39 COMPLETE LISTS OF MITIGATION AND FOLLOW-UP MEASURES

Section 39 of the EIS has been amended in accordance with the directions to amend dated July 18, 2013 issued by the EAO and the Agency. The enclosed amended Section 39 replaces Section 39, as it appears in the EIS dated January 25th, 2013, in its entirety.

Two main categories of mitigation measures are described in the EIS: 1) those measures that will be implemented as standard practice during Project construction and operation in compliance with federal and provincial regulatory requirements, in compliance with existing BC Hydro policy and procedures, and in accordance with the technically feasible, cost-effective, and environmentally sound management of large-scale hydroelectric and infrastructure projects; and 2) those measures that have been developed specifically to avoid or reduce the potential adverse effects of the Project on the VCs.

Mitigation measures that fall within the first category are described in Volume 5 Section 35 Summary of Environmental Management Plans in the context of the Project's proposed Environmental Management Program. Section 35 also lists relevant provincial and federal legislation, BC Hydro policies and procedures, and regulatory guidance documents to be followed during Project implementation.

Table 39.1 provides a complete list of the mitigation and compensation measures that fall within the second category – that is, the Project-specific measures identified in the EIS that are to be implemented during construction and operation to mitigate potential adverse effects on VCs, such that they are either unlikely to occur or are unlikely to be significant. Table 39.1 describes the potential effect on the VC, provides a reference to the relevant Environmental Management Plan where appropriate, indicates whether a potential residual effect is expected to occur despite the implementation of mitigation, and lists the anticipated significance, if any, of this effect. Standard mitigation measures listed in Volume 2 Appendix A Table 2 Project Interaction Matrix are also provided in Table 39.1, where relevant.

Table 39.2 provides a complete list of the follow-up measures identified in the EIS. As described in Volume 5 Section 37.5 Requirements of any Follow-up Programs such measures will be implemented as necessary to address uncertainty regarding the nature or extent of predicted adverse residual effects on a VC and/or uncertainty about the potential for such an effect to become significant. Follow-up measures will also be used to evaluate the effectiveness of recommended mitigation measures to avoid or reduce adverse residual effects. Table 39.2 identifies the objectives of each follow-up program and briefly describes follow-up methods (e.g., type of information to be collected, monitoring frequency and duration, reporting requirements).

The Project-specific mitigation measures and the follow-up measures listed in Table 39.1 and Table 39.2, respectively, are described in the EIS with respect to potential environmental effects (Volume 2 Sections 12 to 15), economic, and land and resource use effects (Volume 3 Sections 16 through 27), and social, heritage, and human health effects (Volume 4 Sections 28 through 33).

List of Design Changes since the 1982 BCUC Application

The Project has undergone design changes since the 1982 BCUC application in order to avoid or mitigation potential environmental effects. These changes are described in Volume 1 Section 4, Table 4.1, which is duplicated below for reference.

List of Design Changes Since the 1982 BCUC Application to Avoid or Mitigate Potential Environmental Effects

Project Component	Valued Component[a]	Effects Avoided or Mitigated	Avoidance or Mitigation Measure
Dam, generating station and spillways	Wildlife Resources	Loss of wildlife habitat	Maximize relocation of surplus excavated material upstream of dam
	Wildlife Resources	Loss of wildlife habitat	Reduction of footprint and disruption of wetland habitat and clearing by relocating worker accommodation
	Wildlife Resources	Loss of wildlife habitat	Minimize footprint on big island downstream of dam
	Fish and Fish Habitat	Dissolved gas supersaturation	Spillway design modified to minimize dissolved gas
Reservoir	Community Infrastructure and Services	Erosion of slopes at Hudson's Hope	Extended shoreline protection
Highway 29 realignments	Community Infrastructure and Services	Potential erosion by reservoir	Realign Highway 29 at Dry Creek and Farrell Creek east
	Agriculture	Loss of agricultural land	Selection of alignment at Lynx Creek that includes a portion of Millar Road
Quarried and excavated construction materials	Wildlife Resources	Loss of bat hibernacula	Elimination of Tea Creek from consideration as a source of temporary riprap
	Human Health	Reducing heavy truck traffic on public roads – lower risk to human safety, less noise and dust	Selection of a conveyor for transporting till from 85th Avenue Industrial Lands to dam site area
	Wildlife Resources	disturbance to caribou	Restriction on blasting at West Pine quarry to no greater than historical levels during the periods January 16 to March 31 and May 15 to June 14 each year
	Transportation	Traffic congestion in Hudson's Hope and on Highway 29	Source permanent riprap for dam, generating station, and spillways from West Pine Quarry as opposed to Portage Mountain Quarry
	Minerals and Aggregates	Use of aggregate in project area	Source aggregate for Highway 29 realignment from areas that would be inundated

NOTE:

[a] Valued components are described in Volume 2 Section 10 Effects Assessment Methodology.

Table 39.1 Complete List of Mitigation Measures

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Section 12 – Fish and Fish Habitat			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Construction Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station and Spillways Hazardous Materials Storage and Refuelling Sites (includes explosives and petroleum fuels)	Facilities will be distanced from watercourses and discharges will comply with provincial and municipal permitting requirement. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Dam, Generating Station, Spillways and Reservoir Existing infrastructure inventory, protection and/or relocation	Best management practices are available for instream works (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Reservoir Preparation and Filling Access: upgrades to existing licencee roads, winter road construction	Best management practices are available for temporary road works, temporary bridges and instream works (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Reservoir Preparation and Filling Clearing of vegetation and timber by manual or mechanical means	Activities can be managed and mitigated with best management practices, and buffer areas will be maintained. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Reservoir Preparation and Filling Post-harvest terrestrial debris management	Standard measures will be implemented when activities are conducted adjacent to a watercourse. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Reservoir Preparation and Filling Access road deactivation and reclamation of exposed	Standard measures will be implemented when activities are conducted adjacent to a watercourse (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
cuts and fills, where required			
Reservoir Preparation and Filling Aquatic debris management during inundation	Activities can be managed and mitigated with best management practices. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Substation and Transmission Line to Peace Canyon Site/corridor clearing and preparation	Activities can be managed and mitigated with best management practices. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Substation and Transmission Line to Peace Canyon: Access construction and right-of-way improvement	Activities can be managed and mitigated with best management practices. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Quarried and Excavated Construction Materials: West Pine Siding extension, 85th Avenue Industrial Lands, West Pine Quarry, Del Rio granular borrow, other Sources | Granular borrow (within inundation zone, along Hwy. 29), other sources (Area E and on-site)	Standard measures will be implemented when activities are conducted adjacent to a watercourse. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Quarried and Excavated Construction Materials: Wuthrich Quarry, Portage Mountain Quarry	Standard measures will be implemented when activities are conducted adjacent to a watercourse. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Road and Rail Access Development Transmission line access roads	Activities can be managed and mitigated with best management practices. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Road and Rail Access Development: Jackfish Lake Rd works (incl.	Activities can be managed and mitigated with best management practices available for instream drainage works. (see Volume 5 Section 35 Summary of Environmental Management Plan).	NA	NA

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
improvement of existing Jackfish Lake Rd., extension of existing Jackfish Lake Rd., improvement of existing Jackfish Plateau PDRs leading towards dam site and Project Access Road), Old Fort Road realignment and widening, paving of 240 Road, widening of 271 Road and paving and extension of 269 Road., West Pine Quarry access, West Pine Siding construction, Septimus Rail Siding construction			
Worker Accommodation: Temporary Accommodation - Northern Regional Site (Halfway-Farrell), Temporary Accommodation - Southern Regional Site (Jackfish Lake Rd)	Facilities will be distanced from watercourses and discharges will comply with provincial and municipal permitting requirements. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Operations Phase **(see Volume 2 Appendix A Project Interaction Matrix, Table 2)**			
Dam, Generating Station, and Spillways: Maintenance of the powerhouse, and substation	Best management practices are available for maintenance works. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA
Reservoir Debris management Hudson's Hope Shoreline Protection maintenance	Best management practices are available for instream works and maintenance activities. (see Volume 5 Section 35 Summary of Environmental Management Plan)		
Substation and Transmission Line to Peace Canyon: Right-of-way vegetation	Standard measures will be implemented when activities are conducted adjacent to a watercourse. (see Volume 5 Section 35 Summary of Environmental Management Plan)	NA	NA

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
maintenance Maintenance of access roads			
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Loss of habitat due to construction of the dam and generating station, Highway 29, and Hudson's Hope shoreline protection during construction	Implement the Fish and Aquatic Habitat Management Plan (see Volume 5 Section 35 Summary of Environmental Management Plan) A 15 m riparian buffer will remain adjacent to watercourses during reservoir clearing Place material relocation sites (R5a, R5b, and R6) 15 m back from the high water level to avoid affecting Peace River fish habitat. Incorporate fish habitat features into the final capping of material relocation sites upstream of the dam. Contour and cap with gravels and cobble substrate the spoil area between elevations 455 m and 461 m to provide a productive fish habitat that will be available to fish during the operation phase. Include fish habitat features (e.g., shears, large riprap point bars, etc.) in the final design of the north bank haul road bed material that would be placed in the Peace River. Compensate for fish habitats affected by Highway 29 realignment 'like for like' in the vicinity of the habitat loss. Fish habitat features will be incorporated into the final designs of the watercourse crossings. Replant disturbed riparian areas with local vegetation. Incorporate fish habitat features into the final design of the Highway 29 roadway that would border the reservoir, east of Lynx Creek. Construct the Hudson's Hope shoreline protection with large material that will provide replacement fish habitat. Incorporate additional fish habitat features (e.g., shear zones and point bars) into the final design of the Hudson's Hope shoreline protection Merchantable trees, and vegetation that could interfere with navigation, will be removed using clearing practices to maintain a 15 m machine-free zone Manage construction footprints to reduce the impact on fish and fish habitat.	Y – Potential loss of fish habitat	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Remove temporary structures as soon as they are no longer required.		
Loss of habitat due to construction headpond and reservoir filling during construction	Contour Highway 29 borrow sites prior to decommissioning to provide littoral fish habitat in the reservoir. Cap material repositioning areas with gravel and cobble, and contour to enhance fish habitat conditions. Where appropriate, plant a 15 m wide riparian area along the reservoir shoreline adjacent to BC Hydro-owned farmland to provide riparian habitat and bank stabilization.	Y– There would be a loss of habitat	Y
Altered fish habitat due to transformation of reservoir habitat during reservoir operations	Manage reservoir fluctuation within a 1.8 m maximum normal operating range to reduce effects to the shoreline fish habitat. Future mitigation and compensation options will be evaluated after reservoir development and follow-up monitoring. Compensation options that are technically and economically feasible will be implemented.	Y – There would be a change in habitat	N
Altered fish habitat downstream of Site C Dam during operations	Enhance side channel complexes between the dam site and the confluence of the Peace and Pine rivers to increase wetted habitat during low flows. Create new wetted channels and restore back channels on the south bank island downstream of the dam to create off channel and back channel habitat.	Y – There would be a change in habitat	N
Reduced fish health and survival due to sediment inputs by dam and generating station construction	Implement the following Environment Management Plans: ▪ Air Quality Management Plan ▪ Erosion Prevention and Sediment Control Plan ▪ Surface Water Quality Management Plan Adjust the timing of construction activities to coincide with periods of high background sediment levels where feasible. Use clean rock materials for riprap construction to reduce the amount of sediment that is introduced into the aquatic environment. Reduce equipment production rates to reduce the amount of sediments generated by equipment when needed.	Y – Sediment inputs affecting fish health and survival	N
Reduced fish health and	Berm or cap areas with high potential to produce	Y –	Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
survival due to sediment inputs from construction headpond and reservoir filling during construction	sediments. Leave stumps in the headpond area in place during reservoir clearing to reduce soil disturbance and potential sedimentation issues, where feasible. Clear reservoir in winter, where feasible, to reduce soil disturbance	Sediment inputs affecting fish health and survival	
Reduced fish health and survival due to sediment inputs by Highway 29 realignment and construction of Hudson's Hope shoreline protection during construction	Implement the following Environment Management Plans: ▪ Air Quality Management Plan ▪ Erosion Prevention and Sediment Control Plan ▪ Surface Water Quality Management Plan Use clean rock materials for riprap construction to reduce the amount of sediments that are introduced into the aquatic environment. Conduct in-stream construction in isolated work areas when feasible.	N	N/A
Reduced fish health and survival due to stranding during construction	Surveillance of fish habitat areas where periodic exposure of channel margins occurs as a result of headpond fluctuation As feasible, salvage and relocation of fish trapped in potholes, side channels, or other habitat area at risk of dewatering as a result of headpond fluctuation	N	N/A
Reduced fish health and survival due to fish entrainment during construction	Utilize large diameter diversion tunnels and associated hydraulics that provide low risk of fish mortality. Incorporate smooth and gradual transitions from the round tunnels to the square exits. Complete tunnel linings with a smooth concrete surface finish. Reduce any obstructions (e.g., boulders) in the tunnel tailrace area. Operate the modified diversion tunnel for a short duration, as described in Volume 1 Appendix B Reservoir Filling Plan. Approaches to mitigate the potential effects of fish entrainment on health and survival of fish during construction are considered in more detail in Volume 2 Appendix Q Fish Passage Management Plan.	Y – Fish would be harmed due to entrainment	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Reduced fish health and survival due to increased total dissolved gas during construction	Modify spillway design to reduce the magnitude of total dissolved gas generated. Develop and implement an operational procedure to reduce the number of hold points and duration of the reservoir filling and turbine commissioning to reduce total dissolved gas concentration in tailwater.	Y – Fish would be exposed to total dissolved gas during spills	N
Reduced fish health and survival due to stranding during operations	Monitor fish habitat areas where periodic exposure of side channel and mainstem margins occurs as a result of water fluctuations. Enhance side channel complexes in the reach between the dam site and the confluence of the Peace and Pine Rivers to increase wetted habitat and to reduce stranding potential during low flows. Where practical, contour mainstem bars to reduce potential for fish stranding.	N	N/A
Reduced fish health and survival due to fish entrainment during operations	Use large, slow rotating Francis turbines to increase entrainment survival. Design smooth and gradual transitions at the approach channel and penstock entrances and tailrace exit structures into the final design. Design the orientation and size of openings and exits to reduce hydraulic turbulence to reduce fish injury. Ensure smooth surface finishing on linings of spillways. Reduce obstructions (e.g., boulders) from the turbulent zone in the spillway and tailrace areas. Approaches to mitigate the potential effects of fish entrainment on health and survival of fish during operation are considered in more detail in Volume 2 Appendix Q Fish Passage Management Plan.	Y – Fish would be harmed due to entrainment	N
Reduced fish health and survival due to increased total dissolved gas supersaturation during operations	The spillway design has been modified to reduce total dissolved gas generation. Develop and implement an operational procedure to manage the rate of discharge at each gate to reduce dissolved gas generation – initiate spillway discharge operations through multiple gates to reduce the rate of discharge at each gate. Develop and implement an operational procedure to reduce operation of turbines in water discharge ranges that produce 'rough load operation' to reduce total	Y – fish would be exposed to total dissolved gas during spills	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	dissolved gas concentration in tailwater.		
Hindered fish movement due to obstruction to fish passage during construction	Provide upstream fish passage during construction by a trap and haul facility. Implement a periodic capture and translocation program for small-fish species, contingent on the results of investigative studies into the genetic exchange requirements of upstream and downstream populations. Approaches to mitigate the potential effects of obstructed fish movement during the construction of the Project are considered in more detail in Volume 2 Appendix Q Fish Passage Management Plan.	Y – Hindered fish movement would occur	Y
Hindered fish movement due to obstruction to fish passage during operations	Provide upstream fish passage during operations by a trap and haul facility Implement a periodic capture and translocation program for small-fish species, contingent on the results of investigative studies into the genetic exchange requirements of upstream and downstream populations. Approaches to mitigate the potential effects of obstructed fish movement during the operations of the Project are considered in more detail in Volume 2 Appendix Q Fish Passage Management Plan.	Y – Hindered fish movement would occur	Y
Potential effects on fish and fish habitat during construction and operations	Implementation of Environmental Monitoring Program for the protection of fish and fish habitat: - evaluate the effectiveness of standard mitigation measures for reducing sedimentation and fish stranding in the construction headpond and proximal reach of the river downstream of the dam, - to validate predictions about physical changes to habitat in the reservoir area during the development and operation of the construction headpond during the diversion stage of the project - A systematic monitoring program design would be conducted over the approximate eight-year construction period. - Physical and biological monitoring would be conducted to an appropriate scale to document spatial and temporal changes occurring in physical environmental conditions resulting from	NA	NA

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	headpond hydrology, and in localized areas in relation to the effects of construction activities and mitigation procedures. - The environmental construction monitoring program will also confirm the effectiveness of mitigation measures for management of predicted effects of sediment and fish stranding, and provide information required to adjust the mitigation program to reduce unforeseen adverse effects, as required. Environmental monitoring will be developed as described in Volume 5 Section 35 Summary of Environmental Management Plans Habitat Compensation Plan will be developed and implemented in accordance with a *Fisheries Act* Section 35(2) Authorization		
Section 13 – Vegetation and Ecological Communities			
No interactions between the Project and the Vegetation and Ecological Communities VC were ranked as "1". Therefore, no best management practices/standard mitigation measures are referenced in the Volume 2 Appendix A Project Interaction Matrix, Table 2.			
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Habitat alteration and fragmentation: Construction: Old growth, grasslands and wetlands	Project design to date has located new proposed roads and other linear disturbances along existing disturbed areas as much as possible to minimize the effects of habitat loss. Place transmission towers and temporary roads away from wetlands and known rare plant occurrences where feasible. All known occurrences will be provided as inputs during the final design phase for consideration. If there is limited or no existing data to help facilitate avoidance measures, then supplemental pre-construction surveys will be conducted. These pre-construction surveys will target rare plants as defined in Section 13.2.2—including vascular plants, mosses, and lichens. If avoidance is not feasible, other mitigation measures will be considered, including effect reduction and compensation.	Y	Y
Habitat alteration and fragmentation: Construction:	An Environmental Protection zone will be established to protect occurrences located adjacent to construction		Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Tufa seeps, wetlands and rare plants	areas. Signage will be added where necessary to indicate the boundaries of the exclusion area. Construction personnel will be required to attend a field-based orientation session where the exclusion areas will be explained, and the importance of avoiding disturbance within them will be stressed. This will form part of the Environmental Training Management Plan (Section 35.2.2.8 in Volume 5 Section 35 Summary of Environmental Management Plans). A Wetland Mitigation and Compensation Plan will be developed, incorporating information on location, size and type of wetlands affected by the Project. The plan will include applying a mitigation hierarchy that prioritizes mitigation actions to be undertaken: 1. Avoid direct effects where feasible; 2. Minimize direct effects where avoidance is not feasible; 3. Maintain or improve hydrology where avoidance is not feasible; 4. Replace like for like where feasible; 5. Improve the function of existing wetland habitats; and 6. Create new wetland habitat The wetland mitigation plan will be developed using the mitigation hierarchy outlined above and will incorporate expert advice provided by Ducks Unlimited. A staged approach for the plan is proposed which includes the development of conceptual plans for wetland mitigation projects, development of detailed designs, and production of completed construction plans. The plan will be developed with appropriate federal and provincial regulatory authorities and advice and input gained through consultation with First Nation and Aboriginal groups will be included in the plan.		
Habitat alteration and fragmentation: Construction Grasslands, wetlands, and rare plants	The Soil Management, Site Restoration and Revegetation Plan will take into account the location of known occurrences, and suggest the seed mixes and methods to avoid indirect loss or alteration to nearby occurrences	Y	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Habitat alteration and fragmentation: Construction Old growth, wetlands and rare plants	Temporary construction access roads will be closed and reclaimed following construction. During construction, access roads will be controlled to limit use.	Y	N
Habitat alteration and fragmentation : Operation Wetlands and rare plants	A spatial database of known rare plant occurrences in the vicinity of Project components will be maintained and searched to avoid effects during operations and maintenance activities. The database will be actively updated as new information becomes available.	Y	N
Habitat alteration and fragmentation: Construction Old growth, grasslands, wetlands, and rare plants	Efforts have been made during Project design to use existing access corridors, plan for deactivation of temporary access roads, and minimize disturbance to help limit additional fragmentation. Project components where this has occurred are listed below. • **Substation and Transmission Lines to Peace Canyon Dam:** Constructing the new transmission lines adjacent to the existing line, and using the existing corridor and maintenance access roads. • **Highway 29 Realignment:** Using portions of existing roads and selecting borrow sites that already exist or that would be eventually covered by the reservoir. • **Quarried and Excavated Construction Materials:** Further developing existing quarry sites (e.g., Wuthrich, Del Rio, and West Pine) and using a site that has already been affected by development (85th Avenue Industrial Lands). • **Construction Access Roads:** Use of existing infrastructure for moving material, upgrading existing access roads, and deactivation of temporary roads used for reservoir clearing, and placing the south bank access to the Dam Site along the existing transmission line corridor.	Y	Y
Habitat alteration and fragmentation: Construction Wetlands and rare plants	The construction methods used will take into account the location of known occurrences and high-suitability habitat. Where complete avoidance is not feasible, effect reduction will be considered. This can include timing construction activities to winter months, and surface protection measures such as placing ramps to reduce vehicle compaction within occurrences, or using	Y	Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	rubber-tired versus tracked equipment to minimize ground disturbance.		
Habitat alteration and fragmentation: Construction Grasslands, wetlands, and rare plants	The indirect effects associated with increased dust deposition are expected to be diffuse, and are not considered to threaten the continued viability of any known rare plant occurrences. Fugitive dust from construction activities will be minimized through the application of an Air Quality Monitoring and Dust Control Plan (Section 35.2.2.7 in Volume 5 Section 35 Summary of Environmental Management Plans).	Y	N
Habitat alteration and fragmentation: Construction and operations: Wetlands	Construction and maintenance activities in and around watercourses and wetlands will conform to BC Hydro's regulator-accepted practices including Approved Work Practices for Managing Riparian Vegetation (BC Hydro et al. 2003). An Agreement between BC Hydro, the B.C. Ministry of Environment, and Fisheries and Oceans Canada (BC Hydro et al. 2009) identifies other accepted work practices that are to be developed and available for use in the near future. Additional guidance will be used from Standards and Best Practices for Instream Works (B.C. Ministry of Water, Land and Air Protection 2004) and the Land Development Guidelines for the Protection of Aquatic Habitat (Chilibeck et al. 1992), which are designed to reduce sedimentation and avoid introduction of deleterious substances to aquatic environments. Maintaining surface flow patterns is important in the retention of functioning wetlands. Construction activities will be designed and carried out in a manner that seeks to maintain the hydrology of adjacent wetlands, particularly where known rare plant occurrences are present. Measures will be implemented to maintain existing hydrological patterns as much as possible, if roads cannot avoid wetlands. Culverts will be installed under access roads to maintain hydrological balance, and sedimentation barriers will be installed as needed. A hydrologist will be employed to assist with developing site-specific measures to reduce changes to existing hydrologic balance and wetland function during construction of the Jackfish Lake Road and Project access roads and the transmission line.	Y	Y
Habitat alteration and fragmentation:	Stormwater management will be designed to control runoff and direct it away from work areas where excavation, spoil placement, and staging activities occur.	Y	Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Construction Wetlands	Consideration for maintaining recharge levels to wetlands will be given when diverting water around work sites, providing there is not expected to be a measurable increase in sediment transport to these sensitive areas. Surface water quality management will be addressed in the Erosion Prevention and Sediment Control Management Plan (Section 35.2.2.9), Fisheries and Aquatic Habitat Management Plan (Section 35.2.2.10) and Emergency Response Plan (Section 35.2.1.1), all in Volume 5 Section 35 Summary of Environmental Management Plans.		
Habitat alteration and fragmentation: Construction Old growth, rare plants	A hierarchal decision matrix has been developed for reservoir clearing to reduce erosion potential along steep, unstable slopes and along riparian zones for all defined watercourses. Specifically the decision matrix includes: • Retention of all trees in on steep, unstable slopes that would be highly susceptible to landslides if the vegetation was removed • Retention of non-merchantable trees and vegetation in riparian areas within a 15 m buffer from the high water mark. Merchantable trees may still be removed using clearing practices to maintain a 15 m machine-free zone. These same standards will be employed in other work areas, and will follow BC Hydro's approved work practices.	Y	Y
Habitat alteration and fragmentation: Construction rare plants	An experimental rare plant translocation program will be considered for suitable rare plant species found within the reservoir and other areas where Project components are certain to remove the populations. The translocation program will follow the B.C. Ministry of Environment's Guidelines for Translocation of Plant Species at Risk in British Columbia (Maslovat 2009). Translocation of endangered plants is generally thought to have a low likelihood of success and should be considered a follow-up monitoring opportunity, rather than a means to relocate occurrences to prevent their loss.	Y	Y
Habitat alteration and fragmentation: Construction and operations Old growth, grasslands, wetlands, and rare plants	All activities that involve potentially harmful or toxic substances such as oil, fuel, antifreeze, and concrete will follow approved work practices and consider the provincial BMP guidebook Develop with Care (BCMOE 2012b). All construction machinery and vehicles will be properly maintained to ensure that harmful fluids do not leak into	N	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	aquatic environments or other sensitive areas. Prior to initiating construction activities in proximity to any water body, the hydraulic, fuel, and lubrication systems of all equipment will be checked to ensure that systems are in good condition and free of leaks. Biodegradable hydraulic fluids will be considered for machines used for in-stream works. All machines will have a spill kit, and operators will be educated its use. Maintenance and refuelling will be conducted at a designated area at an approved distance from watercourses. BC Hydro's fuel handling and storage management plan (Section 35.2.2.11 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans) will include appropriate planning for fuel handling and storage, spill prevention, and emergency response.		
Habitat alteration and fragmentation: Construction and operations Tufa seeps, grasslands, wetlands, and rare plants	A Vegetation and Invasive Plant Management Plan (Section 35.2.2.22 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans) will be developed and implemented during the entire construction phase (including restoration) and integrated during operations. The plan will be designed using the locations of known rare plant or sensitive site occurrences and locations of high-suitability habitats as inputs. Weed control efforts will be coordinated with the rare plant botanists to ensure that effects to occurrences are avoided or reduced.	Y	N
Habitat alteration and fragmentation: Construction and operations Grasslands, wetlands, and rare plants	Disturbed sites will be replanted quickly with ground cover, shrubs, or trees that are regionally appropriate once erosion concerns have been addressed. This will be part of BC Hydro's Soil Management, Site Restoration and Revegetation Plan (Section 35.2.2.19 in Volume 5 Section 35 Summary of Environmental Management Plans). Additional mitigation measures to reduce the spread of invasive species are described below. Prior to work commencing, surveys will be conducted to identify invasive species populations. Treatment will be initiated as required. All vehicles entering and leaving work sites will be washed thoroughly, with special attention to wheel wells, tire treads, and tracks where mud and seeds of noxious weeds may be lodged. Wash areas will be located away from any water body and riparian areas.	Y	Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Used wash water will be treated to prevent seed dispersal.		
Habitat alteration and fragmentation: Operations Old growth, wetlands and rare plants	BC Hydro has considerable experience managing and maintaining an extensive transmission line network within the province, including the existing transmission corridor along which the new lines will be constructed. The Integrated Vegetation Pest Management Plan for Transmission Line Rights-of-Way (BC Hydro 2010) will be followed in order to reduce or avoid the spread of invasive species during the operations phase of the transmission line and the Pest Management Plan For Management of Vegetation at BC Hydro Facilities (BC Hydro 2012b) will be used to manage invasive species at other Project facilities.	Y	N
Habitat alteration and fragmentation: Construction Wetlands and rare plants	With the creation of the Project, BC Hydro will fund a compensation program. This program would include: • A survey of habitat enhancement projects in the RAA will be conducted to identify projects that might provide compensation for rare and sensitive habitats and protect occurrences of rare plants (e.g., wetlands). If suitable habitat enhancement projects can be found, BC Hydro will provide assistance (financial or in-kind) to the managing organization. The inventories will also identify areas that are under threat from development or in need of habitat enhancement. Where opportunities exist, BC Hydro will consider direct purchase – if offered for sale – and management of these lands to enhance or retain rare plant values. BC Hydro will also consider contributing to other protection options where direct purchase is not feasible. BC Hydro will fund or undertake targeted surveys in the RAA to locate additional occurrences of the 18 directly affected rare plant species that the Conservation Framework identifies as requiring additional inventories (Table 13.14). Full element occurrence data will be collected and transmitted to the B.C. Conservation Data Centre for each additional occurrence found.	Y	Y
Habitat alteration and fragmentation: Construction Rare plants	BC Hydro will fund or undertake a study in an attempt to clarify the taxonomy of Ochroleucus bladderwort. This is the only species of the 34 directly affected taxa for which the Conservation Framework identifies further taxonomic research as being required for its conservation. The study plan will be developed in consultation with the B.C.	Y	Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Conservation Data Centre and may include field, herbaria, and genetic work.		
Section 14 – Wildlife Resources			
No interactions between the Project and the Wildlife Resources VC were ranked "1" . Therefore, no best management practices/standard mitigation measures are referenced in the Volume 2 Appendix A Project Interaction Matrix, Table 2.			
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Effects on wildlife resources during construction and operations	Refine Project boundaries and select the most appropriate construction methods, equipment, material, and timing of activities. Additional mitigation measures to consider include environmental protection measures such as establishment of no- or restricted-activity buffer zones around wildlife features, Best Management Practices (BMPs) and protocols, and engineering standards. Where feasible, mitigation measures can be refined based on consultation with federal and provincial regulatory agencies and Aboriginal group. Table 4.1 in Section 4.1 Project Evolution summarizes changes that have been incorporated into the project design to avoid project effects (Table 4.1 has been duplicated above in section 39.1)	Y	Y
Habitat Alteration and Fragmentation	Efforts on this Project have been made to use existing corridors, deactivate temporary access roads, and minimize disturbance where possible, to help minimize fragmentation. Project components where this has occurred include: • **Substation and Transmission Lines to Peace Canyon Dam:** building the transmission lines adjacent to the existing line, therefore using the existing corridor and maintenance access roads • **Highway 29 Realignment:** use portions of existing roads and select borrow sites that already exist or would be covered by the reservoir • **Quarried and Excavated Construction Materials:** further develop existing quarry sites such as Wuthrich, Del Rio, and West Pine, and use a site that has already seen development – the 85th Avenue	Y	Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Industrial Lands. • **Road and Rail Access:** use existing infrastructure for moving material, upgrade existing access roads, and deactivate temporary roads used for reservoir clearing, and place the Project access road to the dam site area along the existing transmission line corridor		
Habitat alteration and fragmentation: construction and operations Wetlands and wetland-associated key indicators: amphibians and reptiles, butterflies and dragonflies, migratory birds, raptors, bat	All known wetland locations (e.g., breeding habitat for butterflies and dragonflies, amphibians, migratory birds), snake hibernacula, bat hibernacula, Sharp-tailed Grouse lek sites, beaver lodges, and large raptor stick-nest locations would be provided as inputs during the final design phase so further reductions and avoidances can be considered. If work is required immediately adjacent to any wetlands, then appropriate barriers and no- or restricted-activity buffer zones would be established to avoid direct disturbance to these sites. Habitat would be cleared in the approved areas only and construction would be monitored to prevent any unnecessary clearing. Construction and maintenance activities in and around watercourses and wetlands would conform to BC Hydro's regulator-accepted practices including Approved Work Practices for Managing Riparian Vegetation (BC Hydro et al. 2009). New wetland habitat areas would be created as partial compensation for wetland loss due to the reservoir. Consideration for creating areas that are fish-free would be included to minimize the effects of fish predation on invertebrate and amphibian eggs and larvae and young birds.	Y	Y
Habitat alteration and fragmentation: Construction and operations Wetlands and wetland-associated key indicators: amphibians and reptiles, butterflies and dragonflies, migratory birds, raptors, bats	Measures would be implemented to maintain existing hydraulic patterns as much as possible if roads cannot avoid wetlands. Ditches, culverts, and other structures would be placed to maintain the natural drainage patterns and allow the movement of flows.	Y	Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Habitat alteration and fragmentation: Construction and operations All key indicators: ▪ Introduction of deleterious substances ▪ Erosion and sedimentation ▪ Hydrocarbon and hazardous materials management ▪ Invasive species management	Construction and maintenance activities in and around watercourses and aquatic habitats would conform to BC Hydro's accepted work practices with additional input from Standards and Best Practices for Instream Works (B.C. Ministry of Water, Land and Air Protection 2004b) and the Land Development Guidelines for the Protection of Aquatic Habitat (Chilibeck et al. 1992), which are designed to reduce sedimentation and avoid introduction of deleterious substances to aquatic environments. BC Hydro would have an Erosion Prevention and Sediment Control Plan (Section 35.2.2.9 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans) as part of their Construction Management Framework. Stripping vegetation and soils would be minimized as much as possible, taking into consideration proximity to sensitive habitats, e.g., wetlands, and slope stability. Within the reservoir, a hierarchal decision matrix has been developed for clearing to reduce erosion potential along steep, unstable slopes and along riparian zones for all defined watercourses. Specifically, the decision matrix includes: ▪ Retention of all trees in areas with steep, unstable slopes that would be highly susceptible to landslides if the vegetation was removed ▪ Retention of non-merchantable trees and vegetation within riparian areas around existing water bodies within a 15 m buffer from the high water mark. Merchantable trees may still be removed using clearing practices, in order to maintain a 15 m machine-free zone. These same standards would be employed in other work areas and would follow BC Hydro's approved work practices. Stormwater management would aim to control runoff and direct it away from work areas where excavation, spoil placement, and staging activities occur. Consideration for maintaining recharge levels to wetlands would be considered when diverting water around work sites, providing there is not expected to be a measurable increase in sediment transport to these sensitive areas. A Surface Water Quality Management Plan (Section 35.2.2.21 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans) would be developed as part of BC Hydro's Construction	Y	Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Environmental Management Framework. Cleared areas that will not have permanent features would be replanted with appropriate vegetation in order to promote soil stability. Regionally appropriate vegetation would be included in the reclamation activities. BC Hydro would develop a Soil Management, Site Restoration and Revegetation Plan (Section 35.2.2.19 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans). All activities that involve potentially harmful or toxic substances, such as oil, fuel, antifreeze, and concrete, would follow approved work practices and consider the provincial BMP guidebook Develop with Care (B.C. Ministry of Environment 2012). BC Hydro would have a Fuel Handling and Storage Management Plan (Section 35.2.2.11 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans). This plan would include the need for all construction machinery and vehicles to be properly maintained to ensure that harmful fluids do not leak into aquatic environments or other sensitive areas. Prior to initiating construction activities in proximity to any water body, the hydraulic, fuel, and lubrication systems of all equipment would be checked to ensure that systems are in good condition and free of leaks. All machines would have a spill kit and operators would be educated on how to use the kit. Minimum distances between maintenance and refuelling sites and water bodies would be specific in the plan. BC Hydro's Construction Environmental Management Framework would include an Emergency Response Plan (Section 35.2.1.1 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans) as well as a Hazardous Waste Management Plan (Section 35.2.2.13 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans). Herbicide application would be used to control invasive plants and for the maintenance of some vegetation along the transmission line and at project facilities. The use of herbicides is described in BC Hydro's Pest Management Plan for Management of Vegetation at BC Hydro Facilities (BC Hydro 2012) and Integrated Vegetation Management Plan for Transmission Rights-of-way (BC Hydro 2010). Disturbed sites would be replanted quickly with ground cover, shrubs, or trees that are regionally appropriate, once erosion concerns have been addressed per BC Hydro's Soil Management Site Restoration and		

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Revegetation Plan. A Wildlife Management Plan (Section 35.2.2.24 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans) and Vegetation and Invasive Plant Management plan (Section 35.2.2.22 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans) would also be included, defining objectives for limiting invasive species by monitoring the presence and possible spread of invasive plants in temporarily disturbed areas, as well as the success of revegetation programs. Mitigation measures to reduce the spread of invasive species include: ▪ Prior to work commencing, surveys would be conducted to identify invasive species populations. Treatment would be initiated as required ▪ All vehicles entering and leaving work sites would be washed thoroughly, with special attention to wheel wells, tire treads, and tracks where mud and seeds of noxious weeds may be lodged ▪ Locating wash areas away from any water body and riparian areas ▪ Treating used wash water to prevent seed dispersal The Pest Management Plan for Management of Vegetation at BC Hydro Facilities (BC Hydro 2012) and the Integrated Vegetation Management Plan for Transmission Rights-of-Way (BC Hydro 2010) would be followed in order to reduce or avoid the spread of invasive species during the operations phase of the Project.		
Habitat alteration and fragmentation: Construction Loss of snake hibernacula	As mitigation for the loss of snake hibernacula, artificial dens would be considered during habitat compensation. These artificial dens would be located on warm aspect slopes in open areas away from major roads.	Y	N
Habitat alteration and fragmentation: Construction Loss of nesting habitat: migratory birds	Nest boxes for cavity-nesting waterfowl would be incorporated into wetland mitigation plans. Additional boxes would be established within riparian vegetation zones established along the reservoir on BC Hydro-owned properties, where feasible. The feasibility of placing small floating islands along some areas within the reservoir would be examined. Based on present land ownership, it is estimated there would be over 300 ha of BC Hydro-owned Cultivated Field remaining after the reservoir is filled. A portion of these	Y	Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	fields would be managed to provide some breeding habitat for Northern Harrier and Short-eared Owl. Wetland compensation would also address some habitat losses for these two species.		
Habitat alteration and fragmentation: Construction Bats	Bat roosting habitat features would be considered for incorporation into new bridge designs. This can be achieved following published guidelines (Keely and Tuttle 1999; Johnston et al. 2004; Gore and Studenroth 2005) without compromising bridge safety or structural integrity. Bridge night roosts are currently the only public sites within the Peace River valley where relatively large numbers of bats can be captured in a night. Bat boxes may be installed on free-standing poles or on facility walls where their presence would not interfere with facility operations and maintenance. The feasibility of incorporating bat boxes onto mounting poles being used for artificial eagle nest sites would be examined. Bat boxes should be situated where they will get at least 10 hours of sun to provide warm conditions for maternity roosts. Additional information on design, construction, and installation of bat boxes is available from Bat Conservation International (2012). Balsam poplar and aspen would be considered in plantings when reclaiming disturbed habitats and when enhancing habitat for wildlife compensation. Deciduous trees would provide future roosting habitat for bats. Once rock extraction is complete at Portage Mountain, opportunities for creating hibernating and roosting sites would be explored. This can include leaving deep drill holes at least 3 m deep in remaining rock faces, and creating roost microsites on warm aspects that are inaccessible to predators.	Y	N
Habitat alteration and fragmentation: Construction and Operations Fisher	The fisher population, particularly south of the Peace River, is lower than initial estimates, based on habitat availability and provincial density. Throughout its range, fur harvest, timber harvest, predator control, and urbanization have been the greatest contributors to fisher population declines (Lofroth et al. 2010). Mitigation measures that limit these factors may increase the population. Create natural or artificial piles of coarse woody debris dispersed throughout the disturbed landscape to maintain foraging areas and cold-weather rest sites. Focus on younger plateau forest where coarse woody debris is	Y	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	limited. Create arboreal resting sites. Spruce rust broom was found to be rare in the Peace River valley, primarily due to the lack of coniferous forests. Creating rust broom-like structure in deciduous stands may provide additional resting opportunities for fisher. Provide artificial den boxes within forested stands that have limited den trees.		
Habitat alteration and fragmentation: Construction and Operations Ungulates	BC Hydro would continue to manage lands it owns to the east of the Halfway River and west of Wilder Creek to maintain values of these areas as winter range and their accessibility.	Y	N
Disturbance and displacement: ▪ Migratory birds, non-migratory birds, raptors ▪ Timing of works ▪ Lighting ▪ Roads	The clearing of vegetation for all work would consider both the Migratory Bird Convention Act and the B.C. Wildlife Act, where active nests are protected from disturbance and removal. The provincial government has developed least-risk windows for terrestrial wildlife that are of management concern within the Peace Region of the B.C. Ministry of Forests, Lands and Natural Resource Operations. Suggested critical time periods when construction should be avoided are: ▪ Songbirds: May 1 through July 31, when nesting could occur (B.C. Ministry of Forests, Lands and Natural Resource Operations 2011) ▪ Trumpeter Swan, raptors and owls: April 1 through July 31 Goddard (2010) observed lek attendance by Sharp-tailed Grouse between mid-April and mid-May in the Peace River region, and a nesting initiation to hatching date range from early May to mid-July. There is no specific mention for grouse within the least-risk windows, but nesting overlaps the critical time frame suggested for raptors. Clearing activities for much of the area are presently scheduled to occur during the winter months, thereby avoiding conflicts with nesting birds (see Volume 1 Appendix A Vegetation, Clearing, and Debris Management Plan). Scheduling constraints may require clearing activities to occur outside the winter months. If clearing work during the critical bird breeding season outlined above cannot be avoided, a nest and lek search protocol would be developed and implemented prior to	Y	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	clearing, to avoid disturbance to active nests. The protocol would be developed in consultation with Environment Canada, Canadian Wildlife Service, and the Ministry of Environment. The protocol would outline buffers required around active nest sites. As feasible, lighting would be focused on work sites, minimizing light pollution in surrounding areas. During construction, access would be restricted on roads used by work crews. Temporary roads would be closed and reclaimed when no longer needed.		
Disturbance and displacement: construction and operations Butterflies and dragonflies, amphibians and reptiles, migratory birds, non-migratory birds, raptors, bats, fur-bearers, ungulates, and large carnivores	BC Hydro uses a GIS-based mapping system for recording, storing, and analyzing information for managing resources along all of its rights-of-way. The information is reviewed when developing vegetation management prescriptions during operations. If occurrences for rare species (e.g., Yellow Rail) are known along the transmission line right-of-way or are adjacent to generation facilities, the location of these sites would be incorporated into the database for future planning and consideration, so as to minimize or avoid unnecessary disturbance.	Y	N
Displacement and disturbance: Construction Sharp-tailed Grouse	All known lek locations would be provided as inputs during the final design phase so further reductions and avoidances are considered. If new construction sites are added or the area where disturbance is to occur is poorly understood, the new areas would be checked to confirm if leks are present and possible ways to minimize disturbance. If work is required immediately adjacent to any leks, then appropriate barriers would be added so as to instruct construction personnel to avoid these sites. Habitat would be cleared in the approved Project activity zone only, and construction would be monitored to prevent any unnecessary clearing.	Y	N
Disturbance and displacement: Construction Bald Eagle nests	The baseline data on Bald Eagle nest sites from 2011 would be updated prior to commencement of construction to ensure an accurate understanding of the number of nests that would be affected by the Project. To mitigate the loss of Bald Eagle nests within the proposed reservoir, new nesting platforms would be erected along the expected reservoir shoreline. Platforms	Y	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	would be designed to be attractive to nesting Bald Eagles – i.e., platform suitable for supporting a large stick-nest, with structures extending above the platform to provide perch sites for adults and juveniles prior to fledging – and would be placed in areas removed from potential human disturbance. The Best Management Practices for Raptor Conservation during Urban and Rural Land Development in British Columbia (Demarchi et al. 2005) provides further guidance. For each active nest lost due to the Project, two nesting structures would be provided; the two-to-one ratio is proposed by BC Hydro. Bald Eagle nests are typically located adjacent to water. With construction lasting up to eight years, it is possible Bald Eagles would not use the newly erected platforms until the reservoir is filled. Bald Eagle nests confirmed active the year clearing is started within the reservoir, and outside the dam construction area would be retained through the entire construction phase until reservoir filling is initiated. Nests that could be lost during seasonal flooding associated with Stage 2 dam construction would be removed to limit displacement or possible mortality. Appropriate government approvals and permits would be obtained prior to removing any nest. For active nests retained through construction, a no-clearing buffer centred on each active nest would be employed.		
Disturbance and displacement: Construction and Operations ▪ Large carnivores	Preventative measures would be used to avoid creating human-bear conflicts. Before commencement of work, all crews should participate in a Bear Aware™ or similar training program. Feeding of wildlife (including birds) would be prohibited at work sites. Construction areas and worker housing sites would be fenced and kept clean and free of waste, with garbage securely stored in bear-proof containers or removed from site. Trucks and work vehicles are not secure storage areas for garbage, because bears have been known to break into vehicles for food (Davis et al. 2002). Work crews would be prohibited from hunting and cleaning game around construction sites. If precautions to remove bear attractants such as food and garbage are not effective in deterring aggressive bears from construction areas, the Environmental Monitor would notify a Conservation Service Officer that a potential "problem bear" is in the area. A bear would only be classified as a "problem bear" if: ▪ It shows repeated interest in people and their facilities	Y	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	▪ It is heavily habituated to people and has repeatedly obtained unnatural foods ▪ It displays aggressive behaviour (unprovoked charges or predatory behaviour) and is an imminent threat to human safety The Conservation Service Officer would determine whether further actions, such as more aggressive aversive conditioning (e.g., use of rubber bullets, hard capture and release, etc.), translocation, or destruction of the bear are necessary, and would advise about how to ensure worker safety. A detailed Human-Bear Conflict Management Plan would be developed for the Project.		
Mortality: Construction and Operations ▪ Migratory birds, non-migratory birds, raptors ▪ Timing of works ▪ Collision and electrocution mortality	The clearing of vegetation for all work would consider both the *Migratory Bird Convention Act* and the B.C. *Wildlife Act,* where active nests are protected. The provincial government has developed least-risk windows for terrestrial wildlife that are of management concern within the Peace Region of the B.C. Ministry of Forests, Lands and Natural Resource Operations (see above in Disturbance and Displacement mitigation). Clearing activities for much of the area are presently scheduled to occur during the winter months, thereby avoiding conflicts with nesting birds (see Volume 1 Appendix A Vegetation, Clearing, and Debris Management Plan). Scheduling constraints may require clearing activities to occur outside winter months. If clearing work during the critical bird breeding season outlined above cannot be avoided, a nest and lek search protocol would be developed and implemented prior to clearing to avoid disturbance and possible mortality to nesting birds. The protocol would be developed in consultation with Environment Canada, Canadian Wildlife Service, and the Ministry of Environment. The protocol would outline buffers required around active nest sites. The design of the transmission towers reduces the risk of collision and electrocution by: 1. BC Hydro's standard design has all of the conductors in the same horizontal plane. This configuration will be used unless there is a requirement to reduce the right-of-way. 2. The standard phase-to-phase spacing (distance between the lines) for 500 kV transmission lines	Y	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	is approximately 10 meters and phase-to-ground (conductors to the tower body) is over 3 meters so the risk of electrocution by contacting two phases or one phase and the tower is virtually non-existent.		
Mortality: Construction ▪ Butterflies and dragonflies, amphibians and reptiles, migratory birds, non-migratory birds, raptors, bats, fur-bearers, ungulates and large carnivores ▪ Introduction of deleterious substances ▪ Erosion and sedimentation ▪ Hydrocarbon and hazardous materials management ▪ Invasive species management	The project would avoid the release of deleterious hydrocarbons and other hazardous materials by conforming to BC Hydro's accepted work practices with additional input from Standards and Best Practices for Instream Works (B.C. Ministry of Water, Land and Air Protection 2004b) and the Land Development Guidelines for the Protection of Aquatic Habitat (Chilibeck et al. 1992), which are designed to reduce sedimentation and avoid introduction of deleterious substances to aquatic environments. Mortality due to sedimentation would be reduced or avoided following similar plans, e.g., BC Hydro would have an Erosion Prevention and Sediment Control Plan (Section 35.2.2.9 in Volume 5 Section 35 Summary of Proposed Environmental Management Plans) as part of their Construction Management Framework. Surface water quality would be monitored to ensure it does not exceed established guidelines for aquatic life (see Volume 2 Appendix E Water Quality Baseline Conditions in the Peace River). BC Hydro would follow their Pest Management Plan for Management of Vegetation at BC Hydro Facilities (BC Hydro 2012) and Integrated Vegetation Management Plan for Transmission Rights-of-Way (BC Hydro 2010) for the use of herbicides. This includes consideration for use around wetlands and species at risk.	Y	N
Mortality: Construction and Operations ▪ Butterfly and dragonfly, amphibians and reptiles ▪ Predation	A portion of the wetlands created to compensate for habitat loss would be designed to remain fish-free to eliminate predation to invertebrates (dragonfly larva) and amphibians and reptiles.	Y	N
Mortality: Construction and Operations ▪ Amphibians and reptiles, mammals	Road mortality for both amphibians and snakes was documented during baseline studies and is expected to occur during Project construction, as many roads have multiple users. During detailed road design, efforts would be made to minimize or avoid additional losses. Where	Y	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
▪ Roads	roads are adjacent to wetlands or amphibian migrations across roads are anticipated, fencing would be placed along the length of the road to guide amphibians through structures designed for wildlife passage under the road. The size and number of the structures needed and the length of fencing would be determined in consultation with regulators. Road mortality of mammals is expected to occur during Project construction. Measures to minimize road mortality include: ▪ Reducing vehicle traffic by using buses and car-pooling for workers ▪ Requiring workers to adhere to strict speed limits ▪ Instructing workers that wildlife has right-of-way unless there are safety concerns ▪ Maintaining a logbook of wildlife sightings, including roadkills, and posting warning signs at locations with frequent wildlife crossings ▪ Promptly moving roadkill well off the road to avoid secondary mortality of scavengers ▪ Including wildlife-vehicle collisions as safety issues for discussion on worker tailboard meetings Temporary workers involved in on-site Project construction would be encouraged not to hunt in the LAA		
Mortality: Construction and Operations ▪ Mammals ▪ Roads	Mammal mortality associated with filling the reservoir can be reduced by clearing forested habitat – potential roosting and cover sites for bats and fisher – before flooding begins. Clearing should take place during late fall and winter before the birthing season and when bats are not present or are in hibernacula. Scheduling of construction activities should follow guidance in Peace Region Selected Terrestrial and Aquatic Wildlife Least Risk Windows (B.C. Ministry of Forests, Lands and Natural Resource Operations 2011).	Y	N
Mortality: Construction and Operations • Large carnivores	Preventative measures would be used to avoid creating human-bear conflicts. Before commencement of work, all crews should participate in a Bear Aware™ or similar training program. Feeding of wildlife (including birds) would be prohibited at work sites. Construction areas and worker housing sites would be fenced and kept clean and free of waste, with garbage securely stored in bear-proof containers or removed from site. Trucks and work vehicles are not secure storage areas for garbage, because bears have been known to break into vehicles for food (Davis	Y	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	et al. 2002). Work crews would be prohibited from hunting and cleaning game around construction sites. If precautions to remove bear attractants such as food and garbage are not effective in deterring aggressive bears from construction areas, the Environmental Monitor would notify a Conservation Service Officer that a potential "problem bear" is in the area. A bear would only be classified as a "problem bear" if: ▪ It shows repeated interest in people and their facilities ▪ It is heavily habituated to people and has repeatedly obtained unnatural foods ▪ It displays aggressive behaviour (unprovoked charges or predatory behaviour) and is an imminent threat to human safety The Conservation Service Officer would determine whether further actions, such as more aggressive aversive conditioning (e.g., use of rubber bullets, hard capture and release, etc.), translocation, or destruction of the bear are necessary, and would advise about how to ensure worker safety. A detailed Human-Bear Conflict Management Plan would be developed for the Project. Mitigation for wolves will include previously-described measures for minimizing road traffic, deactivation and reclamation of temporary construction roads, maintaining clean worksites and camps, and encouraging temporary workers to not hunt in the LAA. Filling the reservoir during the fall will prevent potential drowning of young pups. It should be noted that mitigation is not designed to promote increases in the wolf population as that would conflict with the current regional goal of reducing wolf predation on livestock and ungulates.		
Section 15 – Greenhouse Gases			
Best Management Practices/Standard Mitigation (re: interaction ranking of "1"): Operations Phase **(see Volume 2 Appendix A Project Interaction Matrix, Table 2)**			
Substation and Transmission Line to Peace Canyon	Emissions are expected to be nominal and are very unlikely to be considered important on the regional or provincial scale due to standard mitigation regarding fuel	N/A	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Right-of-way vegetation maintenance Maintenance of access roads	conservation, fleet management and trip reduction		
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Emission of GHGs from construction activities	Implement fleet management measures to reduce fuel consumption and increase fuel efficiency. (see Volume 2 Section 35 Summary of Environmental Management Plans) Initiatives to mitigate the GHG emissions have been incorporated into the design of the Project.	Y – Emission of GHGs	N
Release of GHGs during operation	Reduce the long-term conversion of land while still achieving the purpose of the Project. This was taken into consideration in the design of the Project.	Y – Emission of GHGs	N
Section 16 – Local Government Revenue			
Best Management Practices/Standard Mitigation (re: interaction ranking of "1"): Operations Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways and Reservoir Operations - Component Level Interactions	Grants-in-lieu as determined by the provincial government is a well-understood and previously used mitigation for similar BC Hydro projects. Once operational, BC Hydro will provide annual grants-in-lieu payments to local governments as directed by provincial funding obligations order-in-council.	N/A	N/A
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Change in local government revenue – increased costs to serve residents, damage to infrastructure	Local governments may experience increased costs related to meeting the demands of new local residents and Project workforce camp populations, or may have infrastructure that, if affected and not mitigated, would increase local government expenditures. To mitigate this change, Volume 4 Section 30 Community Infrastructure and Services further identifies adverse effects and mitigation and monitoring measures as appropriate. Permanent inundation of land no longer available for development will be addressed by providing a one-time contribution of $160,000 to the District of Hudson's Hope	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	within one year of reservoir filling.		
Section 17 – Labour Market			
Best Management Practices/Standard Mitigation (Project Interaction rankings of "1"): Operations Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways and Reservoir Operations - Component Level Interactions	Interactions are nominal relative to current and projected regional employment/economic/population/housing/infrastructure activities.	N/A	N/A
Potential Effects and Mitigation (Project Interaction Rankings of "2")			
Change in demand for direct and indirect construction phase labour A comparison of the Project labour requirements against the baseline and forecast local labour supply and demand by skill category, where the data are available	Augment labour supply through recruitment and enhancing local labour market participation rate. Recruitment: ▪ Access labour pools outside of the region, and attract new entrants to the local labour force (including mobile workers). ▪ Encourage contractors to hire locally available workers with the requisite skills. Enhancing local labour market participation rate: Enhance local labour market participation via training and skill development, focused on increasing the local labour market participation rate and skill level of LAA population: ▪ Provide $1 million to the Northern Lights College Foundation to fund student bursaries, focusing on trades and skills training to support the development of skilled workers in the LAA ▪ Enter into a three-year (2011-2014) funding agreement with Northern Opportunities, a partnership of the school districts of Fort Nelson, Peace River North, and Peace River South, Northern Lights College, local First Nations, industry and local communities, with the objective of providing young people with a seamless learning pathway from secondary school to post-secondary training, which is open to Aboriginal and non-Aboriginal students ▪ Participate in regional workforce training initiatives, such as the Northeast Regional Workforce Table Task Force, to support alignment of training programs with the need for skilled workers to meet the needs of northeast B.C.	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	▪ May work with contractors and labour organizations to identify apprenticeship opportunities during construction ▪ Provide additional daycare spaces in the Fort St. John area to increase spousal participation in the labour market Support Aboriginal training initiatives and students: ▪ Consider commitments respecting capacity building, education, and training associated with Aboriginal participation in the labour market ▪ Support training, industry, and Aboriginal partnership opportunities in the region ▪ Support the North East Native Advancing Society (NENAS) with $100,000 in funding over two years (2013-2014) to support trades training under its North East Aboriginal Trades Training Program ▪ Dedicate $500,000 of the $1 million provided to Northern Lights College to Aboriginal student bursaries ▪ Develop a plan for inclusion of Aboriginal persons in its Project contracted workforce, including communication of employment opportunities, and evaluation criteria for hiring and training Aboriginal persons in contractor procurement packages		
Section 18 – Regional Economic Development			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Operations Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways and Reservoir Operations - Component Level Interactions	Interactions are nominal relative to current and projected regional employment/economic/population/housing/infrastructure activities.	N/A	N/A
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Change in business opportunities during construction	General Population: • Implement Business Participation Strategy to increase	Y – positive residual effects	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Change in business and contracting profile, capabilities and capacity during construction	awareness in the business community about Project procurement opportunities (refer to Volume 1 Appendix F Project Benefits Supporting Documentation) • Partner with local business organizations and with economic development offices and programs to deliver business information sessions and to communicate contracting opportunities • Mitigation in the Labour Market assessment will also contribute to expansion and diversification of the contractor profile, capabilities, and capacity. Aboriginal Peoples: • Continue outreach initiatives to make Aboriginal businesses aware of Project contracting opportunities • Where identified by Aboriginal groups as an interest, BC Hydro will consider commitments respecting capacity building, education, and training associated with Aboriginal participation in labour market opportunities • Implement a Business Participation Strategy: continue to notify Aboriginal groups of business information sessions, and about opportunities to register with BC Hydro's Aboriginal Business Director (refer to Volume 1 Appendix F Project Benefits Supporting Documentation) • Continue to engage directly with the Aboriginal business community in the LAA and elsewhere in the province, including providing opportunities to sponsor and participate in Aboriginal business events and conferences • BC Hydro's Aboriginal Contract and Procurement Policy includes a commitment to increasing Aboriginal participation in providing its goods and services. Activities to achieve this objective include set-asides, direct awards, select tenders, and the inclusion of Aboriginal content in bidding documents • BC Hydro will seek information from Aboriginal suppliers in the LAA, and from other Aboriginal groups with whom BC Hydro is engaged, about their business capacity and capabilities to provide goods and services for the Project	during construction	
Section 19 – Current Use of Land and Resources for Traditional Purposes			

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
No interactions between the Project and the Current Use of Lands and Resources for Traditional Purposes VC were ranked "1" . Therefore, no best management practices/standard mitigation measures are referenced in the Volume 2 Appendix A Project Interaction Matrix, Table 2.			
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Changes in fishing opportunities and practices during construction and operations	Consider developing fish habitat compensation projects that align with BC Hydro compensation programs. Develop a communications program to inform harvesters of planned or unplanned events related to construction activities that may affect fishing opportunities or access. Develop a communications program to inform harvesters of longer-term changes in fish community composition. Implement mitigation measures set out in Volume 2 Section 12 Fish and Fish Habitat. Implement measures supporting the development of 3 boat launches along the Site C reservoir accessible via Highway 29 to support navigability and navigable use, and the re-establishment of recreational sites on the Site C reservoir and downstream, and to re-establish and create new use patterns and access, as set out in Volume 3 Section 26 Navigation	Y – Reduced access to fishing areas and potentially reduced success in harvest of targeted species	N
Changes in hunting and trapping opportunities and practices during construction and operations	Consider developing wildlife habitat compensation projects that align with BC Hydro compensation programs. Develop mitigation measures intended to decrease impacts on First Nation trap lines in the Project activity zone. Develop a communications program to inform harvesters of planned or unplanned events related to construction activities that may affect hunting and trapping opportunities or access. Implement mitigation measures set out in Volume 2 Section 14 Wildlife Resources. Implement all mitigation measures set out in Volume 3 Section 24 Harvest of Fish and Wildlife Resources pertaining to trapping.	Y – Temporary reductions in availability of targeted species and temporarily reduced access to hunting areas during construction.	N
Changes to other cultural and traditional uses of land during construction and operations	Work with Aboriginal groups to ground truth traditional land use information for specific areas within the Project activity zone prior to commencing construction, e.g., when determining the exact location of an access road.	Y – Permanent loss of use of and access to certain	Y

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Develop a communications program to inform harvesters of planned or unplanned events that may affect opportunities to harvest plants, berries, and other resources. Consider developing habitat compensation projects that align with BC Hydro compensation programs . Work with Aboriginal groups to identify permanent habitation structures used in the current use of lands and resources for traditional purposes that may be lost to inundation. Effects on cabins associated with tenured trap lines will be addressed as set out in Volume 3 Section 24 Harvest of Fish and Wildlife Resources. Where untenured cabins may be impacted by the Project, BC Hydro will work with Aboriginal individuals to determine appropriate measures that could be implemented. Work with Aboriginal groups to identify potential sites for relocation of medicinal and food plants to compensate for areas that will be inundated. Use only indigenous and/or non-invasive plants and grasses in re-vegetation programs associated with the Project. Engage with Aboriginal groups around any reclamation phase that may present opportunities to restore ecological communities that support species of high traditional use value. Be prepared to provide support for the indigenous plant nursery owned by West Moberly and Saulteau First Nations located at Moberly Lake. The First Nations have a business plan to support propagation of a wide range of indigenous plant species for use in reclamation work. Establish a Culture and Heritage Resources Committee to provide advice and guidance on the mitigation of specific effects of the Project on culture and heritage resources. The Committee would consist of BC Hydro officials and Aboriginal members whose communities are in the immediate vicinity of the Project. Consider implementing, in consultation with Aboriginal groups and British Columbia where appropriate, the following potential initiatives: • identification and naming of key cultural sites and the potential to integrate Aboriginal names into Project operations and sites;	culturally important places and valued landscapes within the LAA	

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	• recording of stories and history associated with key cultural sites that may be affected by the Project; • protecting and documenting, including mapping, of important Aboriginal trails and sites; • contribute funding to sponsor a youth culture camp that includes transfer of knowledge around medicinal and food plants; • engage with Aboriginal groups to commemorate lost and/or inundated places; • engage with Aboriginal groups around potential plans to undertake ceremonies prior to the commencement of construction on key elements of the Project; and • develop and implement an education program respecting Aboriginal culture, history and use of lands and resources in the Project Area to be offered to all workers on the Project Implement mitigation measures set out in Volume 2 Section 13 Vegetation and Ecological Communities, Volume 4 Section 32 Heritage Resources, and those measures supporting the development of new shoreline recreation sites in Volume 3 Section 25 Outdoor Recreation and Tourism. Implement measures supporting the development of 3 boat launches along the Site C reservoir accessible via Highway 29 to support navigability and navigable use, and the re-establishment of recreational sites on the Site C reservoir and downstream, and to re-establish and create new use patterns and access, as set out in Volume 3 Section 26 Navigation		
Section 20 – Agriculture			
Best Management Practices/Standard Mitigation (Project interactions ranking of "1"): Construction Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways and Substation and Transmission Line to Peace Canyon Transportation of construction materials and supplies (includes quarried	Traffic Management Plan (including access restrictions where required) will mitigate effects on Land and Resource Use Valued Components. (see Volume 5 Section 35 Summary of Environmental Management Plans)	N/A	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
materials and other materials needed for all project components Reservoir Preparation and Filling Transport of merchantable timber away from the reservoir area by truck Quarried and Excavated Construction Materials West Pine Quarry Worker Accommodation Supply and transportation of goods and services for camp			
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Temporary loss of agricultural land during construction and operations	Implement the following Environmental Management Plans: ▪ Soil Management, Site Restoration and Revegetation Plan, Borrow and Quarry Site Reclamation Plan, Vegetation and Invasive Plant Management Plan	N	N/A
Permanent loss of agricultural land during construction and operations	Implement mitigation measures including: ▪ Agricultural compensation fund to support projects, such as irrigation and drainage improvements ▪ Relocation of suitable quality soil in selected locations ▪ Inclusion of land in the Agricultural Land Reserve, based on discussions with the ALC, Crown and private landowners	Y – Permanent loss of agricultural land	N
Effects on individual farm operations during construction ▪ Temporary loss of land ▪ Disruption of farming operations ▪ Disruption of livestock movement patterns ▪ Loss of farm infrastructure (buildings,	▪ Acquire land required for the Project as outlined in Section 11.3 Land Status, Tenure and Project Requirements ▪ Reimburse associated financial losses, mitigate or compensate for increased operational costs due to disruptions ▪ Implement Farm Mitigation Plans ▪ Implement the following Environmental Management Plans:	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
corals, septic fields, etc) ▪ Loss of water supplies ▪ Changes to farm yard and field access ▪ Changes to equipment and livestock crossings of Highway 29 ▪ Loss of water supplies ▪ Farm yard and field access ▪ Equipment and livestock crossings ▪ Changes to current and potential highway utility (water, electricity) crossings ▪ Loss or disruption of livestock watering or drainage works ▪ Highway traffic and congestion ▪ Increased public access during construction ▪ Loss of fencing ▪ Severance or fragmentation of farm properties ▪ Introduction and proliferation of invasive plant species ▪ Changes to farm worker safety	Soil Management, Site Restoration and Revegetation, Vegetation and Invasive Plant Management, including biosecurity protocols if required; Traffic Management; Public Safety Management ▪ Provide alternative livestock movement options and compensation for associated increased costs ▪ Relocate or replace infrastructure, or provide appropriate compensation ▪ Provide alternative water supplies or appropriate ▪ Provide alternative farm and field access ▪ Provide alternative highway crossings ▪ Provide alternative utility crossings ▪ Provide alternative livestock watering and drainage works during construction; restore original works after construction is completed ▪ Minimize access to farm properties by construction workers and implement measures to minimize unauthorized public access ▪ Replace fencing or provide compensation for replacement fencing ▪ Consolidate fragmented parcels with other parcels, where practical and when owner(s) agree(s)		
Effects on individual farm operations during operations	Evaluate effects at a property level and enter into agreements with affected landowners to mitigate in the event of: ▪ Crop and stored feed damage due to changes in wildlife habitat utilization ▪ Crop drying due to changes in climatic factors ▪ Crop production due to changes in groundwater elevation ▪ Potential for unauthorized access to farm properties due to change in land or water-based access • Livestock damage due to new access	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	to the reservoir		
Change to agricultural economic activity during construction and operations	Implement an agricultural compensation fund.	N	N/A
Change to regional food production and consumption	No change anticipated to regional food self-reliance. No mitigation required.	N	N/A
Section 21 – Forestry			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Construction Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways and Substation and Transmission Line to Peace Canyon Transportation of construction materials and supplies (includes quarried materials and other materials needed for all project components) Reservoir Preparation and Filling | Transport of merchantable timber away from the reservoir area by truck	Standard mitigations include Traffic Management Plan and road use agreements (where appropriate).	N/A	N/A
Quarried and Excavated Construction Materials West Pine Quarry	Traffic Management Plan (including access restrictions where required) will mitigate effects on Land and Resource Use valued Components	N/A	N/A
Worker Accommodation Temporary Accommodation - Northern Regional Site (Halfway-Farrell)	Tenures required to construct and operate regional accommodation will be part of Project's overall tenuring process and related mitigation.	N/A	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Temporary Accommodation - Southern Regional Site (Jackfish Lake Rd)			
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Change in land use, resource use, access, and activities related to industrial forestry use	No change anticipated to industrial forest use. No mitigation required.	N	N/A
Change in land use that affects Crown Forest Management	The province would use existing policies to manage changes to Old Growth Management Areas and one wood lot license area.	N	N/A
Section 22 – Oil, Gas and Energy			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Construction Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Worker Accommodation Temporary Accommodation - Northern Regional Site (Halfway-Farrell) Temporary Accommodation - Southern Regional Site (Jackfish Lake Rd)	Tenures required to construct and operate regional accommodation will be part of Project's overall tenuring process and related mitigation.	N/A	N/A
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Change in land and resource use, and oil and gas infrastructure during construction and operations	Conclude agreements and implement any agreed to provisions, where appropriate, with third-party tenure holders Implement monitoring measures for infrastructure that could be affected by the Project; if adverse effects are identified, work with affected party to identify and implement appropriate mitigation. Spectra Energy monitoring: if adverse effects identified, mitigation would be implemented.	N	N/A
Access to oil and gas resources and industry activity during construction	Access to resources would not be restricted. No mitigation required.	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Section 23 – Minerals and Aggregates			
Best Management Practices/Standard Mitigation (ProjectInteractions ranking of "1"): Construction Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Worker Accommodation Temporary Accommodation - Northern Regional Site (Halfway-Farrell) Temporary Accommodation - Southern Regional Site (Jackfish Lake Rd)	Tenures required to construct and operate regional accommodation will be part of Project's overall tenuring process and related mitigation. As referenced in Volume 2 Section 11.3 Land Status, Tenure, and Project Requirements, BC Hydro will discuss any overlap with the Project activity Zone and preliminary reservoir impact lines with affected third-party tenure holders and, where appropriate, enter into agreements regarding potential conflicts with mineral and aggregate tenure holders. This mitigation measure is considered standard mitigation, per Section 23.1.3 Standard Mitigation Measures and Effects Addressed.	N/A	N/A
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Change to land use, resource use, access and activities related to industrial mineral and aggregate utilization during construction	Negotiate a memorandum of understanding with the BC Ministry of Transportation and Infrastructure to compensate for material used by the Project and to maintain material availability for ministry operational needs. Memorandum of understanding to include: • aggregate source strategy to compensate for inundated Ministry aggregate sources • BC Hydro commitment to stockpile surplus rock material at the West Pine, Wuthrich, and Portage Mountain quarries	N	N/A
Section 24 – Harvest of Fish and Wildlife Resources			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Construction Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Road and Rail Access Development Old Fort Road realignment and widening, paving of 240 Road, widening of 271 Road	Traffic Management Plan (including access restrictions where required) will mitigate effects on Land and Resource Use Valued Components. Conclude agreements and implement any agreed to provisions, where appropriate, with third-party tenured	N/A	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
and paving and extension of 269 Road. West Pine Quarry access West Pine Siding construction Septimus Rail Siding construction	trapline holders and guide outfitters.		
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Changes in fishing opportunities during construction	Implement Outdoor Recreation and Tourism mitigation measures that support recreational shoreline use, boating access, and water-based navigation (Volume 3 Section 25 Outdoor Recreation and Tourism; Volume 3 Section 26 Navigation) to mitigate construction effects on fishing opportunities. Implement Fish and Fish Habitat mitigation measures that support fish populations (Volume 2 Section 12 Fish and Fish Habitat) to mitigate construction effects on fishing opportunities.	Y – Decrease in fishing opportunities	N
Changes in fishing opportunities during operations	A residual positive effect on fishing opportunities is expected during the operations phase. No mitigation required.	Y – Positive effect on fishing opportunities	N
Changes in hunting opportunities during construction	Implement Outdoor Recreation and Tourism mitigation measures that support recreational shoreline use, boating access, and water-based navigation (Volume 3 Section 25 Outdoor Recreation and Tourism; Volume 3 Section 26 Navigation) to mitigate construction effects on hunting opportunities. Implement Wildlife Resources mitigation measures that support harvestable game populations (Volume 2 Section 14 Wildlife Resources) to mitigate construction effects on hunting opportunities.	Y – Decrease in hunting opportunities	N
Changes in hunting opportunities during operations	No residual effects are expected on hunting opportunities during operations. No mitigation required.	N	N/A
Changes in use of harvesting	A residual positive effect on the use of harvesting areas is	Y – Positive	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
areas during construction	expected during construction. No mitigation required.	effect on use of harvesting areas	
Changes in use of harvesting areas during operations	No change anticipated in use of harvesting areas during operations. No mitigation required.	N	N/A
Changes in trapping opportunities during construction	Implement Wildlife Resources mitigation measures that support fur-bearing populations (Volume 2 Section 14 Wildlife Resources) to support the availability of harvestable species for trapping.	N	N/A
Changes in guide outfitter opportunities during construction	Provide communications regarding area or road closures, to help outfitters plan their guided activities to avoid conflict with the Project.(see Volume 2 Section 35 Summary of Environmental Management Plans, Public Safety Management Plan) Implement Outdoor Recreation and Tourism mitigation measures that support recreational shoreline use, boating access, and water-based navigation (Volume 3 Section 25 Outdoor Recreation and Tourism; Volume 3 Section 26 Navigation) to mitigate construction effects on guide-outfitting opportunities. Implement Wildlife Resources mitigation measures that support game populations (Volume 2 Section 14 Wildlife Resources) to support the availability of harvestable species for guide outfitting activities.	N	N/A
Changes in guide outfitter opportunities during operations	Implement Wildlife Resources mitigation measures that support large game populations (Volume 2 Section 14 Wildlife Resources) to also support the availability of harvestable species for guide outfitting activities.	N	N/A
Section 25 – Outdoor Recreation and Tourism			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Construction Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways and Substation	Traffic Management Plan (including access restrictions where required) will mitigate effects on Land and Resource Use Valued Components. Any overlap or conflict between existing third-party	N/A	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
and Transmission Line to Peace Canyon Transportation of construction materials and supplies (includes quarried materials and other materials needed for all project components) Road and Rail Access Development Old Fort Road realignment and widening, paving of 240 Road, widening of 271 Road and paving and extension of 269 Road. West Pine Quarry access West Pine Siding construction Septimus Rail Siding construction	recreation tenure holders and BC Hydro's proposed activities, or BC Hydro's required tenure over Crown land, will be addressed through discussions, permitting and, where appropriate, agreements with the tenure holders. Further information is available in Volume 2 Section 11.3 Land Status, Tenure, and Project Requirements		
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Changes in outdoor recreation and tourism infrastructure during construction and operations	• Develop an Outdoor Recreation Mitigation Plan (Volume 3 Appendix E). The plan specifies opportunities for recreation infrastructure on the Site C reservoir, and provides technical support to recreation providers in the region to assist with their development along, or adaptation to, new shoreline conditions. • Develop a Public Safety Management Plan that will identify public communications procedures for public safety hazards, and access restrictions and closures during construction and operation of the Site C reservoir (Volume 5 Section 35 Summary of Environmental Management Plans). • Establish and operate three new permanent Site C reservoir launches and day use sites (Cache Creek and Lynx Creek trailer launches and Hudson's Hope Shoreline Protection small craft launch) to replace flooded boat launch areas.	Y – Changes in outdoor recreation and tourism infrastructure	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	• Provide funds to the District of Hudson's Hope for the enhancement of Alwin Holland Park or other community shoreline recreation areas • Provide a Community Recreation Site Fund to support development of new shoreline recreation sites within the Peace River and tributaries through to the Alberta border, as well as the Site C reservoir. • Provide technical support to outdoor recreation providers that require access to the Site C reservoir to assist with their development along, or adaptation to, new shoreline conditions. • Fund the development of a B.C. Peace River / Site C Reservoir Navigation and Recreation Opportunities Plan • Enter into agreements with the owners of the campground at Cache Creek and the hunting camp near the Site C dam site. Where it is both physically and economically feasible, the costs to relocate facilities will be included in the agreements. • Establish a permanent north bank Site C dam site public viewpoint.		
Change in outdoor recreation and tourism use levels during construction and operations	Project effects on outdoor recreation levels are expected to be beneficial and not require mitigation. However, mitigation proposed for changes in recreation and tourism infrastructure will enhance outdoor recreation benefits by replacing and improving outdoor recreation infrastructure that is lost due to the Project. BC Hydro will also work with the private sector and local governments to develop new RV sites (per mitigation described in Volume 4 Section 29 Housing). Mitigation proposed in Volume 4 Section 29 Housing (e.g., implementing on-site workforce housing) will enhance tourism benefits by avoiding shortages in hotel, motel, and campground availability that might inconvenience leisure travellers.	Y – beneficial effects expected	N/A
Section 26 – Navigation			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Construction Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Reservoir Preparation and Filling Hudson's Hope Shoreline Protection	Public Safety Management Plan will mitigate potential effects on the VC.	N/A	N/A
Substation and Transmission Line to Peace Canyon Tower installation Conductor stringing	Standard navigation mitigations for signals, markings and notifications re: overhead structures such as towers and conductors crossing navigable waters.	N/A	N/A
Quarried and Excavated Construction Materials Highway 29 Realignments	Navigation interactions and effects mitigated through standard practices defined by Transport Canada exercising its authority under the Navigable Waters Protection Act.	N/A	N/A
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Changes to navigability, navigational use and access during construction and operations	Implement Public Safety Management Plans and supporting boater communication tools to communicate with the boating public about changes to navigability and navigation use, and about hazards and navigation restrictions, such as restricted navigation zones at the dam site, interferences, public safety issues, and any temporary navigation or boat launch access closures associated with active work areas for reservoir clearing, Highway 29 relocation, and Hudson's Hope shoreline protection construction. • The Public Safety Management Plans and supporting boating protocols will be based on established marine communication plans developed for other major infrastructure projects throughout BC, which included input from the Navigable Waters Protection Program, Transport Canada, local user groups and Aboriginal groups. Communications will help boaters plan their trips and provide information about alternative boating areas or launches, when restrictions are in place. • Develop signage for public safety around dams in accordance with the Guidelines for Public Safety Around Dams adopted by BC Hydro. Develop three boat launches along the Site C reservoir to replace Halfway River and Lynx Creek boat launches and the Hudson's Hope ferry landing boat launch. The new boat launches, complete with upgraded amenities, will be	Y – Changes to water-based navigability	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	located at Hudson's Hope, Lynx Creek and Bear Flat, and will be accessible via Highway 29. Provide a Community Recreation Site Fund to support development of new shoreline recreation within the Peace River and tributaries through to the Alberta border as well as the Site C reservoir. This will support re-establishment of recreational sites on the Site C reservoir and downstream, and re-establish and create new use patterns and access. Provide technical support to outdoor recreation providers that require access to the Site C reservoir (such as RV parks, campgrounds, and marinas operated by the private sector, as well as local, regional, or provincial governments) to assist with their development along, or adaptation to, new shoreline conditions. Provide technical support to outdoor recreational providers to facilitate further public and private sector investment opportunities associated with the use of the Site C reservoir and downstream. Fund the development of a Navigation and Recreation Opportunities Plan, intended to enable user groups, First Nations, local and regional government, as well as provincial and federal (Transport Canada) government agencies to understand, plan for, and optimize new recreation opportunities created as a result of the Project.		
Potential navigational hazards in waterways during construction	No mitigation required.	N/A	N/A
Potential navigational hazards in waterways during operations	Communicate navigational hazards to boaters and supporting boater communication protocols during the operations phase through the Public Safety Management Plans. Provide signage, as required, in accordance with the Guidelines for Public Safety Around Dams.	N	N/A
Navigation use restrictions during construction	Implement BC Hydro's Public Safety Management Plan and supporting boater communication protocols, inclusive of adhering to the Canadian Dam Association Guidelines for Public Safety Around Dams, to address navigability and navigation use, and the identification of potential hazards and interferences in waterways during construction. Areas that remain open to navigation and are accessible during construction (inclusive of boat	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	launches and other public access) will be communicated to users and the public at large.		
Navigation use restrictions during operations	Implement BC Hydro's Public Safety Management Plan and supporting boater communication protocols, inclusive of adhering to the Canadian Dam Association Guidelines for Public Safety Around Dams, throughout the early years of the Site C reservoir operations. This will address navigability and navigational use, and the identification of potential hazards and interferences in waterways, and will enable trip planning and safety for boaters' recreational boating activities.	N	N/A
Microclimate changes on aviation use at North Peace Regional airport during operations	No change anticipated. No mitigation required.	N	N/A
Changes to visibility of structures and overhead wiring during construction	No change anticipated. No mitigation required.	N	N/A
Changes to Shaftesbury and Tompkins Landing ferry and ice bridge operations during operations	No change anticipated. No mitigation required.	N	N/A
Section 27 – Visual Resources			
No interactions between the Project and the Visual Resources VC were ranked "1" Therefore, no best management practices/standard mitigation measures are referenced in the Volume 2 Appendix A Project Interaction Matrix, Table 2.			
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Changes to visual resources during construction	Restore and re-vegetate disturbed surfaces in construction areas after disturbance activities cease in accordance with the Project Soil Management, Site Restoration, and Re-vegetation Plan. Naturally landscape the shoreline protection in Hudson's Hope Paint permanent Site C dam site buildings and other aboveground structures to blend in with the character of the surrounding environment where possible.	Y - Changes to visual resources	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Select previously disturbed areas or areas generally hidden from view for the potential off-site workforce accommodation camps, where feasible.		
Changes to visual resources (shoreline erosion) during operations	No mitigation proposed.	Y - Changes to visual resources (shoreline erosion)	N
Section 28 – Population and Demographics			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Operations Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways and Reservoir Operations – Component Level Interactions	Interactions are nominal relative to current and projected regional employment/economic/population/housing/infrastructure activities.	N/A	N/A
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Changes to PRRD population, with specific reference to City of Fort St. John during construction	Implement mitigation measures proposed for the Labour Market and Housing VCs (Volume 3 Section 17 and Volume 4 Section 29), including measures to increase the local labour supply (thus reducing the need to hire persons living outside the LAA) and the provision of camp accommodation, to moderate growth of the local population Implement mitigation measures proposed for the Community Infrastructure and Services VC (Volume 4 Section 30) to mitigate the effects of an increased local population	Y - Increases to PRRD and City of Fort St. John population	N
Changes to Aboriginal community populations during construction	Implement mitigation measures as proposed for the Labour Market, Housing and Community Infrastructure and Services VCs (Volume 3 Section 17, Volume 4 Section 29, and Volume 4 Section 30). If implemented with Aboriginal organizations and First Nations communities, these measures will eliminate the adverse effect of certain population and demographic changes from the Project. Support Aboriginal persons in maintaining permanent residence in home communities by providing camp	Y - Potential in and out migration from Aboriginal communities	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	housing and commuter support where demand warrants. Implement workforce management policies to require contractors to offer cross-cultural awareness training to their workers and to adopt and monitor codes of conduct. BC Hydro will work with local area First Nations to develop and deliver the cross-cultural awareness training. Procurement of local Aboriginal businesses for Project construction contracts where feasible.		
Section 29 – Housing			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Construction Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Substation and Transmission Line to Peace Canyon Substation and Transmission Line to Peace Canyon Construction - Component Level Interactions Quarried and Excavated Construction Materials Quarried and Excavated Construction Materials Development - Component Level Interactions Road and Rail Access Development Road and Rail Access Development - Component Level Interactions	Non-dam site worker housing interactions are nominal relative to current and projected regional population/housing activities, are well understood, and are managed under the provincial regulatory framework.	N/A	N/A
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Operations Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways and Reservoir Operations - Component Level Interactions	Interactions are nominal relative to current and projected regional employment/economic/population/housing/infrastructure activities.	N/A	N/A
Potential Effects and Mitigation (Project Interactions Ranking of "2")			

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Change in the demand for housing, with specific reference to the City of Fort St. John during construction	Scale camp capacity up or down as required to accommodate direct workers. Two smaller camps may be used in off-site locations depending on short-term housing market conditions in the local area at the time of construction, while the south bank camp would be designed to be easily expanded to accommodate potentially higher annual direct workforce during construction. Provide logistical assistance to the Project workforce seeking local accommodation, through a community camp co-ordinator. Expand the supply of rental housing by building at least 40 rental units in partnership with BC Housing for use by Project workforce during construction. Transition the units to permanent affordable housing use after construction (in partnership with BC Housing). Build up to 10 new affordable housing units to be used by the community in the Fort St. John area, in partnership with BC Housing, to expand the supply of affordable housing. Expand the supply of temporary accommodation by expanding the supply of long-stay RV sites in partnership with the private sector or local governments. Pre-book hotel and motel space when substantial temporary hotel accommodations are required when feasible. Provide financial support to emergency or transitional housing providers in the City of Fort St. John (e.g., Salvation Army), to support for people who require transitional or emergency housing, or who need help to become job-ready and able to participate in market housing Mitigation measures listed above will address adverse effects on Aboriginal renters in the City of Fort St. John as well as on its non-Aboriginal renters. It is proposed that BC Hydro work with First Nation communities in the LAA to track net migration to on-reserve housing and, using the results of the monitoring of rental market conditions in the City of Fort St. John, identify if additional housing related mitigation may be needed.	Y - Housing demand of increased population may create shortages in the apartment rental market Demand for emergency housing may increase	N
Section 30 – Community Infrastructure and Services			

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Operations Phase (see Volume 2 Appendix a Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways and Reservoir Operations - Component Level Interactions	Interactions are nominal relative to current and projected regional employment/economic/population/housing/infrastructure activities.	N/A	N/A
On-site provisions	On-site accommodation and services will be provided for the direct construction workforce. Services required for dam-site accommodations and for the overall construction areas will be provided through a combination of on-site development and private procurement. For example, for worker camp accommodation, on-site water and sewer services will be developed, site electricity will be provided by BC Hydro, and site telecommunications services will be procured by or provided by BC Hydro. Firefighting and emergency services will be provided as on-site activities and augmented as necessary by private services. On-site recreation, safety and medical transport, and health services will be provided at the Project site, including at the worker camp accommodations, and would be augmented by provincial health services (e.g., hospital care and, for BC residents, the use of Medical Services Plan) or by local government providers, where agreements are reached.	N/A	N/A
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Change in demand for, or provision of, services – health and social services during construction	Work with Northern Health to plan for appropriate health care services for Project workforce, including camp residents; on-site health care for all workers residing in camps would include a combination of: • Physician care • On-site nurse or nurse practitioner care • Coordination on program delivery (i.e., Employee Assistance Program, men's health programs) Provide Northern Health with actual workforce and camp population statistics to help plan for service levels Support Northern Health and partner agencies in planning for anticipated changes in resident population by communicating workforce schedules, in-community population forecasts, housing plans, and on-site medical	Y - The Project would create incremental demand on local health and social services driven by increased in-community population and camp workforce associated with the	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	and social services Support Northern Health initiatives as they develop approaches for delivery of health services for camp workers Provide new families with local information package about health, education, and social services.	Project.	
Change in demand for, or provision of, services – emergency services during construction	Provide on-site emergency services to minimize the need for community-based services: • Security services that support compliance and enforcement of all camp and construction policies relating to the terms of employment • Firefighting services for all project construction activities and work sites • First aid and medical transport for medical emergencies at the on-site accommodations and work sites Implement policies on safe living and work environment Implement Traffic Management Plan Work with local fire departments to identify incremental demands on emergency rescue services, and provide funding to local governments for accident coverage during Project construction. Work with RCMP to identify incremental demands on policieng services, and provide direct funding to detachments in the LAA to cover identified increases during Project construction. Develop emergency service provide site access protocols to enable safe site access during construction and operations. Work with emergency service providers to plan for and adjust to anticipated changes in resident population and new service demands by communicating workforce schedules, in-community population forecasts, housing plans, and on-site emergency services. Develop and update Project emergency plans, including integration with existing BC Hydro Peace River generating facilities during Project construction. Communicate project management plans and activities to emergency service providers.	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Change in demand for, or provision of, services – education services during construction	Work with School Districts 59 and 60 to plan for and adjust to anticipated changes in resident population and potential new enrolments by communicating in-community population forecasts. Work with School Districts and Northern Lights College to identify the number of foreign worker hires and the potential need for in-community education services to match their skills to Project requirements. Communicate with School Districts and post-secondary institutions about expected deficits in the local labour pool and how education providers can tailor high school and post-secondary apprenticeship programs to help meet those needs. Continue to participate in and support northern training initiatives, including participation in Northern Opportunities and financial support to Northern Lights College Foundation, for funding student bursaries.	N	N/A
Change in demand for, or provision of, services – recreation and leisure services during construction	Provide recreation facilities and programming at the camps for workforce. Work with City of Fort St. John to resolve local concerns about potential use of community recreation or leisure facilities by Project workforce	N	N/A
Change in demand for, or provision of, services – solid waste during construction	Develop and implement construction Waste Management Plan that integrates waste reduction, recycling and reuse standard practice, and management of industrial waste, in coordination with the PRRD municipal waste management plan.	N	N/A
Change in demand for, or provision of, services – sewer and water	Evaluate options to integrate sewer and water systems required for the workforce camps to provide lasting benefits to the City of Fort St. John system. Otherwise camps will operate on self-sufficient systems that will not affect municipal systems. Work with local governments to plan for and adjust to anticipated changes in resident population by communicating workforce schedules, in-community population forecasts, and housing plans.	N	N/A
Displacement of infrastructure during construction	Provide funds for the relocation or replacement of Hudson's Hope water intake, pumping station, and treatment plant to meet the reasonable water supply needs of the residents and District of Hudson's Hope	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Work with each local government to develop an approach to determine or monitor the effects of the Project on the Hudson's Hope sewage lagoon, Fort St. John water supply (production and access), Taylor water supply, and Peace River Regional District's Charlie Lake outfall. BC Hydro would fund appropriate mitigation measures to maintain functionality of these municipal systems if adverse effects from the Project are identified.		
Changes affecting Aboriginal Peoples and Communities	Mitigation measures identified for Community Infrastructure and Services have general applicability in the LAA, and will therefore also avoid adverse effects on Aboriginal people living in Fort St. John and other urban centres that will see a rise in population related to the Project.	N	N/A
Section 31 – Transportation			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Construction Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Substation and Transmission Line to Peace Canyon Access construction and right-of-way improvement	Traffic Management Plan (including access restrictions where required) will mitigate effects on Land and Resource Use Valued Components.	N/A	N/A
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Operations Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways and Reservoir Operations - Component Level Interactions	Use of access roads during operations will be limited in duration and intensity and the resultant effect on Transportation will be nominal.	N/A	N/A
Substation and Transmission Line to Peace Canyon Maintenance of access roads	Use of access roads during operations will be limited in duration and intensity and the resultant effect on Transportation will be nominal. Effects will be mitigated by the Traffic Management Plan (including access restrictions where required).	N/A	N/A
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
During construction:	**Highway 29 North**	Y - Potential	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
▪ Minor traffic delays ▪ Decline in level of Service on some roads and at some intersections ▪ Potential for impeded access to and egress from properties on some roads ▪ Small increase in collision frequency due to increased traffic on some routes ▪ Lower collision frequency due to permanent road upgrades on some routes	Implement Traffic Management Plan to include Traffic Control Plans, Public Information Plans, Incident Plans, and Implementation Plans. Realign sections of Highway 29 that would be inundated by the reservoir between Hudson's Hope and Bear Flat, incorporating geometric and cross-section improvements. On Canyon Drive west of Hudson's Hope, construct a paved brake check before the start of the 10% grade, and make it a mandatory requirement for Project-related trucks to stop and check vehicle brakes. Explore opportunities for constructing, and install if feasible, either arrestor beds or runaway lanes, or both, on Canyon Drive above Hudson's Hope.	changes to traffic delays and road safety – all road segments Residual adverse effects anticipated on all road segments due to general increase in traffic Improved road safety on some routes due to permanent road upgrades on some routes	
	Highway 29 South Provide shuttle service between Chetwynd and dam site, based on demand. Work with District of Chetwynd to identify suitable parking locations for workers using shuttles.		
	Jackfish Lake Road Provide a shuttle service between Chetwynd and the Project site, based on demand Equip Project vehicles travelling on Project access road with radios. Control access to Project access road at north end of Jackfish Lake Road. Strengthen road base and hard-surface 31 km of Jackfish Lake Road, widening where required. Examine the feasibility of widening the shoulders along the first 30 km of Jackfish Lake Road to meet current BC Ministry of Transportation and Infrastructure rural collector standards, potentially including two 1.5 m wide paved shoulders.		
	North Bank Minor Roads Provide carpool programs, such as preferred parking, for regional workforce commuters, to reduce the number of private vehicles commuting to site Use conveyor belt for transport of materials from 85th Avenue Industrial Lands to dam site.		

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Hard-surface 240 Road and the portion of 269 Road south of the intersection with 240 Road. Realign a portion of Old Fort Road south of 240 Road. Potentially widen shoulders or add a path on Old Fort Road between Highway 97 and the realigned segment, and between the end of the realigned segment and the gravel pit entrance at km 5.5. Widen shoulders or add a path on 271 Road between the Wuthrich Quarry and Highway 97. Conduct intersection lighting calculations to determine if illumination is warranted and then, in collaboration with BC Ministry of Transportation and Infrastructure, consider installing intersection lighting.		
Road safety during operations – Potentially higher accident rate due to poor visibility caused by fog during operations Improved road safety on some routes due to permanent road upgrades	**Taylor Bridge and Approaches** Monitor Taylor Bridge and low-lying approaches for changes in fog hours and density during the early years of Project operations. If required, implement mitigation measures to reduce driver speed, minimize fog-related collisions and maintain overall road safety by considering the following: • Illumination on, and on the approaches to, the Taylor Bridge • Changeable message signs that are visible in dense fog • Radio broadcasts and other forms of public communication	Y - Potential for residual adverse effects on road safety if Project is confirmed to increase fog conditions Positive change in road safety on some routes due to permanent road upgrades on some routes	
Section 32 – Heritage Resources			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Operations Phase **(See Volume 2 Appendix A Project Interaction Matrix, Table 2)**			
Substation and Transmission Line to Peace Canyon Right-of-way vegetation maintenance	Site prep and clearing interaction has already occurred been accounted for. In the event that heritage resources are identified during vegetation maintenance, the resources would be managed in accordance with applicable legislation (e.g., the B.C. Heritage	N/A	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Conservation Act) and policy.		
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
During construction: Changes to resource integrity: ▪ Surface disturbance ▪ Disturbance of structures ▪ Subsurface disturbance ▪ Compaction ▪ Erosion Changes to resource accessibility: ▪ Increased access ▪ Unauthorized collection ▪ Lack of access Other relevant considerations raised by Aboriginal groups	Implement the following: ▪ Heritage Resources Management Plan ▪ Chance find management procedure ▪ Construction monitoring ▪ Erosion monitoring Depending on the nature and importance of identified heritage resources, various mitigation measures will be used: ▪ Avoid sites and reduce resource damage where possible ▪ Clear under winter conditions ▪ Manage any found burials following provincial guidelines (disinter or reinter burial) ▪ Conduct additional reconnaissance and field surveys as warranted ▪ Document historical sites and relocate important structures, if found ▪ Class I Staged Scientific Excavation ▪ Class II Stratified Sample Excavation ▪ Systematic surface collection ▪ Resource capping ▪ Commemorate heritage resources as appropriate ▪ Provide funds to local museums to support heritage programming Through implementation of Heritage Resources Management Plan any specific issues raised by Aboriginal groups can be addressed.	Y	N
During operations: Changes to resource integrity: • Surface disturbance	Implement the following: ▪ Heritage Resources Management Plan ▪ Chance find management procedure ▪ Reservoir erosion monitoring in conjunction with E-	Y	N

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
• Disturbance of structures • Subsurface disturbance • Compaction • Erosion Changes to resource accessibility: • Increased access • Unauthorized collection • Lack of access Other relevant considerations raised by Aboriginal groups	PAST ▪ Resource Capping ▪ Resource Monitoring ▪ Conduct reconnaissance and systematic surface collection of exposed resources) or installation of protective measure ▪ Clear under winter conditions		
Section 33 – Human Health			
Best Management Practices/Standard Mitigation (Project Interactions ranking of "1"): Operations Phase (see Volume 2 Appendix A Project Interaction Matrix, Table 2)			
Dam, Generating Station, and Spillways Maintenance of the powerhouse, and substation	No overlap in time and space between the Project activity or component and the Valued Component.	N/A	N/A
Reservoir Debris management Hudson's Hope Shoreline Protection maintenance	Assumes that air quality, water quality, noise and vibration will be mitigated and managed within applicable standards.	N/A	N/A
Substation and Transmission Line to Peace Canyon Right-of-way vegetation maintenance Maintenance of overhead structures Maintenance of access roads	Assumes that air quality, water quality, noise and vibration will be mitigated and managed within applicable standards.	N/A	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
Potential Effects and Mitigation (Project Interactions Ranking of "2")			
Change in ambient air quality during construction	**Project activity zone** Implement the following: ▪ Air Quality Management Plan ▪ Dust Control Management Plan ▪ Vegetation and Clearing Debris Management Plan ▪ Smoke Management Plan **Site C Dam, generating station, and spillways (including worker accommodation sites):** Install baghouses at concrete batch plants and crushers Install silos for fly ash cement and aggregate at concrete batch plants Retain vegetation barriers where practical Reduce burning of wood waste and follow BC Ministry of Environment Open Burning Smoke Control Regulation Conduct detailed modelling once the exact locations of emission sources are better defined. Use modelling results to determine where to place $PM_{2.5}$ and PM_{10} monitors on the north and south bank. Locate work camps outside the area of potential air quality exceedance. **Site C reservoir preparation and filling (including clearing):** Reduce burning of vegetative debris ad follow BC Ministry of Environment Open Burning Smoke Control Regulation **Transmission line to Peace Canyon (corridor and clearing preparation; vehicle operations)** Reduce burning of vegetative debris ad follow BC Ministry of Environment Open Burning Smoke Control Regulation Monitor air quality associated with construction of Hudson's Hope shoreline protection; implement mitigation measures as required **Construction access road development and Highway 29 Realignment** Reduce burning of vegetative debris and follow BC Ministry of Environment Open Burning Smoke Control	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
	Regulation Utilize filters at crushers **Quarried and excavated material development** Reduce burning of vegetative debris ad follow BC Ministry of Environment Open Burning Smoke Control Regulation Conduct further screening modelling at residences located 1.5 km from West Pine Quarry to identify potential exceedances at this site and implement an air quality management plan at this site as required **Site C Reservoir (Hudson's Hope Shoreline Protection)** Erect temporary barriers Erect portable enclosures/barriers Implement notification program for residents		
Change in noise and vibration during construction	**Hudson's Hope Shoreline Protection** Monitor noise levels associated with construction of Hudson's Hope Shoreline Protection **Highway 29 Realignment:** Implement notification program for residents Implement noise monitoring program **Quarried and excavated material development (85th Ave Industrial Lands)** Develop Noise and Vibration Management Plans for work site Develop and implement noise monitoring and adaptive management as required Implement notification of work program / Communication Plan for residents Mitigate nighttime noise (perimeter berms and acoustic barriers, and portable enclosures/barriers to the conveyor hopper, silent backup alarms) Monitor noise at 85th Avenue Industrial Lands Construct perimeter fencing Retain or plant tree screens	N	N/A
Change in potable and	Implement the following Environmental Management	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)
recreational water quality during construction	Plans: • Spill Prevention and Emergency Response Plan • Erosion Prevention and Sediment Control Plan Implement Groundwater Protection Plan to identify potential for groundwater contamination and appropriate groundwater quality protection measures.		
Change in potable and recreational water quality during operations	Implement the following Environmental Management Plans: • Spill Prevention and Emergency Response Plan • Erosion Prevention and Sediment Control Plan Implement Groundwater Protection Plan to identify potential for groundwater contamination and appropriate groundwater quality protection measures.	N	N/A
Change in Electric and Magnetic Fields during construction and operations	Mitigation not required	N/A	N/A
Change in country foods during construction and operations	Monitoring of mercury concentrations in fish in year 1, year 3, year 6, year 10, and every 5 years thereafter during operations, as described in the Methylmercury Technical Memo. Provide the public with information about safe fish consumption levels, if required. Any consumption advisories would be designed and implemented in accordance with federal and provincial procedures for issuing fish consumption advisories (Environment Canada, B.C. Ministry of Forests, Lands and Natural Resource Operations, B.C. Ministry of Health) and in accordance with good practice, including: • Communications that are culturally appropriate to Aboriginal groups (including translation into local Aboriginal languages where required) • Supporting a collaborative methylmercury monitoring process with Aboriginal and other communities (e.g., communities providing tissue samples, participation in data collection and analysis) • Mechanisms to solicit and respond to comments and questions from local communities on fish consumption advisory information	N	N/A

Project Interaction/Potential Effect	Proposed Mitigation	Potential Residual Effect (Y/N)	Significant (Y/N)

NOTE:

N/A – not applicable

Table 39.2 is a complete list of recommended follow-up programs for Project VCs, as described in detail in each of the VC effects assessment in Volume 2 Sections 12 through 15, Volume 3 Sections 16 through 27, and Volume 4 Sections 28 through 33.

Table 39.2 Complete List of Follow-Up Measures

Follow-Up Program Objective(s)	Follow-Up Monitoring Description	Frequency	Duration
Section 12 – Fish and Fish Habitat			
To monitor the effectiveness of environmental protection measures undertaken during construction to mitigate effects on fish and fish habitat	Environmental Management Plans		
Reservoir filling and commencement of operation To test the hypotheses used to predict the temporal development of the new reservoir and changes in the downstream river physical environment and productivity	Fish and fish habitat productivity monitoring program for reservoir and reservoir tributaries. Fish and fish habitat productivity monitoring program for downstream Peace River. Fish passage management program. Total dissolved gas monitoring program.	Annual	15 years following reservoir filling
Habitat: Construction: Loss of habitat due to construction of the dam and generating station, Highway 29 and Hudson's Hope shoreline protection	Construction Environmental Monitoring Program Habitat Compensation Program	BC Hydro will work with appropriate regulatory authorities in the development of specific mitigation measures, including compensation, as and when required.	
Habitat: Construction: Altered fish habitat due to construction headpond and reservoir filling	Habitat Compensation Program		
Habitat: Operation Altered fish habitat due to transformation of reservoir habitat during reservoir	Fish and Fish Habitat Productivity Monitoring Program (Reservoir) Habitat Compensation Program		

Follow-Up Program Objective(s)	Follow-Up Monitoring Description	Frequency	Duration
operations			
Habitat: Operation Altered fish habitat downstream of Site C Dam	Fish and Fish Habitat Productivity Monitoring Program (River) Habitat Compensation Program		
Health and Survival: Construction Reduced fish health and survival due to stranding in construction headpond	Construction Headpond Fish Salvage and Monitoring Program		
Health and Survival: Construction Reduced fish health and survival due to fish entrainment	Fish Passage Management Program		
Health and Survival: Construction Reduced fish health and survival due to increased total dissolved gas	Total Dissolved Gas Monitoring Program		
Health and Survival: Operations Reduced fish health and survival due to fish entrainment	Fish Passage Management Program		
Health and Survival: Operations Reduced fish health and survival due to increased total dissolved gas	Total Dissolved Gas Monitoring Program		
Fish Movement: Construction Hindered fish movement due to obstruction to fish passage	Fish Passage Management Program		

Follow-Up Program Objective(s)	Follow-Up Monitoring Description	Frequency	Duration
Fish Movement: Operations Hindered fish movement due to obstruction to fish passage	Fish Passage Management Program		
Additional adaptive programs to verify assessment predictions, if required	• Confirm specific adaptive management plans based on follow-up monitoring results • Implement directed studies to address specific uncertainties (e.g., what is the kokanee population in the reservoir?) • As part of the habitat compensation program, funding will be available to verify uncertainty in the effects and will be used on technically feasible, cost-effective, and environmentally sound projects to compensate for unforeseen adverse effects		
Section 13 – Vegetation and Ecological Communities			
To evaluate success of rare plant translocation and understand responses to disturbance: these will be monitored and reported to provide an understanding of success	The selection of candidate species, identification of suitable sites, and further establishment of the study design will be discussed with specialists.	Annual	During construction and first 10 years of operations
To document the adequacy of habitat enhancement and possible compensation programs to document their progress in meeting expectations	Measurement criteria will include vegetation growth, persistence of rare plants and success of invasive plant species.	Annual	During construction and first 10 years of operations
Section 14 – Wildlife			
To verify the accuracy of the effects assessment and to determine the effectiveness of the measures implemented to mitigate the adverse effects of the Project on wildlife resources during	Targeted mitigation monitoring studies will include monitoring of: ▪ Bald Eagle nesting populations adjacent to the reservoir, including use of artificial nest structures ▪ Waterfowl and shorebird use in natural wetlands, created wetlands, and artificial	Annual	During construction and first 10 years of operations

Follow-Up Program Objective(s)	Follow-Up Monitoring Description	Frequency	Duration
construction and operations	wetland features ▪ The effectiveness of artificial den creation for fishers ▪ The effectiveness of toad migration crossing structures installed along Project roads Directed studies will include surveys of: ▪ Songbird populations and ground-nesting raptors during construction and operations ▪ Western toad and garter snake distribution downstream of the dam		
Section 15 – Greenhouse Gases			
To verify the accuracy of the GHG estimates and predictions presented in this EIS	Monitor changes in GHG emissions from Site C reservoir.	Annual	First 10 years of operations
	Monitor and report GHG emissions during operation and maintenance activities. in accordance with BC Hydro corporate requirements, and report results to the province or other organizations per corporate reporting requirements	In accordance with BC Hydro reporting requirements	In accordance with BC Hydro reporting requirements
Section 19 – Current Use of Lands and Resources for Traditional Purposes			
To verify the accuracy of the predictions of potential effects and the effectiveness of mitigation measures on fishing hunting and trapping opportunities	Consider community-based monitoring programs, which may involve incorporation of local, community or traditional knowledge, where potential effects and the effectiveness of mitigation measures on fishing and hunting opportunities are uncertain, provided a sound methodology with clear indicators and outcomes is delineated. BC Hydro is prepared to engage with Aboriginal groups to discuss potential community-based monitoring programs, such as programs intended to monitor the productivity and abundance of fish and wildlife species. Monitoring and follow-up programs for fish and fish habitat are described in Volume 2 Section 12 Fish and Fish Habitat. Monitoring and follow-up programs for vegetation and ecological communities are described in Volume 2 Section 13 Vegetation and Ecological Communities. Monitoring and follow-up dealing specifically for wildlife resources are described in Volume 2	Annual	During construction and for the first five years of operations

Follow-Up Program Objective(s)	Follow-Up Monitoring Description	Frequency	Duration
	Section 14 Wildlife Resources.		
Section 20 – Agriculture			
For reservoir-adjacent agricultural operations where there is not already an agreement with BC Hydro, monitor specific environmental factors, and evaluate associated potential effects on: ▪ Crop and stored feed damage due to changes in wildlife habitat utilization ▪ Crop drying due to changes in climatic factors ▪ Crop production due to changes in groundwater elevation Monitoring objectives would be to 1. Confirm if a Project change has occurred, and 2. Specify the adverse effect on agricultural operations 3. Determine appropriate mitigation measures	Monitor Project-induced changes in wildlife habitat utilization in, and evaluate associated crop or feed storage damage for, agricultural operations within 5 km of the reservoir, to assess if there is an increase in wildlife depredation due to Project-related habitat losses. Monitoring will include pre- and post-reservoir filling field surveys, wildlife monitoring, farm operator interviews, and analysis of relevant records related to wildlife depredation. Monitor Project-induced changes to humidity within 3 km of the reservoir, and evaluate associated effects on crop drying within this area. Monitoring will include collection and analysis of climate data, calculation of crop drying indices, and farm operator interviews. Monitor Project-induced changes to groundwater elevations within 2 km of the reservoir (the area potentially influenced by groundwater elevation changes), and evaluate associated effects on crop productivity. Monitoring will include field surveys and farm operator interviews.	Annual	Five years prior to reservoir filling and first five years of operations
Monitor climatic factors relevant to future irrigation improvement decisions that may be proposed under the agricultural compensation fund.	Monitor climatic factors to estimate moisture deficits and to estimate irrigation water requirements in the vicinity of the reservoir to provide information for potential future irrigation projects. Data collection will be undertaken before reservoir filling, and in the early years after reservoir filling, and data will be reviewed as required for proposed irrigation projects.	Annual	Five years prior to reservoir filling and first five years of operations
Section 22 – Oil, Gas and Energy			
To determine the effects of	At Spectra Energy intakes, monitor baseline	To be	During

Follow-Up Program Objective(s)	Follow-Up Monitoring Description	Frequency	Duration
changes in water temperature and sedimentation during operations, on Spectra Energy operations.	conditions and effects of increased sedimentation during construction, and effects of increased water temperature and sedimentation during operations, on Spectra cooling operations	determined in discussion with Spectra	construction and first 10 years of operations
Section 26 – Navigation			
To identify the requirements for regular monitoring of shoreline conditions, including groundwater levels, shoreline erosion rates and landslide activity.	As described in Volume 5 Section 35 Summary of Environmental Management Plans, BC Hydro will commit to regular monitoring of shoreline conditions during the early years of Site C reservoir operations. Monitoring program results would support implementation of prescribed Public Safety Management Plan boater communication protocols related to managing for navigation hazards and public safety within the Site C Reservoir. BC Hydro will be responsible for the implementation of proposed mitigation measures, including mitigation identified in the Volume 3 Appendix E Outdoor Recreation Mitigation Plan.	Annual	During first five years of operation
Section 29 – Housing			
To verify the anticipated changes to housing demand, and to evaluate the effectiveness of proposed mitigation measures to reduce effects on the apartment rental market	Monitor apartment vacancy rate and price for Fort St. John area, as published by CMHC. Work with the City of Fort St. John to review rental market vacancy and affordability, and to identify if additional mitigation is needed. Work with Aboriginal communities in the LAA to track net migration to on-reserve housing that is attributable to Project effects on rental market conditions in the City of Fort St. John, and to identify if additional mitigation is needed	Semi-annual	During construction
Section 31 – Transportation			
To determine if Project related traffic volumes are adversely affecting traffic operations	Record traffic counts and monitor traffic operations at the following intersections: ▪ Highway 29 and Canyon Drive in Hudson's Hope ▪ Highway 97/Highway 29 in Chetwynd ▪ Highway 97 intersections in Fort St. John Monitor traffic operations on local roads to	Annually	During construction

Follow-Up Program Objective(s)	Follow-Up Monitoring Description	Frequency	Duration
	determine if road restrictions for Project-related traffic should be implemented		
To determine if fog mitigation measures are required on, and on the approaches to, Taylor Bridge to maintain overall road safety	Monitor the change in fog hours on, and on the approaches to, the Taylor Bridge.	Seasonally	Initiate during construction to develop a baseline, and continue through Years 0 to 4 of operation or until the changes in fog can be confirmed
Section 32 – Heritage Resources			
	A Heritage Resources Management Plan would be implemented that addresses heritage site stewardship and protection relative to Project construction activities, as described in Volume 5 Section 35 Summary of Environmental Management Plans. The plan would include procedures for monitoring at known heritage site locations within the Project activity zone, as well as chance find procedures to be implemented in the event that heritage resources are encountered during construction.		
To verify the anticipated effects of erosion on heritage sites due to reservoir operations in the first five years of service, and to evaluate the effectiveness of mitigation measures implemented on heritage sites along the reservoir shoreline	Effects of shoreline erosion on heritage resources will be monitored.	Annual	First five years of operations
To evaluate the effectiveness of mitigation measures implemented on heritage sites, and to identify previously unknown heritage sites in the reservoir and mitigate potential effects of erosion on those sites.	Follow-up work on archaeological sites will be prescribed by the methods put forth in B.C. *Heritage Conservation Act* Permits Heritage work could include opportunity for scientific examination of heritage resources within the operating range of the reservoir during periods of maximum drawdown for maintenance. Activities may include emergency salvage and systematic data collection of exposed resources.	TBD, in consultation with the B.C. Archaeology Branch	TBD, in consultation with the B.C. Archaeology Branch