RESPONSE TO WORKING GROUP AND PUBLIC COMMENTS ON THE SITE C CLEAN ENERGY PROJECT ENVIRONMENTAL IMPACT STATEMENT

Technical Memo

PEACE ATHABASCA DELTA

MAY 8, 2013

Subject: Peace Athabasca Delta

Purpose

A number of comments have been received during the Comment Period regarding the need for the inclusion of the Peace Athabasca Delta (the "PAD") in the spatial scope of the environmental assessment for the Project. These comments include:

1) The scope of the assessment should extend to the PAD due to potential alterations in ice formation, ice break up/jamming and flood regime
2) The scope of the cumulative effects assessment should extend to the PAD
3) The Project could have an effect on the exercise of treaty rights and other traditional use of the PAD by Aboriginal peoples
4) The PAD should be a valued component

A number of comments refer to a report prepared by Dr. Martin Carver for the Athabasca Chipewyan First Nation, Dene Tha' First Nation, and Mikisew Cree First Nation (Review of Hydrologic & Geomorphic Downstream Impacts of Site C, December 2012). That report was based on a review of preliminary findings contained in "Potential Downstream Changes" (BC Hydro, 2012). BC Hydro has reviewed the comments and Dr. Carver's report, however the final analysis contained in the EIS, which supersedes the preliminary findings in the BC Hydro 2012 report, is accurate. BC Hydro has also reviewed the Draft Technical Memorandum prepared by Kerr Wood Leidal on behalf of the Deninu Kue First Nation (Report Review – Site C Clean Energy Project, Potential Downstream Changes, January 2013).

The purpose of this memorandum is to provide information which explains the conclusion that the PAD would not be affected by the Project and accordingly, why it is not included in the scope of the environmental assessment of the Project.

This technical memo provides: 1) a summary of the relevant characteristics of the PAD (including a summary of research on the impacts of previous hydroelectric developments on the PAD); 2) a summary of technical analysis undertaken to determine if the Project has the potential to result in physical changes that would affect the PAD; and, 3) the conclusion regarding the potential for the Project to result in physical changes to the PAD and whether it should be included in the environmental assessment of the Project.

As set out in more detail below, the Athabasca River is the primary source of water for the PAD. The Peace River flows past the PAD, but can influence water levels on portions of the PAD through one of four mechanisms, as follows.

- During sustained high water levels on the Peace River, the Peace River flows cause hydraulic damming of outflows from Lake Athabasca thereby leading to higher water levels on Lake Athabasca

- When the Peace River flow is high and the levels of Lake Athabasca are relatively lower, the Peace River can cause a "flow reversal" on Riviere des Rochers and the Quatre Fouche connecting the Peace River to Lake Athabasca
- When the Peace River flow is high, the Peace River can cause the Baril and Claire Rivers to reverse flow, which may allow Peace River water to enter lakes Baril and Claire, respectively
- The Peace can contribute water to the northern portions of the PAD through overbank flooding when ice jams of sufficient size and duration form on the Peace River during spring breakup

In the absence of one of these mechanisms, the Peace River does not influence water levels on the PAD, and does not thereby affect the PAD. The predicted changes to the surface water regime attributable to the Project will not result in a change in the likelihood or magnitude of any of the four mechanisms, and accordingly will have no effect on the hydrology of the PAD.

Background

Description of the PAD

The Peace-Athabasca Delta (PAD) is a large (approximately 6,000 sq.km.) inland delta located more than 1,000 km downstream of the proposed Site C Project in northwestern Alberta (see Figure 1). It is a dynamic wetland landscape that continues to evolve and change through time. The PAD began to form more than 10,000 years ago during the retreat of the continental ice fields at the end of the Pleistocene period. The PAD has subsequently evolved to its present form over several thousand years due to the interactions of the Athabasca River, the Birch River, the Peace River, and Lake Athabasca[1].

The PAD has been recognized as ecologically important based on its size, biodiversity, productivity, and for its importance to waterfowl, bison, peregrine falcons, whooping cranes, and many other plant and animal species. It is located at the junction of five continental waterfowl migratory paths and home to North America's largest free-ranging herd of bison. The PAD also has a strong socio-cultural significance to the Mikisew Cree and Athabasca Chipewyan First Nations and the Fort Chipewyan Métis, all of whom reside in or near Fort Chipewyan on the shore of Lake Athabasca. It has also been one of Canada's prime fur harvesting areas. Its unique blend of biodiversity, cultural significance, and history led to its being incorporated into Wood Buffalo National Park in 1922, and subsequently being designated as one of Canada's UNESCO World Heritage sites and named a Ramsar Wetland of International Significance in 1982.

The PAD is bounded on the south by the Athabasca River; on the east by Lake Athabasca and the Riviere des Rochers; on the north by the Peace River; and on the west by Lake Claire (see Figure 2).

The PAD has four primary geographic features that differ in their morphological, hydrological, and ecological characteristics. These are: 1) the central lakes, 2) the Athabasca River delta, 3) the moribund Peace River delta, and 4) the Birch River delta. The central lakes area is often divided into three categories based on relative elevation and hydraulic connection to the flow of the major rivers that distribute water though the PAD complex. "Open" basins are large permanent lakes that occupy the lowest elevations of the central third of the ecosystem and are permanently connected to the major rivers through permanent flowing creeks (i.e. Claire, Mamawi, Richardson, and the west end of Lake Athabasca). A second category is ephemeral shallow basins (i.e. Baril Lake) that dry out and refill

[1] Bayrock, L.A. and J.D. Root. Geology of the Peace-Athabasca Delta Region, Alberta; Research Council of Alberta, Geology Division, May 1972.

depending on climatic conditions. Basins such as this are called “restricted” because they often lose their connection to permanent water flows as water levels fall through the year or vary from year to year. The third group is known as “perched” basins” which are found at higher elevations or are hydraulically isolated so they never connect to permanent water flows and are filled with water only from precipitation or overland floods typically caused by large ice-jams on the Peace or Athabasca Rivers. Local precipitation and evapotranspiration are known to be major contributors to perched basin water levels. These perched basins and their extensive shorelines are key features in the PAD because they support productive and diverse ecological communities of cultural importance. The Athabasca River and Birch River deltas are active and growing. The Peace River delta is now effectively inactive, and was inactive long before flow regulation was initiated[2].

The ecology of the PAD is linked to seasonal water levels. The Athabasca River flows north into the PAD complex and is the single largest contributor of water to the PAD. Athabasca River flows are distributed across its delta through a series or rivers (i.e. Embarras River/Mamawi Creek) and smaller distributary channels into Lake Athabasca and other central basin lakes. The pattern of water flow and water levels through the PAD is complex and depends on the elevation of Lake Athabasca, the flow of the Athabasca River, and the inflows from other rivers (such as the Birch River) that supply water to the PAD complex. Water typically flows from the Athabasca River and other rivers into the central lakes (predominantly into Lake Athabasca), which empties the PAD mainly through the Riviere des Rochers which joins the Peace River to form the Slave River.

Although the Peace River bypasses the PAD complex it can influence open water levels on the PAD in four ways. First, sustained high Peace River flows can cause hydraulic damming of outflows from Lake Athabasca thereby leading to higher water levels on Lake Athabasca. Secondly, when the Peace River flows are high and the levels of Lake Athabasca are relatively lower, the Peace River can cause a “flow reversal” on Riviere des Rochers and the Quatre Fouche connecting the Peace River to Lake Athabasca (see Figure 2). Third, when the Peace River flow is high, the Peace River can cause the Baril and Claire Rivers to reverse flow, which may allow Peace River water to enter lakes Baril and Claire, respectively. Fourth, the Peace River can contribute water to the northern portions of the PAD through overland flooding during ice jam events of sufficient size and duration that occur during spring break up. The Peace River provides a small contribution to the inflows to the PAD. This contribution prior to flow regulation has been calculated to be approximately 3% of the total annual water budget of the PAD[3].

Summary of Research Regarding Regulation of the Peace River and the PAD

A number of comments received as part of the environmental assessment process for Site C have referenced previous studies regarding the effects of flow regulation on the Peace River on the hydrology and ecosystems of the PAD. A brief summary of that work is provided below, for context. The research record is complex, with more recent research providing refinements and improved understanding of the interaction of existing flow regulation and the hydrology of the PAD. However, the Project will not have any effect on the hydrology and ecosystems of the PAD because it will not change the magnitude or likelihood of any of the four mechanisms necessary for the Peace River to influence the hydrology of the PAD.

2 See footnote 1.

3 Kellerhals R. 1971 Factors controlling the level of Lake Athabasca. Research Council of Alberta Contribution no. 516, 56 p.

The potential linkage between regulation of the Peace River and the ecological integrity of the PAD was first raised in the late 1960s when low levels on Lake Athabasca were observed which corresponded in time with the beginning of flow regulation upstream in British Columbia. Following completion of the W.A.C. Bennett Dam in 1968 and during the filling of Williston Reservoir between 1968 and 1971, Lake Athabasca was observed to experience low water levels that were believed to be caused by regulation of the Peace River. In 1972 and 1974, however, significant flooding of the PAD occurred. From a historical perspective, the decade immediately preceding completion of the dam was a relatively wet period but dam construction and reservoir filling was coincident with and followed by longer dry periods interspersed with short wetter ones. As a result, water level and corresponding environment of the PAD has fluctuated over the past five decades between low-and-dry and high-and-wet, with more of the former than the latter. Though such changes are typical of the PAD throughout its existence, the persistence of dry periods following dam construction led some to conclude that flow regulation was the primary cause of low water levels in the PAD.

Research studies to investigate changes to the PAD were initiated in the 1970's through the Peace Athabasca Delta Project Group[4,5]. These studies were intended to investigate how flow regulation had altered the flow regime of the PAD. The filling of Williston Reservoir was viewed to be the most severe cause of observed change in water levels on Lake Athabasca during the filling period. Subsequent operation of the hydroelectric facilities was believed to have caused continued change to the ecological conditions because lower summer peak flows as a result of regulation prevented summer flooding of the PAD.

In 1974, the Peace Athabasca Implementation Agreement was signed by governments of Canada, Alberta and Saskatchewan. Under this agreement, the governments agreed to establish the Peace Athabasca Implementation Committee (PADIC), and to undertake studies to design and construct works to manage water levels in the PAD. Engineering studies led to recommendations to construct flow control weirs to retain outflows from the PAD. This included weirs to retain outflows from Lake Athabasca (Rivieres des Rochers, 1975; Revillion Coupe, 1976), to retain water in Lake Claire and Mamawi Lake (Chenal des Quatre Fourches, 1971), and to undertake works to control flow across the Athabasca River delta to maintain transportation routes (e.g., Athabasca River cut-off channel, 1972).

In 1983, the PADIC evaluated the effectiveness of the constructed weirs to determine whether they had restored water levels and improved ecological conditions in Lake Athabasca and the PAD. The weirs were found to increase average water levels in summer and produce higher winter minimum levels. The review concluded that increased water levels attributable to the weirs mitigated some of the long term biological impacts resulting from reduced water levels, but the decreased range in water levels led to a reduction in the availability of productive wetland.

Concern about the drying trend on the PAD persisted into the 1990s. Despite the increased water levels resulting from the flow control weirs, analyses of changes in vegetation communities between 1974 and 1983 suggested that a drying trend persisted. Further, the flood of record on the Peace River occurred in 1990 and it was observed that it failed to cause flooding in the PAD. This observation triggered a review of existing knowledge, and highlighted that the change in the hydrograph to lower summer peak flows did not affect the hydrology of the PAD but that spring ice jam flooding from the Athabasca and Peace Rivers and precipitation were the primary mechanisms to supply water to the

4 Peace–Athabasca Delta Project Group (PADPG). 1973. Peace–Athabasca Delta Project, technical report and appendices. Vol. 1,Hydrological Investigations; Vol. 2, Ecological Investigations.

5 Peace–Athabasca Delta Project Group (PADPG). 1972. The Peace– Athabasca Delta: a Canadian resource. Summary Report. 144 pp.

ecologically important restricted and perched basins habitats. In 1993 a new program of technical studies was developed (the Peace Athabasca Delta Technical Studies, PADTS) to review past information, to fill data gaps (on aspects such as potential for spring flooding from Peace River ice jams), and to test potential remedial techniques. Important conclusions from these studies included: 1) both high water levels in summer and low water levels in winter in the PAD are important for maintaining variability in water levels in the large lakes and connected channels to maintain productive habitats; 2) spring ice jams on the Athabasca and Peace Rivers are important as they generate high water levels required to supply flows to the PAD; 3) both climate variation and flow regulation are factors that could influence the occurrence of ice jams on the Peace River. The PADTS also investigated approaches to mitigate the effects of flow regulation such as: 1) control of river flows during freeze up and spring break up to promote ice jamming; 2) testing of artificial ice dams and small scale water control structures to control local flooding in the PAD; and, 3) evaluation of gated flow control weirs to restore the range of water level variation[6].

Ongoing research since the PADTS in the mid -1990’s has continued to advance understanding of the role of flow regulation and other factors that contribute to variation and systematic changes to patterns of water levels of the PAD. This research has focused on: 1) the potential role of climate on water levels in the PAD, 2) historical pattern of geomorphic change on the PAD, and, 3) antecedent conditions and external factors influencing ice jam flooding of the PAD.

Paleolimnological research into climatic changes in the PAD shows that the PAD has experienced longer and drier cycles over the last thousand years than has been observed during the period of flow regulation of the Peace River and that the range of observed conditions is well within the range of natural variability in the PAD[7].

Research on geomorphic change of the PAD has provided a broader temporal context to understand the dynamic nature of the progression of inland delta landscape[8,9]. This work provided the understanding that anthropogenic interventions (such as those undertaken in 1972 to manage a potential change in the course of the Athabasca River mainstem to maintain commercial interests and shipping) irreversibly affected the evolution of the PAD complex, the subsequent geomorphic form of the delta, and the patterns of water flow and levels through it.

Research on ice jamming in the Lower Peace River has improved understanding about the conditions associated with ice jamming in the Lower Peace River, and how flow regulation and other factors interact to create a dynamic break up of the ice cover needed to produce an ice jam in the vicinity of the PAD[10]. An important finding of this research was improved understanding of the interactions between river levels during the freeze up of ice cover in the fall, flow regulation during the ice cover formation and break up period, and the magnitude of runoff from unregulated tributaries located downstream of

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6 Peace–Athabasca Delta Technical Studies (PADTS). 1996. Final Report. PADTS Steering Committee, Fort Chipewyan, Alberta; 106 pp.

7 Wolfe, B. B., Hall, R. I., Edwards, T. W., & Johnston, J. W. (2012). Developing temporal hydroecological perspectives to inform stewardship of a northern floodplain landscape subject to multiple stressors: paleolimnological investigations of the Peace–Athabasca Delta. Environmental Reviews, 20(2).

8 Timoney, K. P. (2009). Three centuries of change in the Peace–Athabasca Delta, Canada. Climatic change, 93(3-4), 485-515.

9 Mollard, J.D., Mollard, D.G., Penner, L.A., Cosford, J.I., and Zimmer, T.A.M. 2002. Peace–Athabasca Delta Geomorphology: an assessment of geomorphic change over time. Report to BC Hydro, 131 pp.

10 Beltaos, S., Prowse, T. D., & Carter, T. (2006). Ice regime of the lower Peace River and ice-jam flooding of the Peace-Athabasca Delta. Hydrological processes, 20(19), 4009-4029.

the point of regulation during the spring break up period when ice jams can form. Since snow in the upper Peace basin that melts and flows into Williston Reservoir is normally still frozen at ice-jam time at the PAD the spring freshet from the upper Peace River, both prior to and post regulation, arrives at Peace Point too late to initiate a mechanical breakup of the ice. The Smoky River, a tributary that joins the Peace River downstream of the existing hydroelectric facilities, is now recognized as the main driver of ice-jam floods at the PAD. Changes to regional climate on the east slope of the Rockies has resulted in changes to runoff patterns of tributaries located there and this has reduced the potential for initiation of a dynamic break up of the ice cover, and corresponding ice jam flooding of the PAD.

Regulatory Consideration of the PAD

In 2003 the Natural Resources Conservation Board and Alberta Energy and Utilities Board Panel considered the Dunvegan Project, a proposed run-of-river hydroelectric facility in Alberta. The Panel concluded that although upstream developments can impact the rest of the drainage basin, any such impacts from the proposed Dunvegan project on the residents on PAD and residents of the area (Paddle Prairie Métis Settlement, Fort Resolution, Fort Smith, and Fort Chipewyan) would be insignificant, given the nature of the project.

In a second Dunvegan Project review, in its 2008 Joint Review Panel Decision Report, the Panel concluded that it was not likely to result in significant adverse environmental effects. The Panel concluded that the Dunvegan Project is not designed to regulate flows of the Peace River and as a “flow taker”, the Project would not have an effect on the flow regime downstream of Fort Vermilion and therefore was not likely to result in cumulative effects on the PAD or on Wood Buffalo National Park.

The Panel’s conclusion with respect to the PAD on the Dunvegan Project is particularly relevant because of the similar nature of effects predicted from the proposed operation of the Project, as is described below.

Summary of Predicted Changes to Peace River in the Area of the PAD Resulting from Site C

Surface Water Regime

The predicted changes in surface water regime as a result of the Project are described in Section 11.4 (Surface Water Regime) and Volume 2 Appendix D of the EIS Part 2 Downstream Flow Modelling (1-D). Additional information has been provided in the Spatial Boundary Selection technical memo, submitted to Provincial and Federal environmental assessment agencies as part of BC Hydro’s information request response package on April 29, 2013. The following provides a summary of the predicted influence of the Project on downstream surface water regime, with particular emphasis on results at Peace Point, Alberta, the downstream study boundary.

The operation of the Project would be coordinated with the operation of existing facilities upstream on the Peace River, as well as other available system resources, to meet provincial demand for electricity in a safe, reliable, and efficient manner. Accordingly, Project discharges would follow the same pattern as the provincial demand for electricity: higher during the winter and lower during the summer on a seasonal basis, higher during weekdays and lower during weekends on a weekly basis, and higher during daylight hours and lower during late night hours on a daily basis.

The Site C reservoir would have a relatively stable water level. As described in Section 11.4.4.2.1 of the EIS, it is predicted that the reservoir water level would remain within the top 0.6 m of the 1.8 m maximum normal operating range between 83 and 99% of the time and would operate in approximate hydraulic balance with the upstream facilities over any given day. The Site C Dam and Generating Station have been designed to safely pass the most severe flood that could reasonably occur[11], and therefore not limit the capability to pass maximum inflows from upstream of the Project. As such, the amount of water flowing into the Site C reservoir in a given day would be approximately equal to the water released through the turbines. In general, the limited amount of active storage (storage within the maximum normal operating range) limits the degree to which the Project could change the downstream flow regime.

The approach used to study the potential influence of the Project on surface water regime included the use of optimization models to simulate possible future operations of the BC Hydro integrated electrical generation system with and without the Project. As would be expected from the addition of any new resource to the integrated system, the simulations suggested differences in the dispatch of the various resources in the two cases. A decade of simulated hourly flows from the Site C and Peace Canyon generating stations (for the scenarios with and without the Project, respectively) were transferred down-river using one-dimensional hydraulic modelling, as described in Volume 2 Appendix D, Part 2 Downstream Flow Modelling (1D).

At Peace Point (the downstream extent of the surface water regime study, located approximately 40 km upstream of the PAD), negligible change in surface water regime is predicted as a result of the Project compared to the natural variability of the surface water regime at that location. This assertion is further explained in the Spatial Boundary Selection Technical Memo. Annual and seasonal duration curves of hourly flow/ water level with and without the Project were provided in the EIS and are attached for reference (see Figure 3). Additional duration curves of hourly flow at Peace Point for the ice freeze-up and break-up periods (taken as the month of November for freeze-up and the period April 15 to May 15 for break-up) are also attached to better illustrate the predicted influence of the Project during those particular periods (see Figures 4 and 5).

At Peace Point, the downstream extent of the hydraulic model (approximately 1,030 km downstream of the Site C dam site), Figures 3, 4 and 5 illustrate that the duration of any particular flow/water level both with and without the Project are very similar. The only notable predicted change is a small increase in the frequency of low flows with the Project in the typical freeze-up period. The possibility of a relationship between the freeze-up stage (water level) and the probability of dynamic break-up and ice-jams in the spring has been researched[12]. The probability of ice jamming would not be influenced by the relatively lower flows that are predicted to occur periodically during the freeze-up period with the Project. Ice cover that forms at a low level during a period of relatively low flow in November would re-freeze at a higher level as flows increase in December. The change in freeze up levels occurs because with increasing flows, the floating portion of the ice cover in the main channel releases from the border ice attached to the banks, floats up to accommodate a higher flow beneath it, and re-freezes to the banks at a new, higher freeze-in level[13]. Consequently, the predicted small increase in the frequency of lower flows in November would not effect the frequency of ice-jams in the lower reaches of the Peace River. The timing and magnitude of ice-jamming would also not be influenced by the Project.

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[11] See Volume 1 Section 4 Project Description.

[12] Ashton, G.D. 2003. Ice jam flooding on the Peace River near the Peace Athabasca Delta. Canadian Water Resources Association 56th Annual Conference: Water Stewardship: How are we managing? Vancouver, B.C. June 11-13, 2003 315-323.

[13] Beltaos, S., T. Prowse, and T. Carter. 2006. Ice regime of the lower Peace River and ice-jam flooding of the Peace Athabasca Delta. Hydrological Processes 20(19): 4009-4029.

In the open water (ice-free) period, the Peace River only influences the hydrology of the PAD under relatively high Peace River flows conditions (either by creating a hydraulic dam effect, or leading to flow reversals through Riviere des Rochers and the Quatre Fouche that typically flow north into the Peace River). The predicted changes at Peace Point in the open water period are negligible relative to the range and variability of flows at this location.

Fluvial Geomorphology and Sediment Transport

The Fluvial Geomorphology and Sediment Transport study (described in Section 11.8 Fluvial Geomorphology and Sediment Transport and Volume 2 Appendix I Fluvial Geomporphology and Sediment Transport Technical Data Report) concluded that the Project would have no influence on channel erosion and depositional patterns in the Peace River downstream of the damsite other than possible local erosion of the channel bed in the first few kilometers downstream of Site C dam under unusually high flow conditions. This result is based on the negligible change in surface water regime as it relates to fluvial geomorphological processes on the Peace River.

In terms of suspended sediment load, it was predicted that the Project would lead to a 2% reduction in the mean annual load at Peace Point which is a negligible change relative to the natural variability of annual load. As an example, the estimated annual suspended sediment load at the B.C.-Alberta border for the 10 year simulation period ranged from approximately -84 % to +234 % of the 10-year mean annual load. Similar variability would also be expected at other locations along the river.

Thermal and Ice Regime

Results of the downstream ice study (described in Volume 2 Section 11.7 Thermal and Ice Regime and EIS Appendix G Downstream Ice Regime Technical data Report) indicate that there would be no change to the ice regime (including the timing of ice formation and break-up, ice thickness and ice quality) of the Peace River as a result of the Project downstream of Carcajou, which is located approximately 550 km downstream of Site C dam site and approximately 520 km upstream of the PAD.

As described above in the surface water regime section, the small changes in surface water regime predicted at Peace Point would not influence the frequency, magnitude, or timing of ice-jams in the lower reaches of the Peace River.

Some commenters have repeated suggestions made elsewhere that operations at upstream facilities should be altered to more closely replicate natural flows in the Peace River, or to provide occasional high discharges to encourage ice jam formation in the lower reaches of the Peace River in the spring. BC Hydro does not agree with the merits of these suggestions and they are not relevant to the environmental assessment of the Project. BC Hydro is not proposing to alter its operations in this manner as part of the Project or as mitigation.

Conclusions

The surface water, fluvial geomorphology and sediment transport and thermal and ice regime studies concluded that the Project would not influence the hydrological conditions of the PAD. Therefore, there is no technically valid reason to alter the spatial boundary of any of the background environment studies, nor of the assessment of the Valued Components, to include the PAD.

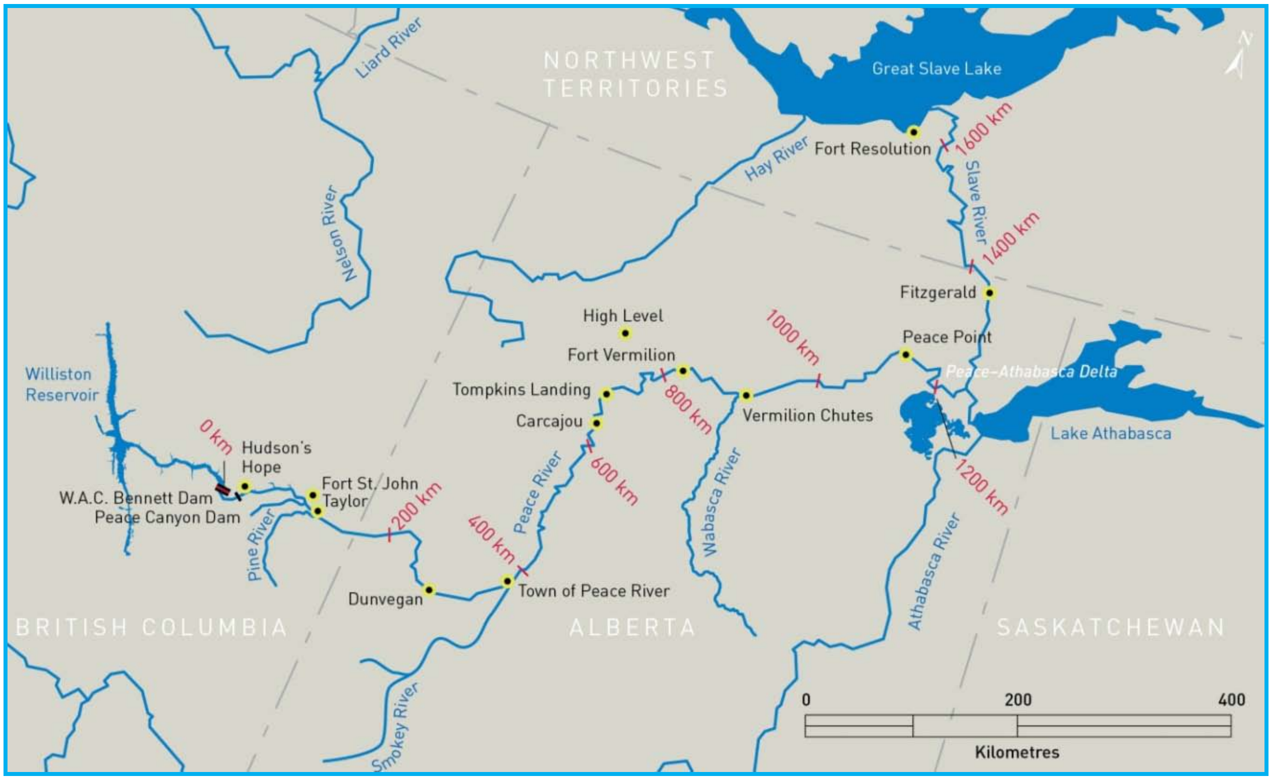

Figure 1 **Map of the Peace River**

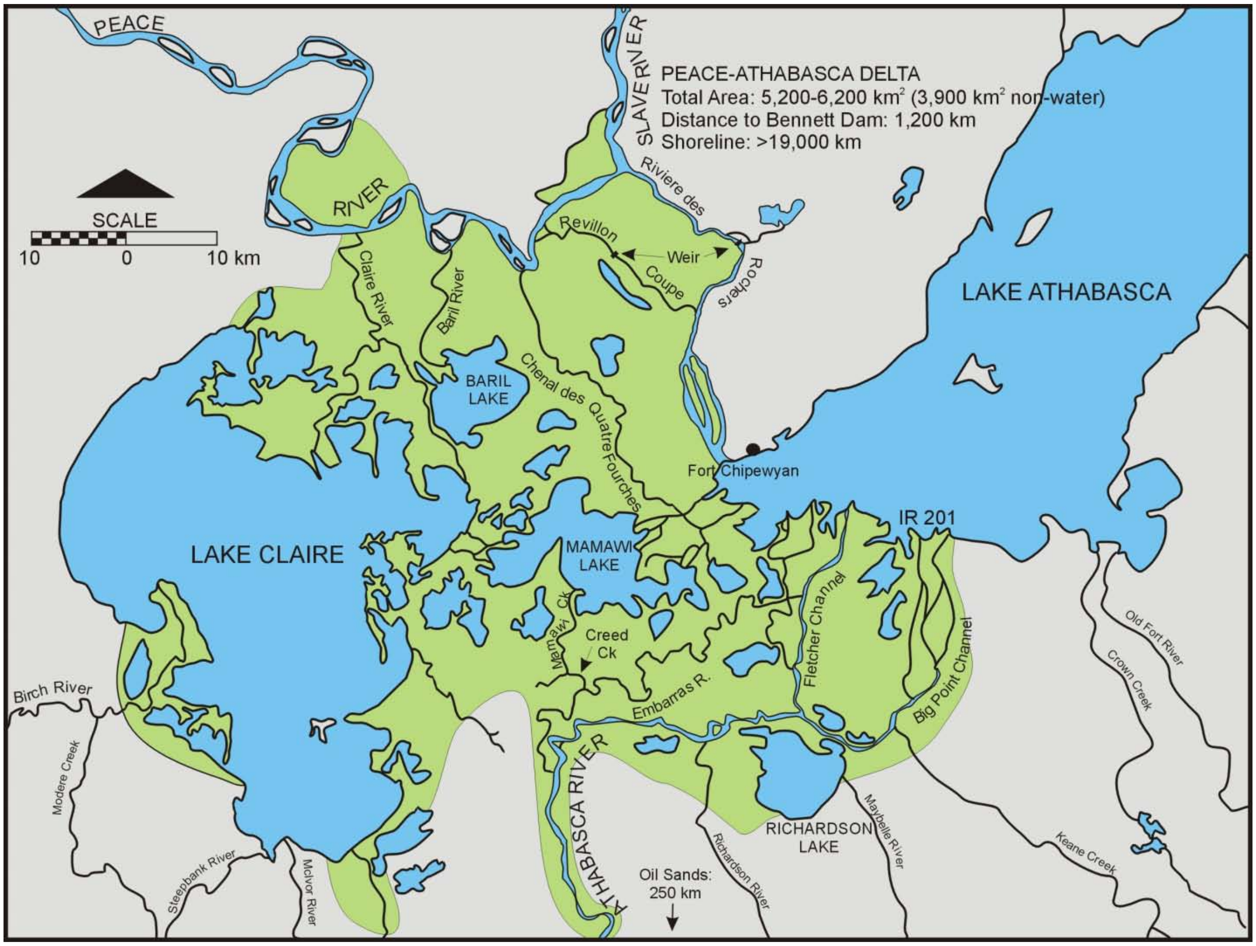

Figure 2 **Map of the Peace Athabasca Delta**

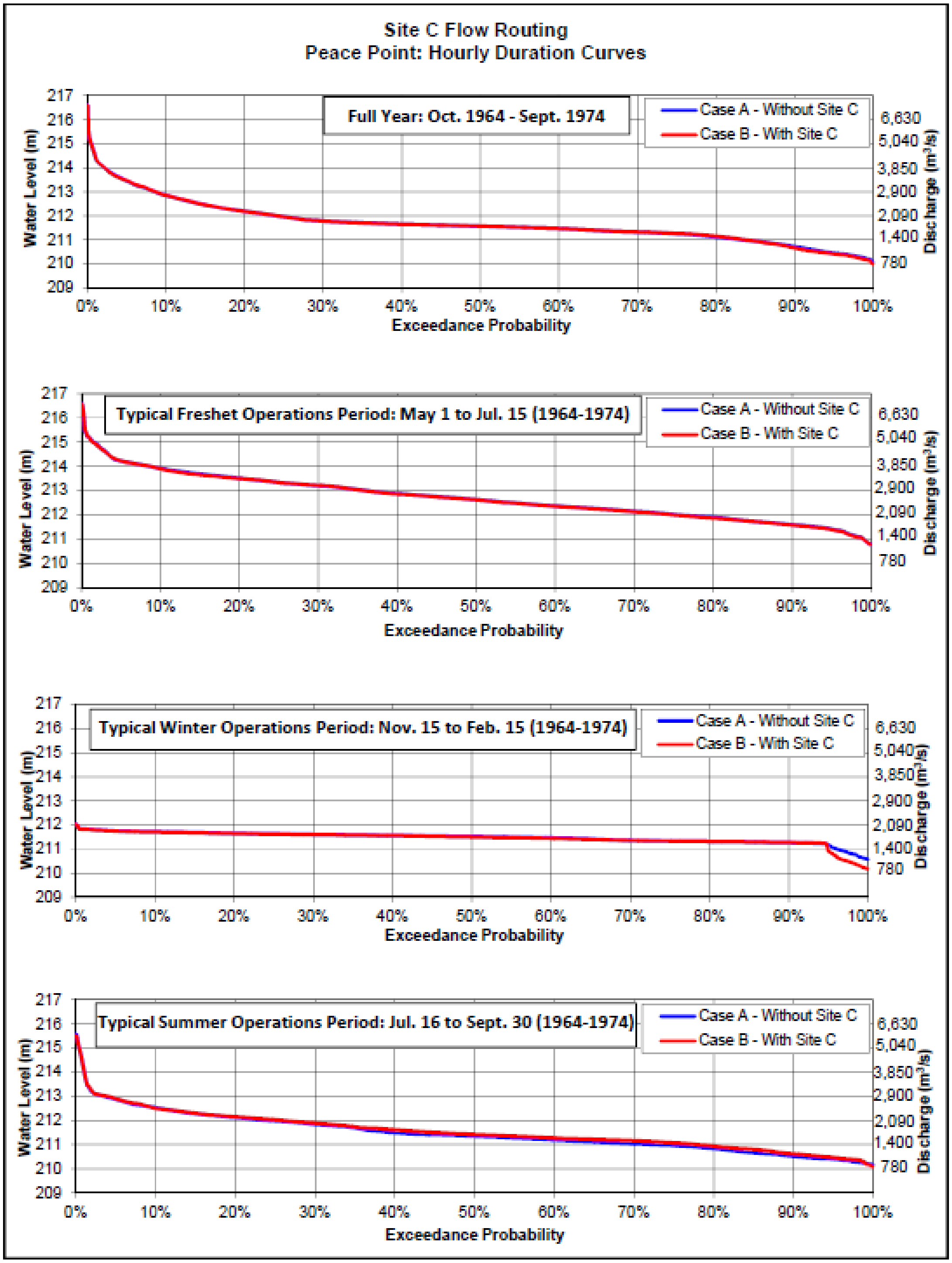

Figure 3 **Duration Curves of Simulated Flow/ Water Level at Peace Point With and Without Site C**

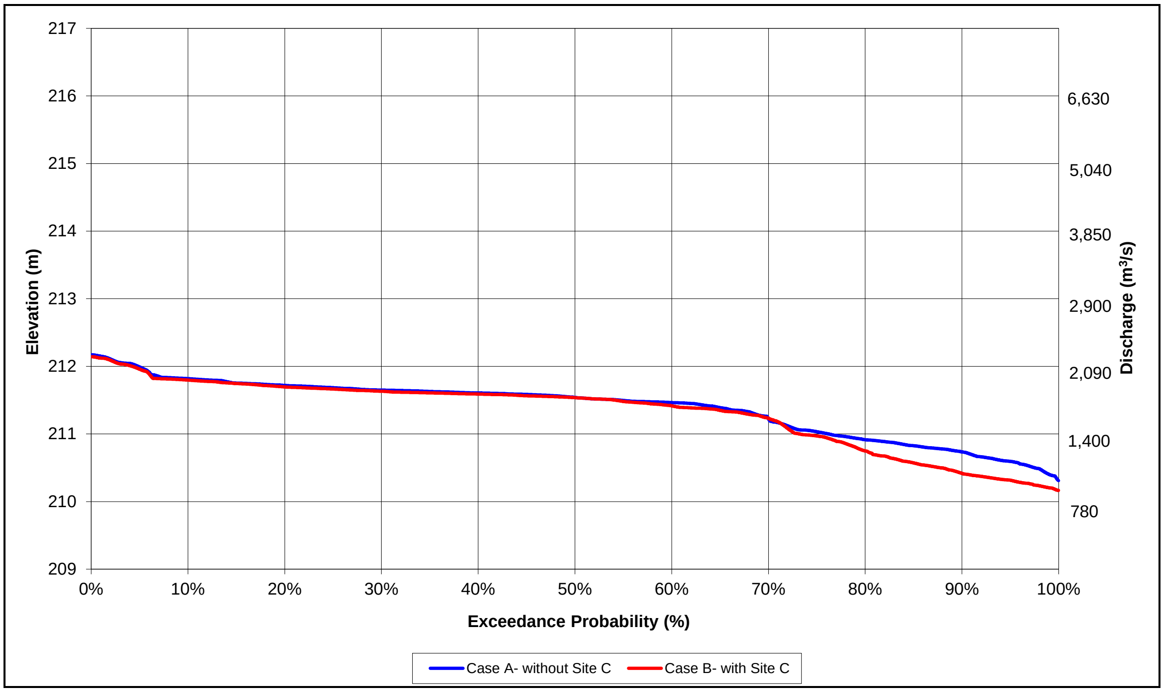

Figure 4 **Duration Curve of Simulated Hourly Flow/ Water Level at Peace Point during the Freeze-up Period (November, 1964-1973) With and Without Site C**

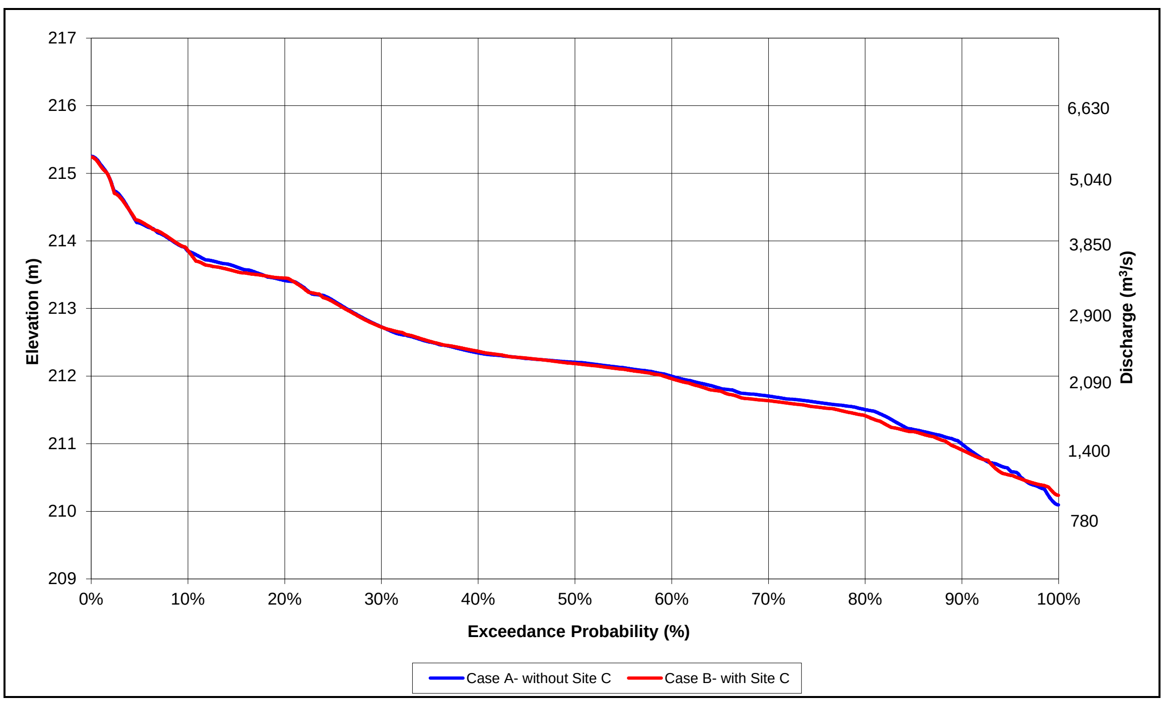

Figure 5 **Duration Curve of Simulated Hourly Flow/ Water Level at Peace Point during the Break-Up Period (April 15 to May 15, 1964-1973) With and Without Site C**

Related Comments / Information Requests:

This technical memo provides information related to the following Information Requests:

gov_0015-001	gov_0008-085	gov_0008-160	gov_0010-132	gov_0010-137
gov_0015-008	gov_0015-004	gov_0015-005	gov_0015-006	gov_0015-007
gov_0018_219	gov_0015-009	gov_0015-010	gov_0016_002	gov_0016_010
pub_0478-010	pub_0223-007	pub_0252-001	pub_0254-002	pub_0473-002
pub_0788-001	pub_0498-001	pub_0597-001	pub_0597-002	pub_0715-002
ab_0001-637	pub_0836-001	pub_0865-001	pub_0984-001	pub_1018-001
ab_0004-012	ab_0004-001	ab_0004-007	ab_0004-009	ab_0004-010
ab_0004-021	ab_0004-017	ab_0004-018	ab_0004-019	ab_0004-020
ab_0004-030	ab_0004-022	ab_0004-023	ab_0004-025	ab_0004-027
ab_0004-040	ab_0004-031	ab_0004-033	ab_0004-034	ab_0004-035
ab_0004-071	ab_0004-046	ab_0004-047	ab_0004-048	ab_0004-059
ab_0005-009	ab_0004-076	ab_0004-094	ab_0004-101	ab_0005-004
ab_0012-006	ab_0010-011	ab_0011-001	ab_0011-003	ab_0012-001
ab_0012-012	ab_0012-013	ab_0012-018	ab_0012-029	
Response to Peace Valley Environmental Association Standard Letters				