,430.0	0.45	10.56	-2.95	69.90	+6.42	0%	47.90	+4.86	200.00	45,970.5	362.3	0.0	46,332.8	33,017.1	0.000	0.0	0.0	39,017.1	8,758.2	456,022.8	0.0	456,022.8	415.53
324	2430	1975	2071-2100	October	31	418.5	1,599,632.0	418.53	456,022.8	0.10	11,430.0	0.45	6.21	-2.95	48.80	+6.42	3%	40.30	+12.25	200.00	34,163.3	284.0	0.0	34,447.3	28,792.9	0.200	0.0	36.4	35,029.3	389.9	456,812.8	0.0	456,812.8	415.53
324	2430	1975	2071-2100	November	30	418.5	1,599,632.0	418.53	456,812.8	0.10	11,430.0	0.45	2.13	-2.95	23.60	+6.42	3%	0.00	0	200.00	18,014.4	164.4	0.0	18,178.8	0.0	0.000	0.0	256.4	8,226.4	424.3	444,186.4	0.0	444,186.4	415.55
324	2430	1975	2071-2100	December	31	418.5	1,599,632.0	418.58	444,186.4	0.10	11,430.0	0.45	-14.52	-3.60	91.40	+7.30	96%	0.00	0	200.00	23,938.8	199.1	0.0	24,137.9	0.0	0.000	1,964.8	436.2	8,400.6	16,737.1	428,404.4	0.0	428,404.4	415.97
325	2431	1976	2071-2100	January	31	418.5	1,599,632.0	418.57	428,404.4	0.10	11,430.0	0.45	-18.13	-3.60	44.20	+7.30	99%	0.00	0	200.00	31,856.3	264.9	0.0	32,121.2	0.0	0.000	1,932.2	1,035.1	8,747.6	23,353.4	460,395.9	0.0	460,395.9	416.00
325	2431	1976	2071-2100	February	29	418.5	1,599,632.0	418.60	405,395.9	0.10	11,430.0	0.45	-10.69	-3.60	30.30	+7.30	96%	0.00	0	200.00	23,293.2	193.4	0.0	23,486.6	0.0	0.000	1,723.8	484.8	7,781.8	15,669.8	458,426.1	0.0	458,426.1	416.02
325	2431	1976	2071-2100	March	31	418.5	1,599,632.0	418.62	388,426.1	0.10	11,430.0	0.45	8.49	-2.95	53.90	+6.42	76%	0.00	0	200.00	37,530.0	310.3	0.0	37,840.3	0.0	0.000	1,464.0	917.7	8,250.7	25,364.6	450,061.5	0.0	450,061.5	416.06
325	2431	1976	2071-2100	April	30	418.5	1,599,632.0	418.66	365,061.5	0.10	11,430.0	0.45	4.90	-2.95	63.90	+6.42	0%	0.00	+11.81	200.00	43,466.7	361.7	0.0	43,828.4	7,354.1	0.000	0.0	0.0	13,364.1	30,550.4	459,509.2	0.0	459,509.2	416.70
325	2431	1976	2071-2100	May	31	418.5	1,599,632.0	418.70	328,509.2	0.10	11,430.0	0.45	15.60	-2.95	1,260	+6.42	0%	135.76	+11.84	200.00	1,189.6	18.9	0.0	1,208.5	0.200	0.0	0.0	97,498.9	451,512.0	415,022.4	0.0	415,022.4	415.99	
325	2431	1976	2071-2100	June	30	418.5	1,599,632.0	418.59	415,022.4	0.10	11,430.0	0.45	18.12	-2.95	133.70	-0.97	0%	118.89	+13.22	200.00	82,164.8	662.8	0.0	82,827.6	76,212.7	0.000	0.0	0.0	82,212.7	674.8	414,447.6	0.0	414,447.6	415.99
325	2431	1976	2071-2100	July	31	418.5	1,599,632.0	418.59	414,447.6	0.10	11,430.0	0.45	19.17	-2.95	63.70	-0.97	0%	147.64	+18.18	200.00	28,824.9	322.7	0.0	29,172.6	97,434.9	0.200	0.0	0.0	97,634.9	28,507.3	452,954.9	0.0	452,954.9	416.01
325	2431	1976	2071-2100	August	31	418.5	1,599,632.0	418.51	412,954.9	0.10	11,430.0	0.45	18.65	-2.95	67.00	-0.97	0%	122.40	+14.40	200.00	49,803.0	345.2	0.0	49,945.2	79,949.1									

Model Inputs	
Year of Simulation	2032
Source of Climate Record	Actual
Climate Change Scenario	CP2.4.5
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m)	1.991.632.6
Area of Open Water Within TSP (m ²)	610.666
Ruoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m ²)	11.433.8
Ruoff Coefficient for Restored Lands Within TSP	0.15
Evaporation from TSP (mm/day)	3.3
Supplementary Water Addition (m ³ /d)	0
Trigger Elevation for Supplemental Water Addition (mASL)	416.0
Sublimation Losses in Winter (mm/day)	0.0
Wind Drift Losses in Winter (% of snowfall)	2%

NOTES: 1) The model input parameters are defined in the journal of the TSP team from the scoping water study. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 16a: Multi-Year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Year	Month	Forecast Horizon	Day	Invert Elevation (m)	Capacity of TSP (m)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Ruoff Coefficient	Restored Area (m ²)	Ruoff Coefficient	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Supplementary Water Addition (m ³)	Sublimation (mm)	Wind Drift Losses (%)	Sublimation (mm)	Wind Drift Losses (%)	Total Outflow (m ³)	Net Inflow (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
1	2022	1989	2011-2040	January	31	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	3.13	63.776.7	531.2	0.0	64.688.0	0.0	416.5	1.991.632.6	4143.4	1.539.863.0	616.992.0	1.00	11.433.8	0.45	-18.01	-2.10</

Table 16a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0.6 mm/d sublimation, 2% snow drift losses, 0.0 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Runoff Volume (m³)	Runoff Depth (mm)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	Net Inflow (mm)	Net Inflow Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)			
208	2140	1979	2071-2100	January	21	4185	1,591,622.0	4184.0	1,521,120.0	0.10	152,112.0	0.45	22.30	-0.60	-8.00	+10.20	100%	0.00	0	313	11,520.0	96.7	0.0	11,520.0	2,644.1	1,521,120.0	0.0	1,521,120.0	4184.1	1,521,120.0
208	2140	1979	2071-2100	February	28	4185	1,591,622.0	4184.1	1,523,120.0	0.10	152,312.0	0.45	18.75	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	165.5	0.0	11,520.0	2,644.1	1,523,120.0	0.0	1,523,120.0	4184.2	1,523,120.0
208	2140	1979	2071-2100	March	31	4185	1,591,622.0	4184.2	1,525,120.0	0.10	152,512.0	0.45	15.30	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	214.3	0.0	11,520.0	2,644.1	1,525,120.0	0.0	1,525,120.0	4184.3	1,525,120.0
208	2140	1979	2071-2100	April	30	4185	1,591,622.0	4184.3	1,527,120.0	0.10	152,712.0	0.45	11.85	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	263.1	0.0	11,520.0	2,644.1	1,527,120.0	0.0	1,527,120.0	4184.4	1,527,120.0
208	2140	1979	2071-2100	May	31	4185	1,591,622.0	4184.4	1,529,120.0	0.10	152,912.0	0.45	8.40	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	311.9	0.0	11,520.0	2,644.1	1,529,120.0	0.0	1,529,120.0	4184.5	1,529,120.0
208	2140	1979	2071-2100	June	30	4185	1,591,622.0	4184.5	1,531,120.0	0.10	153,112.0	0.45	4.95	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	360.7	0.0	11,520.0	2,644.1	1,531,120.0	0.0	1,531,120.0	4184.6	1,531,120.0
208	2140	1979	2071-2100	July	31	4185	1,591,622.0	4184.6	1,533,120.0	0.10	153,312.0	0.45	1.50	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	409.5	0.0	11,520.0	2,644.1	1,533,120.0	0.0	1,533,120.0	4184.7	1,533,120.0
208	2140	1979	2071-2100	August	31	4185	1,591,622.0	4184.7	1,535,120.0	0.10	153,512.0	0.45	-2.00	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	458.3	0.0	11,520.0	2,644.1	1,535,120.0	0.0	1,535,120.0	4184.8	1,535,120.0
208	2140	1979	2071-2100	September	30	4185	1,591,622.0	4184.8	1,537,120.0	0.10	153,712.0	0.45	-5.55	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	507.1	0.0	11,520.0	2,644.1	1,537,120.0	0.0	1,537,120.0	4184.9	1,537,120.0
208	2140	1979	2071-2100	October	31	4185	1,591,622.0	4184.9	1,539,120.0	0.10	153,912.0	0.45	-9.10	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	555.9	0.0	11,520.0	2,644.1	1,539,120.0	0.0	1,539,120.0	4185.0	1,539,120.0
208	2140	1979	2071-2100	November	30	4185	1,591,622.0	4185.0	1,541,120.0	0.10	154,112.0	0.45	-12.65	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	604.7	0.0	11,520.0	2,644.1	1,541,120.0	0.0	1,541,120.0	4185.1	1,541,120.0
208	2140	1979	2071-2100	December	31	4185	1,591,622.0	4185.1	1,543,120.0	0.10	154,312.0	0.45	-16.20	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	653.5	0.0	11,520.0	2,644.1	1,543,120.0	0.0	1,543,120.0	4185.2	1,543,120.0
208	2140	1980	2071-2100	January	28	4185	1,591,622.0	4185.2	1,545,120.0	0.10	154,512.0	0.45	-19.75	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	702.3	0.0	11,520.0	2,644.1	1,545,120.0	0.0	1,545,120.0	4185.3	1,545,120.0
208	2140	1980	2071-2100	February	28	4185	1,591,622.0	4185.3	1,547,120.0	0.10	154,712.0	0.45	-23.30	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	751.1	0.0	11,520.0	2,644.1	1,547,120.0	0.0	1,547,120.0	4185.4	1,547,120.0
208	2140	1980	2071-2100	March	31	4185	1,591,622.0	4185.4	1,549,120.0	0.10	154,912.0	0.45	-26.85	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	799.9	0.0	11,520.0	2,644.1	1,549,120.0	0.0	1,549,120.0	4185.5	1,549,120.0
208	2140	1980	2071-2100	April	30	4185	1,591,622.0	4185.5	1,551,120.0	0.10	155,112.0	0.45	-30.40	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	848.7	0.0	11,520.0	2,644.1	1,551,120.0	0.0	1,551,120.0	4185.6	1,551,120.0
208	2140	1980	2071-2100	May	31	4185	1,591,622.0	4185.6	1,553,120.0	0.10	155,312.0	0.45	-33.95	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	897.5	0.0	11,520.0	2,644.1	1,553,120.0	0.0	1,553,120.0	4185.7	1,553,120.0
208	2140	1980	2071-2100	June	30	4185	1,591,622.0	4185.7	1,555,120.0	0.10	155,512.0	0.45	-37.50	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	946.3	0.0	11,520.0	2,644.1	1,555,120.0	0.0	1,555,120.0	4185.8	1,555,120.0
208	2140	1980	2071-2100	July	31	4185	1,591,622.0	4185.8	1,557,120.0	0.10	155,712.0	0.45	-41.05	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	995.1	0.0	11,520.0	2,644.1	1,557,120.0	0.0	1,557,120.0	4185.9	1,557,120.0
208	2140	1980	2071-2100	August	31	4185	1,591,622.0	4185.9	1,559,120.0	0.10	155,912.0	0.45	-44.60	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,043.9	0.0	11,520.0	2,644.1	1,559,120.0	0.0	1,559,120.0	4186.0	1,559,120.0
208	2140	1980	2071-2100	September	30	4185	1,591,622.0	4186.0	1,561,120.0	0.10	156,112.0	0.45	-48.15	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,092.7	0.0	11,520.0	2,644.1	1,561,120.0	0.0	1,561,120.0	4186.1	1,561,120.0
208	2140	1980	2071-2100	October	31	4185	1,591,622.0	4186.1	1,563,120.0	0.10	156,312.0	0.45	-51.70	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,141.5	0.0	11,520.0	2,644.1	1,563,120.0	0.0	1,563,120.0	4186.2	1,563,120.0
208	2140	1980	2071-2100	November	30	4185	1,591,622.0	4186.2	1,565,120.0	0.10	156,512.0	0.45	-55.25	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,190.3	0.0	11,520.0	2,644.1	1,565,120.0	0.0	1,565,120.0	4186.3	1,565,120.0
208	2140	1980	2071-2100	December	31	4185	1,591,622.0	4186.3	1,567,120.0	0.10	156,712.0	0.45	-58.80	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,239.1	0.0	11,520.0	2,644.1	1,567,120.0	0.0	1,567,120.0	4186.4	1,567,120.0
208	2140	1981	2071-2100	January	28	4185	1,591,622.0	4186.4	1,569,120.0	0.10	156,912.0	0.45	-62.35	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,287.9	0.0	11,520.0	2,644.1	1,569,120.0	0.0	1,569,120.0	4186.5	1,569,120.0
208	2140	1981	2071-2100	February	28	4185	1,591,622.0	4186.5	1,571,120.0	0.10	157,112.0	0.45	-65.90	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,336.7	0.0	11,520.0	2,644.1	1,571,120.0	0.0	1,571,120.0	4186.6	1,571,120.0
208	2140	1981	2071-2100	March	31	4185	1,591,622.0	4186.6	1,573,120.0	0.10	157,312.0	0.45	-69.45	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,385.5	0.0	11,520.0	2,644.1	1,573,120.0	0.0	1,573,120.0	4186.7	1,573,120.0
208	2140	1981	2071-2100	April	30	4185	1,591,622.0	4186.7	1,575,120.0	0.10	157,512.0	0.45	-73.00	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,434.3	0.0	11,520.0	2,644.1	1,575,120.0	0.0	1,575,120.0	4186.8	1,575,120.0
208	2140	1981	2071-2100	May	31	4185	1,591,622.0	4186.8	1,577,120.0	0.10	157,712.0	0.45	-76.55	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,483.1	0.0	11,520.0	2,644.1	1,577,120.0	0.0	1,577,120.0	4186.9	1,577,120.0
208	2140	1981	2071-2100	June	30	4185	1,591,622.0	4186.9	1,579,120.0	0.10	157,912.0	0.45	-80.10	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,531.9	0.0	11,520.0	2,644.1	1,579,120.0	0.0	1,579,120.0	4187.0	1,579,120.0
208	2140	1981	2071-2100	July	31	4185	1,591,622.0	4187.0	1,581,120.0	0.10	158,112.0	0.45	-83.65	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,580.7	0.0	11,520.0	2,644.1	1,581,120.0	0.0	1,581,120.0	4187.1	1,581,120.0
208	2140	1981	2071-2100	August	31	4185	1,591,622.0	4187.1	1,583,120.0	0.10	158,312.0	0.45	-87.20	-0.60	-2.00	+10.20	100%	0.00	0	313	11,520.0	1,629.5	0.0	11,520.0	2,644.1	1,583,120.0	0.0	1,583,120.0	4187.2	1,583,120.0
208	2140	1981	2071-2100	September	30	4185	1,591,622.0	4187.2	1,585,120.0	0.10	158,512.0	0.45	-90.75</																	

Table 16a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial WSEL (m)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Precipitation (mm)	Forecast Precipitation (mm)	Precipitation as a Percentage of Potential	Evaporation (mm)	Forecast Evaporation (mm)	Change (mm)	TSF Inflows (mm)		TSF Outflows (mm)		End of Month WSEL (m)	End of Month WSEL (m)	End of Month WSEL (m)	End of Month WSEL (m)										
																		Open Water	Restored	Supplementary	Total Inflows					Total Outflows	Net Inflow	End of Month WSEL (m)							
118	2025	1987	2021-2100	October	31	418.5	1,591,622.0	418.6	1,333,301.0	418,592.0	1.00	14.53	0.45	2.07	-0.10	37.20	-5.68	33%	0.00	-18.93	3.13	36,168.3	291.6	0.0	34,819.9	1,525.0	0.0	223	5,884.8	26,541.1	1,525.0	4.0	1,522,954.0	418.20	
119	2025	1987	2021-2100	November	30	418.5	1,591,622.0	418.20	1,362,524.0	418,592.0	1.00	14.53	0.45	2.07	-0.10	37.20	-5.68	33%	0.00	-18.93	3.13	36,168.3	291.6	0.0	34,819.9	1,525.0	0.0	223	5,884.8	26,541.1	1,525.0	4.0	1,522,954.0	418.20	
120	2025	1987	2021-2100	December	31	418.5	1,591,622.0	418.20	1,362,524.0	418,592.0	1.00	14.53	0.45	2.07	-0.10	37.20	-5.68	33%	0.00	-18.93	3.13	36,168.3	291.6	0.0	34,819.9	1,525.0	0.0	223	5,884.8	26,541.1	1,525.0	4.0	1,522,954.0	418.20	
121	2026	1988	2021-2100	January	31	418.5	1,591,622.0	418.26	1,408,258.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	18,585.0	151.2	0.0	31,727.0	1,537.0	0.0	18,664.3	2,076.3	26,541.1	1,537.0	4.0	1,424,474.0	418.28
122	2026	1988	2021-2100	February	29	418.5	1,591,622.0	418.28	1,424,897.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	18,585.0	151.2	0.0	31,727.0	1,537.0	0.0	18,664.3	2,076.3	26,541.1	1,537.0	4.0	1,424,474.0	418.28
123	2026	1988	2021-2100	March	31	418.5	1,591,622.0	418.28	1,424,897.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	18,585.0	151.2	0.0	31,727.0	1,537.0	0.0	18,664.3	2,076.3	26,541.1	1,537.0	4.0	1,424,474.0	418.28
124	2026	1988	2021-2100	April	30	418.5	1,591,622.0	418.40	1,512,134.0	418,592.0	1.00	14.53	0.45	3.27	-0.10	34.00	-5.68	45%	0.00	-18.93	-18.33	3.13	6,979.5	60.0	0.0	7,037.6	1,603.3	0.0	0.0	1,520.3	3,277.7	1,539.9	0.0	1,539,917.0	418.39
125	2026	1988	2021-2100	May	31	418.5	1,591,622.0	418.40	1,512,134.0	418,592.0	1.00	14.53	0.45	3.27	-0.10	34.00	-5.68	45%	0.00	-18.93	-18.33	3.13	6,979.5	60.0	0.0	7,037.6	1,603.3	0.0	0.0	1,520.3	3,277.7	1,539.9	0.0	1,539,917.0	418.39
126	2026	1988	2021-2100	June	30	418.5	1,591,622.0	418.40	1,512,134.0	418,592.0	1.00	14.53	0.45	3.27	-0.10	34.00	-5.68	45%	0.00	-18.93	-18.33	3.13	6,979.5	60.0	0.0	7,037.6	1,603.3	0.0	0.0	1,520.3	3,277.7	1,539.9	0.0	1,539,917.0	418.39
127	2026	1988	2021-2100	July	31	418.5	1,591,622.0	418.40	1,512,134.0	418,592.0	1.00	14.53	0.45	3.27	-0.10	34.00	-5.68	45%	0.00	-18.93	-18.33	3.13	6,979.5	60.0	0.0	7,037.6	1,603.3	0.0	0.0	1,520.3	3,277.7	1,539.9	0.0	1,539,917.0	418.39
128	2026	1988	2021-2100	August	31	418.5	1,591,622.0	418.40	1,512,134.0	418,592.0	1.00	14.53	0.45	3.27	-0.10	34.00	-5.68	45%	0.00	-18.93	-18.33	3.13	6,979.5	60.0	0.0	7,037.6	1,603.3	0.0	0.0	1,520.3	3,277.7	1,539.9	0.0	1,539,917.0	418.39
129	2026	1988	2021-2100	September	30	418.5	1,591,622.0	418.40	1,512,134.0	418,592.0	1.00	14.53	0.45	3.27	-0.10	34.00	-5.68	45%	0.00	-18.93	-18.33	3.13	6,979.5	60.0	0.0	7,037.6	1,603.3	0.0	0.0	1,520.3	3,277.7	1,539.9	0.0	1,539,917.0	418.39
130	2026	1988	2021-2100	October	31	418.5	1,591,622.0	418.40	1,512,134.0	418,592.0	1.00	14.53	0.45	3.27	-0.10	34.00	-5.68	45%	0.00	-18.93	-18.33	3.13	6,979.5	60.0	0.0	7,037.6	1,603.3	0.0	0.0	1,520.3	3,277.7	1,539.9	0.0	1,539,917.0	418.39
131	2026	1988	2021-2100	November	30	418.5	1,591,622.0	418.40	1,512,134.0	418,592.0	1.00	14.53	0.45	3.27	-0.10	34.00	-5.68	45%	0.00	-18.93	-18.33	3.13	6,979.5	60.0	0.0	7,037.6	1,603.3	0.0	0.0	1,520.3	3,277.7	1,539.9	0.0	1,539,917.0	418.39
132	2026	1988	2021-2100	December	31	418.5	1,591,622.0	418.40	1,512,134.0	418,592.0	1.00	14.53	0.45	3.27	-0.10	34.00	-5.68	45%	0.00	-18.93	-18.33	3.13	6,979.5	60.0	0.0	7,037.6	1,603.3	0.0	0.0	1,520.3	3,277.7	1,539.9	0.0	1,539,917.0	418.39
133	2027	1989	2021-2100	January	31	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
134	2027	1989	2021-2100	February	29	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
135	2027	1989	2021-2100	March	31	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
136	2027	1989	2021-2100	April	30	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
137	2027	1989	2021-2100	May	31	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
138	2027	1989	2021-2100	June	30	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
139	2027	1989	2021-2100	July	31	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
140	2027	1989	2021-2100	August	31	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
141	2027	1989	2021-2100	September	30	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
142	2027	1989	2021-2100	October	31	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
143	2027	1989	2021-2100	November	30	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
144	2027	1989	2021-2100	December	31	418.5	1,591,622.0	418.42	1,386,944.0	418,592.0	1.00	14.53	0.45	19.24	-0.00	33.00	-10.20	85%	0.00	0.00	0.00	3.13	20,628.0	233.0	0.0	21,267.0	1,546.0	0.0	19,313.0	2,663.0	24,816.4	1,546.0	0.0	1,422,244.0	418.26
145	2028	1990	2021-2100	January	29	418.5	1,591,622.0	418.15	1,328,447.0	418,592.0	1.00	14.53	0.45	12.53	-0.00	31.00	-10.20	100%	0.00	0.00	0.00	3.13	20,168.0	261.0	0.0	20,431.0	1,511.0	0.0	19,320.0	2,087.0	24,816.4	1,511.0	0.0	1,328,111.0	418.19
146	2028	1990	2021-2100	February	28	418.5	1,591,622.0	418.15	1,328,447.0	418,592.0	1.00																								

Table 16a: Multi-year Wet Cover Model (2022-2432): 1.13 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficients	Runoff Coefficients	Runoff Coefficients	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)								
256	2022	2005	2021-2010	July	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	19.7	+4.0	99.0	-8.0	0.0	0.0	0.0	0.0	126.30	+1.56	3.13	25,602.0	21.33	0.0	84,131.0	46,267.7	1,481,278.4	0.0	1,481,278.4	418.37	1,481,278.4			
256	2022	2005	2021-2010	August	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	17.4	+4.0	49.0	-8.0	0.0	0.0	0.0	0.0	106.09	+1.54	3.13	22,672.0	18.76	0.0	88,633.0	46,791.1	1,487,364.0	0.0	1,487,364.0	418.31	1,487,364.0			
256	2022	2005	2021-2010	September	30	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	15.0	+4.0	20.0	-8.0	0.0	0.0	0.0	0.0	85.00	+1.52	3.13	19,722.0	15.22	0.0	91,163.0	47,147.9	1,492,704.0	0.0	1,492,704.0	418.24	1,492,704.0			
256	2022	2005	2021-2010	October	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	12.0	+4.0	10.0	-8.0	0.0	0.0	0.0	0.0	65.00	+1.50	3.13	16,772.0	11.68	0.0	93,695.0	47,823.7	1,497,984.0	0.0	1,497,984.0	418.17	1,497,984.0			
256	2022	2005	2021-2010	November	30	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	9.0	+4.0	5.0	-8.0	0.0	0.0	0.0	0.0	45.00	+1.48	3.13	13,822.0	8.73	0.0	96,227.0	48,300.6	1,503,264.0	0.0	1,503,264.0	418.10	1,503,264.0			
256	2022	2005	2021-2010	December	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	6.0	+4.0	2.0	-8.0	0.0	0.0	0.0	0.0	25.00	+1.46	3.13	10,872.0	5.68	0.0	98,759.0	48,677.5	1,508,544.0	0.0	1,508,544.0	418.03	1,508,544.0			
257	2023	2006	2021-2010	January	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	3.4	+6.0	0.0	-10.0	0.0	0.0	0.0	0.0	0.0	3.13	-20.50	10.00	0.00	0.00	0.0	3.13	20,535.0	17.09	0.0	97.0	1,512.0	1,512.0	418.00	1,512.0
257	2023	2006	2021-2010	February	28	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	16.0	+6.0	16.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	98.759	48.677	1,517.9	0.0	1,517.9	417.94	1,517.9			
257	2023	2006	2021-2010	March	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	18.0	+6.0	18.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	100.0	49.0	1,523.8	0.0	1,523.8	417.85	1,523.8			
257	2023	2006	2021-2010	April	30	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	20.0	+6.0	20.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	102.0	49.0	1,529.7	0.0	1,529.7	417.76	1,529.7			
257	2023	2006	2021-2010	May	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	22.0	+6.0	22.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	104.0	49.0	1,535.6	0.0	1,535.6	417.67	1,535.6			
257	2023	2006	2021-2010	June	30	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	24.0	+6.0	24.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	106.0	49.0	1,541.5	0.0	1,541.5	417.58	1,541.5			
257	2023	2006	2021-2010	July	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	26.0	+6.0	26.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	108.0	49.0	1,547.4	0.0	1,547.4	417.49	1,547.4			
257	2023	2006	2021-2010	August	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	28.0	+6.0	28.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	110.0	49.0	1,553.3	0.0	1,553.3	417.40	1,553.3			
257	2023	2006	2021-2010	September	30	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	30.0	+6.0	30.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	112.0	49.0	1,559.2	0.0	1,559.2	417.31	1,559.2			
257	2023	2006	2021-2010	October	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	32.0	+6.0	32.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	114.0	49.0	1,565.1	0.0	1,565.1	417.22	1,565.1			
257	2023	2006	2021-2010	November	30	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	34.0	+6.0	34.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	116.0	49.0	1,571.0	0.0	1,571.0	417.13	1,571.0			
257	2023	2006	2021-2010	December	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	36.0	+6.0	36.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	118.0	49.0	1,576.9	0.0	1,576.9	417.04	1,576.9			
258	2024	2007	2021-2010	January	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	38.0	+6.0	38.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	120.0	49.0	1,582.8	0.0	1,582.8	416.95	1,582.8			
258	2024	2007	2021-2010	February	29	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	40.0	+6.0	40.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	122.0	49.0	1,588.7	0.0	1,588.7	416.86	1,588.7			
258	2024	2007	2021-2010	March	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	42.0	+6.0	42.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	124.0	49.0	1,594.6	0.0	1,594.6	416.77	1,594.6			
258	2024	2007	2021-2010	April	30	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	44.0	+6.0	44.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	126.0	49.0	1,600.5	0.0	1,600.5	416.68	1,600.5			
258	2024	2007	2021-2010	May	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	46.0	+6.0	46.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	128.0	49.0	1,606.4	0.0	1,606.4	416.59	1,606.4			
258	2024	2007	2021-2010	June	30	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	48.0	+6.0	48.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	130.0	49.0	1,612.3	0.0	1,612.3	416.50	1,612.3			
258	2024	2007	2021-2010	July	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	50.0	+6.0	50.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	132.0	49.0	1,618.2	0.0	1,618.2	416.41	1,618.2			
258	2024	2007	2021-2010	August	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	52.0	+6.0	52.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	134.0	49.0	1,624.1	0.0	1,624.1	416.32	1,624.1			
258	2024	2007	2021-2010	September	30	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	54.0	+6.0	54.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	136.0	49.0	1,629.9	0.0	1,629.9	416.23	1,629.9			
258	2024	2007	2021-2010	October	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	56.0	+6.0	56.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	138.0	49.0	1,635.8	0.0	1,635.8	416.14	1,635.8			
258	2024	2007	2021-2010	November	30	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	58.0	+6.0	58.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	140.0	49.0	1,641.7	0.0	1,641.7	416.05	1,641.7			
258	2024	2007	2021-2010	December	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	60.0	+6.0	60.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	142.0	49.0	1,647.6	0.0	1,647.6	415.96	1,647.6			
259	2025	2008	2021-2010	January	31	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	62.0	+6.0	62.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	144.0	49.0	1,653.5	0.0	1,653.5	415.87	1,653.5			
259	2025	2008	2021-2010	February	29	418.5	1,591,622.0	418.5	1,591,622.0	1.00	1.00	1.00	64.0	+6.0	64.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	3.13	10,872.0	8.73	0.0	146.0	49.0	1,65							

Table 18a: Multi-Year Wet Cover Model (2032-2432): 3.13 m³/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSP Inflows (m³)				TSP Outflows (m³)				Net Inflow/Outflow (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Applied	Total Inflows	Plant Evaporation	Average	Sublimation Losses	Wind Drift Losses					
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	+0.00	22.60	-5.68	21%	82.15	+8.30	3.13	48,423.7	402.7	0.0	48,826.3	15,102.3	93.9	0.0	202.6	15,304.9	38,427.6	1,635,000.1	38,427.6	1,591,632.0	418.50	
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	+0.00	100.90	-5.68	7%	82.15	+8.30	3.13	48,423.7	402.7	0.0	48,826.3	15,102.3	93.9	0.0	93.7	61,383.5	5,083.9	1,596,716.4	5,083.9	1,591,632.0	418.50	
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.98	+0.00	171.70	-5.68	0%	130.00	+8.30	3.13	48,423.7	402.7	0.0	48,826.3	15,102.3	93.9	0.0	0.0	89,973.4	21,509.9	1,613,122.7	0.0	1,613,122.7	418.47	
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.47	1,575,122.7	1,430.0	0.45	20.42	+0.00	151.10	-8.03	0%	148.91	+1.00	3.13	117,176.7	591.9	0.0	117,768.6	96,781.3	97.0	0.0	0.0	96,878.4	25,108.9	1,545,019.9	0.0	1,545,019.9	418.44	
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.44	1,468,912.3	1,430.0	0.45	18.84	+0.00	159.30	-8.03	0%	79.40	+4.54	3.13	83,568.9	778.1	0.0	84,347.0	61,306.4	97.0	0.0	0.0	84,303.5	42,843.5	1,587,068.4	0.0	1,587,068.4	418.50	
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.50	1,587,068.4	1,430.0	0.45	8.42	+0.00	97.90	+5.68	0%	47.90	+10.01	3.13	39,303.9	321.1	0.0	39,625.0	38,632.6	93.9	0.0	46.6	39,796.3	1,881.7	1,588,189.2	205.6	1,588,189.2	418.50	
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.05	+0.00	30.60	+5.68	32%	37.20	+8.93	3.13	28,020.9	223.9	0.0	28,244.8	28,533.7	97.0	0.0	10.1	28,614.8	97.0	1,591,061.5	0.0	1,591,061.5	418.50	
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-3.40	+0.00	20.80	+5.68	93%	0.00	0	3.13	16,381.8	136.2	0.0	16,518.0	-0.0	93.9	0.0	308.9	402.8	1,611,152.2	1,611,152.2	1,611,152.2	418.49		
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.96	+0.00	19.00	+10.20	96%	0.00	0	3.13	19,833.2	139.4	0.0	19,972.6	-0.0	97.0	0.0	879.3	33.3	2,091.6	1,611,185.6	1,611.6	1,611,185.6	418.50	
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-15.20	+0.00	82.60	+10.20	96%	0.00	0	3.13	57,403.2	477.4	0.0	57,880.6	-0.0	97.0	0.0	1,876.8	1,144.1	3,060.7	1,614,743.3	3,060.7	1,611,682.6	418.50	
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.38	+0.00	24.50	+10.20	96%	0.00	0	3.13	21,484.4	176.5	0.0	21,660.9	-0.0	97.0	0.0	1,892.0	415.2	2,304.4	1,614,000.0	1,614.0	1,611,386.0	418.50	
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.92	+0.00	48.60	+5.68	97%	0.00	0	3.13	33,717.7	293.3	0.0	34,011.0	-0.0	97.0	0.0	1,066.3	566.4	2,892.7	1,615,278.7	2,892.7	1,611,632.0	418.50	
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.77	+0.00	38.90	+6.68	22%	0.00	+8.33	3.13	27,573.9	229.3	0.0	27,803.2	16,102.3	93.9	0.0	121.8	10,318.9	17,489.2	1,608,121.7	17,489.2	1,601,632.0	418.50	
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	+0.00	46.90	+6.68	0%	120.00	+8.80	3.13	31,941.9	298.1	0.0	32,240.0	34,968.1	97.0	0.0	0.0	80,206.1	20,376.1	1,622,008.1	0.0	1,622,008.1	418.43	
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,537,824.4	1,430.0	0.45	16.46	+0.00	96.30	-8.03	0%	102.40	+0.20	3.13	84,909.0	464.0	0.0	85,373.0	87,155.9	93.9	0.0	0.0	87,203.8	12,177.7	1,625,002.1	0.0	1,625,002.1	418.41	
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.41	1,525,824.7	1,430.0	0.45	21.17	+0.00	89.30	-8.03	0%	137.89	+3.50	3.13	37,897.7	316.1	0.0	38,213.8	89,968.2	97.0	0.0	0.0	90,865.2	41,822.4	1,473,723.3	0.0	1,473,723.3	418.34	
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.34	1,413,723.3	1,430.0	0.45	16.52	+0.00	141.10	-8.03	0%	89.70	+4.54	3.13	41,652.4	476.5	0.0	42,128.9	56,296.3	97.0	0.0	0.0	56,353.3	23,974.0	1,437,700.7	0.0	1,437,700.7	418.39	
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.39	1,407,291.7	1,430.0	0.45	10.56	+0.00	67.90	+5.68	0%	47.90	+10.01	3.13	45,514.4	395.5	0.0	45,910.0	46,949.0	93.9	0.0	0.0	34,675.2	32,267.7	1,437,975.4	0.0	1,437,975.4	418.39	
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.39	1,407,291.7	1,430.0	0.45	6.21	+0.00	48.80	+5.68	0%	40.30	+8.93	3.13	33,701.7	293.3	0.0	34,020.0	30,453.3	97.0	0.0	35.9	39,388.2	3,935.7	1,441,371.1	0.0	1,441,371.1	418.39	
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.39	1,411,211.1	1,430.0	0.45	2.13	+0.00	23.60	+5.68	0%	0.00	0	3.13	18,113.8	168.8	0.0	18,282.6	-0.0	93.9	0.0	288.2	30.1	1,441,371.1	0.0	1,441,371.1	418.42		
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.42	1,409,253.4	1,430.0	0.45	-14.52	+0.00	31.40	+10.20	96%	0.00	0	3.13	29,732.5	214.0	0.0	29,946.5	-0.0	97.0	0.0	1,964.8	468.8	2,330.3	1,441,614.3	2,330.3	1,439,283.0	418.45	
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.45	1,409,253.4	1,430.0	0.45	-18.13	+0.00	44.20	+10.20	99%	0.00	0	3.13	33,865.2	279.8	0.0	34,145.0	-0.0	97.0	0.0	1,822.2	971.4	2,705.6	1,442,000.0	2,705.6	1,439,297.4	418.49	
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.49	1,404,089.9	1,430.0	0.45	-10.89	+0.00	39.30	+10.20	98%	0.00	0	3.13	29,929.1	289.3	0.0	30,218.4	-0.0	97.0	0.0	1,723.8	404.6	2,304.4	1,440,688.0	2,304.4	1,439,383.6	418.50	
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-8.49	+0.00	53.90	+5.68	76%	0.00	0	3.13	36,556.4	300.5	0.0	36,856.9	-0.0	97.0	0.0	1,922.9	364.3	2,148.8	1,441,057.1	2,148.8	1,439,908.3	418.50	
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.90	+0.00	63.90	+5.68	0%	0.00	+8.33	3.13	43,622.1	307.9	0.0	43,929.0	15,102.3	93.9	0.0	0.0	19,196.2	33,203.9	1,624,436.4	33,203.9	1,601,232.5	418.50	
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.60	+0.00	12.60	+5.68	0%	135.76	+8.30	3.13	14,612.2	95.1	0.0	14,707.3	36,364.1	97.0	0.0	0.0	96,401.1	45,520.8	1,639,759.8	0.0	1,639,759.8	418.39	
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,508,698.8	1,430.0	0.45	18.12	+0.00	133.70	-8.03	0%	118.89	+0.20	3.13	77,733.5	644.4	0.0	78,377.9	77,376.4	93.9	0.0	0.0	77,470.3	90.6	1,509,609.4	0.0	1,509,609.4	418.39	
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,509,609.4	1,430.0	0.45	19.17	+0.00	63.70	-8.03	0%	141.64	+1.00	3.13	34,431.7	266.3	0.0	34,720.0	82,285.0	97.0	0.0	0.0	92,302.0	47,662.0	1,461,947.4	0.0	1,461,947.4	418.32	
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.32	1,451,947.4	1,430.0	0.45	18.62	+0.00	67.00	-8.03	0%	122.40	+4.54	3.13	36,538.8	303.8	0.0	36,842.6	76,213.3	97.0	0.0	0.0	76,818.4	41,777.7	1,471,169.7	0.0	1,471,169.7	418.26	
325	2431	1976	2071-2100	September	30	418.5	1,591,632.0	418.26	1,418,189.7	1,430.0	0.45	13.02	+0.00	99.50	+5.68																			

Model Inputs	
First Year of Simulation	2022
Source of Climate Record	Actual
Climate Change Scenario	CP4.5
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,991,822.6
Area of Open Water Within TSP (m²)	61,646.6
Roughness Coefficient for Open Water Within TSP	1.493.8
Area of Restored Lands Within TSP (m²)	143,038
Roughness Coefficient for Restored Lands Within TSP	0.5
Drag from TSP (m³)	31.30
Supplementary Water Addition (m³/d)	0
Trigger Elevation for Supplementary Water Addition (mASL)	416.10
Subduction Losses in Winter (mm/day)	0
Wind Drift Losses in Winter (% of snowfall)	2%

NOTES:
 1. The climate projection was obtained from the projection of the TSP from the last 50 years.
 2. Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes to Puff Snow".

Table 16: Multi-Year Wet Cover Model (2022-2432): 31.3 m³/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Year	Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Restored Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	As Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Storage (m³)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool	Average	Subduction	Wind Drift	Total Outflow	Net Inflow	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)					
1	2022	1991	2021-2040	January	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	63,877.6	531.2	0.0	64,408.8	0.0	970.3	1,953.0	1,286.2	4,211.5	92,197.3	1,861,188.0	8,564.2	1,991,822.6	416.80	416.80	
2	2022	1991	2021-2040	February	28	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	130,830.0	108.9	0.0	130,919.9	0.0	970.3	1,953.0	2,644.2	2,904.4	10,297.5	1,861,188.0	10,297.5	1,991,822.6	416.80	416.80	
3	2022	1991	2021-2040	March	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	61,754.4	763.3	0.0	62,317.7	0.0	970.3	1,953.0	1,650.3	3,398.3	6,144.4	1,861,188.0	6,144.4	1,991,822.6	416.80	416.80	
4	2022	1991	2021-2040	April	30	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	14,828.0	1,241.1	0.0	16,079.1	0.0	970.3	1,953.0	2,990.0	0.0	7,447.2	7,051.1	1,861,222.8	7,051.1	1,991,822.6	416.80	416.80
5	2022	1991	2021-2040	May	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	61,114.8	2,947.7	0.0	68,062.5	0.0	970.3	1,953.0	2,947.7	0.0	3,988.9	3,988.9	1,861,222.8	3,988.9	1,991,822.6	416.80	416.80
6	2022	1991	2021-2040	June	30	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	42,793.0	3,952.0	0.0	47,725.0	1,611.0	970.3	0.0	0.0	2,497.1	45,216.1	1,638,480.0	45,216.1	1,991,822.6	416.80	416.80	
7	2022	1991	2021-2040	July	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	10,420.0	5,622.0	0.0	16,042.0	1,611.0	970.3	0.0	0.0	6,297.3	24,717.0	1,584,480.0	24,717.0	1,991,822.6	416.80	416.80	
8	2022	1991	2021-2040	August	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	94,262.0	7,846.0	0.0	102,108.0	0.0	970.3	1,953.0	7,846.0	0.0	16,137.9	36,979.2	1,628,117.0	36,979.2	1,991,822.6	416.80	416.80
9	2022	1991	2021-2040	September	28	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	158,880.0	1,629.0	0.0	160,509.0	0.0	970.3	1,953.0	1,629.0	0.0	32,268.9	1,586,618.0	17,400.0	1,991,822.6	416.80	416.80	
10	2022	1991	2021-2040	October	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	42,970.0	3,972.0	0.0	46,942.0	1,611.0	970.3	0.0	0.0	7,74	15,129.8	32,432.2	1,638,068.0	32,432.2	1,991,822.6	416.80	416.80
11	2022	1991	2021-2040	November	30	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	24,683.0	2,003.0	0.0	26,686.0	0.0	970.3	1,953.0	2,003.0	0.0	4,117.0	31,235.6	1,671,661.0	31,235.6	1,991,822.6	416.80	416.80
12	2022	1991	2021-2040	December	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	21,429.0	2,154.0	0.0	23,583.0	0.0	970.3	1,953.0	2,154.0	0.0	22,687.2	34,294.8	1,642,298.0	34,294.8	1,991,822.6	416.80	416.80
13	2023	1970	2021-2040	January	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	29,644.0	2,154.0	0.0	31,798.0	0.0	970.3	1,953.0	2,154.0	0.0	22,997.2	34,294.8	1,642,298.0	34,294.8	1,991,822.6	416.80	416.80
14	2023	1970	2021-2040	February	28	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	15,880.0	1,629.0	0.0	17,509.0	0.0	970.3	1,953.0	1,629.0	0.0	3,988.9	1,586,618.0	17,400.0	1,991,822.6	416.80	416.80	
15	2023	1970	2021-2040	March	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	24,644.0	2,004.0	0.0	26,648.0	0.0	970.3	1,953.0	2,004.0	0.0	4,117.0	31,235.6	1,671,661.0	31,235.6	1,991,822.6	416.80	416.80
16	2023	1970	2021-2040	April	30	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	14,828.0	1,241.1	0.0	16,079.1	0.0	970.3	1,953.0	2,990.0	0.0	7,447.2	7,051.1	1,861,222.8	7,051.1	1,991,822.6	416.80	416.80
17	2023	1970	2021-2040	May	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	61,114.8	2,947.7	0.0	68,062.5	0.0	970.3	1,953.0	2,947.7	0.0	3,988.9	3,988.9	1,861,222.8	3,988.9	1,991,822.6	416.80	416.80
18	2023	1970	2021-2040	June	30	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	42,793.0	3,952.0	0.0	47,725.0	1,611.0	970.3	0.0	0.0	2,497.1	45,216.1	1,638,480.0	45,216.1	1,991,822.6	416.80	416.80	
19	2023	1970	2021-2040	July	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	10,420.0	5,622.0	0.0	16,042.0	1,611.0	970.3	0.0	0.0	6,297.3	24,717.0	1,584,480.0	24,717.0	1,991,822.6	416.80	416.80	
20	2023	1970	2021-2040	August	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	94,262.0	7,846.0	0.0	102,108.0	0.0	970.3	1,953.0	7,846.0	0.0	16,137.9	36,979.2	1,628,117.0	36,979.2	1,991,822.6	416.80	416.80
21	2023	1970	2021-2040	September	28	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	158,880.0	1,629.0	0.0	160,509.0	0.0	970.3	1,953.0	1,629.0	0.0	32,268.9	1,586,618.0	17,400.0	1,991,822.6	416.80	416.80	
22	2023	1970	2021-2040	October	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	42,970.0	3,972.0	0.0	46,942.0	1,611.0	970.3	0.0	0.0	7,74	15,129.8	32,432.2	1,638,068.0	32,432.2	1,991,822.6	416.80	416.80
23	2023	1970	2021-2040	November	30	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	24,683.0	2,003.0	0.0	26,686.0	0.0	970.3	1,953.0	2,003.0	0.0	4,117.0	31,235.6	1,671,661.0	31,235.6	1,991,822.6	416.80	416.80
24	2023	1970	2021-2040	December	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	21,429.0	2,154.0	0.0	23,583.0	0.0	970.3	1,953.0	2,154.0	0.0	22,687.2	34,294.8	1,642,298.0	34,294.8	1,991,822.6	416.80	416.80
25	2023	1970	2021-2040	January	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	29,644.0	2,154.0	0.0	31,798.0	0.0	970.3	1,953.0	2,154.0	0.0	22,997.2	34,294.8	1,642,298.0	34,294.8	1,991,822.6	416.80	416.80
26	2023	1970	2021-2040	February	28	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	15,880.0	1,629.0	0.0	17,509.0	0.0	970.3	1,953.0	1,629.0	0.0	3,988.9	1,586,618.0	17,400.0	1,991,822.6	416.80	416.80	
27	2023	1970	2021-2040	March	31	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	24,644.0	2,004.0	0.0	26,648.0	0.0	970.3	1,953.0	2,004.0	0.0	4,117.0	31,235.6	1,671,661.0	31,235.6	1,991,822.6	416.80	416.80
28	2023	1970	2021-2040	April	30	416.5	1,991,822.6	416.8	1,430,868.0	416,952.0	1.00	14.30	0.48	-18.01	-2.10	96.80	-6.47	100%	0.00	0	31.30	14,828.0	1,241.1	0.0	16,079.1	0.0	970.3	1,953.0	2,990.								

Table 10b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Runoff Coefficients	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)		
199	2021	1988	2021-2020	January	31	418.5	1,591,622.0	418.25	1,404,324.0	1.00	0.00	19.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	159.9	0.00	16,413.1	1,591,622.0	1,591,622.0	1,591,622.0	418.25	1,404,324.0
199	2021	1988	2021-2020	February	29	418.5	1,591,622.0	418.27	1,417,672.0	1.00	0.00	18.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	170.8	0.00	16,424.0	1,591,622.0	1,591,622.0	1,591,622.0	418.27	1,417,672.0
199	2021	1988	2021-2020	March	31	418.5	1,591,622.0	418.29	1,431,022.0	1.00	0.00	17.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	182.6	0.00	16,434.8	1,591,622.0	1,591,622.0	1,591,622.0	418.29	1,431,022.0
199	2021	1988	2021-2020	April	30	418.5	1,591,622.0	418.30	1,444,372.0	1.00	0.00	16.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	194.4	0.00	16,445.6	1,591,622.0	1,591,622.0	1,591,622.0	418.30	1,444,372.0
199	2021	1988	2021-2020	May	31	418.5	1,591,622.0	418.31	1,457,722.0	1.00	0.00	15.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	206.2	0.00	16,456.4	1,591,622.0	1,591,622.0	1,591,622.0	418.31	1,457,722.0
199	2021	1988	2021-2020	June	30	418.5	1,591,622.0	418.32	1,471,072.0	1.00	0.00	14.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	218.0	0.00	16,467.2	1,591,622.0	1,591,622.0	1,591,622.0	418.32	1,471,072.0
199	2021	1988	2021-2020	July	31	418.5	1,591,622.0	418.33	1,484,422.0	1.00	0.00	13.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	230.0	0.00	16,478.0	1,591,622.0	1,591,622.0	1,591,622.0	418.33	1,484,422.0
199	2021	1988	2021-2020	August	31	418.5	1,591,622.0	418.34	1,497,772.0	1.00	0.00	12.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	242.0	0.00	16,488.8	1,591,622.0	1,591,622.0	1,591,622.0	418.34	1,497,772.0
199	2021	1988	2021-2020	September	30	418.5	1,591,622.0	418.35	1,511,122.0	1.00	0.00	11.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	254.0	0.00	16,499.6	1,591,622.0	1,591,622.0	1,591,622.0	418.35	1,511,122.0
199	2021	1988	2021-2020	October	31	418.5	1,591,622.0	418.36	1,524,472.0	1.00	0.00	10.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	266.0	0.00	16,510.4	1,591,622.0	1,591,622.0	1,591,622.0	418.36	1,524,472.0
199	2021	1988	2021-2020	November	30	418.5	1,591,622.0	418.37	1,537,822.0	1.00	0.00	9.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	278.0	0.00	16,521.2	1,591,622.0	1,591,622.0	1,591,622.0	418.37	1,537,822.0
199	2021	1988	2021-2020	December	31	418.5	1,591,622.0	418.38	1,551,172.0	1.00	0.00	8.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	290.0	0.00	16,532.0	1,591,622.0	1,591,622.0	1,591,622.0	418.38	1,551,172.0
200	2022	1989	2021-2020	January	31	418.5	1,591,622.0	418.39	1,564,522.0	1.00	0.00	7.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	302.0	0.00	16,542.8	1,591,622.0	1,591,622.0	1,591,622.0	418.39	1,564,522.0
200	2022	1989	2021-2020	February	29	418.5	1,591,622.0	418.40	1,577,872.0	1.00	0.00	6.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	314.0	0.00	16,553.6	1,591,622.0	1,591,622.0	1,591,622.0	418.40	1,577,872.0
200	2022	1989	2021-2020	March	31	418.5	1,591,622.0	418.41	1,591,222.0	1.00	0.00	5.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	326.0	0.00	16,564.4	1,591,622.0	1,591,622.0	1,591,622.0	418.41	1,591,222.0
200	2022	1989	2021-2020	April	30	418.5	1,591,622.0	418.42	1,604,572.0	1.00	0.00	4.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	338.0	0.00	16,575.2	1,591,622.0	1,591,622.0	1,591,622.0	418.42	1,604,572.0
200	2022	1989	2021-2020	May	31	418.5	1,591,622.0	418.43	1,617,922.0	1.00	0.00	3.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	350.0	0.00	16,586.0	1,591,622.0	1,591,622.0	1,591,622.0	418.43	1,617,922.0
200	2022	1989	2021-2020	June	30	418.5	1,591,622.0	418.44	1,631,272.0	1.00	0.00	2.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	362.0	0.00	16,596.8	1,591,622.0	1,591,622.0	1,591,622.0	418.44	1,631,272.0
200	2022	1989	2021-2020	July	31	418.5	1,591,622.0	418.45	1,644,622.0	1.00	0.00	1.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	374.0	0.00	16,607.6	1,591,622.0	1,591,622.0	1,591,622.0	418.45	1,644,622.0
200	2022	1989	2021-2020	August	31	418.5	1,591,622.0	418.46	1,657,972.0	1.00	0.00	0.20	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	386.0	0.00	16,618.4	1,591,622.0	1,591,622.0	1,591,622.0	418.46	1,657,972.0
200	2022	1989	2021-2020	September	30	418.5	1,591,622.0	418.47	1,671,322.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	398.0	0.00	16,629.2	1,591,622.0	1,591,622.0	1,591,622.0	418.47	1,671,322.0
200	2022	1989	2021-2020	October	31	418.5	1,591,622.0	418.48	1,684,672.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	410.0	0.00	16,640.0	1,591,622.0	1,591,622.0	1,591,622.0	418.48	1,684,672.0
200	2022	1989	2021-2020	November	30	418.5	1,591,622.0	418.49	1,698,022.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	422.0	0.00	16,650.8	1,591,622.0	1,591,622.0	1,591,622.0	418.49	1,698,022.0
200	2022	1989	2021-2020	December	31	418.5	1,591,622.0	418.50	1,711,372.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	434.0	0.00	16,661.6	1,591,622.0	1,591,622.0	1,591,622.0	418.50	1,711,372.0
201	2023	1990	2021-2020	January	31	418.5	1,591,622.0	418.51	1,724,722.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	446.0	0.00	16,672.4	1,591,622.0	1,591,622.0	1,591,622.0	418.51	1,724,722.0
201	2023	1990	2021-2020	February	29	418.5	1,591,622.0	418.52	1,738,072.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	458.0	0.00	16,683.2	1,591,622.0	1,591,622.0	1,591,622.0	418.52	1,738,072.0
201	2023	1990	2021-2020	March	31	418.5	1,591,622.0	418.53	1,751,422.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	470.0	0.00	16,694.0	1,591,622.0	1,591,622.0	1,591,622.0	418.53	1,751,422.0
201	2023	1990	2021-2020	April	30	418.5	1,591,622.0	418.54	1,764,772.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	482.0	0.00	16,704.8	1,591,622.0	1,591,622.0	1,591,622.0	418.54	1,764,772.0
201	2023	1990	2021-2020	May	31	418.5	1,591,622.0	418.55	1,778,122.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	494.0	0.00	16,715.6	1,591,622.0	1,591,622.0	1,591,622.0	418.55	1,778,122.0
201	2023	1990	2021-2020	June	30	418.5	1,591,622.0	418.56	1,791,472.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	506.0	0.00	16,726.4	1,591,622.0	1,591,622.0	1,591,622.0	418.56	1,791,472.0
201	2023	1990	2021-2020	July	31	418.5	1,591,622.0	418.57	1,804,822.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	518.0	0.00	16,737.2	1,591,622.0	1,591,622.0	1,591,622.0	418.57	1,804,822.0
201	2023	1990	2021-2020	August	31	418.5	1,591,622.0	418.58	1,818,172.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	530.0	0.00	16,748.0	1,591,622.0	1,591,622.0	1,591,622.0	418.58	1,818,172.0
201	2023	1990	2021-2020	September	30	418.5	1,591,622.0	418.59	1,831,522.0	1.00	0.00	0.00	-4.70	20.00	+7.20	100%	0.00	0.00	0.00	37.30	16,253.2	542.0	0.00	16,758.8	1,591,622.0	1,591,622.0			

Table 10b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 6.1 mm/d sublimation, 2% snow drift loss, 0.60 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	Total Inflow (mm)	Total Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month Discharge (mm)	Total WSEL Change (mm)											
																											Open Water	Natural Operations Area	Evaporation	Forecast Evaporation Change	Sublimation	Forecast Sublimation Change	Total Inflow	Total Outflow	Net Inflow	End of Month WSEL	End of Month Volume
118	2025	1987	2021-2020	October	31	418.5	1,591,622.0	418.4	1,318,703.0	418,592.0	1.00	14.53	0.45	-2.07	-0.10	37.20	-5.68	33%	0.00	-0.93	37.30	26,163.8	292.6	0.0	34,819.9	1,520.0	0.0	22.8	6,728	78,758.9	1,347,461.0	0.0	1,347,461.0	418.18	1,347,461.0	418.18	
119	2025	1987	2021-2020	November	30	418.5	1,591,622.0	418.18	1,347,461.0	418,592.0	1.00	14.53	0.45	-2.07	-0.10	37.20	-5.68	33%	0.00	-0.93	37.30	26,163.8	292.6	0.0	34,819.9	1,520.0	0.0	22.8	6,728	78,758.9	1,347,461.0	0.0	1,347,461.0	418.18	1,347,461.0	418.18	
120	2025	1987	2021-2020	December	31	418.5	1,591,622.0	418.18	1,347,461.0	418,592.0	1.00	14.53	0.45	-2.07	-0.10	37.20	-5.68	33%	0.00	-0.93	37.30	26,163.8	292.6	0.0	34,819.9	1,520.0	0.0	22.8	6,728	78,758.9	1,347,461.0	0.0	1,347,461.0	418.18	1,347,461.0	418.18	
121	2026	1988	2021-2020	January	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
122	2026	1988	2021-2020	February	29	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
123	2026	1988	2021-2020	March	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
124	2026	1988	2021-2020	April	30	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
125	2026	1988	2021-2020	May	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
126	2026	1988	2021-2020	June	30	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
127	2026	1988	2021-2020	July	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
128	2026	1988	2021-2020	August	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
129	2026	1988	2021-2020	September	30	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
130	2026	1988	2021-2020	October	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
131	2026	1988	2021-2020	November	30	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
132	2026	1988	2021-2020	December	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
133	2027	1989	2021-2020	January	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
134	2027	1989	2021-2020	February	29	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
135	2027	1989	2021-2020	March	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
136	2027	1989	2021-2020	April	30	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
137	2027	1989	2021-2020	May	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
138	2027	1989	2021-2020	June	30	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
139	2027	1989	2021-2020	July	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
140	2027	1989	2021-2020	August	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
141	2027	1989	2021-2020	September	30	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
142	2027	1989	2021-2020	October	31	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428,028.0	418.28	1,428,028.0	418.28
143	2027	1989	2021-2020	November	30	418.5	1,591,622.0	418.24	1,351,429.0	418,592.0	1.00	14.53	0.45	-19.24	-0.80	38.00	-10.20	85%	0.00	-1.30	38.00	22,882.0	186.0	0.0	37,954.0	1,520.0	0.0	37,954.0	1,520.0	0.0	18,664.0	1,428,028.0	0.0	1,428			

Table 10b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 6.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Forecast Day	Forecast Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficients	Runoff Coefficients	Runoff Coefficients	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflows (mm)	TSF Outflows (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)									
278	2084	1978	2021-2100	October	31	4185	159162.0	4183	145120.9	0.169922	1.00	11.4308	0.45	-0.00	21.50	-5.68	0%	35.84	-8.93	0%	31.30	2684.8	159.9	0%	16.864	27502	973	0%	2162.3	11707	1,439,488	0.0	1,439,488	4183			
278	2084	1978	2021-2100	November	30	4185	159162.0	4183	145948.9	0.169922	1.00	11.4308	0.45	0.00	21.50	-5.68	88%	0.00	0.00	0%	31.30	2684.8	246.8	0%	20.978	27502	973	0%	2162.3	11707	1,439,488	0.0	1,439,488	4183			
278	2084	1978	2021-2100	December	31	4185	159162.0	4183	146817.8	0.169922	1.00	11.4308	0.45	-0.00	21.50	-5.68	0%	35.84	-8.93	0%	31.30	2684.8	246.8	0%	20.978	27502	973	0%	2162.3	11707	1,439,488	0.0	1,439,488	4183			
279	2085	1979	2021-2100	January	31	4185	159162.0	4183	148016.5	0.169922	1.00	11.4308	0.45	-0.00	22.20	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	96.7	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	February	29	4185	159162.0	4183	148478.4	0.169922	1.00	11.4308	0.45	-0.00	18.75	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	March	31	4185	159162.0	4183	151134.3	0.169922	1.00	11.4308	0.45	-0.00	21.50	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	April	30	4185	159162.0	4184	154839.3	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	May	31	4185	159162.0	4184	157683.2	0.169922	1.00	11.4308	0.45	0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	June	30	4185	159162.0	4184	158183.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	July	31	4185	159162.0	4184	160281.8	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	August	31	4185	159162.0	4184	161523.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	September	30	4185	159162.0	4184	162233.8	0.169922	1.00	11.4308	0.45	0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	October	31	4185	159162.0	4184	163043.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	November	30	4185	159162.0	4184	163943.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
279	2085	1979	2021-2100	December	31	4185	159162.0	4184	164843.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	January	31	4185	159162.0	4184	165843.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	February	29	4185	159162.0	4184	166743.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	March	31	4185	159162.0	4184	168643.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	April	30	4185	159162.0	4184	170543.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	May	31	4185	159162.0	4184	172443.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	June	30	4185	159162.0	4184	174343.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	July	31	4185	159162.0	4184	176243.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	August	31	4185	159162.0	4184	178143.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	September	30	4185	159162.0	4184	180043.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	October	31	4185	159162.0	4184	181943.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	November	30	4185	159162.0	4184	183843.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
280	2086	1980	2021-2100	December	31	4185	159162.0	4184	185743.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
281	2087	1981	2021-2100	January	31	4185	159162.0	4184	187643.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
281	2087	1981	2021-2100	February	29	4185	159162.0	4184	189543.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%	1633	2465	1,317	0%	1,650	1,581,740	0.0	1,474,740	4183
281	2087	1981	2021-2100	March	31	4185	159162.0	4184	191443.2	0.169922	1.00	11.4308	0.45	-0.00	19.00	-5.68	0%	35.84	-8.93	0%	31.30	1129.4	165.5	0%	1125.8	0.0	973	0%									

Table 10b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0.1 mm/d sublimation, 2% snow drift loss, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of Tank (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficients	Runoff Coefficients	Runoff Coefficients	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)				
2021	2027	2001	2021-2100	January	31	418.5	1,591,622.0	418.6	1,612,822.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	16.65	0.00	20,816.0	0.00	1,612,822.0	3,106.0	1,615,928.0	418.6	1,615,928.0
2021	2027	2001	2021-2100	February	29	418.5	1,591,622.0	418.6	1,578,022.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2021	2027	2001	2021-2100	March	31	418.5	1,591,622.0	418.6	1,544,222.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2021	2027	2001	2021-2100	April	30	418.5	1,591,622.0	418.6	1,510,422.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2021	2027	2001	2021-2100	May	31	418.5	1,591,622.0	418.6	1,476,622.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2021	2027	2001	2021-2100	June	30	418.5	1,591,622.0	418.6	1,442,822.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2021	2027	2001	2021-2100	July	31	418.5	1,591,622.0	418.6	1,409,022.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2021	2027	2001	2021-2100	August	31	418.5	1,591,622.0	418.6	1,375,422.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2021	2027	2001	2021-2100	September	30	418.5	1,591,622.0	418.6	1,341,822.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2021	2027	2001	2021-2100	October	31	418.5	1,591,622.0	418.6	1,308,222.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2021	2027	2001	2021-2100	November	30	418.5	1,591,622.0	418.6	1,274,622.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2021	2027	2001	2021-2100	December	31	418.5	1,591,622.0	418.6	1,241,022.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	January	31	418.5	1,591,622.0	418.6	1,207,422.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	February	29	418.5	1,591,622.0	418.6	1,173,822.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	March	31	418.5	1,591,622.0	418.6	1,140,222.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	April	30	418.5	1,591,622.0	418.6	1,106,622.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	May	31	418.5	1,591,622.0	418.6	1,073,022.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	June	30	418.5	1,591,622.0	418.6	1,039,422.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	July	31	418.5	1,591,622.0	418.6	1,005,822.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	August	31	418.5	1,591,622.0	418.6	972,222.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	September	30	418.5	1,591,622.0	418.6	938,622.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	October	31	418.5	1,591,622.0	418.6	905,022.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	November	30	418.5	1,591,622.0	418.6	871,422.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2022	2028	2002	2021-2100	December	31	418.5	1,591,622.0	418.6	837,822.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2023	2029	2003	2021-2100	January	31	418.5	1,591,622.0	418.6	804,222.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2023	2029	2003	2021-2100	February	29	418.5	1,591,622.0	418.6	770,622.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2023	2029	2003	2021-2100	March	31	418.5	1,591,622.0	418.6	737,022.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2023	2029	2003	2021-2100	April	30	418.5	1,591,622.0	418.6	703,422.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2023	2029	2003	2021-2100	May	31	418.5	1,591,622.0	418.6	669,822.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20	94%	0.00	0.00	0.00	0.00	31.30	19,273.0	11.16	0.00	13,546.0	0.00	1,612,822.0	2,797.0	1,615,619.0	418.6	1,615,619.0
2023	2029	2003	2021-2100	June	30	418.5	1,591,622.0	418.6	636,222.0	418,592.0	1.00	1.00	1.00	11.80	-9.00	-22.00	+10.20																

Table 18b: Multi-Year Wet Cover Model (2032-2432): 31.3 m³/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflow/Outflow (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)			
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Applied	Total Inflows	Plant Evaporation	Average	Sublimation Losses	Wind Drift Losses						Total Outflows		
323	2429	1974	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.48	+0.00	22.60	-5.68	21%	82.15	+8.30	0.00	18,423.7	402.7	0.0	48,852.3	15,123.3	939.0	0.0	202.6	11,243.9	37,562.5	1,591,632.0	418.50						
323	2429	1974	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.70	+0.00	100.50	-5.68	7%	82.15	+8.30	0.00	65,929.2	548.2	0.0	66,477.4	61,208.2	970.3	0.0	90.3	62,298.9	4,210.6	1,591,632.0	418.50						
323	2429	1974	2071-2100	June	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	1.98	+0.00	117.70	-5.68	0%	130.00	+8.30	0.00	87,834.4	66.1	0.0	88,000.5	88,000.5	939.0	0.0	0.0	87,161.5	838.0	1,591,632.0	418.47						
323	2429	1974	2071-2100	July	31	418.5	1,591,632.0	418.47	1,592,277.8	1,430.0	0.45	20.42	+0.00	151.10	-8.03	0%	148.91	+5.00	0.00	111,767.0	591.9	0.0	112,358.9	96,781.3	970.3	0.0	0.0	97,751.6	25,607.3	1,543,254.5	418.44						
323	2429	1974	2071-2100	August	31	418.5	1,591,632.0	418.44	1,543,294.3	1,430.0	0.45	18.84	+0.00	159.30	-8.03	0%	79.40	+4.54	0.00	93,568.9	778.1	0.0	94,347.0	91,308.4	970.3	0.0	0.0	92,278.7	48,070.3	1,586,364.8	418.49						
323	2429	1974	2071-2100	September	30	418.5	1,591,632.0	418.49	1,585,364.8	1,430.0	0.45	8.42	+0.00	97.90	+5.68	0%	47.90	+10.01	0.00	39,300.9	327.1	0.0	39,628.0	38,632.6	939.0	0.0	46.6	39,066.0	1,588,401.4	418.50							
323	2429	1974	2071-2100	October	31	418.5	1,591,632.0	418.50	1,588,901.4	1,430.0	0.45	4.00	+0.00	20.60	+5.68	32%	37.20	+8.93	0.00	18,070.9	223.9	0.0	18,294.8	28,533.7	970.3	0.0	101.7	20,688.1	1,444.3	1,588,901.4	418.49						
323	2429	1974	2071-2100	November	30	418.5	1,591,632.0	418.49	1,586,950.7	1,430.0	0.45	-3.40	+0.00	20.80	+5.68	93%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18,918.0	0.0	939.0	0.0	308.9	1,247.5	1,586,227.3	1,036.7	1,581,632.0	418.50				
323	2429	1974	2071-2100	December	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.96	+0.00	9.90	+10.20	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18,932.0	139.4	0.0	19,071.4	18,926.6	0.0	970.3	1,976.3	1,589,655.7	1,317.9	1,581,632.0	418.50		
324	2430	1975	2071-2100	January	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-15.20	+0.00	82.60	+10.20	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17,432.2	477.4	0.0	970.3	1,876.6	1,114.1	3,964.0	63,916.6	1,645,549.1	53,916.6	1,581,632.0	418.50		
324	2430	1975	2071-2100	February	29	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-14.30	+0.00	84.50	+10.20	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17,464.4	176.5	0.0	970.3	1,892.0	415.2	2,985.0	18,859.3	1,632,291.9	18,859.3	1,581,632.0	418.50		
324	2430	1975	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	8.92	+0.00	48.60	+5.68	97%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33,717.7	290.3	0.0	34,058.0	0.0	970.3	1,866.3	6,664.0	2,511.0	26,499.0	1,621,101.5	36,499.0	1,581,632.0	418.50
324	2430	1975	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	0.27	+0.00	88.90	+6.68	22%	0.00	+8.33	0.00	18,330.0	273.9	0.0	18,603.9	18,102.3	939.0	0.0	121.8	18,281.1	16,644.1	1,608,278.6	16,644.1	1,581,632.0	418.50				
324	2430	1975	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	12.42	+0.00	86.90	+5.68	0%	120.00	+8.80	0.00	120,000.0	31,041.9	2,041.0	122,041.9	84,968.1	970.3	0.0	0.0	85,968.4	3,973.5	1,588,901.4	418.37						
324	2430	1975	2071-2100	June	30	418.5	1,591,632.0	418.47	1,586,989.2	1,430.0	0.45	16.40	+0.00	86.30	-8.03	0%	102.40	+5.00	0.00	102,400.0	464.0	0.0	102,864.0	87,155.5	939.0	0.0	0.0	86,115.9	21,748.5	1,523,906.4	418.41						
324	2430	1975	2071-2100	July	31	418.5	1,591,632.0	418.41	1,523,906.4	1,430.0	0.45	21.71	+4.40	89.30	-8.03	0%	137.89	+3.50	0.00	137,890.0	3,151.0	0.0	141,041.0	89,968.2	970.3	0.0	0.0	90,338.5	50,702.7	1,471,180.7	418.34						
324	2430	1975	2071-2100	August	31	418.5	1,591,632.0	418.34	1,411,180.7	1,430.0	0.45	16.52	+0.00	141.10	-8.03	0%	89.70	+4.54	0.00	89,700.0	4,154.0	0.0	93,854.0	67.63	0.0	93,921.7	92,298.3	970.3	0.0	0.0	92,298.3	23,106.1	1,484,286.8	418.31			
324	2430	1975	2071-2100	September	30	418.5	1,591,632.0	418.37	1,484,286.8	1,430.0	0.45	10.56	+0.00	69.90	+5.68	0%	47.90	+10.01	0.00	47,900.0	455.4	0.0	48,355.4	39,653.3	939.0	0.0	0.0	39,653.3	3,739.6	1,523,906.4	418.38						
324	2430	1975	2071-2100	October	31	418.5	1,591,632.0	418.38	1,523,906.4	1,430.0	0.45	6.21	+0.00	48.80	+5.68	0%	40.30	+8.93	0.00	40,300.0	370.7	2,041.0	40,770.7	2,041.0	970.3	0.0	35.9	37,439.9	2,522.4	1,506,187.8	418.39						
324	2430	1975	2071-2100	November	30	418.5	1,591,632.0	418.39	1,506,187.8	1,430.0	0.45	2.13	+0.00	23.60	+5.68	79%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18,113.8	168.8	0.0	18,282.6	0.0	939.0	0.0	288.2	1,227.2	1,523,226.6	418.41			
324	2430	1975	2071-2100	December	31	418.5	1,591,632.0	418.41	1,523,226.6	1,430.0	0.45	-14.50	+0.00	20.60	+10.20	96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28,732.8	214.0	0.0	28,946.8	468.8	3,001.6	22,742.9	1,545,967.9	418.44					
325	2431	1976	2071-2100	January	31	418.5	1,591,632.0	418.44	1,545,967.9	1,430.0	0.45	-18.10	+0.00	44.20	+10.20	99%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33,662.2	279.8	0.0	33,942.0	971.4	3,573.9	35,336.1	1,576,124.0	418.48					
325	2431	1976	2071-2100	February	29	418.5	1,591,632.0	418.48	1,576,124.0	1,430.0	0.45	-10.80	+0.00	30.30	+10.20	98%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29,921.1	289.3	0.0	30,210.4	0.0	970.3	723.8	403.6	3,190.3	1,576,124.0	418.50			
325	2431	1976	2071-2100	March	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	-8.40	+0.00	53.90	+5.68	76%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31,329.9	300.5	0.0	31,630.4	364.8	3,019.1	34,143.9	1,528,716.4	34,143.9	1,581,632.0	418.50			
325	2431	1976	2071-2100	April	30	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	4.90	+0.00	63.90	+5.68	0%	0.00	+8.33	0.00	18,330.0	43,621.1	307.9	18,761.1	15,123.3	939.0	0.0	0.0	15,123.3	32,358.8	1,623,991.3	32,358.8	1,581,632.0	418.50				
325	2431	1976	2071-2100	May	31	418.5	1,591,632.0	418.50	1,591,632.0	1,430.0	0.45	15.60	+0.00	12.60	+5.68	0%	139.76	+3.80	0.00	139,760.0	1,432.2	91.1	141,192.2	91.1	0.0	141,283.3	96,364.1	970.3	0.0	0.0	96,364.1	43,836.1	1,627,827.5	418.39			
325	2431	1976	2071-2100	June	30	418.5	1,591,632.0	418.39	1,507,827.5	1,430.0	0.45	18.12	+4.40	133.70	-8.03	0%	118.89	+6.20	0.00	118,890.0	640.4	0.0	119,530.4	77,376.4	939.0	0.0	0.0	78,115.4	41.5	1,507,891.0	418.39						
325	2431	1976	2071-2100	July	31	418.5	1,591,632.0	418.39	1,507,891.0	1,430.0	0.45	19.17	+4.40	63.70	-8.03	0%	141.64	+2.50	0.00	141,640.0	34,431.7	2,041.0	143,681.7	82,285.0	970.3	0.0	0.0	82,285.0	46,532.2	1,460,358.8	418.31						
325	2431	1976	2071-2100	August	31	418.5	1,591,632.0	418.31	1,460,358.8	1,430.0	0.45	18.62	+4.40	67.10	-8.03	0%	122.40	+4.54	0.00	122,400.0	36,538.9	3,019.1	125,438.9	82,285.0	970.3	0.0	0.0	79,451.6	46,161.8	1,409,248.4	418.26						
325	2431	1976	2071-2100	September	30	418.5	1,591,632.0	418.36	1,406,784.8	1,430.0	0.45	13.02	+0.00	99.50	+5.68	0%	79.20	+10.01	0.00	79,200.0	19,811.0	31,019.1	99,011.0	48,817.8	939.0	0.0	0.0	48,817.8	22,378.4	1,384,406							

Model Inputs	
First Year of Simulation	2022
Source of Climate Record	Actual
Climate Change Scenario	CP4.5
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m)	1.91E+06
Area of Open Water Within TSP (m ²)	619,666
Runoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m ²)	14,438
Runoff Coefficient for Restored Lands Within TSP	0.5
Evaporation from TSP (mm)	200.0
Supplementary Water Addition (m ³ /d)	0.0
Trigger Elevation for Supplementary Water Addition (mASL)	416.10
Sublimation Losses in Winter (mm/season)	10
Wind Drift Losses in Winter (% of snowfall)	2%

NOTES: 1. The climate projection was obtained from the output of the TSP from the last open water season. 2. Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Change in Puff Snow".

Table 16: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 6.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Year	Month	Day	Invert Elevation (m)	Capacity of TSP (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water Area (m ²)	Runoff Coefficient	Restored Area (m ²)	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	As Precipitation as Snowfall (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Average (m/s)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool Evaporation	Average	TSP Sublimation	Wind Drift Losses	Total Outflow	Net Inflow (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month Volume (m ³)					
1	2022	1969	2021-2040	January	31	416.5	1,919,622.6	416.43	1,939,869	416,992.2	1.00	14,438.0	0.45	-18.01	-2.10	96.80	-6.47	100%	0.00	0	200.0	63,877.6	531.2	0.0	64,408.8	0.0	6,200.0	1,933.0	1,286.2	8,441.2	54,967.6	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
2	2022	1969	2021-2040	February	28	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-12.78	-2.10	10.40	-6.47	100%	0.00	0	200.0	130,830.0	108.9	0.0	131,919.0	0.0	6,200.0	1,933.0	1,286.2	7,608.0	53,979.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
3	2022	1969	2021-2040	March	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-7.39	-2.10	15.10	-6.47	100%	0.00	0	200.0	61,754.6	763.3	0.0	62,317.9	0.0	6,200.0	1,933.0	1,286.2	8,338.0	53,737.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
4	2022	1969	2021-2040	April	30	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-2.44	-2.10	79.40	-6.47	0%	0.00	-19.52	200.0	14,838.0	1,241.1	0.0	16,086.1	0.0	6,200.0	1,933.0	1,286.2	8,000.0	0.0	0	12,588.0	2,244.1	1,584,726.0	2,244.1	1,931,632.6	416.50	416.50
5	2022	1969	2021-2040	May	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	9.93	-2.10	49.20	-6.47	0%	0.00	-18.12	200.0	48,114.8	2,947.7	0.0	51,062.5	0.0	6,200.0	1,933.0	1,286.2	56,846.0	45,126.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
6	2022	1969	2021-2040	June	30	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	11.08	-2.10	62.80	-6.37	0%	0.00	-24.29	200.0	47,279.3	3,932.0	0.0	51,211.3	0.0	6,200.0	1,933.0	1,286.2	57,151.0	40,164.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
7	2022	1969	2021-2040	July	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	17.43	-2.10	118.50	-6.37	0%	0.00	-30.40	200.0	69,362.2	5,928.0	0.0	75,290.2	0.0	6,200.0	1,933.0	1,286.2	80,490.0	62,221.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
8	2022	1969	2021-2040	August	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	18.09	-2.10	168.90	-6.37	0%	0.00	-35.16	200.0	94,262.4	7,846.0	0.0	102,108.4	0.0	6,200.0	1,933.0	1,286.2	108,300.0	79,307.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
9	2022	1969	2021-2040	September	30	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	17.68	-2.10	119.60	-6.37	0%	0.00	-34.20	200.0	105,808.0	6,411.0	0.0	112,219.0	0.0	6,200.0	1,933.0	1,286.2	118,420.0	87,219.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
10	2022	1969	2021-2040	October	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	21.77	-2.10	235.00	-6.37	9%	19.43	-43.56	200.0	42,970.7	351.0	0.0	43,322.4	0.0	6,200.0	1,933.0	1,286.2	44,603.0	37,158.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
11	2022	1969	2021-2040	November	30	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	18.87	-2.10	134.20	-6.47	89%	0.00	-34.20	200.0	24,683.0	203.0	0.0	24,886.0	0.0	6,200.0	1,933.0	1,286.2	25,111.0	18,171.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
12	2022	1969	2021-2040	December	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-10.72	-2.10	35.40	-6.47	100%	0.00	0	200.0	20,940.0	214.0	0.0	21,154.0	0.0	6,200.0	1,933.0	1,286.2	21,368.0	14,737.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
13	2023	1970	2021-2040	January	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-16.40	-2.10	39.40	-6.47	100%	0.00	0	200.0	20,974.0	214.0	0.0	21,188.0	0.0	6,200.0	1,933.0	1,286.2	21,399.0	14,737.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
14	2023	1970	2021-2040	February	28	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-11.30	-2.10	29.20	-6.47	100%	0.00	0	200.0	19,804.0	162.9	0.0	19,966.9	0.0	6,200.0	1,933.0	1,286.2	20,136.0	13,911.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
15	2023	1970	2021-2040	March	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-6.78	-2.10	34.80	-6.47	51%	0.00	0	200.0	24,441.0	204.0	0.0	24,645.0	0.0	6,200.0	1,933.0	1,286.2	24,849.0	16,221.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
16	2023	1970	2021-2040	April	30	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-0.31	-2.10	54.80	-6.47	33%	0.00	-18.12	200.0	36,625.0	306.2	0.0	37,011.0	0.0	6,200.0	1,933.0	1,286.2	37,217.0	24,364.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
17	2023	1970	2021-2040	May	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	7.42	-2.10	89.50	-6.47	0%	0.00	-70.22	-18.12	200.0	48,289.8	484.7	0.0	48,774.5	0.0	6,200.0	1,933.0	1,286.2	49,259.0	32,427.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50		
18	2023	1970	2021-2040	June	30	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	17.68	-2.10	119.60	-6.37	0%	0.00	-34.20	200.0	54,841.0	461.0	0.0	55,302.0	0.0	6,200.0	1,933.0	1,286.2	56,063.0	38,191.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
19	2023	1970	2021-2040	July	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	28.83	-2.10	197.00	-6.37	0%	0.00	-45.20	200.0	72,904.0	2,743.0	0.0	75,647.0	0.0	6,200.0	1,933.0	1,286.2	78,391.0	50,183.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
20	2023	1970	2021-2040	August	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	18.09	-2.10	168.90	-6.37	0%	0.00	-35.16	200.0	93,311.0	2,258.0	0.0	95,569.0	0.0	6,200.0	1,933.0	1,286.2	99,767.0	64,222.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
21	2023	1970	2021-2040	September	30	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	18.89	-2.10	134.20	-6.47	2%	48.89	-46.88	200.0	61,131.0	717.0	0.0	61,848.0	0.0	6,200.0	1,933.0	1,286.2	62,565.0	39,132.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
22	2023	1970	2021-2040	October	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	21.77	-2.10	235.00	-6.47	0%	0.00	-43.20	200.0	41,532.0	674.0	0.0	42,206.0	0.0	6,200.0	1,933.0	1,286.2	42,880.0	27,911.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
23	2023	1970	2021-2040	November	30	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-10.72	-2.10	35.40	-6.47	100%	0.00	0	200.0	20,974.0	214.0	0.0	21,188.0	0.0	6,200.0	1,933.0	1,286.2	21,399.0	14,737.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
24	2023	1970	2021-2040	December	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-16.40	-2.10	39.40	-6.47	100%	0.00	0	200.0	20,974.0	214.0	0.0	21,188.0	0.0	6,200.0	1,933.0	1,286.2	21,399.0	14,737.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
25	2024	1971	2021-2040	January	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-11.30	-2.10	29.20	-6.47	100%	0.00	0	200.0	19,804.0	162.9	0.0	19,966.9	0.0	6,200.0	1,933.0	1,286.2	20,136.0	13,911.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
26	2024	1971	2021-2040	February	28	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-6.78	-2.10	34.80	-6.47	97%	0.00	0	200.0	21,361.0	176.3	0.0	21,537.3	0.0	6,200.0	1,933.0	1,286.2	21,753.0	14,543.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
27	2024	1971	2021-2040	March	31	416.5	1,919,622.6	416.50	1,919,622.6	416,992.2	1.00	14,438.0	0.45	-2.44	-2.10	79.40	-6.47	97%	0.00	-19.52	200.0	23,581.0	1,962.0	0.0	25,543.0	0.0	6,200.0	1,933.0	1,286.2	26,505.0	17,174.0	1,584,971.1	3,334.9	1,931,632.6	416.50	416.50			
28	2024	1971	2021-2040	April	30	416.5	1,919,622.6	416.50	1,919,622.6																														

Table 16c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.08 L/min augmentation, and RCP 4.5 Climate Change Scenario

Year	Month	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Natural Operations Area	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Sublimation Change (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)
2032	1984	1974	2071-2100	July	31	4185	1,599,620.4	4155	-2,198,913.1	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4155.0	1,599,620.4	0.00	4155.0	1,599,620.4
2032	1984	1974	2071-2100	August	31	4185	1,599,620.4	4151	-2,191,245.0	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4151.0	1,599,620.4	0.00	4151.0	1,599,620.4
2032	1984	1974	2071-2100	September	30	4185	1,599,620.4	4146	-2,183,576.9	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4146.0	1,599,620.4	0.00	4146.0	1,599,620.4
2032	1984	1974	2071-2100	October	31	4185	1,599,620.4	4141	-2,175,908.8	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4141.0	1,599,620.4	0.00	4141.0	1,599,620.4
2032	1984	1974	2071-2100	November	30	4185	1,599,620.4	4136	-2,168,240.7	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4136.0	1,599,620.4	0.00	4136.0	1,599,620.4
2032	1984	1974	2071-2100	December	31	4185	1,599,620.4	4131	-2,160,572.6	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4131.0	1,599,620.4	0.00	4131.0	1,599,620.4
2033	1985	1975	2071-2100	January	31	4185	1,599,620.4	4127	-2,152,904.5	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4127.0	1,599,620.4	0.00	4127.0	1,599,620.4
2033	1985	1975	2071-2100	February	28	4185	1,599,620.4	4123	-2,145,236.4	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4123.0	1,599,620.4	0.00	4123.0	1,599,620.4
2033	1985	1975	2071-2100	March	31	4185	1,599,620.4	4119	-2,137,568.3	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4119.0	1,599,620.4	0.00	4119.0	1,599,620.4
2033	1985	1975	2071-2100	April	30	4185	1,599,620.4	4115	-2,130,000.2	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4115.0	1,599,620.4	0.00	4115.0	1,599,620.4
2033	1985	1975	2071-2100	May	31	4185	1,599,620.4	4111	-2,122,432.1	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4111.0	1,599,620.4	0.00	4111.0	1,599,620.4
2033	1985	1975	2071-2100	June	30	4185	1,599,620.4	4107	-2,114,864.0	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4107.0	1,599,620.4	0.00	4107.0	1,599,620.4
2033	1985	1975	2071-2100	July	31	4185	1,599,620.4	4103	-2,107,295.9	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4103.0	1,599,620.4	0.00	4103.0	1,599,620.4
2033	1985	1975	2071-2100	August	31	4185	1,599,620.4	4099	-2,100,000.0	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4099.0	1,599,620.4	0.00	4099.0	1,599,620.4
2033	1985	1975	2071-2100	September	30	4185	1,599,620.4	4095	-2,092,704.1	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4095.0	1,599,620.4	0.00	4095.0	1,599,620.4
2033	1985	1975	2071-2100	October	31	4185	1,599,620.4	4091	-2,085,408.2	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4091.0	1,599,620.4	0.00	4091.0	1,599,620.4
2033	1985	1975	2071-2100	November	30	4185	1,599,620.4	4087	-2,078,112.3	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4087.0	1,599,620.4	0.00	4087.0	1,599,620.4
2033	1985	1975	2071-2100	December	31	4185	1,599,620.4	4083	-2,070,816.4	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4083.0	1,599,620.4	0.00	4083.0	1,599,620.4
2034	1986	1976	2071-2100	January	31	4185	1,599,620.4	4079	-2,063,520.5	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4079.0	1,599,620.4	0.00	4079.0	1,599,620.4
2034	1986	1976	2071-2100	February	28	4185	1,599,620.4	4075	-2,056,224.6	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4075.0	1,599,620.4	0.00	4075.0	1,599,620.4
2034	1986	1976	2071-2100	March	31	4185	1,599,620.4	4071	-2,048,928.7	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4071.0	1,599,620.4	0.00	4071.0	1,599,620.4
2034	1986	1976	2071-2100	April	30	4185	1,599,620.4	4067	-2,041,632.8	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4067.0	1,599,620.4	0.00	4067.0	1,599,620.4
2034	1986	1976	2071-2100	May	31	4185	1,599,620.4	4063	-2,034,336.9	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4063.0	1,599,620.4	0.00	4063.0	1,599,620.4
2034	1986	1976	2071-2100	June	30	4185	1,599,620.4	4059	-2,027,041.0	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4059.0	1,599,620.4	0.00	4059.0	1,599,620.4
2034	1986	1976	2071-2100	July	31	4185	1,599,620.4	4055	-2,019,745.1	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4055.0	1,599,620.4	0.00	4055.0	1,599,620.4
2034	1986	1976	2071-2100	August	31	4185	1,599,620.4	4051	-2,012,449.2	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4051.0	1,599,620.4	0.00	4051.0	1,599,620.4
2034	1986	1976	2071-2100	September	30	4185	1,599,620.4	4047	-2,005,153.3	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4047.0	1,599,620.4	0.00	4047.0	1,599,620.4
2034	1986	1976	2071-2100	October	31	4185	1,599,620.4	4043	-1,997,857.4	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4043.0	1,599,620.4	0.00	4043.0	1,599,620.4
2034	1986	1976	2071-2100	November	30	4185	1,599,620.4	4039	-1,990,561.5	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4039.0	1,599,620.4	0.00	4039.0	1,599,620.4
2034	1986	1976	2071-2100	December	31	4185	1,599,620.4	4035	-1,983,265.6	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4035.0	1,599,620.4	0.00	4035.0	1,599,620.4
2035	1987	1977	2071-2100	January	31	4185	1,599,620.4	4031	-1,975,969.7	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4031.0	1,599,620.4	0.00	4031.0	1,599,620.4
2035	1987	1977	2071-2100	February	28	4185	1,599,620.4	4027	-1,968,673.8	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4027.0	1,599,620.4	0.00	4027.0	1,599,620.4
2035	1987	1977	2071-2100	March	31	4185	1,599,620.4	4023	-1,961,377.9	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4023.0	1,599,620.4	0.00	4023.0	1,599,620.4
2035	1987	1977	2071-2100	April	30	4185	1,599,620.4	4019	-1,954,082.0	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4019.0	1,599,620.4	0.00	4019.0	1,599,620.4
2035	1987	1977	2071-2100	May	31	4185	1,599,620.4	4015	-1,946,786.1	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4015.0	1,599,620.4	0.00	4015.0	1,599,620.4
2035	1987	1977	2071-2100	June	30	4185	1,599,620.4	4011	-1,939,490.2	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4011.0	1,599,620.4	0.00	4011.0	1,599,620.4
2035	1987	1977	2071-2100	July	31	4185	1,599,620.4	4007	-1,932,194.3	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4007.0	1,599,620.4	0.00	4007.0	1,599,620.4
2035	1987	1977	2071-2100	August	31	4185	1,599,620.4	4003	-1,924,898.4	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	4003.0	1,599,620.4	0.00	4003.0	1,599,620.4
2035	1987	1977	2071-2100	September	30	4185	1,599,620.4	3999	-1,917,602.5	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	3999.0	1,599,620.4	0.00	3999.0	1,599,620.4
2035	1987	1977	2071-2100	October	31	4185	1,599,620.4	3995	-1,910,306.6	0.00	14.30	0.00	0.00	-0.00	14.81	+0.51	200.00	0.00	17,176.8	3995.0	1,599,620.4	0.00	3995.0	1,599,620.4
2035	1987	1977	2071-2100	November	30	4185	1,599,620.4	399																

Table 18c: Multi-year Wet Cover Model (2032-2432): 200 m²/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 4.5 Climate Change Scenario

Count	Passive Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of WSEL (m ³)	Initial WSEL (m)	Initial Volume (m ³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m ³ /d)	TSF Inflows (m ³)				TSF Outflows (m ³)				Net Inflows (m ³)	End of Month Volume before Discharge (m ³)	Discharge Volume (m ³)	End of Month Volume after Discharge (m ³)	End of Month WSEL after Discharge (m)		
										Area (m ²)	Runoff Coefficients	Area (m ²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflows	Percolation	Average	Sublimation Losses	Wind Drift Losses						Total Outflows	
323	2429	1974	2071-2100	April	30	418.5	1,599,632.0	405.18	8,363,861.4	0.10	11,430.8	0.45	1.48	+0.00	72.60	+5.68	21%	0.00	+10.33	200.00	48,423.7	402.7	0.0	48,826.3	10,102.3	0.000	0.0	202.6	16,304.9	32,521.5	8,471,529.9	0.0	-8,471,529.9	405.22		
323	2429	1974	2071-2100	May	31	418.5	1,599,632.0	405.22	8,471,529.9	0.10	11,430.8	0.45	1.70	+0.00	100.90	+5.68	7%	82.15	+10.80	200.00	65,929.2	548.2	0.0	66,477.4	61,208.2	0.200	0.0	90.3	67,496.5	1,078.1	8,472,348.0	0.0	-8,472,348.0	405.22		
323	2429	1974	2071-2100	June	30	418.5	1,599,632.0	405.22	8,471,529.9	0.10	11,430.8	0.45	1.98	+0.00	117.70	+5.68	0%	130.00	+0.00	200.00	87,834.4	561.1	0.0	88,405.5	89,916.5	0.000	0.0	0.0	89,916.5	4,499,700.0	0.0	-4,499,700.0	405.19			
323	2429	1974	2071-2100	July	31	418.5	1,599,632.0	405.19	8,469,765.0	0.10	11,430.8	0.45	20.42	+4.00	151.10	+0.03	0%	148.91	+1.00	200.00	111,767.0	591.9	0.0	112,358.9	90,781.3	0.200	0.0	0.0	102,981.3	11,377.6	8,530,977.7	0.0	-8,530,977.7	405.14		
323	2429	1974	2071-2100	August	31	418.5	1,599,632.0	405.14	8,530,977.7	0.10	11,430.8	0.45	18.84	+4.00	159.30	+0.03	0%	79.40	+0.54	200.00	93,969.9	778.1	0.0	94,748.0	91,308.4	0.200	0.0	0.0	91,308.4	8,894,137.2	0.0	-8,894,137.2	405.19			
323	2429	1974	2071-2100	September	30	418.5	1,599,632.0	405.19	8,464,137.2	0.10	11,430.8	0.45	8.42	+0.00	97.90	+5.68	0%	47.90	+0.01	200.00	39,303.9	321.1	0.0	39,625.0	38,632.6	0.000	0.0	46.6	47,862.1	3,228.4	8,468,161.6	0.0	-8,468,161.6	405.19		
323	2429	1974	2071-2100	October	31	418.5	1,599,632.0	405.19	8,468,161.6	0.10	11,430.8	0.45	4.00	+0.00	36.60	+5.68	32%	37.20	+0.93	200.00	38,010.9	223.9	0.0	38,234.8	28,535.7	0.200	0.0	10.1	34,917.8	6,674.0	8,502,835.5	0.0	-8,502,835.5	405.18		
323	2429	1974	2071-2100	November	30	418.5	1,599,632.0	405.18	8,502,835.5	0.10	11,430.8	0.45	-3.40	+0.00	29.80	+5.68	93%	0.00	0	200.00	16,381.8	136.2	0.0	16,518.0	-0.0	0.000	0.0	308.9	16,208.1	8,462,028.4	0.0	-8,462,028.4	405.19			
323	2429	1974	2071-2100	December	31	418.5	1,599,632.0	405.19	8,462,028.4	0.10	11,430.8	0.45	9.84	+0.00	99.00	+10.20	96%	0.00	0	200.00	18,333.0	139.4	0.0	18,472.4	0.0	0.000	0.0	333.3	6,394.0	9,008.6	8,461,118.8	0.0	-8,461,118.8	405.21		
324	2430	1975	2071-2100	January	31	418.5	1,599,632.0	405.21	8,464,117.8	0.10	11,430.8	0.45	-15.20	+0.00	82.60	+10.20	96%	0.00	0	200.00	47,403.2	477.4	0.0	47,880.6	0.0	0.000	0.0	8,200.0	1,876.9	1,144.1	9,180.7	46,666.9	8,438,430.9	0.0	-8,438,430.9	405.27
324	2430	1975	2071-2100	February	29	418.5	1,599,632.0	405.27	8,438,430.9	0.10	11,430.8	0.45	-14.38	+0.00	24.40	+10.20	96%	0.00	0	200.00	21,484.4	176.5	0.0	21,660.9	0.0	0.000	0.0	5,600.0	1,892.0	415.2	7,707.1	15,937.7	8,421,498.2	0.0	-8,421,498.2	405.29
324	2430	1975	2071-2100	March	31	418.5	1,599,632.0	405.29	8,421,498.2	0.10	11,430.8	0.45	8.92	+0.00	48.60	+5.68	97%	0.00	0	200.00	33,717.1	290.3	0.0	34,007.4	0.0	0.000	0.0	1,066.3	666.4	8,142.1	25,296.3	3,296,259.9	0.0	-3,296,259.9	405.32	
324	2430	1975	2071-2100	April	30	418.5	1,599,632.0	405.32	3,296,259.9	0.10	11,430.8	0.45	0.27	+0.00	38.90	+6.68	22%	0.00	+0.33	200.00	27,517.9	229.3	0.0	27,747.2	18,102.3	0.000	0.0	121.8	16,224.1	11,683.1	3,384,672.9	0.0	-3,384,672.9	405.34		
324	2430	1975	2071-2100	May	31	418.5	1,599,632.0	405.34	3,384,672.9	0.10	11,430.8	0.45	12.42	+0.00	46.90	+5.68	0%	100.40	+0.00	200.00	31,941.9	298.1	0.0	32,240.0	34,968.1	0.000	0.0	0.0	31,763.1	10,899.1	8,444,968.0	0.0	-8,444,968.0	405.36		
324	2430	1975	2071-2100	June	30	418.5	1,599,632.0	405.36	3,444,968.0	0.10	11,430.8	0.45	16.40	+0.00	96.30	+0.03	0%	100.40	+0.00	200.00	34,909.0	464.0	0.0	35,373.0	37,155.0	0.000	0.0	0.0	73,178.9	11,213.0	8,462,689.9	0.0	-8,462,689.9	405.33		
324	2430	1975	2071-2100	July	31	418.5	1,599,632.0	405.33	8,462,689.9	0.10	11,430.8	0.45	21.17	+4.00	89.30	+0.03	0%	137.89	+0.00	200.00	37,807.7	318.1	0.0	38,125.8	89,968.2	0.200	0.0	0.0	90,168.2	27,560.4	8,530,649.2	0.0	-8,530,649.2	405.16		
324	2430	1975	2071-2100	August	31	418.5	1,599,632.0	405.16	8,530,649.2	0.10	11,430.8	0.45	16.52	+4.00	161.10	+0.03	0%	89.70	+0.54	200.00	41,652.4	679.0	0.0	42,331.4	50,296.3	0.000	0.0	0.0	64,498.9	17,874.6	8,602,789.7	0.0	-8,602,789.7	405.18		
324	2430	1975	2071-2100	September	30	418.5	1,599,632.0	405.18	8,602,789.7	0.10	11,430.8	0.45	10.56	+0.00	69.90	+5.68	0%	47.90	+0.01	200.00	40,574.4	378.5	0.0	40,952.9	36,353.0	0.000	0.0	0.0	41,576.3	4,214.6	8,498,451.2	0.0	-8,498,451.2	405.19		
324	2430	1975	2071-2100	October	31	418.5	1,599,632.0	405.19	8,498,451.2	0.10	11,430.8	0.45	6.21	+0.00	48.80	+5.68	0%	40.30	+0.00	200.00	33,701.7	290.3	0.0	33,992.0	30,453.3	0.200	0.0	34.9	38,889.2	2,707.3	8,501,158.4	0.0	-8,501,158.4	405.18		
324	2430	1975	2071-2100	November	30	418.5	1,599,632.0	405.18	8,501,158.4	0.10	11,430.8	0.45	2.13	+0.00	23.60	+5.68	0%	0.00	0	200.00	18,118.9	168.8	0.0	18,287.7	0.0	0.000	0.0	288.2	6,289.2	1,976.2	8,499,182.2	0.0	-8,499,182.2	405.20		
324	2430	1975	2071-2100	December	31	418.5	1,599,632.0	405.20	8,499,182.2	0.10	11,430.8	0.45	-14.52	+0.00	31.40	+10.20	96%	0.00	0	200.00	29,732.5	214.0	0.0	29,946.5	0.0	0.000	0.0	6,200.0	1,964.8	468.8	8,433.3	17,813.2	8,471,665.1	0.0	-8,471,665.1	405.22
325	2431	1976	2071-2100	January	31	418.5	1,599,632.0	405.22	8,471,665.1	0.10	11,430.8	0.45	-18.13	+0.00	44.20	+10.20	99%	0.00	0	200.00	33,652.2	279.8	0.0	33,932.0	0.0	0.000	0.0	3,200.0	3,922.2	971.4	8,603.6	25,176.4	8,446,542.7	0.0	-8,446,542.7	405.26
325	2431	1976	2071-2100	February	29	418.5	1,599,632.0	405.26	8,446,542.7	0.10	11,430.8	0.45	-10.69	+0.00	30.30	+10.20	96%	0.00	0	200.00	29,921.1	299.3	0.0	30,220.4	0.0	0.000	0.0	1,000.0	773.8	404.6	8,717.1	17,443.9	8,429,598.4	0.0	-8,429,598.4	405.29
325	2431	1976	2071-2100	March	31	418.5	1,599,632.0	405.29	8,429,598.4	0.10	11,430.8	0.45	4.49	+0.00	53.90	+5.68	76%	0.00	0	200.00	36,656.4	300.5	0.0	37,129.9	0.0	0.000	0.0	1,000.0	1,444.0	364.8	8,748.8	28,914.2	8,460,183.3	0.0	-8,460,183.3	405.32
325	2431	1976	2071-2100	April	30	418.5	1,599,632.0	405.32	8,460,183.3	0.10	11,430.8	0.45	4.90	+0.00	63.90	+5.68	0%	0.00	+0.33	200.00	43,042.1	307.9	0.0	43,400.0	15,102.3	0.000	0.0	0.0	16,102.3	27,297.8	8,377,897.5	0.0	-8,377,897.5	405.35		
325	2431	1976	2071-2100	May	31	418.5	1,599,632.0	405.35	8,377,897.5	0.10	11,430.8	0.45	15.60	+0.00	12.60	+5.68	0%	139.76	+0.00	200.00	114,312.2	91.1	0.0	115,393.3	36,364.1	0.000	0.0	0.0	100,964.1	4,010.8	8,461,923.3	0.0	-8,461,923.3	405.34		
325	2431	1976	2071-2100	June	30	418.5	1,599,632.0	405.34	8,461,923.3	0.10	11,430.8	0.45	18.12	+4.00	133.70	+0.03	0%	139.89	+0.20	200.00	177,733.5	644.4	0.0	178,377.9	77,376.4	0.000	0.0	0.0	63,376.4	4,996.5	8,466,919.7	0.0	-8,466,919.7	405.23		
325	2431	1976	2071-2100	July	31	418.5	1,599,632.0	405.23	8,466,919.7	0.10	11,430.8	0.45	19.17	+4.00	63.70	+0.03	0%	140.64	+0.00	200.00	184,431.7	296.3	0.0	184,728.0	92,285.0	0.200	0.0	0.0	98,485.0	43,761.9	8,530,694.7	0.0	-8,530,694.7	405.14		
32																																				

Table 19a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0.6 mm/d sublimation, 2% snow drift losses, 0.0 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff Coeff	Natural Operations Area	Runoff Coeff	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Evaporation as Snow	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month Discharge (mm)	End of Month WSEL (m)									
																													Open Water	Runoff Coeff	Natural Operations Area	Runoff Coeff	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow
199	2021	1988	2041-2070	January	21	418.5	1,591,622.0	4128	1,422,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	18,189.0	191.2	0.0	18,370.2	0.0	0.0	18,551.2	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	February	29	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	22,362.0	191.2	0.0	22,545.6	0.0	0.0	22,729.2	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	March	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	30,546.0	191.2	0.0	30,739.2	0.0	0.0	30,932.4	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	April	30	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	38,730.0	191.2	0.0	38,923.4	0.0	0.0	39,116.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	May	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	46,914.0	191.2	0.0	47,107.4	0.0	0.0	47,300.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	June	30	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	55,098.0	191.2	0.0	55,291.4	0.0	0.0	55,484.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	July	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	63,282.0	191.2	0.0	63,475.4	0.0	0.0	63,668.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	August	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	71,466.0	191.2	0.0	71,659.4	0.0	0.0	71,852.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	September	30	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	79,650.0	191.2	0.0	79,843.4	0.0	0.0	80,036.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	October	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	87,834.0	191.2	0.0	88,027.4	0.0	0.0	88,220.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	November	30	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	96,018.0	191.2	0.0	96,211.4	0.0	0.0	96,404.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
199	2021	1988	2041-2070	December	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	104,202.0	191.2	0.0	104,395.4	0.0	0.0	104,588.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	January	28	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	20,386.0	191.2	0.0	20,579.4	0.0	0.0	20,772.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	February	29	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	28,570.0	191.2	0.0	28,763.4	0.0	0.0	28,956.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	March	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	36,754.0	191.2	0.0	36,947.4	0.0	0.0	37,140.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	April	30	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	44,938.0	191.2	0.0	45,131.4	0.0	0.0	45,324.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	May	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	53,122.0	191.2	0.0	53,315.4	0.0	0.0	53,508.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	June	30	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	61,306.0	191.2	0.0	61,499.4	0.0	0.0	61,692.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	July	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	69,490.0	191.2	0.0	69,683.4	0.0	0.0	69,876.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	August	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	77,674.0	191.2	0.0	77,867.4	0.0	0.0	78,060.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	September	30	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	85,858.0	191.2	0.0	86,051.4	0.0	0.0	86,244.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	October	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	94,042.0	191.2	0.0	94,235.4	0.0	0.0	94,428.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	November	30	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	102,226.0	191.2	0.0	102,419.4	0.0	0.0	102,612.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
200	2022	1989	2041-2070	December	31	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	110,410.0	191.2	0.0	110,603.4	0.0	0.0	110,796.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
201	2023	1990	2041-2070	January	29	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	12,566.0	191.2	0.0	12,759.4	0.0	0.0	12,952.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,649.0	412.3
201	2023	1990	2041-2070	February	28	418.5	1,591,622.0	4128	1,438,604.0	416,992.0	1.00	14.53	0.45	-0.20	-0.20	100.0	0.00	0.00	0.00	0.00	0.00	3.13	20,750.0	191.2	0.0	20,943.4	0.0	0.0	21,136.8	2,276.1	4,366.9	1,438,649.0	0.0	1,438,649.0	412.3	1,438,6	

Table 19a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Runoff Coefficient	Runoff Volume (mm)	Runoff Coefficient	Runoff Volume (mm)	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)		
243	2095	1983	2021-2100	July	31	418.5	1,591,622.0	418.26	1,426,424.1	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	136.00	-10.00	3.13	54,298.4	451.5	0.0	14,112.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	418.21	1,510,711.1
243	2095	1983	2021-2100	August	31	418.5	1,591,622.0	418.21	1,379,017.3	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	132.10	-10.50	3.13	54,298.4	451.5	0.0	14,120.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	418.11	1,510,711.1
243	2095	1983	2021-2100	September	30	418.5	1,591,622.0	418.16	1,251,789.1	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	128.20	-11.00	3.13	54,298.4	451.5	0.0	14,126.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	418.01	1,510,711.1
243	2095	1983	2021-2100	October	31	418.5	1,591,622.0	418.10	1,131,969.9	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	124.30	-11.50	3.13	54,298.4	451.5	0.0	14,132.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	417.91	1,510,711.1
243	2095	1983	2021-2100	November	30	418.5	1,591,622.0	418.04	1,012,152.7	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	120.40	-12.00	3.13	54,298.4	451.5	0.0	14,138.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	417.81	1,510,711.1
243	2095	1983	2021-2100	December	31	418.5	1,591,622.0	417.98	892,335.5	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	116.50	-12.50	3.13	54,298.4	451.5	0.0	14,144.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	417.71	1,510,711.1
244	2096	1984	2021-2100	January	31	418.5	1,591,622.0	417.92	772,518.3	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	112.60	-13.00	3.13	54,298.4	451.5	0.0	14,150.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	417.61	1,510,711.1
244	2096	1984	2021-2100	February	28	418.5	1,591,622.0	417.86	652,702.9	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	108.70	-13.50	3.13	54,298.4	451.5	0.0	14,156.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	417.51	1,510,711.1
244	2096	1984	2021-2100	March	31	418.5	1,591,622.0	417.80	532,887.5	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	104.80	-14.00	3.13	54,298.4	451.5	0.0	14,162.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	417.41	1,510,711.1
244	2096	1984	2021-2100	April	30	418.5	1,591,622.0	417.74	413,072.1	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	100.90	-14.50	3.13	54,298.4	451.5	0.0	14,168.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	417.31	1,510,711.1
244	2096	1984	2021-2100	May	31	418.5	1,591,622.0	417.68	293,256.7	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	97.00	-15.00	3.13	54,298.4	451.5	0.0	14,174.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	417.21	1,510,711.1
244	2096	1984	2021-2100	June	30	418.5	1,591,622.0	417.62	173,441.3	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	93.10	-15.50	3.13	54,298.4	451.5	0.0	14,180.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	417.11	1,510,711.1
244	2096	1984	2021-2100	July	31	418.5	1,591,622.0	417.56	53,625.9	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	89.20	-16.00	3.13	54,298.4	451.5	0.0	14,186.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	417.01	1,510,711.1
244	2096	1984	2021-2100	August	31	418.5	1,591,622.0	417.50	-66,189.5	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	85.30	-16.50	3.13	54,298.4	451.5	0.0	14,192.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	416.91	1,510,711.1
244	2096	1984	2021-2100	September	30	418.5	1,591,622.0	417.44	-146,374.1	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	81.40	-17.00	3.13	54,298.4	451.5	0.0	14,198.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	416.81	1,510,711.1
244	2096	1984	2021-2100	October	31	418.5	1,591,622.0	417.38	-226,168.7	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	77.50	-17.50	3.13	54,298.4	451.5	0.0	14,204.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	416.71	1,510,711.1
244	2096	1984	2021-2100	November	30	418.5	1,591,622.0	417.32	-306,063.3	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	73.60	-18.00	3.13	54,298.4	451.5	0.0	14,210.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	416.61	1,510,711.1
244	2096	1984	2021-2100	December	31	418.5	1,591,622.0	417.26	-385,958.5	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	69.70	-18.50	3.13	54,298.4	451.5	0.0	14,216.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	416.51	1,510,711.1
245	2097	1985	2021-2100	January	31	418.5	1,591,622.0	417.20	-465,853.7	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	65.80	-19.00	3.13	54,298.4	451.5	0.0	14,222.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	416.41	1,510,711.1
245	2097	1985	2021-2100	February	28	418.5	1,591,622.0	417.14	-545,748.9	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	61.90	-19.50	3.13	54,298.4	451.5	0.0	14,228.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	416.31	1,510,711.1
245	2097	1985	2021-2100	March	31	418.5	1,591,622.0	417.08	-625,644.1	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	58.00	-20.00	3.13	54,298.4	451.5	0.0	14,234.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	416.21	1,510,711.1
245	2097	1985	2021-2100	April	30	418.5	1,591,622.0	417.02	-705,539.3	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	54.10	-20.50	3.13	54,298.4	451.5	0.0	14,240.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	416.11	1,510,711.1
245	2097	1985	2021-2100	May	31	418.5	1,591,622.0	416.96	-785,434.5	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	50.20	-21.00	3.13	54,298.4	451.5	0.0	14,246.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	416.01	1,510,711.1
245	2097	1985	2021-2100	June	30	418.5	1,591,622.0	416.90	-865,329.7	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	46.30	-21.50	3.13	54,298.4	451.5	0.0	14,252.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	415.91	1,510,711.1
245	2097	1985	2021-2100	July	31	418.5	1,591,622.0	416.84	-945,224.9	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	42.40	-22.00	3.13	54,298.4	451.5	0.0	14,258.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	415.81	1,510,711.1
245	2097	1985	2021-2100	August	31	418.5	1,591,622.0	416.78	-1,025,120.1	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	38.50	-22.50	3.13	54,298.4	451.5	0.0	14,264.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	415.71	1,510,711.1
245	2097	1985	2021-2100	September	30	418.5	1,591,622.0	416.72	-1,105,015.3	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	34.60	-23.00	3.13	54,298.4	451.5	0.0	14,270.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	415.61	1,510,711.1
245	2097	1985	2021-2100	October	31	418.5	1,591,622.0	416.66	-1,184,910.5	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	30.70	-23.50	3.13	54,298.4	451.5	0.0	14,276.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	415.51	1,510,711.1
245	2097	1985	2021-2100	November	30	418.5	1,591,622.0	416.60	-1,264,805.7	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	26.80	-24.00	3.13	54,298.4	451.5	0.0	14,282.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	415.41	1,510,711.1
245	2097	1985	2021-2100	December	31	418.5	1,591,622.0	416.54	-1,344,700.9	1,610,592.0	1.00	11,453.0	0.45	21.00	-0.70	32.30	-14.53	0%	22.90	-24.50	3.13	54,298.4	451.5	0.0	14,288.0	97,018.5	97.0	0.0	97,018.5	1,510,711.1	415.31	1,510,711.1
246	2098	1986																														

Table 19a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0.6 mm/d sublimation, 2% snow drift losses, 0.60 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Season	Day	Invert Elevation (m)	Capacity of (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Runoff Volume (m³)	Runoff Coefficient	Runoff Volume (m³)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)	
205	2017	2006	2017-2100	October	31	418.5	1,591,622.0	418.2	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	418.2	1,591,622.0	418.2	1,308,254.0
206	2017	2006	2017-2100	November	30	418.5	1,591,622.0	418.3	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	418.3	1,591,622.0	418.3	1,308,254.0
207	2017	2006	2017-2100	December	31	418.5	1,591,622.0	418.4	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	418.4	1,591,622.0	418.4	1,308,254.0
208	2018	2006	2017-2100	January	31	418.5	1,591,622.0	418.5	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	418.5	1,591,622.0	418.5	1,308,254.0
209	2018	2006	2017-2100	February	29	418.5	1,591,622.0	418.6	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	418.6	1,591,622.0	418.6	1,308,254.0
210	2018	2006	2017-2100	March	31	418.5	1,591,622.0	418.7	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	418.7	1,591,622.0	418.7	1,308,254.0
211	2018	2006	2017-2100	April	30	418.5	1,591,622.0	418.8	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	418.8	1,591,622.0	418.8	1,308,254.0
212	2018	2006	2017-2100	May	31	418.5	1,591,622.0	418.9	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	418.9	1,591,622.0	418.9	1,308,254.0
213	2018	2006	2017-2100	June	30	418.5	1,591,622.0	419.0	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	419.0	1,591,622.0	419.0	1,308,254.0
214	2018	2006	2017-2100	July	31	418.5	1,591,622.0	419.1	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	419.1	1,591,622.0	419.1	1,308,254.0
215	2018	2006	2017-2100	August	31	418.5	1,591,622.0	419.2	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	419.2	1,591,622.0	419.2	1,308,254.0
216	2018	2006	2017-2100	September	30	418.5	1,591,622.0	419.3	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	419.3	1,591,622.0	419.3	1,308,254.0
217	2018	2006	2017-2100	October	31	418.5	1,591,622.0	419.4	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	419.4	1,591,622.0	419.4	1,308,254.0
218	2018	2006	2017-2100	November	30	418.5	1,591,622.0	419.5	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	419.5	1,591,622.0	419.5	1,308,254.0
219	2018	2006	2017-2100	December	31	418.5	1,591,622.0	419.6	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	419.6	1,591,622.0	419.6	1,308,254.0
220	2019	2006	2017-2100	January	31	418.5	1,591,622.0	419.7	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	419.7	1,591,622.0	419.7	1,308,254.0
221	2019	2006	2017-2100	February	29	418.5	1,591,622.0	419.8	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	419.8	1,591,622.0	419.8	1,308,254.0
222	2019	2006	2017-2100	March	31	418.5	1,591,622.0	419.9	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	419.9	1,591,622.0	419.9	1,308,254.0
223	2019	2006	2017-2100	April	30	418.5	1,591,622.0	420.0	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	420.0	1,591,622.0	420.0	1,308,254.0
224	2019	2006	2017-2100	May	31	418.5	1,591,622.0	420.1	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	420.1	1,591,622.0	420.1	1,308,254.0
225	2019	2006	2017-2100	June	30	418.5	1,591,622.0	420.2	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	420.2	1,591,622.0	420.2	1,308,254.0
226	2019	2006	2017-2100	July	31	418.5	1,591,622.0	420.3	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	420.3	1,591,622.0	420.3	1,308,254.0
227	2019	2006	2017-2100	August	31	418.5	1,591,622.0	420.4	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	420.4	1,591,622.0	420.4	1,308,254.0
228	2019	2006	2017-2100	September	30	418.5	1,591,622.0	420.5	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	420.5	1,591,622.0	420.5	1,308,254.0
229	2019	2006	2017-2100	October	31	418.5	1,591,622.0	420.6	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	420.6	1,591,622.0	420.6	1,308,254.0
230	2019	2006	2017-2100	November	30	418.5	1,591,622.0	420.7	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	420.7	1,591,622.0	420.7	1,308,254.0
231	2019	2006	2017-2100	December	31	418.5	1,591,622.0	420.8	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	420.8	1,591,622.0	420.8	1,308,254.0
232	2020	2006	2017-2100	January	31	418.5	1,591,622.0	420.9	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	420.9	1,591,622.0	420.9	1,308,254.0
233	2020	2006	2017-2100	February	29	418.5	1,591,622.0	421.0	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	421.0	1,591,622.0	421.0	1,308,254.0
234	2020	2006	2017-2100	March	31	418.5	1,591,622.0	421.1	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	421.1	1,591,622.0	421.1	1,308,254.0
235	2020	2006	2017-2100	April	30	418.5	1,591,622.0	421.2	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	421.2	1,591,622.0	421.2	1,308,254.0
236	2020	2006	2017-2100	May	31	418.5	1,591,622.0	421.3	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.43	0.0	35.543	3,952.25	0.0	421.3	1,591,622.0	421.3	1,308,254.0
237	2020	2006	2017-2100	June	30	418.5	1,591,622.0	421.4	1,308,254.0	0.16	253,368.0	0.16	253,368.0	4.79	-0.00	4.00	+1.12	2.97	+1.47	3.13	32.69	27.4								

Table 19a: Multi-year Wet Cover Model (2022-2432): 3.13 m/d seepage, 0.6 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Date	Invert Elevation (m)	Capacity of Wet Cover (mm)	Initial Wet Cover (mm)	Initial Volume (m³)	Open Water Area (m²)	Natural Operations Area (m²)	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Snow Accumulation (mm)	Snowmelt (mm)	Excess (mm)	Forecast Excess Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month Wet Cover (mm)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month Discharge (m³)	End of Month Wet Cover After (mm)	End of Month Volume After (m³)		
																													Open Water	Natural Operations Area
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	-19.40	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	30,332.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	417.89	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	-17.30	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	29,814.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	417.92	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	-15.20	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	29,296.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	417.95	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	-13.10	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	28,778.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	417.98	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	-11.00	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	28,260.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.01	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	-8.90	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	27,742.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.04	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	-6.80	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	27,224.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.07	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	-4.70	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	26,706.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.10	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	-2.60	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	26,188.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.13	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	-0.50	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	25,670.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.16	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	1.60	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	25,152.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.19	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	3.70	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	24,634.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.22	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	5.80	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	24,116.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.25	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	7.90	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	23,598.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.28	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	10.00	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	23,080.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.31	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	12.10	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	22,562.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.34	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	14.20	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	22,044.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.37	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	16.30	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	21,526.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.40	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	18.40	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	21,008.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.43	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	20.50	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	20,490.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.46	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	22.60	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	19,972.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.49	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	24.70	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	19,454.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.52	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	26.80	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	18,936.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.55	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	28.90	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	18,418.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.58	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	31.00	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	17,900.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.61	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	33.10	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	17,382.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.64	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	35.20	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	16,864.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.67	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	37.30	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	16,346.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.70	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	39.40	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	15,828.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.73	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	41.50	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	15,310.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.76	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	43.60	-9.30	30.40	+12.33	100%	0.00	0	313	20,371.0	252.0	0.0	14,792.0	0.0	0.0	1,130,201.0	0.0	1,130,201.0	418.79	1,102,343.0
2022	12	1920	2021-01-01	418.5	1,591,622.0	417.85	1,102,343.0	416,592.0	100	14.53	0.45	45.70	-9.30	30.40																

Table 19a: Multi-year Wet Cover Model (2022-2432): 1.13 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert Elevation (m)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficients	Runoff Coefficients	Runoff Coefficients	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflows (mm)	TSF Outflows (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)			
256	2022	2005	2021-2010	July	31	418.5	1,591,622.0	418.20	1,430,303.0	0.165002	1.00	11.53	0.43	19.7	-7.0	49.0	-14.0	0%	126.30	-15.00	3.13	21,623.3	179.9	0.0	0.0	86,013.9	42,047.7	1,360,686.0	0.0	1,330,866.0	418.20
256	2022	2005	2021-2010	August	31	418.5	1,591,622.0	418.20	1,366,088.0	0.165002	1.00	11.53	0.43	17.40	-8.0	45.0	-14.0	0%	109.00	-15.00	3.13	18,265.9	154.1	0.0	0.0	79,885.0	52,294.4	1,313,084.0	0.0	1,313,084.0	418.13
256	2022	2005	2021-2010	September	30	418.5	1,591,622.0	418.13	1,313,084.0	0.165002	1.00	11.53	0.43	15.10	-8.0	41.0	-14.0	0%	92.00	-15.00	3.13	15,109.6	121.2	0.0	0.0	72,466.0	47,166.0	1,266,310.0	0.0	1,266,310.0	418.06
256	2022	2005	2021-2010	October	31	418.5	1,591,622.0	418.12	1,303,038.0	0.165002	1.00	11.53	0.43	12.90	-8.0	37.0	-14.0	0%	75.00	-15.00	3.13	12,247.7	92.2	0.0	0.0	65,148.0	42,515.5	1,230,252.0	0.0	1,230,252.0	418.13
256	2022	2005	2021-2010	November	30	418.5	1,591,622.0	418.13	1,288,528.0	0.165002	1.00	11.53	0.43	10.60	-8.0	33.0	-14.0	0%	58.00	-15.00	3.13	9,521.1	65.0	0.0	0.0	58,919.0	36,779.0	1,202,491.0	0.0	1,202,491.0	418.16
256	2022	2005	2021-2010	December	31	418.5	1,591,622.0	418.16	1,274,818.0	0.165002	1.00	11.53	0.43	8.30	-8.0	29.0	-14.0	0%	41.00	-15.00	3.13	6,804.4	38.0	0.0	0.0	52,600.0	30,277.0	1,174,641.0	0.0	1,174,641.0	418.16
257	2023	2006	2021-2010	January	31	418.5	1,591,622.0	418.18	1,262,310.0	0.165002	1.00	11.53	0.43	6.00	-8.0	25.0	-13.0	0%	24.00	-15.00	3.13	4,125.7	18.0	0.0	0.0	45,042.0	24,173.0	1,147,468.0	0.0	1,147,468.0	418.24
257	2023	2006	2021-2010	February	28	418.5	1,591,622.0	418.21	1,251,384.0	0.165002	1.00	11.53	0.43	4.70	-8.0	21.0	-13.0	0%	17.00	-15.00	3.13	2,518.3	11.0	0.0	0.0	40,815.0	22,170.0	1,118,733.0	0.0	1,118,733.0	418.32
257	2023	2006	2021-2010	March	31	418.5	1,591,622.0	418.24	1,241,818.0	0.165002	1.00	11.53	0.43	3.40	-8.0	17.0	-13.0	0%	10.00	-15.00	3.13	1,510.6	6.0	0.0	0.0	40,588.0	13,181.0	1,090,000.0	0.0	1,090,000.0	418.40
257	2023	2006	2021-2010	April	30	418.5	1,591,622.0	418.24	1,232,288.0	0.165002	1.00	11.53	0.43	2.10	-8.0	13.0	-13.0	0%	3.00	-15.00	3.13	814.0	-0.2	0.0	0.0	40,361.0	10,244.0	1,061,244.0	0.0	1,061,244.0	418.48
257	2023	2006	2021-2010	May	31	418.5	1,591,622.0	418.24	1,222,758.0	0.165002	1.00	11.53	0.43	0.80	-8.0	9.0	-13.0	0%	0.00	-15.00	3.13	459.7	-10.2	0.0	0.0	40,134.0	7,295.0	1,032,459.0	0.0	1,032,459.0	418.56
257	2023	2006	2021-2010	June	30	418.5	1,591,622.0	418.24	1,213,228.0	0.165002	1.00	11.53	0.43	0.50	-8.0	5.0	-13.0	0%	0.00	-15.00	3.13	213.0	-20.2	0.0	0.0	39,907.0	4,386.0	1,003,641.0	0.0	1,003,641.0	418.64
257	2023	2006	2021-2010	July	31	418.5	1,591,622.0	418.24	1,203,698.0	0.165002	1.00	11.53	0.43	0.20	-8.0	1.0	-13.0	0%	0.00	-15.00	3.13	56.7	-30.2	0.0	0.0	39,680.0	1,497.0	974,868.0	0.0	974,868.0	418.72
257	2023	2006	2021-2010	August	31	418.5	1,591,622.0	418.24	1,194,168.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-40.2	0.0	0.0	39,453.0	0.0	946,065.0	0.0	946,065.0	418.80
257	2023	2006	2021-2010	September	30	418.5	1,591,622.0	418.24	1,184,638.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-80.4	0.0	0.0	39,226.0	0.0	917,262.0	0.0	917,262.0	418.88
257	2023	2006	2021-2010	October	31	418.5	1,591,622.0	418.24	1,175,108.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-120.6	0.0	0.0	39,000.0	0.0	888,468.0	0.0	888,468.0	418.96
257	2023	2006	2021-2010	November	30	418.5	1,591,622.0	418.24	1,165,578.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-160.8	0.0	0.0	38,774.0	0.0	859,674.0	0.0	859,674.0	419.04
257	2023	2006	2021-2010	December	31	418.5	1,591,622.0	418.24	1,156,048.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-201.0	0.0	0.0	38,548.0	0.0	830,880.0	0.0	830,880.0	419.12
258	2024	2007	2021-2010	January	31	418.5	1,591,622.0	418.24	1,146,518.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-241.2	0.0	0.0	38,322.0	0.0	802,086.0	0.0	802,086.0	419.20
258	2024	2007	2021-2010	February	28	418.5	1,591,622.0	418.24	1,136,988.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-281.4	0.0	0.0	38,096.0	0.0	773,292.0	0.0	773,292.0	419.28
258	2024	2007	2021-2010	March	31	418.5	1,591,622.0	418.24	1,127,458.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-321.6	0.0	0.0	37,870.0	0.0	744,498.0	0.0	744,498.0	419.36
258	2024	2007	2021-2010	April	30	418.5	1,591,622.0	418.24	1,117,928.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-361.8	0.0	0.0	37,644.0	0.0	715,704.0	0.0	715,704.0	419.44
258	2024	2007	2021-2010	May	31	418.5	1,591,622.0	418.24	1,108,398.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-402.0	0.0	0.0	37,418.0	0.0	686,910.0	0.0	686,910.0	419.52
258	2024	2007	2021-2010	June	30	418.5	1,591,622.0	418.24	1,098,868.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-442.2	0.0	0.0	37,192.0	0.0	658,116.0	0.0	658,116.0	419.60
258	2024	2007	2021-2010	July	31	418.5	1,591,622.0	418.24	1,089,338.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-482.4	0.0	0.0	36,966.0	0.0	629,322.0	0.0	629,322.0	419.68
258	2024	2007	2021-2010	August	31	418.5	1,591,622.0	418.24	1,079,808.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-522.6	0.0	0.0	36,740.0	0.0	600,528.0	0.0	600,528.0	419.76
258	2024	2007	2021-2010	September	30	418.5	1,591,622.0	418.24	1,070,278.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-562.8	0.0	0.0	36,514.0	0.0	571,734.0	0.0	571,734.0	419.84
258	2024	2007	2021-2010	October	31	418.5	1,591,622.0	418.24	1,060,748.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-603.0	0.0	0.0	36,288.0	0.0	542,940.0	0.0	542,940.0	419.92
258	2024	2007	2021-2010	November	30	418.5	1,591,622.0	418.24	1,051,218.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-643.2	0.0	0.0	36,062.0	0.0	514,146.0	0.0	514,146.0	420.00
258	2024	2007	2021-2010	December	31	418.5	1,591,622.0	418.24	1,041,688.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-683.4	0.0	0.0	35,836.0	0.0	485,352.0	0.0	485,352.0	420.08
259	2025	2008	2021-2010	January	31	418.5	1,591,622.0	418.24	1,032,158.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-723.6	0.0	0.0	35,610.0	0.0	456,558.0	0.0	456,558.0	420.16
259	2025	2008	2021-2010	February	28	418.5	1,591,622.0	418.24	1,022,628.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-763.8	0.0	0.0	35,384.0	0.0	427,764.0	0.0	427,764.0	420.24
259	2025	2008	2021-2010	March	31	418.5	1,591,622.0	418.24	1,013,098.0	0.165002	1.00	11.53	0.43	0.00	-8.0	0.0	-13.0	0%	0.00	-15.00	3.13	0.0	-804.0	0.0	0.0	35,158.0	0.0	398,970.0	0.0	398,970.0	420.32

Table 19a: Multi-Year Wet Cover Model (2032-2432): 3.13 m³/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Count	Pseudo Year	Source Year	Forecast Horizon	Month	Days	Invert Elevation (m)	Capacity of Wet Well (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water		Restored Operations Area		Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	% Precipitation as Snow	Evaporation (mm)	Forecast Evaporation Change (mm)	Seepage (m³/d)	TSF Inflows (m³)				TSF Outflows (m³)				Net Inflows (m³)	End of Month Volume before Discharge (m³)	Discharge Volume (m³)	End of Month Volume after Discharge (m³)	List of Month WSEL after Discharge (m)
										Area (m²)	Runoff Coefficients	Area (m²)	Runoff Coefficients									Open Water	Restored Operations Area	Supplementary Water Inflow	Total Inflows	Pond Evaporation	Average	Sublimation Losses	Wind Drift Losses					
323	2429	1974	2071-2100	April	30	418.5	1,599,632.0	418.40	1,514,713.5	0.00	11,430.8	0.45	1.48	-8.05	22.60	+11.32	21%	0.00	-20.12	3.13	51,988.3	431.7	0.0	52,339.9	18,013.7	93.9	0.0	217.2	18,324.8	34,015.1	1,522,728.7	0.0	1,522,728.7	418.45
323	2429	1974	2071-2100	May	31	418.5	1,599,632.0	418.45	1,522,728.7	0.00	11,430.8	0.45	7.70	-8.05	100.50	+11.32	7%	82.15	-28.80	3.13	69,910.0	69,910.0	0.0	69,910.0	69,910.0	97.0	0.0	95.1	68,899.7	1,295.3	1,524,024.0	0.0	1,524,024.0	418.45
323	2429	1974	2071-2100	June	30	418.5	1,599,632.0	418.40	1,524,024.0	0.00	11,430.8	0.45	15.08	-7.80	117.70	-14.83	0%	130.00	-1.88	3.13	63,817.0	63,817.0	0.0	64,364.4	63,764.4	93.9	0.0	0.0	62,186.3	1,238.9	1,525,184.1	0.0	1,525,184.1	418.41
323	2429	1974	2071-2100	July	31	418.5	1,599,632.0	418.41	1,525,184.1	0.00	11,430.8	0.45	20.42	-7.80	133.10	-14.83	0%	148.91	-18.00	3.13	67,156.0	65,655.0	0.0	67,144.4	66,664.1	97.0	0.0	0.0	66,761.2	1,045.17	1,495,137.4	0.0	1,495,137.4	418.37
323	2429	1974	2071-2100	August	31	418.5	1,599,632.0	418.37	1,495,137.4	0.00	11,430.8	0.45	18.84	-7.80	159.30	-14.83	0%	178.40	-8.55	3.13	65,882.0	744.7	0.0	66,292.9	63,787.6	97.0	0.0	0.0	63,884.5	36,496.2	1,531,545.6	0.0	1,531,545.6	418.42
323	2429	1974	2071-2100	September	30	418.5	1,599,632.0	418.42	1,531,545.6	0.00	11,430.8	0.45	8.42	-8.05	97.90	+11.32	0%	47.90	-13.75	3.13	42,875.0	358.0	0.0	43,113.0	38,909.9	93.9	0.0	54.0	39,548.9	3,222.6	1,534,768.2	0.0	1,534,768.2	418.42
323	2429	1974	2071-2100	October	31	418.5	1,599,632.0	418.42	1,534,768.2	0.00	11,430.8	0.45	4.65	-8.05	36.60	+11.32	32%	37.20	-15.47	3.13	31,465.5	261.9	0.0	31,757.4	32,578.0	97.0	0.0	204.7	32,879.9	1,122.4	1,535,890.6	0.0	1,535,890.6	418.42
323	2429	1974	2071-2100	November	30	418.5	1,599,632.0	418.42	1,535,890.6	0.00	11,430.8	0.45	-3.40	-8.05	20.80	+11.32	93%	0.00	+15.12	3.13	18,866.4	165.2	0.0	20,016.6	9,352.5	93.9	0.0	374.8	9,831.0	1,543,896.3	0.0	1,543,896.3	418.44	
323	2429	1974	2071-2100	December	31	418.5	1,599,632.0	418.44	1,543,896.3	0.00	11,430.8	0.45	8.96	-8.05	93.90	+13.23	98%	0.00	0.00	0.00	3.13	18,816.0	180.0	0.0	18,944.4	0.0	97.0	0.0	306.0	481.8	1,543,718.9	0.0	1,543,718.9	418.46
324	2430	1975	2071-2100	January	31	418.5	1,599,632.0	418.46	1,543,896.3	0.00	11,430.8	0.45	-15.20	-8.30	82.60	+13.23	98%	0.00	0.00	0.00	3.13	18,279.5	403.0	0.0	18,722.5	0.0	97.0	1,879.8	1,150.5	1,542,747.8	27,267.7	1,570,015.5	418.50	
324	2430	1975	2071-2100	February	28	418.5	1,599,632.0	418.50	1,581,632.0	0.00	11,430.8	0.45	-14.38	-8.30	84.50	+13.23	98%	0.00	0.00	0.00	3.13	23,267.7	194.1	0.0	23,534.8	0.0	97.0	1,892.0	401.5	2,231.1	1,581,329.3	21,267.7	1,602,597.0	418.50
324	2430	1975	2071-2100	March	31	418.5	1,599,632.0	418.50	1,599,632.0	0.00	11,430.8	0.45	-8.92	-8.05	48.60	+11.32	97%	0.00	-28.97	3.13	37,196.3	309.2	0.0	37,465.6	14,545.4	97.0	0.0	1,066.3	724.3	21,247.0	1,603,576.6	16,247.6	1,619,824.2	418.50
324	2430	1975	2071-2100	April	30	418.5	1,599,632.0	418.50	1,581,632.0	0.00	11,430.8	0.45	0.27	-8.05	88.90	+11.32	22%	0.00	-28.12	3.13	31,082.5	298.3	0.0	31,380.8	18,013.7	93.9	0.0	137.3	18,244.9	13,979.8	1,604,708.4	13,079.9	1,618,788.3	418.50
324	2430	1975	2071-2100	May	31	418.5	1,599,632.0	418.50	1,581,632.0	0.00	11,430.8	0.45	12.42	-8.05	84.90	+11.32	0%	120.00	-28.80	3.13	34,526.5	287.1	0.0	34,813.6	32,290.5	97.0	0.0	0.0	32,297.5	1,344,008.0	0.0	1,344,008.0	418.42	
324	2430	1975	2071-2100	June	30	418.5	1,599,632.0	418.42	1,524,024.0	0.00	11,430.8	0.45	16.46	-7.80	96.30	-14.83	0%	102.40	-18.88	3.13	60,573.0	429.6	0.0	60,989.9	60,452.7	93.9	0.0	0.0	60,464.8	-78,447.7	1,515,915.9	0.0	1,515,915.9	418.40
324	2430	1975	2071-2100	July	31	418.5	1,599,632.0	418.40	1,515,915.9	0.00	11,430.8	0.45	21.78	-7.80	89.30	-14.83	0%	137.88	-18.80	3.13	33,877.6	281.7	0.0	34,168.7	67,851.0	97.0	0.0	0.0	67,848.1	1,487,721.6	0.0	1,487,721.6	418.32	
324	2430	1975	2071-2100	August	31	418.5	1,599,632.0	418.32	1,487,721.6	0.00	11,430.8	0.45	16.52	-7.80	141.10	-14.83	0%	89.70	-8.55	3.13	27,617.1	448.8	0.0	27,876.9	30,777.8	97.0	0.0	0.0	30,674.5	17,443.1	1,451,164.7	0.0	1,451,164.7	418.36
324	2430	1975	2071-2100	September	30	418.5	1,599,632.0	418.36	1,451,164.7	0.00	11,430.8	0.45	10.56	-8.05	69.90	+11.32	0%	47.90	-15.75	3.13	40,910.0	407.5	0.0	41,317.5	39,744.7	93.9	0.0	0.0	39,838.6	3,969.9	1,484,744.6	0.0	1,484,744.6	418.36
324	2430	1975	2071-2100	October	31	418.5	1,599,632.0	418.36	1,484,744.6	0.00	11,430.8	0.45	6.21	-8.05	48.80	+11.32	0%	40.30	-18.47	3.13	37,186.3	309.2	0.0	37,495.6	34,499.6	97.0	0.0	39.6	34,633.3	2,863.3	1,487,997.8	0.0	1,487,997.8	418.36
324	2430	1975	2071-2100	November	30	418.5	1,599,632.0	418.36	1,487,997.8	0.00	11,430.8	0.45	2.13	-8.05	23.60	+11.32	9%	0.00	+15.12	3.13	21,584.4	178.8	0.0	21,763.0	3,352.5	93.9	0.0	243.7	3,192.9	1,488,999.7	0.0	1,488,999.7	418.38	
324	2430	1975	2071-2100	December	31	418.5	1,599,632.0	418.38	1,488,999.7	0.00	11,430.8	0.45	-14.52	-8.30	31.40	+13.23	66%	0.00	0.00	0.00	3.13	27,628.8	229.6	0.0	27,858.4	0.0	97.0	1,964.5	503.5	2,364.4	1,525,058.6	0.0	1,525,058.6	418.41
325	2431	1976	2071-2100	January	31	418.5	1,599,632.0	418.41	1,525,058.6	0.00	11,430.8	0.45	-18.13	-8.30	44.20	+13.23	99%	0.00	0.00	0.00	3.13	35,526.5	295.4	0.0	35,819.9	0.0	97.0	1,922.2	708.1	2,738.0	1,538,914.5	0.0	1,538,914.5	418.46
325	2431	1976	2071-2100	February	28	418.5	1,599,632.0	418.46	1,558,143.5	0.00	11,430.8	0.45	-10.88	-8.30	30.30	+13.23	98%	0.00	0.00	0.00	3.13	26,826.4	223.9	0.0	27,123.3	0.0	97.0	723.3	526.8	2,341.8	1,549,918.1	0.0	1,549,918.1	418.49
325	2431	1976	2071-2100	March	31	418.5	1,599,632.0	418.49	1,562,954.3	0.00	11,430.8	0.45	-8.49	-8.05	53.90	+11.32	76%	0.00	-28.97	3.13	40,341.0	335.5	0.0	40,676.5	18,540.4	97.0	0.0	1,484.0	618.2	2,073.9	1,552,031.0	11,268.4	1,563,299.4	418.50
325	2431	1976	2071-2100	April	30	418.5	1,599,632.0	418.50	1,581,632.0	0.00	11,430.8	0.45	4.90	-8.05	63.90	+11.32	0%	0.00	-28.12	3.13	46,526.7	389.9	0.0	46,913.6	18,013.7	93.9	0.0	0.0	18,107.6	28,950.0	1,620,436.6	28,606.9	1,649,043.5	418.50
325	2431	1976	2071-2100	May	31	418.5	1,599,632.0	418.50	1,581,632.0	0.00	11,430.8	0.45	15.60	-8.05	12.60	+11.32	0%	135.76	-28.80	3.13	1,817.8	124.1	0.0	1,941.9	501,601.4	97.0	0.0	0.0	1,92,788.5	48,718.4	1,629,916.0	0.0	1,629,916.0	418.39
325	2431	1976	2071-2100	June	30	418.5	1,599,632.0	418.39	1,504,916.0	0.00	11,430.8	0.45	18.12	-7.80	133.70	-14.83	0%	118.89	-18.88	3.13	73,712.8	615.0	0.0	74,328.8	79,622.3	93.9	0.0	0.0	79,746.2	1,498,496.6	0.0	1,498,496.6	418.38	
325	2431	1976	2071-2100	July	31	418.5	1,599,632.0	418.38	1,498,496.6	0.00	11,430.8	0.45	19.17	-7.80	63.70	-14.83	0%	141.64	-18.80	3.13	20,413.0	252.9	0.0	20,665.9	34,167.8	97.0	0.0	0.0	34,264.5	43,559.9	1,433,996.7	0.0	1,433,996.7	418.29
325	2431	1976	2071-2100	August	31	418.5	1,599,632.0	418.29	1,435,996.7	0.00	11,430.8	0.45	18.62	-7.80	67.00	-14.83	0%	122.40	-15.55	3.13	25,571.0	229.												

Model Inputs	
Year of Simulation	2022
Source of Climate Record	Actual
Climate Change Scenario	CP1.0
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m³)	1,991,632.6
Area of Open Water Within TSP (m²)	61,646.6
Runoff Coefficient for Open Water Within TSP	1.0
Area of Restored Lands Within TSP (m²)	14,433.8
Runoff Coefficient for Restored Lands Within TSP	0.5
Storage from TSP (m³)	31.30
Supplementary Water Addition (m³/d)	0.0
Trigger Elevation for Supplementary Water Addition (mASL)	416.10
Sublimation Losses in Winter (mm/day)	0.0
Wind Drift Losses in Winter (% of snowfall)	0%

NOTES: 1) The climate projection was derived from the output of the TSP from the last open water season. 2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes in Puff Size".

Table 19b: Multi-Year Wet Cover Model (2022-2422): 31.3 m³/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Count	Pre-Start Year	Start Year	Forecast Horizon	Month	Day	Invert Elevation (m)	Capacity of TSP (m³)	Initial WSEL (m)	Initial Volume (m³)	Open Water Area (m²)	Runoff Coefficient	Restored Operations Area (m²)	Runoff Coefficient	Temperature (°C)	Forecast Temperature Change (°C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as Snow (%)	Evaporation (mm)	Forecast Evaporation Change (mm)	Storage (m³/d)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Pool Evaporation	Average	Sublimation (mm)	Wind Drift Loss (%)	Total Outflow	Net Inflow/Outflow (m³)	End of Month WSEL (m)	End of Month Volume (m³)	Discharge Volume (m³)	End of Month WSEL (m)	End of Month Volume (m³)					
1	2022	1999	2011-2040	January	31	416.5	1,991,632.6	414.3	1,539,861.0	61,652.92	1.00	14,433.8	0.45	-18.01	-2.70	96.80	-6.27	100%	0.00	0.00	0.00	31.30	63,753.9	532.2	0.0	64,386.10	0.00	970.3	1,953.0	1,261.7	4,208.0	60,770.0	1,604,664.0	8,432.0	1,991,632.6	415.0	1,539,861.0				
2	2022	1999	2011-2040	February	28	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-12.78	-2.70	14.70	-4.07	100%	0.00	0.00	0.00	31.30	1,290.3	107.8	0.0	1,397.72	0.00	876.4	1,764.0	261.5	2,901.9	10,175.0	1,601,807.8	10,175.0	1,991,632.6	415.0	1,591,632.6				
3	2022	1999	2011-2040	March	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-7.99	-2.70	15.10	-5.80	100%	0.00	0.00	0.00	31.30	8,953.0	818.0	0.0	9,771.00	0.00	970.3	1,953.0	1,983.0	3,212.6	6,795.4	1,598,428.0	6,795.4	1,991,632.6	415.0	1,591,632.6				
4	2022	1999	2011-2040	April	30	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-5.44	-2.70	7.40	-5.80	0%	0.00	-11.32	0.00	31.30	17,130.0	1,298.0	0.0	17,776.00	2,048.0	990.0	0.0	0.0	7,943.0	7,775.9	1,584,177.5	23,540.0	1,584,177.5	7,775.9	1,991,632.6	415.0	1,591,632.6		
5	2022	1999	2011-2040	May	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-9.53	-2.70	30.20	-6.80	0%	0.00	-8.19	0.00	31.30	67,674.0	989.2	0.0	70,363.00	6,418.0	970.3	0.0	0.0	6,381.0	6,366.7	1,585,621.2	43,887.0	1,585,621.2	6,366.7	1,991,632.6	415.0	1,591,632.6		
6	2022	1999	2011-2040	June	30	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-11.08	-2.70	32.80	-8.90	0%	0.00	-12.37	0.00	31.30	145,828.0	3,902.0	0.0	149,730.00	14,026.0	990.0	0.0	0.0	2,341.8	44,977.4	1,583,610.0	44,977.4	1,583,610.0	2,341.8	1,991,632.6	415.0	1,591,632.6		
7	2022	1999	2011-2040	July	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-17.43	-2.70	104.80	-13.90	0%	0.00	-16.40	-3.24	31.30	693,117.0	574.9	0.0	693,691.70	27,266.0	970.3	0.0	0.0	66,225.9	1,349.7	1,562,362.3	1,349.7	1,562,362.3	66,225.9	1,991,632.6	415.0	1,591,632.6		
8	2022	1999	2011-2040	August	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-18.00	-2.70	109.80	-18.90	0%	0.00	-16.30	-4.59	31.30	940,919.0	761.7	0.0	941,680.70	37,069.0	970.3	0.0	0.0	16,033.2	36,796.4	1,560,365.0	36,796.4	1,560,365.0	16,033.2	1,991,632.6	415.0	1,591,632.6		
9	2022	1999	2011-2040	September	30	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-17.88	-2.70	97.60	-18.90	0%	0.00	-16.20	-4.10	31.30	802,833.0	661.0	0.0	803,494.00	34,618.0	970.3	0.0	0.0	34,960.0	23,614.0	1,536,811.0	23,614.0	1,536,811.0	34,960.0	1,991,632.6	415.0	1,591,632.6		
10	2022	1999	2011-2040	October	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-21.77	-2.70	63.80	-18.00	9%	19.43	-14.59	31.30	428,868.0	3,565.0	0.0	432,433.00	5,285.0	970.3	0.0	0.0	768.0	13,336.4	32,888.0	1,534,225.0	32,888.0	1,534,225.0	768.0	1,991,632.6	415.0	1,591,632.6		
11	2022	1999	2011-2040	November	30	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-3.87	-2.70	34.20	-18.00	89%	0.00	0.00	0.00	31.30	24,773.8	208.8	0.0	25,022.60	0.00	990.0	0.0	0.0	31,866.0	443.3	3,061.0	1,531,164.0	3,061.0	1,531,164.0	31,866.0	1,991,632.6	415.0	1,591,632.6	
12	2022	1999	2011-2040	December	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-10.72	-2.70	26.40	-6.27	100%	0.00	0.00	0.00	31.30	25,727.0	214.3	0.0	26,000.00	0.00	970.3	1,953.0	518.0	3,441.0	22,546.0	1,534,775.0	22,546.0	1,534,775.0	22,546.0	1,534,775.0	22,546.0	1,991,632.6	415.0	1,591,632.6
13	2023	1970	2011-2040	January	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-16.40	-2.70	34.80	-6.27	100%	0.00	0.00	0.00	31.30	25,773.0	214.3	0.0	26,000.00	0.00	970.3	1,953.0	518.0	3,441.0	22,546.0	1,534,775.0	22,546.0	1,534,775.0	22,546.0	1,534,775.0	22,546.0	1,991,632.6	415.0	1,591,632.6
14	2023	1970	2011-2040	February	28	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-11.30	-2.70	29.20	-6.27	100%	0.00	0.00	0.00	31.30	16,643.0	161.9	0.0	16,804.20	0.00	876.4	1,764.0	261.5	2,901.9	10,175.0	1,601,807.8	10,175.0	1,601,807.8	10,175.0	1,601,807.8	10,175.0	1,991,632.6	415.0	1,591,632.6
15	2023	1970	2011-2040	March	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-8.78	-2.70	34.80	-5.80	0%	0.00	0.00	0.00	31.30	25,113.0	208.8	0.0	25,322.00	0.00	970.3	1,953.0	1,983.0	3,212.6	6,795.4	1,598,428.0	6,795.4	1,598,428.0	6,795.4	1,598,428.0	6,795.4	1,991,632.6	415.0	1,591,632.6
16	2023	1970	2011-2040	April	30	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-3.10	-2.70	34.80	-5.80	33%	0.00	-11.32	0.00	31.30	37,403.0	3,117.0	0.0	37,777.00	6,418.0	990.0	0.0	0.0	263.0	48,094.0	1,577,226.0	48,094.0	1,577,226.0	263.0	1,991,632.6	415.0	1,591,632.6		
17	2023	1970	2011-2040	May	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-7.42	-2.70	89.80	-5.80	0%	0.00	-11.32	0.00	31.30	188,888.0	4,902.0	0.0	193,790.00	18,026.0	970.3	0.0	0.0	49,705.0	7,793.0	1,561,371.9	7,793.0	1,561,371.9	49,705.0	1,991,632.6	415.0	1,591,632.6		
18	2023	1970	2011-2040	June	30	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-17.88	-2.70	109.80	-18.90	0%	0.00	-16.20	-4.10	31.30	940,919.0	761.7	0.0	941,680.70	37,069.0	970.3	0.0	0.0	66,225.9	1,349.7	1,562,362.3	1,349.7	1,562,362.3	66,225.9	1,991,632.6	415.0	1,591,632.6		
19	2023	1970	2011-2040	July	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-20.83	-2.70	97.60	-18.90	0%	0.00	-16.20	-4.10	31.30	1,230.3	1,344.0	0.0	1,231.60	53,269.0	970.3	0.0	0.0	81,522.7	48,621.5	1,518,166.0	48,621.5	1,518,166.0	81,522.7	1,991,632.6	415.0	1,591,632.6		
20	2023	1970	2011-2040	August	31	416.5	1,991,632.6	414.0	1,518,166.0	61,652.92	1.00	14,433.8	0.45	-16.88	-2.70	92.20	-18.90	0%	0.00	-16.40	-3.15	31.30	280,026.0	2,228.0	0.0	282,254.00	10,573.0	970.3	0.0	0.0	64,607.8	36,774.0	1,481,881.0	36,774.0	1,481,881.0	64,607.8	1,991,632.6	415.0	1,591,632.6		
21	2023	1970	2011-2040	September	30	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-11.88	-2.70	34.80	-6.27	0%	48.89	-4.89	31.30	86,770.0	722.0	0.0	87,632.00	3,117.0	970.3	0.0	0.0	34,233.5	13,645.0	1,534,324.0	13,645.0	1,534,324.0	34,233.5	1,991,632.6	415.0	1,591,632.6			
22	2023	1970	2011-2040	October	31	416.5	1,991,632.6	414.2	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-5.85	-2.70	19.30	-5.80	0%	0.00	-11.32	0.00	31.30	21,733.0	679.0	0.0	22,412.00	0.00	970.3	1,953.0	518.0	3,441.0	22,546.0	1,534,775.0	22,546.0	1,534,775.0	22,546.0	1,534,775.0	22,546.0	1,991,632.6	415.0	1,591,632.6
23	2023	1970	2011-2040	November	30	416.5	1,991,632.6	414.2	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-11.30	-2.70	29.20	-6.27	100%	0.00	0.00	0.00	31.30	16,643.0	161.9	0.0	16,804.20	0.00	876.4	1,764.0	261.5	2,901.9	10,175.0	1,601,807.8	10,175.0	1,601,807.8	10,175.0	1,601,807.8	10,175.0	1,991,632.6	415.0	1,591,632.6
24	2023	1970	2011-2040	December	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-8.78	-2.70	34.80	-5.80	0%	0.00	0.00	0.00	31.30	25,113.0	208.8	0.0	25,322.00	0.00	970.3	1,953.0	1,983.0	3,212.6	6,795.4	1,598,428.0	6,795.4	1,598,428.0	6,795.4	1,598,428.0	6,795.4	1,991,632.6	415.0	1,591,632.6
25	2024	1971	2011-2040	January	31	416.5	1,991,632.6	415.0	1,591,632.6	61,652.92	1.00	14,433.8	0.45	-21.40	-2.70	37.80	-6.27	100%	0.00	0.00	0.00	31.30	13,464.2	112.0	0.0	13,576.20	0.00	970.3	1,953.0	271.5	3,184.5	10,391.0	1,603,017.5	10,391.0							

Table 19b: Multi-year Wet Cover Model (2022-2422): 31.3 m/d seepage, 0.1 m/d sublimation, 2% snow drift losses, 0.00 L/min augmentation, and RCP 8.5 Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water	Runoff	Runoff Coeff	Runoff Coeff	Runoff Coeff	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Sublimation (mm)	Forecast Sublimation Change (mm)	TSF Inflow (mm)	TSF Outflow (mm)	Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month WSEL (m)	End of Month Volume (mm)			
199	2051	1988	2041-2070	January	21	418.5	1,591,632.0	418.25	1,405,203.0	0.00	0.00	0.00	0.00	19.20	-9.00	10.20	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,405,203.0	0.00	1,405,203.0	418.25	
199	2051	1988	2041-2070	February	28	418.5	1,591,632.0	418.27	1,405,073.0	0.00	0.00	0.00	0.00	18.20	-9.00	10.00	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,405,073.0	0.00	1,405,073.0	418.25	
199	2051	1988	2041-2070	March	31	418.5	1,591,632.0	418.29	1,404,943.0	0.00	0.00	0.00	0.00	17.20	-9.00	9.80	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,943.0	0.00	1,404,943.0	418.25	
199	2051	1988	2041-2070	April	30	418.5	1,591,632.0	418.31	1,404,813.0	0.00	0.00	0.00	0.00	16.20	-9.00	9.60	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,813.0	0.00	1,404,813.0	418.25	
199	2051	1988	2041-2070	May	31	418.5	1,591,632.0	418.33	1,404,683.0	0.00	0.00	0.00	0.00	15.20	-9.00	9.40	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,683.0	0.00	1,404,683.0	418.25	
199	2051	1988	2041-2070	June	30	418.5	1,591,632.0	418.35	1,404,553.0	0.00	0.00	0.00	0.00	14.20	-9.00	9.20	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,553.0	0.00	1,404,553.0	418.25	
199	2051	1988	2041-2070	July	31	418.5	1,591,632.0	418.37	1,404,423.0	0.00	0.00	0.00	0.00	13.20	-9.00	9.00	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,423.0	0.00	1,404,423.0	418.25	
199	2051	1988	2041-2070	August	31	418.5	1,591,632.0	418.39	1,404,293.0	0.00	0.00	0.00	0.00	12.20	-9.00	8.80	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,293.0	0.00	1,404,293.0	418.25	
199	2051	1988	2041-2070	September	30	418.5	1,591,632.0	418.41	1,404,163.0	0.00	0.00	0.00	0.00	11.20	-9.00	8.60	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,163.0	0.00	1,404,163.0	418.25	
199	2051	1988	2041-2070	October	31	418.5	1,591,632.0	418.43	1,404,033.0	0.00	0.00	0.00	0.00	10.20	-9.00	8.40	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,033.0	0.00	1,404,033.0	418.25	
199	2051	1988	2041-2070	November	30	418.5	1,591,632.0	418.45	1,403,903.0	0.00	0.00	0.00	0.00	9.20	-9.00	8.20	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,403,903.0	0.00	1,403,903.0	418.25	
199	2051	1988	2041-2070	December	31	418.5	1,591,632.0	418.47	1,403,773.0	0.00	0.00	0.00	0.00	8.20	-9.00	8.00	-10.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,403,773.0	0.00	1,403,773.0	418.25	
200	2052	1989	2041-2070	January	21	418.5	1,591,632.0	418.25	1,405,203.0	0.00	0.00	0.00	0.00	19.20	-9.00	10.20	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,405,203.0	0.00	1,405,203.0	418.25
200	2052	1989	2041-2070	February	28	418.5	1,591,632.0	418.27	1,405,073.0	0.00	0.00	0.00	0.00	18.20	-9.00	10.00	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,405,073.0	0.00	1,405,073.0	418.25
200	2052	1989	2041-2070	March	31	418.5	1,591,632.0	418.29	1,404,943.0	0.00	0.00	0.00	0.00	17.20	-9.00	9.80	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,943.0	0.00	1,404,943.0	418.25
200	2052	1989	2041-2070	April	30	418.5	1,591,632.0	418.31	1,404,813.0	0.00	0.00	0.00	0.00	16.20	-9.00	9.60	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,813.0	0.00	1,404,813.0	418.25
200	2052	1989	2041-2070	May	31	418.5	1,591,632.0	418.33	1,404,683.0	0.00	0.00	0.00	0.00	15.20	-9.00	9.40	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,683.0	0.00	1,404,683.0	418.25
200	2052	1989	2041-2070	June	30	418.5	1,591,632.0	418.35	1,404,553.0	0.00	0.00	0.00	0.00	14.20	-9.00	9.20	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,553.0	0.00	1,404,553.0	418.25
200	2052	1989	2041-2070	July	31	418.5	1,591,632.0	418.37	1,404,423.0	0.00	0.00	0.00	0.00	13.20	-9.00	9.00	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,423.0	0.00	1,404,423.0	418.25
200	2052	1989	2041-2070	August	31	418.5	1,591,632.0	418.39	1,404,293.0	0.00	0.00	0.00	0.00	12.20	-9.00	8.80	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,293.0	0.00	1,404,293.0	418.25
200	2052	1989	2041-2070	September	30	418.5	1,591,632.0	418.41	1,404,163.0	0.00	0.00	0.00	0.00	11.20	-9.00	8.60	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,163.0	0.00	1,404,163.0	418.25
200	2052	1989	2041-2070	October	31	418.5	1,591,632.0	418.43	1,404,033.0	0.00	0.00	0.00	0.00	10.20	-9.00	8.40	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,033.0	0.00	1,404,033.0	418.25
200	2052	1989	2041-2070	November	30	418.5	1,591,632.0	418.45	1,403,903.0	0.00	0.00	0.00	0.00	9.20	-9.00	8.20	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,403,903.0	0.00	1,403,903.0	418.25
200	2052	1989	2041-2070	December	31	418.5	1,591,632.0	418.47	1,403,773.0	0.00	0.00	0.00	0.00	8.20	-9.00	8.00	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,403,773.0	0.00	1,403,773.0	418.25
201	2053	1990	2041-2070	January	21	418.5	1,591,632.0	418.25	1,405,203.0	0.00	0.00	0.00	0.00	19.20	-9.00	10.20	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,405,203.0	0.00	1,405,203.0	418.25
201	2053	1990	2041-2070	February	28	418.5	1,591,632.0	418.27	1,405,073.0	0.00	0.00	0.00	0.00	18.20	-9.00	10.00	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,405,073.0	0.00	1,405,073.0	418.25
201	2053	1990	2041-2070	March	31	418.5	1,591,632.0	418.29	1,404,943.0	0.00	0.00	0.00	0.00	17.20	-9.00	9.80	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,943.0	0.00	1,404,943.0	418.25
201	2053	1990	2041-2070	April	30	418.5	1,591,632.0	418.31	1,404,813.0	0.00	0.00	0.00	0.00	16.20	-9.00	9.60	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,813.0	0.00	1,404,813.0	418.25
201	2053	1990	2041-2070	May	31	418.5	1,591,632.0	418.33	1,404,683.0	0.00	0.00	0.00	0.00	15.20	-9.00	9.40	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,683.0	0.00	1,404,683.0	418.25
201	2053	1990	2041-2070	June	30	418.5	1,591,632.0	418.35	1,404,553.0	0.00	0.00	0.00	0.00	14.20	-9.00	9.20	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,553.0	0.00	1,404,553.0	418.25
201	2053	1990	2041-2070	July	31	418.5	1,591,632.0	418.37	1,404,423.0	0.00	0.00	0.00	0.00	13.20	-9.00	9.00	-10.00	0.00	0.00	0.00	0.00	0.00	31.30	22,362.0	191.2	0.0	1,569,792.0	418.25	1,404,423.0	0.00	1,404,423.0	418.25
201	2053	1990	2041-2070	August	31	418.5	1,591,632.0	418.39																								

Model Inputs	
First Year of Simulation	2022
Source of Climate Record	Actual
Climate Change Scenario	SSP2-4.5
Invert Elevation (mASL)	416.8
Maximum Elevation of Tailings (mASL)	416.8
Capacity of TSP (m ³)	1,991,632.6
Area of Open Water Within TSP (m ²)	61,646.6
Coefficient for Open Water Within TSP	14.03.8
Area of Restored Lands Within TSP (m ²)	14,038.8
Co-efficient for Restored Lands Within TSP	0.5
Evaporation from TSP (mm/d)	200.0
Supplementary Water Addition (m ³ /d)	0.0
Trigger Elevation for Supplemental Water Addition (mASL)	416.10
Subduction Losses in Water (mm/soil)	2%
Wind Drift Losses in Water (% of snowfall)	0%

NOTES: 1) The climate projection was obtained from the output of the RCM (from the RCM output water).
2) Based on the values from Prosser and Jones (1996) "Wind-Blown Snow: Sublimation, Transport and Changes in Puff Size".

Table 19c: Multi-year Wet Cover Model (2022-2432): 200 m/d seepage, 6.1 mm/d sublimation, 2% snow drift losses, 0.0 L/min augmentation, and RCP 8.5 Climate Change Scenario

Count	Year	Month	Forecast Horizon	Day	Invert Elevation (m)	Capacity of TSP (m ³)	Initial WSEL (m)	Initial WSEL (m)	Open Water Area (m ²)	Restored Area (m ²)	Restored Area (m ²)	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Evaporation (mm)	Forecast Evaporation Change (mm)	Supplementary Water Addition (m ³)	Evaporation (mm)	Open Water	Restored	Supplementary Water Addition	Total Inflow	Outflow	Net Inflow	End of Month WSEL (m)	End of Month WSEL (m)	Discharge Volume (m ³)	End of Month WSEL (m)	End of Month WSEL (m)	End of Month WSEL (m)					
1	2022	1999	2021-2040	January	31	416.5	1,991,632.6	416.3	1,939,863.3	61,652.92	1,000	14,038.8	0.45	-18.01	-2.70	96.80	-6.27	100%	0.00	0	200.0	63,753.9	532.2	0.0	64,286.10	0.0	6,200.0	1,932.0	1,261.7	6,438.7	4,644.3	1,584.938	416.0	416.0		
2	2022	1999	2021-2040	February	28	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-12.78	-2.70	14.70	-4.27	100%	0.00	0	200.0	12,983.0	107.8	0.0	13,090.72	0.0	6,200.0	1,962.0	1,607.5	6,438.7	4,644.3	1,584.938	416.0	416.0		
3	2022	1999	2021-2040	March	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-7.97	-2.70	15.10	-5.80	100%	0.00	0	200.0	9,853.3	81.8	0.0	9,935.10	0.0	6,200.0	1,932.0	1,983.3	6,438.7	4,644.3	1,584.938	416.0	416.0		
4	2022	1999	2021-2040	April	30	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-3.24	-2.70	7.40	-5.80	0%	0.00	+13.2	200.0	61,733.0	128.8	0.0	117,776.0	7,048.0	6,000.0	0.0	0	11,034.8	2,171.9	1,261,243.5	1,261.7	1,584.938	416.0	416.0
5	2022	1999	2021-2040	May	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	8.93	-2.30	39.20	-6.80	0%	0.00	+8.9	200.0	164,613.0	161.9	0.0	165,226.2	6,000.0	6,000.0	0.0	0	118,828.0	47,249.0	1,626,321.5	48,798.0	1,584.938	416.0	416.0
6	2022	1999	2021-2040	June	30	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	11.08	-2.30	62.80	-6.93	0%	0.00	+23.7	200.0	450,528.0	362.0	0.0	473,390.0	14,256.0	6,000.0	0.0	0	7,402.6	39,914.0	1,631,540.0	39,914.0	1,584.938	416.0	416.0
7	2022	1999	2021-2040	July	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	17.43	-2.30	103.50	-6.93	0%	0.00	+16.4	200.0	890,717.0	574.0	0.0	891,291.0	17,266.0	6,000.0	0.0	0	73,486.6	38,800.0	1,587,752.0	0.0	1,587,752.0	416.0	416.0
8	2022	1999	2021-2040	August	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	18.00	-2.30	109.80	-6.93	0%	0.00	+19.0	200.0	940,619.0	781.0	0.0	941,400.0	18,216.0	6,000.0	0.0	0	63,292.9	37,527.0	1,619,273.0	27,667.0	1,584.938	416.0	416.0
9	2022	1999	2021-2040	September	30	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	17.68	-2.30	97.60	-6.93	0%	0.00	+18.0	200.0	862,667.0	665.0	0.0	863,332.0	17,048.0	6,000.0	0.0	0	37,892.0	1,986.0	1,619,022.0	11,886.0	1,584.938	416.0	416.0
10	2022	1999	2021-2040	October	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	21.77	-2.30	63.50	-6.80	9%	10.43	+15.9	200.0	428,868.0	365.0	0.0	429,233.0	9,269.0	6,000.0	0.0	0	788.0	15,565.0	1,619,268.0	27,668.0	1,584.938	416.0	416.0
11	2022	1999	2021-2040	November	30	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	18.87	-2.30	34.20	-6.80	86%	0.00	0	200.0	247,828.0	208.0	0.0	248,036.0	2,048.0	6,000.0	0.0	0	1,680.0	1,687.47	1,620.0	1,584.938	416.0	416.0	
12	2022	1999	2021-2040	December	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-10.72	-2.70	26.40	-6.27	100%	0.00	0	200.0	25,773.0	214.0	0.0	26,987.0	0.0	6,200.0	1,932.0	1,918.0	8,672.4	17,313.0	1,603,947.8	17,313.0	1,584.938	416.0	416.0
13	2023	1970	2021-2040	January	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-16.40	-2.70	34.80	-5.80	100%	0.00	0	200.0	25,773.0	214.0	0.0	26,987.0	0.0	6,200.0	1,932.0	1,918.0	8,672.4	17,313.0	1,603,947.8	17,313.0	1,584.938	416.0	416.0
14	2023	1970	2021-2040	February	28	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-11.30	-2.70	29.20	-6.27	100%	0.00	0	200.0	16,643.0	161.9	0.0	16,804.9	0.0	6,200.0	1,764.0	1,764.0	9,202.0	17,868.0	1,626,022.0	11,886.0	1,584.938	416.0	416.0
15	2023	1970	2021-2040	March	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-6.78	-2.70	34.80	-6.80	51%	0.00	0	200.0	25,113.0	208.0	0.0	25,321.0	0.0	6,200.0	1,932.0	1,932.0	4,440.0	16,874.0	1,603,947.8	16,874.0	1,584.938	416.0	416.0
16	2023	1970	2021-2040	April	30	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-0.31	-2.30	54.80	-6.80	33%	0.00	+11.2	200.0	108,483.0	317.0	0.0	109,566.0	7,048.0	6,000.0	0.0	0	263.0	14,588.0	1,616,161.0	14,588.0	1,584.938	416.0	416.0
17	2023	1970	2021-2040	May	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	7.42	-2.30	69.50	-6.80	0%	0.00	+7.0	200.0	378,688.0	492.0	0.0	379,186.0	17,266.0	6,000.0	0.0	0	54,932.0	4,056.0	1,584,122.0	4,056.0	1,584.938	416.0	416.0
18	2023	1970	2021-2040	June	30	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	17.68	-2.30	109.80	-6.93	0%	0.00	+18.0	200.0	862,667.0	665.0	0.0	863,332.0	17,048.0	6,000.0	0.0	0	63,292.9	37,527.0	1,619,273.0	27,667.0	1,584.938	416.0	416.0
19	2023	1970	2021-2040	July	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	20.83	-2.30	97.60	-6.93	0%	0.00	+19.0	200.0	940,619.0	781.0	0.0	941,400.0	18,216.0	6,000.0	0.0	0	63,292.9	37,527.0	1,619,273.0	27,667.0	1,584.938	416.0	416.0
20	2023	1970	2021-2040	August	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	18.00	-2.30	109.80	-6.93	0%	0.00	+19.0	200.0	940,619.0	781.0	0.0	941,400.0	18,216.0	6,000.0	0.0	0	63,292.9	37,527.0	1,619,273.0	27,667.0	1,584.938	416.0	416.0
21	2023	1970	2021-2040	September	30	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	17.68	-2.30	97.60	-6.93	0%	0.00	+18.0	200.0	862,667.0	665.0	0.0	863,332.0	17,048.0	6,000.0	0.0	0	37,892.0	1,986.0	1,619,022.0	11,886.0	1,584.938	416.0	416.0
22	2023	1970	2021-2040	October	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	21.77	-2.30	63.50	-6.80	9%	10.43	+15.9	200.0	428,868.0	365.0	0.0	429,233.0	9,269.0	6,000.0	0.0	0	788.0	15,565.0	1,619,268.0	27,668.0	1,584.938	416.0	416.0
23	2023	1970	2021-2040	November	30	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	18.87	-2.30	34.20	-6.80	86%	0.00	0	200.0	247,828.0	208.0	0.0	248,036.0	2,048.0	6,000.0	0.0	0	1,680.0	1,687.47	1,620.0	1,584.938	416.0	416.0	
24	2023	1970	2021-2040	December	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-10.72	-2.70	26.40	-6.27	100%	0.00	0	200.0	25,773.0	214.0	0.0	26,987.0	0.0	6,200.0	1,932.0	1,918.0	8,672.4	17,313.0	1,603,947.8	17,313.0	1,584.938	416.0	416.0
25	2023	1970	2021-2040	January	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-16.40	-2.70	34.80	-5.80	100%	0.00	0	200.0	25,773.0	214.0	0.0	26,987.0	0.0	6,200.0	1,932.0	1,918.0	8,672.4	17,313.0	1,603,947.8	17,313.0	1,584.938	416.0	416.0
26	2023	1970	2021-2040	February	28	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-11.30	-2.70	29.20	-6.27	100%	0.00	0	200.0	16,643.0	161.9	0.0	16,804.9	0.0	6,200.0	1,764.0	1,764.0	9,202.0	17,868.0	1,626,022.0	11,886.0	1,584.938	416.0	416.0
27	2023	1970	2021-2040	March	31	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-6.78	-2.70	34.80	-6.80	51%	0.00	0	200.0	25,113.0	208.0	0.0	25,321.0	0.0	6,200.0	1,932.0	1,932.0	4,440.0	16,874.0	1,603,947.8	16,874.0	1,584.938	416.0	416.0
28	2023	1970	2021-2040	April	30	416.5	1,991,632.6	416.0	1,918,822.8	61,652.92	1,000	14,038.8	0.45	-0.31	-2.30	54.80	-6.80	33%	0.00	+11.2	200.0	108,483.0	317.0	0.0	109,566.0	7,048.0	6,000.0	0.0	0	263.0	14,588.0	1,616,161.0	14,588.0	1,584.938	416.0	416.0
29	2023	1970	2021-2040	May	31	416.5	1,991,632.6	416.0	1,918,822.8	61,																										

Table 19c: Multi-year Wet Cover Model (2032-2432): 200 m/d seepage, 0.1 mm/d sublimation, 2% snow drift losses, 0.08 L/min augmentation, and RCP & E Climate Change Scenario

Year	Month	Forecast Horizon	Forecast Month	Forecast Day	Invert (Elevation)	Capacity of (mm)	Initial WSEL (m)	Initial Volume (mm)	Open Water Runoff (mm)	Runoff Coefficient	Natural Operations Area (mm)	Runoff Coefficient	Temperature (C)	Forecast Temperature Change (C)	Precipitation (mm)	Forecast Precipitation Change (mm)	Precipitation as a % of Normal	Evaporation (mm)	Forecast Evaporation Change (mm)	Change (mm)	TSF Inflows (mm)		TSF Outflows (mm)		Net Inflow (mm)	End of Month WSEL (m)	End of Month Volume (mm)	Discharge Volume (mm)	End of Month Discharge (mm)	Net Inflow WSEL (m)			
																					Open Water	Runoff	Total Inflows	Total Outflows									
2012	2012	2012-2010	July	31	418.5	1,591,632.0	396.70	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	396.72	13,514,913.0
2012	2012	2012-2010	August	31	418.5	1,591,632.0	396.82	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	109.00	-10.80	200.00	12,027.0	102.7	0.0	12,435.0	79,818.0	2,000.0	0.0	0.0	77,880.0	4,645.5	-13,507,245.0	396.84	13,514,913.0
2012	2012	2012-2010	September	30	418.5	1,591,632.0	397.00	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	397.02	13,514,913.0
2012	2012	2012-2010	October	31	418.5	1,591,632.0	397.18	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	397.20	13,514,913.0
2012	2012	2012-2010	November	30	418.5	1,591,632.0	397.36	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	397.38	13,514,913.0
2012	2012	2012-2010	December	31	418.5	1,591,632.0	397.54	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	397.56	13,514,913.0
2012	2013	2012-2010	January	31	418.5	1,591,632.0	397.72	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	397.74	13,514,913.0
2012	2013	2012-2010	February	29	418.5	1,591,632.0	397.90	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	397.92	13,514,913.0
2012	2013	2012-2010	March	31	418.5	1,591,632.0	398.08	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	398.10	13,514,913.0
2012	2013	2012-2010	April	30	418.5	1,591,632.0	398.26	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	398.28	13,514,913.0
2012	2013	2012-2010	May	31	418.5	1,591,632.0	398.44	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	398.46	13,514,913.0
2012	2013	2012-2010	June	30	418.5	1,591,632.0	398.62	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	398.64	13,514,913.0
2012	2013	2012-2010	July	31	418.5	1,591,632.0	398.80	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	398.82	13,514,913.0
2012	2013	2012-2010	August	31	418.5	1,591,632.0	398.98	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	398.94	13,514,913.0
2012	2013	2012-2010	September	30	418.5	1,591,632.0	399.16	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	399.18	13,514,913.0
2012	2013	2012-2010	October	31	418.5	1,591,632.0	399.34	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	399.36	13,514,913.0
2012	2013	2012-2010	November	30	418.5	1,591,632.0	399.52	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	399.54	13,514,913.0
2012	2013	2012-2010	December	31	418.5	1,591,632.0	399.70	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	399.72	13,514,913.0
2012	2014	2012-2010	January	31	418.5	1,591,632.0	399.88	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	399.90	13,514,913.0
2012	2014	2012-2010	February	29	418.5	1,591,632.0	400.06	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	400.08	13,514,913.0
2012	2014	2012-2010	March	31	418.5	1,591,632.0	400.24	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	400.26	13,514,913.0
2012	2014	2012-2010	April	30	418.5	1,591,632.0	400.42	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	400.44	13,514,913.0
2012	2014	2012-2010	May	31	418.5	1,591,632.0	400.60	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	400.62	13,514,913.0
2012	2014	2012-2010	June	30	418.5	1,591,632.0	400.78	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	400.80	13,514,913.0
2012	2014	2012-2010	July	31	418.5	1,591,632.0	400.96	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	400.98	13,514,913.0
2012	2014	2012-2010	August	31	418.5	1,591,632.0	401.14	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	401.16	13,514,913.0
2012	2014	2012-2010	September	30	418.5	1,591,632.0	401.32	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	401.34	13,514,913.0
2012	2014	2012-2010	October	31	418.5	1,591,632.0	401.50	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70	7.30	-14.53	0%	120.30	-10.80	200.00	12,027.0	201.1	0.0	36,598.0	79,818.0	2,000.0	0.0	0.0	50,116.8	4,607.6	-13,472,603.0	401.52	13,514,913.0
2012	2014	2012-2010	November	30	418.5	1,591,632.0	401.68	13,514,913.0	41,509.2	1.00	14,350.0	0.45	17.88	-1.70																			

