SITE C CLEAN ENERGY PROJECT

VOLUME 3 APPENDIX E

OUTDOOR RECREATION MITIGATION PLAN

FINAL REPORT

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December 2012

EXECUTIVE SUMMARY

The Outdoor Recreation Mitigation Plan (ORMP) presents an outline of the proposed mitigation measures to support the change from river-based recreation to reservoir-based activities resulting from the construction and operations of the Site C Clean Energy Project (the Project). The described mitigation supports the assessment of potential Project effects as described in Volume 3 Section 24 Harvest of Fish and Wildlife Resources, Volume 3 Section 25 Outdoor Recreation and Tourism, and Volume 3 Section 26 Navigation.

Input from regulators, including Transport Canada (Navigable Waters Protection Program), regional and local governments (Peace River Regional District, City of Fort St. John, District of Hudson's Hope, and District of Chetwynd), and local stakeholders informed the development of the ORMP.

The Peace River is used for both water- and shoreline-based recreation. The proposed Project would change the recreation setting, during construction first, due to use of land for construction activities and due to closure of the river to navigation at the dam site. During operations, the recreation setting would be permanently changed to a reservoir environment and, similar to other BC Hydro reservoirs around the province, would continue to be used for public recreation and boating. The reservoir would provide a new recreation environment supporting a range of recreational opportunities.

The ORMP focuses on measures that will provide publicly accessible recreation opportunities during Project construction and operations, in consideration of public safety and the new reservoir environment. This ORMP outlines the following proposed mitigation measures:

- Develop a Public Safety Management Plan to manage public access during construction and early years of operation
- Establish and operate three new permanent reservoir launches and day use sites (Cache Creek and Lynx Creek trailer launches and Hudson's Hope shoreline protection small craft launch)
- Provide funds to the District of Hudson's Hope for enhancement of Alwin Holland Municipal Park or other community shoreline recreation areas
- 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 in the Site C Reservoir
- Provide technical support to outdoor recreation providers that require access to the reservoir to assist with their development along, or their adaptation to, new shoreline conditions
- Fund the development of a B.C. Peace River/Site C Reservoir Navigation and Recreation Opportunities Plan

ABBREVIATIONS AND ACRONYMS

NWPA ..... *Navigable Waters Protection Act*

NWPP .....Navigable Waters Protection Program

ORMP .....Outdoor Recreation Management Plan

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1 INTRODUCTION AND PURPOSE

The Outdoor Recreation Mitigation Plan (ORMP) presents an outline of the proposed mitigation measures to support the change from river-based recreation to reservoir-based activities resulting from the construction and operation of the Site C Clean Energy Project (the Project). The described mitigation supports the assessment of potential Project effects as described in Volume 3 Section 24 Harvest of Fish and Wildlife Resources, Volume 3 Section 25 Outdoor Recreation and Tourism, and Volume 3 Section 26 Navigation.

The Peace River is used for both water- and shoreline-based recreation. The Project would change the recreation setting, during construction first, due to use of land for construction activities and due to closure of the river to navigation at the dam site. During operations, the recreation setting would be permanently changed to a reservoir environment and, similar to other BC Hydro reservoirs around the province, would continue to be used for public recreation and boating. The reservoir would provide a new recreation environment supporting a range of recreational opportunities.

The Project requires approvals under the *Navigable Waters Protection Act* for each project component that may interfere with the public's right to navigate. Recreational-use activities affected by the Project are directly linked to navigation use of the Peace River (e.g., boating and boat launches) and are, therefore, of interest to the Navigable Waters Protection Program, which administers the *Navigable Waters Protection Act*.

The following objectives were considered in the development of the Project's Outdoor Recreation Mitigation Plan:

- Develop a public safety management plan to address effects associated with water-based access restrictions
- Establish new recreation sites on Crown or publicly owned land to replace sites affected by Project implementation
- Develop a Navigation and Recreation Opportunities Plan to optimize new recreation opportunities created as a result of the Project

2 Outdoor Recreation Mitigation Plan

The following mitigation measures are proposed to address the Project effects associated with the changed recreational environment resulting from the Site C reservoir. These collectively constitute the ORMP for the Project.

2.1 Public Safety Management Plan

As identified in Volume 5, Section 35 Summary of Proposed Environmental Management Plans, a Public Safety Management Plan will be developed for Project construction and operations phases as mitigation to address effects associated with water-based access restrictions. The effects are described as:

- Changes in outdoor recreation and tourism infrastructure as identified in Volume 3 Section 25 Outdoor Recreation and Tourism
- Changes to water-based navigability as identified in Volume 3 Section 26 Navigation

The Public Safety Management Plan will include the approach to managing public safety for river access during construction and for reservoir access during the early years of operation. Navigational and shoreline access restrictions are described in Volume 3 Sections 25 Outdoor Recreation and Tourism, and in Volume 3 Section 26 Navigation.

Transport Canada will need to authorize any proposed restrictions to boating or navigational closures. Navigational and shoreline access restrictions around the dam site will be determined through the use of the Canadian Dam Association Guidelines for Public Safety Around Dams (Canadian Dam Association 2011).

Areas of navigational restrictions may be bounded by booms or other navigation markers. Navigation and shoreline access restrictions will be communicated, and signage will be used to advise of public safety hazards.

The Public Safety Management Plan would be supported by boater communication protocols established to communicate issues with users, municipal officials, and regulators.

2.2 Establishment of New Recreational Sites

2.2.1 BC Hydro-Managed Recreation Sites

Three new boat launch and day-use recreation sites would replace three public boat launch sites that would be inundated by the reservoir, and would mitigate the resulting disruption to navigation and the loss of access points and recreational areas. The Project effects associated with the inundation of the existing river based launches are described as:

- Changes in outdoor recreation and tourism infrastructure, as identified in Volume 3 Section 25 Outdoor Recreation and Tourism
- Changes to access to water-based navigation, as identified in Volume 3 Section 26 Navigation
- Changes to hunting and fishing opportunities, as identified in Volume 3 Section 24 Harvest of Fish and Wildlife Resources

The three sites that would be inundated are the BC Hydro-maintained boat launches at Halfway River and Lynx Creek, and the informal ferry landing site at the bottom of D.A. Thomas Road in Hudson's Hope (Figure 1.1). The ferry landing supports an informal boat launch, shoreline use, and a trail connection to Hudson's Hope.

The criteria considered when choosing the location of the new sites for boat launches and supporting recreational day-use amenity areas included the following:

- Public safety, including avoidance of preliminary reservoir impact lines (which identify erosion, landslide, and landslide-generated wave areas that are considered a public safety risk)
- Highway 29 preferred realignments and accessibility from public roads
- Avoidance of privately held land, with a focus on available Crown or BC Hydro land
- Original site location and maintaining proximity to population centres
- Avoidance of environmentally sensitive areas
- Additional recreation facility development potential on adjacent lands

Based on these criteria, three potential boat launch and day-use recreation site locations were identified: Cache Creek, Lynx Creek, and Hudson's Hope (Figure 1.1). All potential site locations are situated in shoreline areas that did not pose an unacceptable public safety risk. The sites are easily accessible from Highway 29 in a close proximity to population centres, including Hudson's Hope and Fort St. John. With the exception of Halfway River, both the Hudson's Hope shoreline protection and Lynx creek potential recreation site locations are directly adjacent to the original site locations on the new reservoir shoreline. The potential recreation sites avoid occupation of privately held lands, with all but the Hudson's Hope site having adjacent lands that could potentially be available for recreation facility developments such as RV parks, campgrounds, or marinas.

BC Hydro consulted with regulators, including Transport Canada (Navigable Waters Protection Program), and regional and local governments (Peace River Regional District, City of Fort St. John, District of Hudson's Hope, and District of Chetwynd) about the proposed BC Hydro-managed recreation sites in February 2012. BC Hydro further consulted with the public on these three proposed sites during the spring 2012 Project Definition Consultation on Outdoor Recreation. Refer to Section 9.1 Public Information Distribution and Consultation in Volume 1 Section 9 Information Distribution and Consultation for more information regarding the scope of BC Hydro's Project Definition Consultation.

During consultations, some members of the public asked if BC Hydro-managed sites could be provided: a) closer to Fort St. John, b) near the existing Halfway River launch, and c) on the south bank of the Peace River. Based on further technical examination, it was concluded that public recreation sites are not recommended in these areas. The main barriers to developing a recreation site in the proposed reservoir nearer Fort St. John are topography and private land ownership. A site along the reservoir near the confluence with the Halfway River is not recommended due to potential for landslide-generated waves. The potential for a site on the south bank is constrained by topography and the lack of access via maintained public roads. Analysis also identified that the communities of Chetwynd and Dawson Creek are closer to the proposed recreation sites at Lynx Creek and Cache Creek,

respectively, than to any potential south bank recreation sites that could be accessed by these communities via Jackfish Lake Road.

The boat launches and docks at Hudson's Hope, Lynx Creek, and Cache Creek would support boat access to the new reservoir. Both the Lynx and Cache Creek boat launches will provide a large paved parking area, supporting upwards of 30 trucks and trailers, leading to a double-wide contract boat launch. The boat launch at Hudson's Hope, located at the bottom of D.A. Thomas Road as a component of the shoreline protection, would provide access for smaller vessels, given the confined area, limited parking opportunities, and close proximity to the full-size launch at Lynx Creek. All of the recreation sites would include day-use facilities, including a dock, picnic area, shoreline areas, outhouses, and parking. Figures 1.2 and 1.3 illustrate conceptual renderings of a typical boat launch and day-use site, as well as recreation site layout and use for Hudson's Hope, respectively. The Hudson's Hope shoreline protection recreation site would also be supported by a walking path linking with the community of Hudson's Hope and the eastern extent of the shoreline protection berm.

2.2.2 Funds for Alwin Holland Municipal Park

The Project would result in the inundation of less than 0.5 ha of the Alwin Holland Municipal Park shoreline, with an associated effect on Outdoor Recreation and Tourism Infrastructure, as identified in Volume 3 Section 25 Outdoor Recreation and Tourism. This effect will be mitigated by BC Hydro payment of funds to the District of Hudson's Hope for enhancement of Alwin Holland Municipal Park or other community shoreline recreation areas. Community shoreline recreation area enhancements could include trail development, day/overnight use area refurbishment, and other park amenities including outhouses, interpretive signage, and picnic benches. The community of Hudson's Hope will be responsible for the planning, receipt of necessary permit and approvals, and implementation of the shoreline recreation area enhancements.

2.2.3 Community Recreation Site Fund

The Project would result in the inundation of eight authorized forest recreation campsites along the Peace River maintained by the Peace Country River Rats boating club, with an associated effect on Outdoor Recreation and Tourism Infrastructure as identified in Volume 3 Section 25 Outdoor Recreation and Tourism. The effect will be mitigated by development of a BC Hydro-supported Community Recreation Site Fund. Funding will be available from the initiation of construction through operations, with application selection criteria to ensure focus on new shoreline recreation sites within the Peace River and tributaries through to the Alberta border, as well as the Site C Reservoir. Funding will be allocated to support an estimated 15 – 30 new recreation sites, depending on the scope of recreation site development. Successful applicants would be responsible for recreation site development and receipt of necessary permits and approval.

2.2.4 Other Support for Recreation Site Managers

As outlined in Volume 3 Section 25 Outdoor Recreation and Tourism, and in Volume 3 Section 26 Navigation, the Project will affect outdoor recreation and tourism infrastructure as well as access to water-based navigation. To support mitigation of these effects, BC Hydro will provide technical support to other outdoor recreation providers (such as

RV parks, campgrounds, and marinas operated by the private sector, or by local, regional, or provincial governments) to assist with their development and adaptation to new shoreline conditions and associated land use restrictions. Refer to Section 11.3 Land Status, Tenure, and Project Requirements in Volume 2 Section 11 Environmental Background for further information related to land use within reservoir impact lines.

As described in Volume 4 Section 29 Housing, BC Hydro will seek private or municipal long-stay RV spaces to support worker accommodation requirements during construction. New sites developed for use during construction would likely remain available for recreational use after construction has been completed.

2.3 Navigation and Recreation Opportunities Plan

As outlined in Volume 3 Section 25 Outdoor Recreation and Tourism, and in Volume 3 Section 26 Navigation, the Project would affect outdoor recreation and tourism infrastructure as well as access to water-based navigation. To support mitigation of these effects over the long term, BC Hydro will provide funds for the development of a Navigation and Recreation Opportunities Plan. The plan will focus on new recreation opportunities provided by the reservoir and the changed navigation environment, supporting a wide range of vessel types. The planning process will enable interest groups like the Peace Country River Rats and local communities, including Hudson's Hope, Fort St. John, and Taylor, to understand, plan for, and optimize new recreation opportunities created as a result of the Project. First Nations involvement is also supported. BC Hydro proposes that the planning process commence in the initial years of reservoir operations to provide an opportunity for the communities to experience and develop a vision for recreation and boating. Further, given the regional context of the recreation environment, BC Hydro proposes the spatial scope of the plan to include the Site C reservoir, the Peace River downstream to the B.C./Alberta border, and the Pine River.

The Navigation and Recreation Opportunities Plan may include the following key areas, as outlined in Table 2.1. Verification of the navigability of the areas identified as preliminary use areas have not been assessed and will require confirmation as part of implementation.

Table 2.1 Preliminary Site C reservoir navigational and recreation use areas

Type of Use	Reservoir Areas Compatible With Proposed Use	Key User Groups Supported
General Navigation	Reservoir, downstream, river tributaries	Jet boaters, cabin cruisers, houseboaters, smaller outboard vessels, sailboats, non-motorized boaters
Reservoir Harbours	All river tributaries upstream of the dam (within the reservoir), inclusive of: ▪ Halfway River ▪ Farrell Creek ▪ Lynx Creek ▪ Moberly River ▪ Tea Creek ▪ Wilder Creek	For river tributaries located upstream of the dam site, all user groups For river tributaries located downstream of the dam site, jet boaters and small vessels
Navigational Anchorages	Approximately potential 20 sites have been identified (located mostly on the south shore of the reservoir) for the purpose of anchoring. These sites would also facilitate areas in which vessels would be able to seek shelter from weather or high waves.	All user groups
Boat Launches and Day Use Areas	Hudson's Hope shoreline protection recreation area, Lynx Creek, Cache Creek	All boating and shoreline user groups (no overnight users)
Development of a Private Sector Marina	At a location to be determined, near Hudson's Hope	All user groups
Overnight destination areas	Areas developed or informally used for remote overnight camping, anchorages	All user groups, especially those on day trips and overnight stays
Shoreline destination areas	Alwin Holland Municipal Park, Hudson's Hope berm recreation area, Lynx Creek day use area, Cache Creek day use area, other areas developed or informally used for day use	General shoreline and boating recreation users
Recreational Access Points	Generally located throughout the reservoir and downstream where forestry, petroleum development. and non-registered dirt roads provide access to the reservoir or downstream	Recreational users who want to view the reservoir, birdwatch, swim, or picnic by the reservoir

2.4 Outdoor Recreation Mitigation Plan Schedule

Table 2.2 provides a proposed schedule for implementation of the ORMP. Proposed dates may require modification, based on engineering studies and monitoring results.

Table 2.2 Proposed outdoor recreation mitigation plan schedule

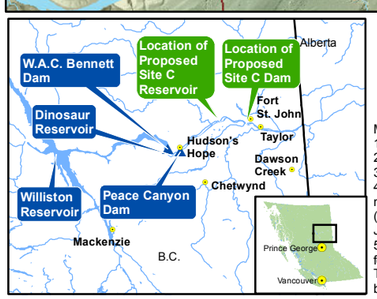
Mitigation Concept	Anticipated Schedule	Rationale
Public Safety Management Plan	Construction Phase Operations Phase	The Public Safety Management Plan will be developed specific to each project phase, and updated as required during construction and operations.
Community Recreation Site Fund	Construction Phase Operations Phase	The Community Recreation Site Fund will be initiated during the construction phase to support recreation site development during and post-construction.
Hudson's Hope Berm Recreational Site	To be opened in Year 1 to Year 2 of reservoir operations	The development of the recreation site will occur prior to inundation. Reservoir access via the new small vessel launch is anticipated in Year 2, based on evaluation of public safety hazards related to slope stability and debris.
Lynx Creek Boat Launch	To be opened in Year 2 of reservoir operations	The current boat launch at Lynx Creek will remain open during construction, but will be inundated at the time of reservoir filling. The new boat launch and day use area will be open within the second year of reservoir operation, based on evaluation of public safety hazards related to slope stability and debris.
Cache Creek Boat Launch	To be opened in Year 2 to Year 5 of reservoir operations	The boat launch at Halfway River will remain open during construction, but will be inundated at the time of reservoir filling. The new boat launch and day use at Cache Creek will be open between Year 2 and Year 5 of reservoir operation, based on evaluation of public safety hazards related to slope stability and debris.
Hudson's Hope – Alwin Holland Municipal Park Funds	Operations Phase	Funds will be provided to the District of Hudson's Hope based on an agreed-upon schedule, likely to enable improvements to be made before or during early reservoir operations.
Navigation and Recreation Opportunities Plan	Operations Phase – Years 1–10	The plan will be developed once the community has identified a range of recreation development opportunities consistent with the new reservoir's physical features, natural amenities, and operational restrictions.
Technical Support to Outdoor Recreation Providers	Operations Phase – Years 1–10	Enable private, municipal, or community sectors adaptation to reservoir shoreline conditions to support development of new shoreline recreation sites.

References

Literature Cited

Canadian Dam Association. 2011 Guidelines for Public Safety Around Dams.

Cache Creek
Red Creek
Cache Creek Boat Launch
Charlie Lake
N
Halfway River
Highway 29 Realignment: Bear Flat/Cache Creek
Wilder Creek
Tea Creek
97
Fort St. John
Halfway River Boat Launch
Highway 29 Realignment: Halfway River
Location of Proposed Site C Dam
Peace River
29
Moberly River
Boudreau Lake
Farrell Creek
Highway 29 Realignment: Farrell Creek
Dry Creek
Highway 29 Realignment: Farrell Creek East
Pine River
Highway 29 Realignment: Lynx Creek
Highway 29 Realignment: Dry Creek
Lynx Creek
Lynx Creek Boat Launch
Lynx Creek Boat Launch
Hudson's Hope
Hudson's Hope Boat Launch
Alwin Holland Municipal Park (District of Hudson's Hope Operated)
29



Map Notes:
1. Datum: NAD83
2. Projection: UTM Zone 10N
3. Base Data: Province of B.C.
4. Proposed reservoir area (461.8 m maximum normal elevation) from Digital Elevation Models (DEM) generated from LiDAR data acquired July/August 2006.
5. Inundated boat launches include informal ferry landing boat launch site (bottom of D.A. Thomas Road) and two B.C. Hydro maintained boat launches at Lynx Creek and Halfway River.

Legend

- Maximum Normal Reservoir Level (461.8 m)
- Highway Realignment
- Proposed B.C. Hydro Operated Boat Launch and Day Use Recreation Area
- Inundated Boat Launch (See Note 5)
- Municipal Park
- Protected Areas, Provincial Parks, Regional Parks, and Ecological Reserves
- City/District Municipality
- Existing Road
- Existing Highway
- Existing Railway

1:200,000 0 5 km

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SITE C CLEAN ENERGY PROJECT

Figure 1
Inundated Peace River boat launch sites and proposed new reservoir recreation areas

Date	Dec. 10, 2012	DWG NO	1016-C14-B6278	R 0

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Construction of the Site C Clean Energy Project is subject to required regulatory approvals including environmental certification

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Figure 2 Conceptual rendering of typical boat launch and day use facilities

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Figure 3 Conceptual rendering of recreation site layout and use for Hudsonôs Hope Shoreline Protection

Construction of the Site C Clean Energy Project is subject to required regulatory approvals including environmental certification