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June 5, 2020

Ms. Marija Tresoglavic
Acting Commission Secretary and Manager
Regulatory Support
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

Dear Ms. Tresoglavic:

RE: British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Site C Clean Energy Project
PUBLIC Quarterly Progress Report No. 17 –
July to September 2019 (Report) – Errata No. 1

BC Hydro writes to provide Errata No. 1 to its public Report dated January 15, 2020. The changes are:

- In section 1.10.2 of the report (page 52), removed a First Nation contractor name. Our practice is to not include any contractor names in the report and this was an oversight.
- Section 1.10.2 of the report also incorrectly indicates that all of the contracts over $50 million had been procured through a competitive procurement process; however, in some cases, BC Hydro directly procures from First Nations in alignment with BC Hydro procurement policies. The wording is revised to: “All of the construction contracts have been procured and awarded as per the BC Hydro procurement policies.”

For further information, please contact the undersigned.

Yours sincerely,

Fred James
Chief Regulatory Officer

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Fred James
Chief Regulatory Officer
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January 15, 2020

Mr. Patrick Wruck
Commission Secretary and Manager
Regulatory Support
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

Dear Mr. Wruck:

RE: British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Site C Clean Energy Project
PUBLIC Quarterly Progress Report No. 17 – July to September 2019 (Report)

BC Hydro writes to provide its public Report.

Commercially sensitive and contractor-specific information has been redacted.

A confidential version of the Report is being filed with the BCUC only under separate cover.

For further information, please contact Geoff Higgins at 604-623-4121 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,

(for) Fred James
Chief Regulatory Officer

st/ma

Enclosure (1)

BC Hydro
Power smart

Site C Clean Energy Project

Quarterly Progress Report No. 17

F2020 Second Quarter

July 2019 to September 2019

PUBLIC

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1 Project Status – July to September 2019

This Quarterly Progress Report No. 17 (**Report No. 17**) provides information concerning the Site C Clean Energy Project (**Project**) covering the period from July 1, 2019 to September 30, 2019.

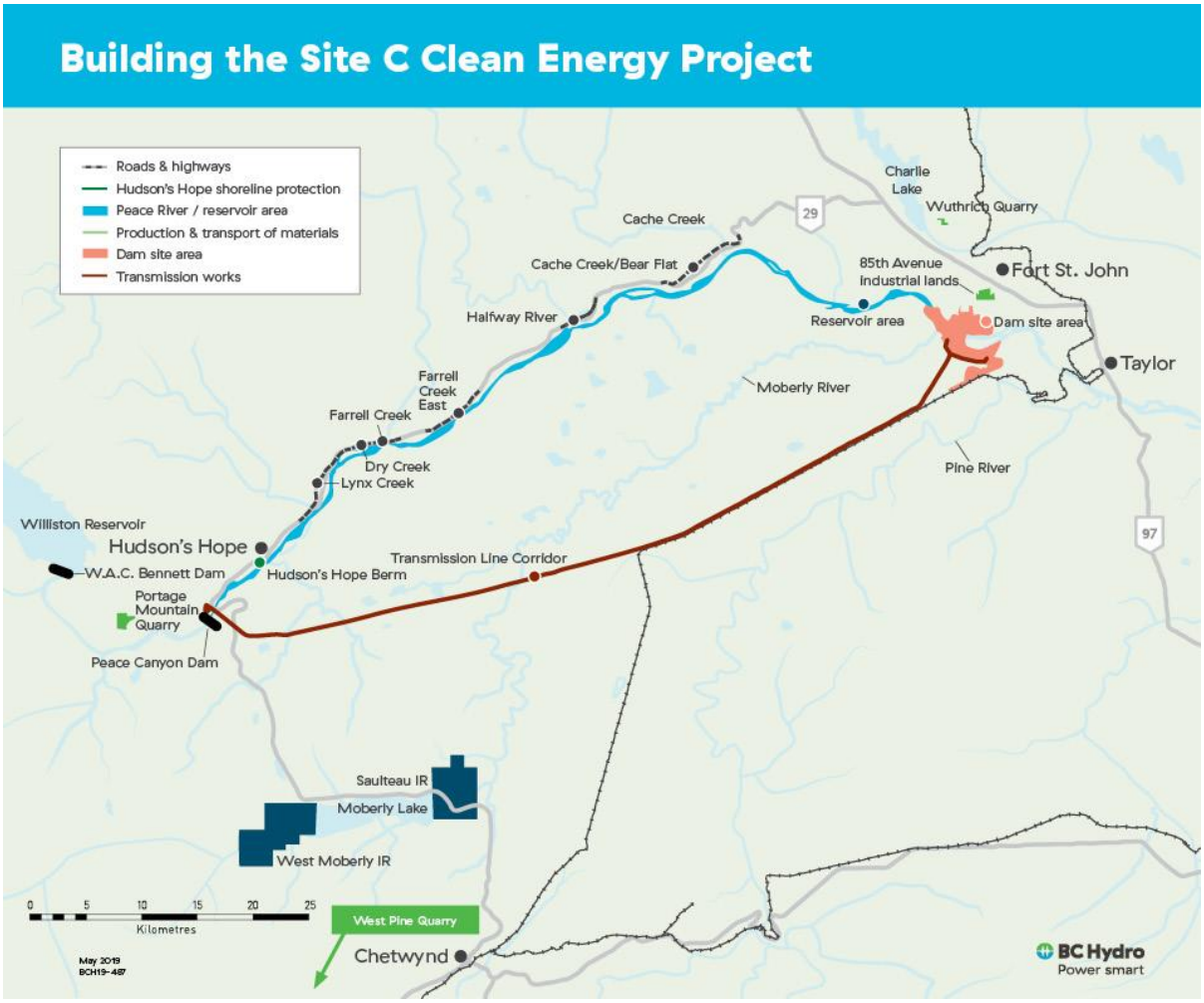
1.1 Overview and General Project Status

Construction began on July 27, 2015 and is ongoing. Since the commencement of construction, the following work has been completed:

- Site preparation, including on-site access roads;
- Clearing of the left and right banks at the dam site is substantially complete and clearing of the lower reservoir area is complete;
- Left bank cofferdams;
- Construction of the original worker accommodation lodge and Peace River construction bridge;
- Powerhouse excavation, and placement of 414,000 cubic metres of roller-compacted concrete in the powerhouse buttress;
- Construction of dam site access public road;
- Construction of the Site C viewpoint;
- Excavation of the diversion tunnel inlet (upstream) and outlet (downstream) portals, allowing for the commencement of diversion tunnel excavations;
- Excavation of the right bank drainage tunnel, which will be used to monitor and drain the remaining excavations for the spillway and dam buttresses and will eventually be connected to services within the powerhouse;

- Breakthrough on the excavation of the two river diversion tunnels, which will be used to temporarily reroute a short section of the Peace River to allow for the construction of the earthfill dam;
- Clearing activities in the lower reservoir; and
- Completion of the Peace Canyon 500 kV gas-insulated switchgear expansion to enable connection of Site C to the BC Hydro electrical system.

Figure 1 Site C Project Components



Significant Project updates that occurred from July 1, 2019 to September 30, 2019, include the following. These, and other, project updates are detailed in Report No 17:

- In July 2019, the Project completed the successful breakthrough of the second river diversion tunnel. Refer to section 1.2.1.1 for further information;
- In July 2019, the transmission subproject reached a significant milestone by energizing the new gas-insulated switchgear at the indoor substation at Peace Canyon, making it the first official Site C asset placed into service. The switchgear is required to enable connection of the two new 500 kV transmission lines from Site C into BC Hydro's 500 kV transmission network. Refer to section 1.2.1.3 for further information;
- The phase 1 camp expansion of 150 rooms was completed on schedule on July 18, 2019, increasing the camp capacity to 1,750 beds;
- In August 2019, the Northern Development Initiative Trust started accepting applications for the first round of funding from the $20 million Peace Agricultural Compensation Fund launched by BC Hydro in 2018. For more information, refer to section 1.2.1.1;
- Record employment for the fifth consecutive month saw 4,870 workers involved in the Project in August 2019. While remaining high, the total workforce decreased to 4,790 in September 2019, including 401 Indigenous people and 517 women. Seventy six per cent of the total workforce are residents of British Columbia. For more information, refer to section 1.8.2;
- In September 2019, testing of the five-kilometre-long till conveyor system for Site C began. The conveyor, which runs from the 85th Avenue Industrial Lands to the dam site, will carry glacial till, an impervious clay-like material that will form the core of the Site C dam. Refer to section 1.2.1.3 for further information;

- Site preparation began for the construction of the Highway 29 realignment east of Cache Creek in September 2019. Refer to section 1.2.1.3 for further information; and
- In September 2019, another local non-profit organization received a grant from the Generate Opportunities (**GO**) Fund. The grant went towards a Student Support Program, providing school supplies to children in need and helping local families provide healthy snacks for their school-aged children. To date, we have distributed $391,091 (of the $800,000 fund) to 44 projects.

A dashboard based on the Project's status as of September 30, 2019 is provided in Table 1 below. BC Hydro continues to manage the Project within the approved budget of $10.7 billion. The Project team, with direction from the Project Assurance Board, will deliver the Project on the basis of not compromising on safety, scope, and quality.

Some areas of the Project have experienced significant cost pressures and/or budget increases since the Project budget was approved in February 2018 and the revised budget did not contemplate certain unforeseen financial impacts, for example:

- The Project is experiencing material cost pressures in the areas of contractor delay and other claims, additional labour resource requirements, worker accommodation expansion and increased utilization, as well as estimated site reclamation costs;
- First Nations treaty infringement claims and an injunction application had an impact on the planned sequencing of certain construction; and
- Costs associated with reservoir clearing, transmission line construction and highway re-alignment work are higher due to changes in scope, updated designs and delays associated with the First Nation injunction application.

As at September 30, 2019, BC Hydro has drawn approximately 63 per cent of project contingency and continues to monitor and mitigate cost pressures. In September 2019, a cost risk analysis was completed that shows that BC Hydro's budget is under pressure. The cost risk analysis incorporates probabilistic analyses and is based on assumptions and assessments of risks that may or may not be realized. BC Hydro expects to request a draw on the project Reserve, as and when needed to make future contractual commitments.

Table 1 Project Status Dashboard

● On Target ● Moderate Issues ● At Risk

Status as of:		September 2019
Overall Project Health	●	Overall project health remains amber. At September 30, 2019, the Project remains on schedule. Safety issues and cost pressures continue to be assessed and monitored. The overall environmental status has improved over the last quarter.
Scope	●	Scope changes have been minimal and the changes are expected to be managed within contingency.
Schedule	●	The Project continues to be on track for river diversion (September 2020) and for the overall in-service date of 2024.
Cost	●	BC Hydro continues to manage the Project within the total approved Site C budget of $10.7 billion, which includes future draws on the Treasury Board Reserve. Cost pressures continue to be identified, assessed, monitored and managed to the extent possible.
Quality	●	Overall, quality continues to track well across the Project. BC Hydro continues to work with each contractor to identify and resolve nonconformities and quality issues as they arise. Attention to the generating station and spillways civil works contractor's curing and thermal control of concrete processes have resulted in quality performance improvements. BC Hydro continues its ongoing monitoring program to assure that process improvements are maintained.
Regulatory, Permits and Tenures	●	Permits are on track and are meeting schedule requirements. To date, the Project has obtained 72 per cent of its major required authorizations and the remaining authorizations are anticipated to be received as required to meet the overall project schedule needs. Environmental assessment certificate amendment approvals are progressing, with all requested amendments approved to date.
Environment	●	BC Hydro and contractors have substantially completed the main care-of-water features within the dam site and are further developing the care-of-water features along the till conveyor corridor as well as within Highway 29 works. Installation continues of habitat mitigations for fishers, bats, snakes, and eagles. Noise, dust, smoke and light monitoring also continues.

Status as of:		September 2019
Procurement	●	Subsequent to the reporting period, the Halfway River Grading, Paving and Bridge Construction Contract was awarded in early October 2019 through the Ministry of Transportation and Infrastructure.
Indigenous Relations	●	Six of ten agreements are fully executed and in implementation. Confidential discussions between the Province of British Columbia, BC Hydro, West Moberly First Nations and Prophet River First Nation to seek alternatives to litigation related to the Site C Project started in February 2019. West Moberly First Nations withdrew from the discussions in August 2019 and filed an amended Notice of Civil Claim in September 2019.
Litigation	●	The treaty infringement claims filed by West Moberly First Nations and Prophet River First Nation in January 2018 remain active. The trial of these claims is expected to occur sometime in 2022. In February 2019, the Province of British Columbia, BC Hydro, West Moberly First Nations and Prophet River First Nation agreed to enter into confidential discussions to seek alternatives to litigation related to Site C. West Moberly First Nations withdrew from the discussions in August 2019 and filed an amended Notice of Civil Claim in September 2019. Discussions with Prophet River First Nation remain open.
Safety	●	This reporting period covers the height of an intense summer construction work period with almost 5,000 workers engaged on the Project and a 68 per cent increase in work hours compared to the same reporting period last year. As a result, the Project continued to see higher reporting of both serious and non-serious safety incidents and injuries, as well as regulatory inspections and orders. However, all three key safety frequency metrics decreased significantly this reporting period compared to the same reporting period last year suggesting a strong site-wide safety focus by all employers and contractors.
Stakeholder Engagement	●	BC Hydro continues to work with the communities, regional district and stakeholder groups on the implementation of various community agreements.

1.2 Major Accomplishments, Work Completed, Key Decisions and Key Issues

1.2.1 Construction

Refer to Appendix F for the high level construction schedule.

1.2.1.1 Main Civil Works

The scope of the main civil works contract includes the construction of the following major components:

- Diversion works, including two concrete-lined, 10.8 metre diameter tunnels. Tunnel No. 1 is 700 metres in length and Tunnel No. 2 is 790 metres in length;

- Inlet and outlet portals;
- Excavation and bank stabilization (approximately 26 million cubic metres of overburden and rock excavation);
- Relocation of surplus excavated material (including management of discharges);
- Dams and cofferdams (including a zoned earth embankment dam 1,050 metres long and 60 metres above the present riverbed, and stage 1 and 2 cofferdams);
- Roller-compacted concrete (including a buttress approximately 800 metres long made up of approximately 1.7 million cubic metres of concrete); and
- Haul roads.

Construction progress is currently split between work on the left bank and right bank. Main civil works is on track to meet river diversion in September 2020 and first power in-service milestone in December 2023.

Left Bank

In preparation for river diversion and construction of the earthfill dam, the significant work activities on the left bank are to stabilize the slope with a mass excavation associated with construction of the dam, stabilize the diversion inlet and outlet portals, excavate two diversion tunnels, construct concrete diversion tunnel linings, and construct inlet and outlet structures at the ends of the diversion tunnels to house the hydraulic gates.

The activities currently underway or completed on the left bank during this reporting period include:

- Excavation of the diversion tunnels began in August 2018. Breakthrough on the upper portion (heading) of diversion Tunnel No. 1 occurred in June 2019, and on the longer diversion Tunnel No. 2 in early July 2019. Beginning in July 2019,

access to continue excavation of the tunnels was restricted due to a shotcrete delamination in Tunnel No. 1 that resulted in schedule delays in the tunnel excavation and lining. BC Hydro has worked with the contractor and WorkSafeBC to resolve safety concerns and as of October 2019 the excavation has recommenced. BC Hydro continues to target achievement of the key construction diversion milestones to achieve river diversion in fall 2020;

- The lining of Tunnels Nos. 1 and 2 are underway with more than 20 per cent of the concrete placements completed. Progress on the concrete lining placements was temporarily halted so that the bottom excavation of the tunnels could be completed ahead of the lining work. The concrete lining was restarted in October 2019 in Tunnel No. 1 and expected to restart in mid-November 2019 for Tunnel No. 2;
- Excavation for the left bank dam core was started, but continues to track behind schedule. The contractor had some concerns regarding the safety of the excavated slopes which resulted in lower production in September 2019. BC Hydro worked with the contractor to confirm that the stability of the slope was safe, and work has recommenced. The contractor has constructed additional infrastructure on site to facilitate more efficient material hauling routes, and it is expected that this will increase efficiency in the future. Foundation grout trials were completed and production grouting is underway; and
- The till conveyor system construction and commissioning is complete. The conveyor, which runs from the 85th Avenue Industrial Lands to the dam site, will carry the glacial till that will form the core of the Site C dam. Till material trials are in progress. As of October 2019, the contractor is completing trials of material transportation.

Right Bank

The right bank scope of work includes the excavation of the powerhouse, spillways and dam, and placing roller-compacted concrete for the foundations to support the powerhouse, dam and spillway structures.

The activities currently underway or completed on the right bank during this reporting period include:

- As of September 25, 2019, approximately 495,000 cubic metres of roller-compacted concrete had been placed for the spillway buttress. Subsequent to the reporting period, the contractor continued to place roller-compacted concrete and achieved their 2019 season milestone in October 2019. The contractor then continued to place material and has now completed all roller-compacted concrete placements for the spillways seven months ahead of schedule. The total volume of roller-compacted concrete placed in 2019 was 585,516 cubic metres;
- The right bank dam core trench and dam buttress excavations continued during the reporting period and are expected to be completed in 2019. Roller-compacted concrete for the dam buttress will commence placements in spring 2020 and is expected to be complete in fall 2020; and
- All of the aggregates required for the 2019 roller-compacted concrete placements have been produced. Aggregate supply is currently in full production and the contractor is on track to produce the planned stockpile in advance of the 2020 construction season.

In-River Work

When the river is diverted in 2020, upstream and downstream cofferdams will be constructed in the Peace River to provide safe access for the main dam construction. The current in-river work includes dredging in support of the stage 1 cofferdams.

Earthfill Dam

Work on the earthfill dam commenced in October 2018 and initial material placements for the earthfill dam will continue through November 2019 and will recommence in 2020. Foundation preparation has commenced with core trench excavation underway and grout trials completed. While the left bank core trench excavation is behind schedule, BC Hydro expects to meet the key earthfill dam construction milestone of July 2023 for reservoir filling.

1.2.1.2 Generating Station and Spillways

The generating station and spillways scope of work includes the construction of the following major components:

- Generating station and spillways civil work includes:
  - Powerhouse: Concrete placements, installation of structural steel, and installing hydraulic gates;
  - Inlet headworks: Concrete placements, construction of the penstocks, and installing hydraulic gates; and
  - Spillways: Concrete placements and installing hydraulic gates;
- Cranes which includes the supply and commissioning of the powerhouse cranes, tailrace gantry crane, and headworks gantry crane; and
- Hydromechanical equipment, including the supply of all gates.

Generating Station and Spillways Civil Work

As of September 25, 2019, the generating station and spillways contractor had placed a cumulative total of 67,000 cubic metres of concrete for the powerhouse compared to a plan of 60,000 cubic metres.

Concrete placements for the powerhouse are being completed on Units 1, 2, 3, 4, and 5. Concrete and structural steel in the main service bay are complete.

The generating station and spillways contractor had placed a cumulative total of 12,000 cubic metres of concrete for the intake headworks to September 25, 2019, compared to a plan of 14,100 cubic metres.

Concrete placements for the intake headworks are being completed on Units 1, 3 and 6.

The generating station and spillways contractor had fabricated a cumulative total of 292,000 kg of steel for the penstocks as of September 25, 2019, compared to a plan of 668,000 kg. BC Hydro is working with the generating station and spillways contractor to provide a plan to recover the penstock schedule.

Cranes

Design work on the Intake Headworks crane continues. The powerhouse bridge cranes are scheduled to be commissioned and operational by spring 2020.

Hydromechanical Equipment

Gate guides for the draft tube maintenance gates are proceeding on schedule. The first guides will be on site in November 2019.

1.2.1.3 Balance of Plant

The formal procurement process for the generating station and spillways balance of plant contract was launched in June 2018. The request for proposals for the balance of plant contract was issued to three shortlisted proponents on April 30, 2019. Since that time, the proponent teams visited the site and participated in collaborative meetings to facilitate development of their competitive proposals. Proposals will be received in 2020 with a target contract award date of June 2020 and mobilization set for September 2020. Between July and September 2019, the generator step up transformer, powerhouse cooling water and dewatering large valve, the DC station service, the high voltage equipment, and the compressed air receiver supply

contracts were awarded. The final supply contract, for the diesel back-up generators, is scheduled to be awarded in fall 2019.

1.2.1.4 Turbines and Generators

The scope of the turbines and generators work includes the complete design, supply, installation, testing and commissioning of six turbines, generators, governors and exciters. The design, procurement and manufacturing for the turbines and generators are on schedule.

The contractor continues the assembly and welding of embedded turbine components in its temporary manufacturing facility on the right bank at site. The contractor's São Paulo Brazil factory will supply the majority of the turbine generator components, and has produced all cast steel parts for approximately five of the six turbines. Initial meetings for the various other turbine and generator components in the São Paulo factory have been held concurrently with visits to most of the contractor's subcontractors in the São Paulo area. Based on the powerhouse construction schedule, the contractor will commence turbine installation in the powerhouse by July 2020, and was recently provided with notice to this effect. Current areas of focus include ensuring the quality of the manufactured components and that contract specifications and schedule are met.

Pre-production stator bars for the generators were tested in BC Hydro's subsidiary, Powertech Labs, and the test results confirmed the design will meet contractual requirements.

1.2.1.5 Transmission and Substation

The transmission subproject will connect the Site C Project to the BC Hydro transmission system. The scope of work includes the following major components:

- A new 500 kV Site C substation;

- Two 75-kilometre long, 500 kV transmission lines from the Site C substation to the Peace Canyon generating station;
- Three, one-kilometre long, 500 kV transmission lines from the Site C generating Station to the Site C substation; and
- Expansion of the existing Peace Canyon 500 kV gas-insulated switchgear to incorporate the two new 500 kV transmission line terminals.

Transmission

The transmission line contractor continued to install helical pile tower foundations and assemble lattice towers in an effort to recover schedule. At the end of September 2019, 100 of 120 foundations were completed on the eastern half of the transmission line. The remaining 20 foundations are expected to be placed by the end of November 2019.

Construction of access roads on the western half of the transmission right-of-way was significantly impacted by unseasonable wet weather in July, August and September 2019 and is forecast to be completed behind schedule. BC Hydro is working with the transmission line contractor to mitigate this delay.

Substation

Substation construction continued between July and September 2019 with the contractor substantially completing all concrete work, and meeting two contract milestones for the installation of telecom equipment and the assembly of the 500 kV shunt reactor. The contractor also made significant progress on the installation of 500 kV electrical equipment and the installation of cable trenches and protection and control cabling, which enabled the testing and commissioning of electrical equipment to start. Delivery of insulating crushed rock began in August 2019 and was 90 per cent complete by the end of September 2019.

The upgrade of telecommunication sites to enable remote operation of the substation started with the telecommunication contractor mobilizing to site in July 2019.

Substation construction remains on schedule.

Peace Canyon Gas-Insulated Switchgear Expansion

The 500 kV gas-insulated switchgear at Peace Canyon was energized in July 2019, becoming the first in-service Site C asset. The remaining activities include correcting minor deficiencies, receiving final drawings and documentation and closing out the contract.

1.2.1.6 Highway 29 and Hudson's Hope Shoreline Protection Berm

The creation of the Site C reservoir requires realignment of segments of Highway 29 totalling approximately 30 kilometres. The scope of the highway realignment subproject also entails relocation of existing 25 kV distribution lines along the existing highway and construction of a slope protection berm at the District of Hudson's Hope to protect against bank erosion due to reservoir wind waves and water table rise. The permanent realignment is planned to be completed by spring 2023 in order for the highway to remain accessible once the reservoir is created and the dam is operational.

The Highway 29 realignment and Hudson's Hope Shoreline Protection Berm is divided into the following main areas:

- Cache Creek (Cache Creek East and Cache Creek West);
- Halfway River;
- Western segments (Farrell Creek East, Farrell Creek, Dry Creek, Lynx Creek); and
- Portage Mountain Quarry and Hudson's Hope shoreline protection.

Cache Creek

Cache Creek East

A tender for the construction of the Cache Creek East embankment fill (early works) was issued by Ministry of Transportation and Infrastructure in August 2019 and closed in September 2019. The contract is scheduled to be awarded in October 2019. Site preparations started in September 2019.

Cache Creek West

Construction of the four kilometre highway realignment at Cache Creek West continued through the reporting period and is expected to be completed on schedule in summer 2020.

Halfway River

The tender for the Halfway River bridge construction issued by the Ministry of Transportation and Infrastructure closed in September 2019. Subsequent to the reporting period, the contract was awarded in October 2019.

A contract for the construction supervision of the Halfway River bridge construction was awarded by the Ministry of Transportation and Infrastructure.

The stripping and recovery of archeological site materials was completed in August 2019.

Western Segments

A First Nations direct award procurement was initiated for an embankment fill at Lynx Creek East, with the contract award expected by December 2019.

Farrell Creek, Farrell Creek East and Dry Creek Functional designs were completed. The 50 per cent detailed design was completed for Farrell Creek.

Portage Mountain Quarry and Hudson's Hope shoreline protection berm

Material from Portage Mountain will supply rip rap materials for sections of Highway 29 realignment and construction of the shoreline protection berm for the District of Hudson's Hope. Development of the quarry continued, with haul road construction completed in August 2019. The mine production permit for the Portage Mountain quarry was received in August 2019, and production blasting occurred in August and September 2019 to begin producing rip rap materials.

Engineering design of the Hudson's Hope Berm was completed to the 90 per cent level and is expected to be completed by November 2019.

1.2.1.7 Reservoir Clearing

The remaining reservoir clearing scope of work is divided into two main areas:

- Lower reservoir, Moberly River drainage and eastern reservoir including Cache Creek drainage; and
- Middle reservoir including Halfway River drainage and western reservoir.

Clearing in the lower reservoir, Moberly River drainage, eastern reservoir and middle reservoir is required to support river diversion in fall 2020. All other clearing is scheduled for completion by spring 2023 (prior to reservoir inundation).

Lower Reservoir, Moberly River Drainage, Eastern Reservoir including Cache Creek Drainage

Clearing occurred in the lower reservoir, Moberly River drainage, north bank of the eastern reservoir and Cache Creek area over the winter 2018/2019. All clearing was completed in these areas except for some floodplain debris removal and some trees temporarily retained for environmental or accessibility reasons. These trees are being removed during the 2019/2020 clearing season, from August 2019 to March 2020. Any remaining wood waste will also be disposed of during this period.

Procurement for the clearing of the right bank portion of the eastern reservoir began in May 2019 with road work starting in July 2019. Clearing activities were advanced over the summer months and are anticipated to continue through to March 2020.

Middle Reservoir including Halfway River Drainage and Western Reservoir

Designs for the middle reservoir including Halfway River drainage and western reservoir are ongoing. Procurement on the first contract package for the middle reservoir was initiated in May 2019 and a contract was awarded in August 2019. The final two procurements for this season's clearing work are being completed between October and December 2019. Clearing of the reservoir is scheduled to be complete up to the Halfway River by March 2020 with work occurring in the Halfway River drainage and further westward in subsequent clearing seasons.

1.2.2 Engineering

The Engineering team provides technical support across the Site C project, with substantial focus this reporting period on supporting the achievement of the Project and contractors' schedule for both the main civil works contract and the generating station and spillways civil works contract.

Main Civil Works

For the main civil works contract, the main focus areas for the engineering team during the reporting period were optimization of the river diversion schedule and completion of engineering designs and proposed contractors' changes for the left bank excavation permanent drainage, spillway buttress roller-compacted concrete, right bank dam buttress slope protection, the left bank dam core trench excavation and slope protection sequencing, and the consolidation and curtain grouting mix design and the till trial and filter preparations. Engineering also provides ongoing support to construction through constructability, schedule and engineering reviews for the sequencing of the remaining works and assessment of the permanent drainage and grouting works on the right bank.

Large Cranes, Hydromechanical, Turbines and Generators

Engineering support to construction and vendor integration has been ongoing throughout the reporting period for the large cranes, hydromechanical equipment and turbines contracts. The two powerhouse bridge cranes have been successfully erected onto the crane rails in the powerhouse. The crane contractor has also commenced detailed design and material procurement activities for the headworks gantry crane. Design of the hydromechanical equipment continues, with upcoming activities focussed on the gate hoists and heating systems. Manufacturing of the gates and embedded parts are underway. Design of the turbines and generators is well advanced, with focus now on integration design with the balance of plant equipment. Turbine and generator manufacturing activities continue to advance.

Generating Station and Spillways, Balance of Plant and Equipment Supply

Several batches of construction drawings for the generating station and spillways civil works contract were completed through the reporting period, in support of, and in accordance with, the revised contractors schedule for the release of remaining construction drawings. Engineering also provides ongoing support to construction through extensive reviews and approvals of contractor submittals to support the construction program.

The implementation design for the spillway, balance of plant and equipment supply packages for the generating station and spillways continues to advance including specifications, drawings and three dimensional modelling work. Nine of the ten equipment supply contracts have been awarded. The request for proposals drawings and approximately 140 specifications for the balance of plant contract are on track to be issued to the proponents in early December 2019 as scheduled.

Design work continued to advance on the protection and control systems and is on schedule.

Transmission and Substation

Detailed design of the final transmission towers for the 500 kV powerhouse transmission lines is in progress.

Highway 29

Advancement of the implementation design for Highway 29 and associated bridge structures continues in accordance with the Project schedule requirements. Procurement was completed for Halfway River by the Ministry and Transportation and Infrastructure in September 2019. Design packages are completed to support construction at Cache Creek and Lynx Creek, which is expected to start in fall 2019.

Technical Advisory Board

The Technical Advisory Board visited the dam site from September 12, 2019 to September 13, 2019. The Technical Advisory Board viewed the ongoing construction works at key areas, was provided with a general project update and discussed a variety of technical issues.

The next formal Technical Advisory Board meeting will be held from January 7, 2020 to January 10, 2020 in Vancouver.

1.2.3 Quality Management

The Project has a quality management plan that outlines activities to ensure materials, equipment and the constructed works meet contract quality requirements. The plan, and its supporting plans, describes roles and responsibilities and the procedures necessary to achieving the Project quality objectives. Updates were made to the plan during fiscal 2020 to reflect the increased complexity of the Project and to reflect the fiscal 2019 changes to the Project team’s organizational structure.

Implementation and monitoring of quality control and quality assurance plans are a requirement for all contractors. The Project tracks and manages quality nonconformities, defined as an occurrence that does not conform to the quality

requirements of the contract. Table 2 identifies quality management nonconformity instances occurring during the reporting period.

Table 2 Quality Management Nonconformity Report Metrics Reporting Period – July 2019 to September 2019

	July 1, 2019 to September 30, 2019		Cumulative to Date		Open as of September 30, 2019
Contract	Reported	Closed	Reported	Closed	
Main Civil Works	71	45	1,252	1,179	73
Turbines and Generators	35	25	89	48	41
Generating Station and Spillways Civil Works	72	86	254	191	63
Large Cranes	1	1	11	11	0
Hydromechanical Equipment	2	1	3	1	2
Transmission	15	14	88	76	12

The overall quality performance of the main civil works contractor was assessed as good for the reporting period. The spillway buttress roller-compacted concrete continues to be placed in conformance with the drawings and specifications. While there have been some challenges in the diversion tunnels with the surface finish of the tunnel liner concrete, the quality of the placed concrete has been good and a repair program for the surface defects is expected to commence in fiscal 2020. BC Hydro and the contractor continue to meet on a weekly basis to discuss and resolve quality issues and quality steering committee meetings continue to be held monthly to discuss broader topics related to the contractor's quality performance. The main civil works contractor continues to maintain its staffing targets for quality control personnel at the site to support the multiple work fronts in the 2019 construction season.

The overall quality performance of the turbines and generators contractor was assessed as good for the reporting period. While the quality of the fabricated components continues to be good, there have been instances of resistance from the contractor to provide BC Hydro's local inspectors access to its São Paulo

manufacturing facility for surveillance inspections. BC Hydro has met with the contractor on this issue and as part of the resolution, bi-weekly meetings are now taking place to specifically discuss and resolve any issues related to access and communication protocols around surveillance inspections. There have been no issues with BC Hydro's local inspectors gaining access for regularly scheduled witness and hold points. The increase in nonconformities reported is attributed to an increase in casting and water passage fabrication activities, and based upon both the contractor's and BC Hydro's past experiences, this is not unusual.

The quality performance of the generating station and spillways civil works contractor was assessed as good for the reporting period. The performance of the contractor, as it relates to curing and thermal control of concrete, has significantly improved since the prior reporting period and BC Hydro and the contractor continue to close out the nonconformity report dispositions. Offsite manufacturing of penstocks and trashracks is generally proceeding without any major quality issues.

The quality performance of the transmission contractors was assessed as good for the reporting period. BC Hydro continues to perform quality surveillance audits of the transmission contractors to verify that their quality management systems are being adhered to.

BC Hydro continues to perform quality audits of the main civil works and generating station and spillways civil works contractors. The audits are performed approximately every six weeks and are focused on the contractor's construction operations and supporting processes. Audits during this reporting period include: concrete curing and thermal control; diversion tunnel lining concrete operations and penstock fabrication; and installation processes.

1.3 Safety and Security

This reporting period covers the height of an intense summer construction period for the Project. All of the subprojects, and all contractors, saw increased work activity. Accordingly, the Project has seen an increase in the number of reported serious and non-serious safety incidents as well as an increase in the number of WorkSafeBC regulatory inspections and orders. However, when adjusted for the volume of work hours in key safety frequency performance measures, the Project saw a significant improvement in safety outcomes compared to the same quarter last year (see Table 4).

The main safety trend continues to be muscular-skeletal incidents, which account for approximately 65 per cent of all injuries. Other trends identified during this construction period were shotcrete/concrete contacts, crane impacts, rebar-related injuries, and environmental exposure. Understanding the trends enabled employers to mitigate the hazards more effectively. As one example, a major contractor installed six feet of mesh on top of rebar mat slabs, which is expected to reduce rebar-related injuries by up to 50 per cent.

WorkSafeBC's focus this reporting period has been on serious near misses involving a large tower crane contact and two separate shotcrete falls that occurred in July and August 2019. BC Hydro worked with WorkSafeBC, and the main civil works and generating station and spillways contractor to resolve these orders and get contractors back to work safely.

BC Hydro is continuing a proactive 'Technical Safety Assurance' program for the Project. This program focuses on having technical specialists with safety expertise review higher risk equipment, plant and processes involved in the Project. BC Hydro completed technical safety reviews of the new till conveyor system, and Lock Out/Tag Out procedures implemented by major employers. The focus for next quarter will be technical safety reviews on winter preparedness, construction cable management (electricity contact) and fire safety (hoarding) inspections.

In support of winter preparedness, a new winter chain on/off area has been completed at the top of Old Fort Road, above the steep hill approaching Gate B. The space provides a safe area for large truck operators to put tire chains on and off their trucks on snowy or icy days reducing risk to both residents and workers.

Summary of Safety and Regulatory Performance Metrics

With the ongoing increase of work fronts and workers on the Project, there has been a significant increase in work hours and a 16 per cent increase in the number of safety incidents and injuries this reporting period, compared to the prior reporting period.

Table 3 below reflects safety and regulatory performance results for the Project, including all contractors. The table summarizes results in a tabular format, with incident details provided below the table.

Table 3 Summary of Site C Safety and Regulatory Metrics

	Reported July 1, 2019 to September 30, 2019[1]	Reported Since Inception (July 27, 2015 to September 30, 2019)[1]
Fatality[2]	0	0
Permanently Disabling Injury[3]	0	1[4]
Serious Incidents[5]	3	44
Lost Time Injuries[6]	1	23
All-Injury Incidents[7] (Lost Time Injuries[6] and Medical Attention requiring Treatment[8])	28	123
Regulatory Inspections	32	125
Regulatory Orders	53	220

During the reporting period, the Project experienced three serious safety incidents, and 28 all-injury incidents that included one lost time injury and 27 medical attention requiring treatment incidents.

The Project to date has experienced 44 serious incidents, which include 28 near misses and 16 injuries with the potential to be serious.

1 Numbers are subject to change due to timing of when data is retrieved and when injury is categorized.

2 Excludes health events unrelated to work standards.

3 A permanently disabling injury is one in which someone suffers a probable permanent disability.

4 In June 2018, an injured worker received a permanent partial disability award from WorkSafeBC due to a lost time injury incident in August 2017. The worker was attempting to unload a light plant (tower) from a flatbed truck. The worker stepped on the light plant (tower) outrigger to gain enough height to reach the lifting attachment when the worker lost balance and fell approximately 7.5 feet to the ground. BC Hydro reclassified this incident as a permanent disabling injury after receiving an update on the WorkSafeBC award in June 2018. The incident is identified as a serious injury in the BC Hydro Incident Management System.

5 Serious incidents are any injury or near miss with a potential for a fatality or serious injury.

6 Lost time injuries are those where a worker (employee or contractor) misses their next shift (or any subsequent shift) due to a work-related injury / illness. If a worker only misses work on the day of the injury, it is not considered a lost time injury.

7 All Injury incidents is a count of all work-related fatalities, lost time injuries and medical attention requiring treatment.

8 Medical attention requiring treatment is where a medical practitioner has rendered services beyond the level **defined** as “diagnostic or first aid” and the worker (employee or contractor) was not absent from work after the day of the injury. Services beyond diagnostic/first aid include (but are not limited to) receiving stitches, a prescription, or any treatment plan such as physiotherapy or chiropractic.

Serious Safety Incidents

The three serious incidents that occurred during the reporting period include:

1. A rock truck operator started the vehicle while the fuel and lube attendant was still positioned under the truck. This was a near miss as there were no injuries.
2. A worker wearing their personal protective equipment was chipping shotcrete at the entrance to diversion Tunnel No. 1 when a metal hook weighing between 15 and 20 pounds disengaged from one of the steel sets approximately five to six feet above and struck the worker's head and shoulder. The worker was assessed by a medical professional and returned to work with no injuries.
3. A worker tripped over a wooden plank while they were walking backwards and sustained fractures to major bones.

All Injury Incidents

The 28 injury incidents that occurred during this reporting period include one lost time injury and 27 medical attention injuries:

Lost Time injury

1. A worker tripped over a wooden plank while they were walking backwards and sustained fractures to major bones.

Medical Attention requiring Treatment

1. A worker inhaled fire retardant fumes in an enclosed space while extinguishing a fire in the manifold of the rock truck. Worker was seen by a first aid attendant and a medical professional and returned to work.
2. A worker pinched their finger causing a laceration, while adjusting scaffolding.
3. A worker went to retrieve a tool underneath the horizontal shaft impactor when they slipped on some loose gravel and fell forward hitting their left shoulder against a steel beam. Worker was seen by a medical professional.

4. A worker lost their footing, slipped, and strained their back while unloading the vacuum hoses from the back of a light duty vehicle.
5. A worker stepped into fresh concrete during a mud slab pour, causing it to overflow the workers boots and resulting in concrete burns to both legs. Components of concrete are caustic, which can cause a chemical burn to organic, living tissue, such as skin and muscle.
6. A worker felt discomfort in both eyes after welding work.
7. A worker was adjusting a hydraulic jack when a space plate dislodged and caused a laceration in their upper lip.
8. A worker lost their footing, fell forward and received a laceration in their hand.
9. A worker stepped on an unmarked pin flag and strained their hip and lower back.
10. A worker slipped on uneven ground and strained their lower back.
11. A worker stepped on a power cable and strained their knee.
12. A worker stepped on a rock which caused their ankle to roll over.
13. A worker felt discomfort in both eyes after grinding work.
14. A worker stepped into a hole which caused their ankle to roll over.
15. A worker strained their shoulder while lifting a cutlery holder.
16. A worker received concrete burns while raking concrete. Components of concrete are caustic, which can cause a chemical burn to organic, living tissue, such as skin and muscle.
17. A worker pinched their finger causing a laceration, while working on formwork.
18. A worker stepped backwards on a rebar mat and their foot went through the mat; worker fell onto the vertical form savers causing a laceration on their back.
19. A worker sustained a laceration to their lip and earlobe while installing stayform.

20. A worker installing bracing disturbed some metal debris which caused discomfort in their eye.
21. A worker drilled through formwork and punctured another worker's hand.
22. A worker cut their hand on the inner perimeter flange of an electrical panel.
23. A worker caught their finger between the ball and hitch of their equipment, causing a laceration.
24. A worker pinched their finger between two plates which caused a laceration.
25. A worker stumbled on the steps of a crew bus and their arm got stuck between the handrail and bulkhead which caused a shoulder injury.
26. A worker injured their knee while using a pry bar.
27. A worker climbing through rebar had a tie wire poke the worker.

Safety Performance Frequency Metrics

To assess safety performance over time, the Project considers key safety metrics in context of the total amount of hours worked (frequency), correcting for the volume of work. Table 4 summarizes the key safety metrics for this reporting period.

Table 4 Summary of Safety Performance Frequency Metrics

	Fiscal 2019 (Rolling 12-Month Average)				Fiscal 2020 (Rolling 12-Month Average)			
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Serious Incident Frequency	0.95	0.56	0.44	0.36	0.43	0.39	n/a	n/a
Lost Time Injury Frequency	0.48	0.43	0.40	0.29	0.20	0.16	n/a	n/a
All Injury Frequency	1.67	1.47	1.25	1.01	1.00	1.40	n/a	n/a

Fiscal 2020 Q3 and Q4 will be updated when information is available.

All three key safety frequency metrics have decreased compared to the same quarter last fiscal year. Serious incident frequency for this reporting period is 0.39, a 30 per cent decrease from 0.56 in the same reporting period in fiscal 2019. Lost time

injury frequency is 0.16, down 63 per cent from 0.43 in the same quarter last year. Finally, all-injury frequency is 1.40, down slightly compared to 1.47 the same quarter last year. These results suggest a strong site-wide safety focus by all employers during the height of this construction season.

Non-Serious Incidents

During this reporting period, the Project reported 305 non-serious safety incidents which included ten good catches, 97 near misses and 198 minor injuries that may have required first aid and/or medical treatment. A “near miss” is defined as an incident that could have resulted in an injury, but did not because of effective hazard barriers or the person was out of harm’s way/missed. BC Hydro considers near miss reporting as indicative of a stronger and improving safety culture, and is strongly encouraging all Site C contractors and employees to report near misses.

BC Hydro’s Site C safety team has developed several data analytics tools to provide improved safety dashboard reporting and support more detailed analyses to identify safety trends across the site and by contractor.

Safety Regulatory Inspections and Orders

WorkSafeBC, under the authority of the *Worker’s Compensation Act*, is the primary regulator with jurisdiction over safety for the Project. WorkSafeBC oversees all worker safety (employee and contractor) for the Project, both on the dam site and off the dam site. The Ministry of Energy, Mines and Petroleum Resources has been involved in some aspects of safety for the Project, specifically, West Pine Quarry, Portage Mountain Quarry, and Wuthrich Quarry.

From July through September 2019, WorkSafeBC issued 31 inspection reports and 51 orders. The Ministry of Energy, Mines and Petroleum Resources conducted one regulatory inspection and issued two orders.

WorkSafeBC’s primary focus this reporting period was the tower crane incidents in the right bank cofferdam area, as well as shotcrete falls in the left bank diversion

tunnel and right bank drainage tunnel and areas. These situations are described in more detail as follows:

- During the installation of the final jib section for tower crane no. 3, an incident occurred resulting in a piece of the crane trolley falling to the ground within the limits of the control zone. Following this incident, during installation of the cable on tower crane no. 3, a wire rope grip failed causing the cable to fall to the control zone below. No workers were in the control zone at the time of this incident.

- The left bank diversion tunnel and the right bank drainage tunnel both experienced shotcrete falls. Sections of concrete, 18m x 3m and 10m x 3m, fell from the temporary tunnel linings. No workers were in the vicinity of the tunnels at the time of the incidents.

Special investigations by geotechnical and engineering experts have been completed that reaffirm engineering design of the tunnels' remains safe for the rock conditions. As a precautionary measure to ensure the safety and confidence of workers, BC Hydro has authorized addition installation of rock pins and bolts in the portals of the diversion tunnels.

Others topics referenced in the WorkSafeBC and Ministry of Energy, Mines and Petroleum Resources inspections and orders included coordination of safety in multi-employer worksites, crew supervisor responsibilities, appropriate use of equipment, using equipment according to the manufacturer's instructions, having signed and sealed design instructions available at the work site, and exposure control plans.

Of the 32 regulatory inspection reports issued this reporting period, 12 resulted in no orders or a 'clean sheet'. As of September 2019, the Project's rolling 12-month 'clean sheet' result was 34 per cent which is lower than overall BC Hydro and WorkSafeBC industry averages. To more fully assess regulatory compliance

performance, the Project monitors an additional metric – average number of orders per regulatory inspection – which helps account for the higher volume of regulatory inspections expected at a large construction project like this Project. The average number of orders per regulatory inspection this reporting period is 1.7, up from 1.6 in the same period in fiscal 2019.

Refer to Appendix B, Table B-1 for the details of the safety regulatory inspections and orders that occurred during the reporting period.

1.4 First Nations Consultation

Pursuant to the Environmental Assessment Certificate and Federal Decision Statement, BC Hydro is required to consult with 13 Indigenous groups with respect to the construction stage of the Project. This consultation includes provision of information on construction activities, support for the permit review process, and review and implementation of mitigation, monitoring and management plans, and permit conditions.

Accommodation offers were originally extended to ten First Nations communities. Six agreements have been fully executed and are in various stages of implementation. In February 2019, the Province of British Columbia, BC Hydro, West Moberly First Nations and Prophet River First Nation agreed to enter into confidential discussions to seek alternatives to litigation related to the Site C Project. West Moberly First Nations withdrew from the discussions in August 2019 and filed an amended Notice of Civil Claim in September 2019. Discussions with Prophet River First Nation remain open. To date, Impact Benefits Agreements with Doig River First Nation, Halfway River First Nation, Saulteau First Nation and McLeod Lake Indian Band, and a Project Agreement with Dene Tha' First Nation have been publicly announced, while a Project Agreement with Duncan's First Nation has also been reached.

Consultation and engagement with Indigenous groups is ongoing through the Cultural and Heritage Resources Committee, Environment Forum and Permitting Forum. Engagement through these forums and directly with Indigenous groups to prepare them for river diversion and reservoir inundation is ongoing and includes numerous boat, highway and site tours.

1.5 Litigation

A number of legal challenges of the Project have been filed by First Nations and other interests. In all cases where the courts have issued rulings, the legal challenges have been dismissed.

The treaty infringement claims filed by West Moberly First Nations and Prophet River First Nation in January 2018 remains active. West Moberly First Nations had concurrently filed an injunction application in January 2018 to stop construction of the Project, but the injunction was denied by the B.C Supreme Court. The trial of the treaty infringement claims is expected to occur sometime in 2022.

In February 2019, the Province of British Columbia, BC Hydro, West Moberly First Nations and Prophet River First Nation agreed to enter into confidential discussions to seek alternatives to litigation related to Site C. West Moberly First Nations withdrew from the discussions in August 2019 and filed an amended Notice of Civil Claim in September 2019. Discussions with Prophet River First Nation remain open.

The details of all open proceedings as of September 30, 2019 are summarized in Table 5 below. Other than the treaty infringement claims, the litigation listed in Table 5 are either inactive, meaning no steps have been taken in litigation that require a response from BC Hydro, or do not present a material financial risk to BC Hydro.

Table 5 Litigation Status Summary

Description		Date
B.C. Supreme Court: Treaty Infringement Claims		
West Moberly First Nations	Civil claim filed Injunction application filed Injunction hearing date Injunction denied (no appeal filed) Amended civil claim filed	January 15, 2018 January 31, 2018 July 23 to August 3, 2018 and September 4 to 7, 2018 October 24, 2018 September 25, 2019
Prophet River First Nation	Civil claim filed	January 15, 2018
B.C. Supreme Court Civil Claims		
Building Trades v. BC Hydro	Civil claim filed Response to claim filed	March 2, 2015 April 10, 2015
Aggregate Mining Process LLC and Reynolds Shipping LLC	Civil claim filed Response to claim filed Order granting security for BC Hydro's costs Application to dismiss filed after plaintiff failed to post security as ordered (later adjourned after plaintiff belatedly posted security)	November 16, 2018 December 6, 2018 June 17, 2019 July 31, 2019
Office of the Information and Privacy Commissioner (OIPC)		
Applicant requested review of Freedom of Information response	Request for review filed OIPC Order issued Application for judicial review of Order filed Hearing date	August 17, 2017 December 11, 2018 January 18, 2019 September 17, 2019 and October 4, 2019

1.6 Permits and Government Agency Approvals

1.6.1 Background

Before the Site C Project could start construction, an extensive environmental assessment process was undertaken that resulted in the issuance of the Provincial Environmental Assessment Certificate and the Federal Decision Statement in support of the Project. In addition, the Project is required to apply for multiple provincial permits, water licences, leaves to commence construction and federal authorizations. Timing of the application for these permits and authorizations is

staged and aligned with the construction schedule, availability of detailed design information, and by project component. Permitting approaches and requirements are also determined through regular meetings with regulatory agencies, and are subject to change throughout the Project. As at September 30, 2019, BC Hydro estimates that approximately 444 permits will be required throughout the life of the Project. Of these permits, 311 have been received and are actively being managed.

Multiple conditions are attached to each permit or authorization, which cover subjects such as air quality, water quality, fish and aquatics, wildlife, heritage, health and safety, construction environmental management and First Nations consultation. Each of the conditions must be implemented, audited and tracked to prove compliance or identify issues for follow-up with corrective actions. BC Hydro has developed a comprehensive Construction Environmental Management Plan which outlines how we will comply with the Project Environmental Assessment Certificate, Federal Decision Statement, and provincial and federal permits and authorizations. As of September 30, 2019, all required conditions and submissions have been met in accordance with the schedule and requirements of the conditions.

1.6.2 Federal Authorizations

Federal authorizations are required under the *Fisheries Act* (Fisheries and Oceans Canada) and the *Navigation Protection Act* (Transport Canada). All major federal authorizations for construction and operation of the Site C dam and reservoir were received in July 2016. At this time, no further *Fisheries Act* authorizations are anticipated. Additional *Navigation Protection Act* approvals for discrete works in the reservoir (e.g., shoreline works, debris booms and Highway 29 bridges) are anticipated to be issued at the regional level. As of September 30, 2019, a total of 44 federal approvals have been received and are actively being managed. Eight approvals are pending, and 17 future approvals are planned.

1.6.3 Provincial Permits

Site C requires provincial permits primarily under the *Land Act, Water Sustainability Act, Forest Act, Wildlife Act, Heritage Conservation Act,* and *Mines Act*. These permits include investigative permits, licences to occupy land, water licence approvals, leaves to commence construction and leaves to construct, and licences to cut vegetation, among others. Permit applications are sequenced with the overall schedule of the Project to ensure the most current and factual information is included in the submissions.

Approximately 375 provincial permits and approvals will be required throughout the life of the Project. As of September 30, 2019, 267 permits have been obtained and are actively being managed. These include permits for the dam site area (site preparation and clearing, as well as works for the main civil works and generating station and spillways, such as construction of cofferdams, excavation and construction of roller-compacted concrete buttress), worker accommodation (land tenure and water withdrawal), Highway 29 geotechnical investigations, transmission line clearing and construction of access roads, and lower/eastern reservoir and Moberly River clearing. Future provincial permits are planned for the construction of the Highway 29 realignment, Hudson’s Hope Berm, and middle and western reservoir clearing and filling. All future permits are anticipated to be issued in accordance with the Project construction schedule.

The majority of the provincial permits are administered by the Ministry of Forests, Lands, Natural Resource Operations and Rural Development and the Ministry of Energy, Mines and Petroleum Resources. In addition, BC Hydro has developed a coordinated First Nations consultation process with the Ministry of Forest, Lands, Natural Resource Operations and Rural Development to assist with the government permit workload. This coordinated consultation process was implemented in January 2018.

1.6.4 Environmental Assessment Certificate

Compliance with the Project conditions in the Environmental Assessment Certificate is regularly monitored, and evidence is collected by various federal and provincial regulatory agencies, the Independent Environmental Monitor, BC Hydro and contractors.

To date, the Environmental Assessment Office has issued four amendments to the Project's Environmental Assessment Certificate. These are:

- Amendment No. 1 – Changes to Environmental Assessment Certificate Schedule A, project description regarding design changes to the generating station and spillways (issued June 22, 2018);
- Amendment No. 2 – Changes to Environmental Assessment Certificate Schedule A, project description regarding design changes to the Halfway River Bridge within the Halfway River Highway 29 realignment (issued October 26, 2018);
- Amendment No. 3 – Changes to Environmental Assessment Certificate Schedule A, project description regarding the use of West Pine Quarry, in addition to the already approved Portage Mountain Quarry, as a source of quarry and excavated material for the construction of the Highway 29 realignment, Hudson's Hope shoreline protection, and areas along the reservoir requiring protection during reservoir filling (issued November 14, 2018); and
- Amendment No. 4 – Changes to Environmental Assessment Certificate Schedule B, Condition Nos. 4 and 13 to permit the selective use of mechanical clearing in riparian zones during reservoir clearing when it is unsafe to undertake manual clearing (issued February 12, 2019).

All amendments and amendment requests are posted on the Environmental Assessment Office website at https://projects.eao.gov.bc.ca/p/site-c-clean-energy/docs.

As with any large construction project, refinements to the design are expected. There are no material impacts to the cost of the Project as a result of the proposed amendment requests.

1.6.5 Permitting Improvement

In order to efficiently and effectively manage the large volume of permits required for the Project, BC Hydro continues to engage with regulators, First Nations communities and contractors to share information, seek feedback, and identify process improvements. Process improvements implemented include the following:

- BC Hydro continues to facilitate meetings with the Ministry of Forests, Lands, Natural Resource Operations and Rural Development, the Comptroller of Water Rights, the Department of Fisheries and Oceans and contractors to ensure permit applications are coordinated, timely and sufficient;
- Regular permitting forums are being held with Indigenous groups to share information on upcoming permit applications and to seek feedback before applications are submitted to regulators;
- BC Hydro has implemented a coordinated Indigenous groups consultation process with the Ministry of Forest, Lands, Natural Resource Operations and Rural Development to assist with the government permit workload; and
- Permitting Forum No. 13 was held on July 17, 2019, covering eight permits for works related to Highway 29 realignment at Lynx Creek East, middle reservoir clearing, Portage Mountain quarry, and transmission line stringing. Permitting Forum No. 14 was held on September 11, 2019, covering six permits and authorizations for debris boom facilities on the Moberly and Peace Rivers, groundwater use for Highway 29 construction, and construction of the realignment of Highway 29 at Cache Creek.

1.7 Environment

1.7.1 Mitigation, Monitoring and Management Plans

The Environmental Assessment Certificate and Federal Decision Statement conditions require the development of draft and final environmental management, mitigation and monitoring plans, as well as the submission of annual reports on some of these plans.

Focus remains on minimizing sediment and erosion across the dam site, care of water, hydrocarbon management, invasive weed control and wildlife identification and avoidance.

On the left bank, construction of the sediment control features located at L3 (a gulley on the left bank which contains a stream that flows for a portion of the year) is substantially complete and the control features effectively conveyed water during the spring rain events. Care of water systems are substantially complete within the till conveyor area and include directional ditching, sediment control devices and ponds.

On the right bank, management of water that has contacted naturally occurring acidic rock has been substantially implemented. Works are substantially complete for the right bank downstream side channel fish enhancement project. This project has created shallow, still backwaters that provide valuable habitat for fish within the Peace River.

Wildlife mitigation programs are progressing with further installations of summer bat boxes, fisher maternity boxes, eagle nest platforms and snake dens necessary in advance of reservoir clearing. Wildlife sweeps of the area for any potential project interactions continue regularly and appropriate mitigation or avoidance practices established; such as snake fencing and warning signs, no work zones, and limiting hours or days of work.

Wildlife and fisheries studies and monitoring continue to collect baseline usage data for comparison post dam construction.

Air quality, water, noise and light monitoring continue at various locations throughout the project with only localized or sporadic elevated readings noted and appropriate mitigation taken.

1.7.2 Environmental Compliance Inspections and Enforcement

During the reporting period, the Site C Project was inspected by provincial regulators from the Canadian Environmental Assessment Agency and the B.C. Environmental Assessment Office who performed more than 120 hours of inspections. No warning letters or orders were issued as a result of these inspections.

Throughout the course of the on-site inspections, environmental compliance was focused on the following areas:

- Spill prevention and response plans.
- Waste management plans in regards to bear-proofing.
- Enhancing erosion and sediment control measures along the dam site area and Portage Mountain Quarry.

BC Hydro had 13,480 environmental inspection results over the reporting period, with a compliant or partial compliant result of 99 per cent across all contractors and works areas.

During the reporting period, the independent environmental monitor continued weekly inspections with a focus on hydrocarbon management, waste disposal, erosion and sediment control, dust management, and wildlife management. Overall, the weekly inspections indicated general environmental compliance.

Site C Project staff met bi-weekly with provincial regulators to ensure ongoing focus and attention to the areas of most importance and concern for the regulators, and to proactively address any environmental or regulatory issues that could arise.

Additionally, the Site C Project has engaged both an Independent Environmental Monitor and an Independent Engineer that report directly to provincial regulators. The Independent Environmental Monitor provides weekly reports that have demonstrated substantial compliance across the Project while continuing to identify areas of focus for sediment and erosion control, water management, and spill prevention. The Independent Engineer works directly with site staff to proactively identify design issues that may impact the environment and develop mitigation plans to avoid or minimize impacts.

1.7.3 Heritage

In accordance with Environmental Assessment Certificate and Federal Decision Statement conditions, the Site C Heritage Resources Management Plan addresses the measures that will be used to mitigate the adverse effects of the Project on heritage resources.

The 2019 heritage field program is focused on field work that will meet regulatory requirements for pre-construction archaeological impact assessments, and systematic data recovery at selected archaeological sites. This year's field season was initiated in May 2019, and is anticipated to be completed in October 2019.

During the reporting period, BC Hydro's heritage specialists submitted one archaeological interim report to the BC Archaeology Branch and Indigenous Groups per the *Heritage Conservation Act* permit terms and conditions.

Heritage reviews of contract documents, contractor environmental plans and construction readiness plans were performed on an ongoing basis to ensure compliance. Additionally, in this reporting period, three new *Heritage Conservation*

Act permits and two amendments were received, and three heritage chance finds were reported.

1.7.4 Agricultural Mitigation and Compensation Plan Framework

As part of the Site C Agricultural Mitigation and Compensation Plan, BC Hydro has established a $20 million BC Hydro Peace Agricultural Compensation Fund to support agricultural production and related economic activity in the Peace Region. The fund is governed by a regional decision-making board made up of representatives from five regional agricultural organizations, the Peace River Regional District, three agricultural producer members-at-large and one Peace River Valley agricultural producer. Northern Development Initiative Trust was selected as the fund administrator and is managing the investment account which had a balance of $22.2 million as of August 31, 2019. The first grant intake of $250,000 for the fund was held from August 1 to September 30, 2019. The Board will review applications in November 2019.

1.8 Labour, Employment and Training Initiatives and Building Capacity Initiatives

1.8.1 Labour

To date, unions that have participated in the construction of Site C are listed in Table 6 below.

Table 6 Participating Unions

Union
Construction Maintenance and Allied Workers (**CMAW**)
Christian Labour Association of Canada (**CLAC**), local 68
Canada West Construction Union (**CWU**)
Construction and Specialized workers Union (**CSWU**), local 1611
International Union of Operating Engineers (**IUOE**), local 115
Ironworkers, local 97
International Brotherhood of Electrical Workers (**IBEW**)
MoveUP, local 378
Pile Drivers 2402
The Boilermakers, lodge 359
The United Association of Journeymen & Apprentices of the Plumbing & Pipefitting Industry of the U.S. & Canada, local 170
Teamsters, local 213

In addition, ten unions affiliated with the BC Building Trades will be working on the installation of the turbines and generators.

The generating station and spillways contractor has signed a labour agreement for the generating station and spillways civil works with the IUOE Local 115, the CSWU Local 1611 and CMAW.

Further, the substation contractor has negotiated labour agreements with the IBEW for the electrical work on the Site C substation, and their civil subcontractor has been certified to the CMAW. The transmission contractor is performing transmission line work on the Project and is signatory to a labour agreement with the IBEW. The

Teamsters have collective agreements with both Saulteau Securiguard and ATCO Two Rivers Lodge Group.

1.8.2 Employment

Contractors submit monthly workforce data electronically to BC Hydro. Table 7 presents the monthly number of construction contractors, non-construction contractors, engineers, and project team workers for this period. As with any construction project, the number of workers – and the proportion from any particular location – will vary month-to-month and also reflects the seasonal nature of construction work.

Table 7 Site C Jobs Snapshot Reporting Period – July 2019 to September 2019

Month	Number of B.C. Primary Residents[9]	Number of Total Workers[10]
July 2019	3,596	4,797
August 2019	3,710	4,870
September 2019	3,634	4,790

In September 2019, 76 per cent (3,634 workers) of the workforce was made up of residents of British Columbia, while 21 per cent (869 workers) of the workforce lived in the Peace River Regional District. The on site contractor workforce number also includes 13 per cent women (517 workers) and 185 workers who are working for various contractors as apprentice carpenters, welders, electricians, millwrights, ironworkers, mechanics, boilermakers and heavy equipment operators.

[9] Employment numbers provided by Site C contractors and consultants are subject to revision. Data not received by the Project's deadlines may not be included in the above numbers. Employment numbers are direct only and do not capture indirect or induced employment.

[10] Total workers include:

- Construction and non-construction contractors performing work on Site C dam site, transmission corridor, reservoir clearing area, public roadwork, worker accommodation and services;
- Engineers and project team that is comprised of both on-site and off-site workers; and
- The Project team, which includes, BC Hydro construction management and other offsite Site C project staff. An estimate is provided where possible if primary residence is not given.

1.8.3 Training and Capacity Building Initiatives

In September 2017, the Contractors Labour Committee agreed to establish an Indigenous labour subcommittee. The purpose of the subcommittee is to support Indigenous training, labour and employment on Site C through communication, consultation, coordination and cooperation among contractors on the Project.

The committee meets quarterly, or on an as-needed basis. All major Site C construction contractors currently attend this meeting.

The committee has developed a number of initiatives, such as:

- Established a protocol for distribution of Indigenous candidate resumes;
- Developed and implemented the Indigenous Employment and Information Day;
- Participated in the development of the BC Hydro and Northern Lights College pre-carpentry skills pilot program on the Site C Project;
- Reviewed and assisted contractors in contract reporting requirements;
- Discussed communication of site-wide policies;
- Shared regional cultural events with project contractors;
- Shared BC Hydro's Indigenous Employment and Business Development employment and training initiatives;
- Reviewed contractors' best practices;
- Shared success stories to assist in generating opportunities; and
- Reviewed project status and upcoming labour requirements for contractors and how to meet labour demands.

BC Hydro has included apprentice targets in the generating station and spillways civil works contract, the transmission lines and the substation contracts, and the Highway 29 work to be procured by BC Hydro.

As of September 30, 2019, the generating station and spillways contractor employed approximately 183 journeyperson carpenters on the generating station and spillways civil works contract and 44 apprentices. This amounts to 24 per cent of all these workers being apprentices. Further, 15 per cent of this workforce self-identify themselves as Indigenous. Of the self-identified Indigenous carpenters, nearly 44 per cent are apprentices.

In August 2013, Northern Lights College Foundation started distributing the BC Hydro Trades and Skilled Training Bursary Awards. As of September 30, 2019, a total of 259 students had received bursaries, including 112 Indigenous students who have benefitted from the bursary in programs such as electrical, welding, millwright, cooking, social work, and many others. The bursary ended in October 2018, with remaining amounts still available. However, BC Hydro has worked with the Northern Lights College Foundation to extend the bursary and reserve the remaining bursary amounts for trades programs directly needed for project work. Part of this agreement was to set aside funds for the BC Hydro and Northern Lights College pre-carpentry skills pilot program for Site C. BC Hydro is working with Northern Lights College Foundation to extend this program until December 2020.

BC Hydro continues to work with local employment agencies to ensure that as job opportunities become available, they are posted on the WorkBC website as well as on the Fort St. John Employment Connections website. With the announcement of the Louisiana Pacific Peace Valley Oriented Strand Board (**OSB**) mill permanent curtailment, BC Hydro is working with Ministry of Forests, Lands, Natural Resource Operations and Rural Development and their worker transition initiative to assist the local community in responding to this closure. On July 30, 2019, WorkBC hosted a job fair at the Peace Valley Oriented Strand Board mill to support the impacted workers. There were approximately 110 employees who attended the job fair. BC Hydro and six Site C contractors attended the job fair. Site C's main civil works contractor hired approximately 30 people at the job fair. The generating station and

spillways contractor has hired approximately six employees, including three Indigenous workers. BC Hydro has also hired one employee from the mill since the announcement of the curtailment. BC Hydro's contractors continue to work with the local community to access available skilled and qualified workers impacted by the downturn in the forestry sector, including participating in local job fairs. BC Hydro is planning an employment and training information session on site for local employment agencies and training institution representatives to meet with Site C contractors. This session will be an opportunity for these organizations to connect with Site C contractors on their current and future employment and training needs.

In September 2019, Site C contractors reported 869 workers on-site from the Peace River Regional District.

Site C contractors have noted that certain trades will be in high demand over the next two to three years during peak project construction periods. As such, major on-site contractors are exploring opportunities for apprentice and other training to take place on-site. BC Hydro worked with Northern Lights College and Site C contractors to develop the BC Hydro and Northern Lights College on-site pre-carpentry skills pilot program. This program was successfully delivered in April 2019 and BC Hydro and Northern Lights College are currently planning on delivering the program again in spring 2020. The intent of this program is to provide an overview of the skills required for the carpentry trade (essential skills training), general employment knowledge (employment readiness), overview of job requirements for carpenters, knowledge of B.C.'s apprenticeship system, and Site C Project-specific knowledge.

This is a 14-day program designed for local new workers or workers new to the trade with preference given to local Indigenous candidates. The course was partly run at the worker accommodation camp and the 14 days were intended to reflect a typical Site C schedule. Seven Indigenous students from this program were hired for project

work by contractors on the Project, with one student entering an apprentice program to become journey-person carpenter.

The main civil works contractor has reported apprentices in the heavy equipment operator and labourer trades through a new training program in partnership with Christian Labour Association of Canada (**CLAC**) and the Industry Training Authority.

BC Hydro facilitated the fourth Site C Project Indigenous Employment and Training Information Session in Fort St. John in July 2019. The purpose of these meetings is to assist in building relationships between employment and training professionals from the Indigenous communities and key Site C contractors.

1.9 Community Engagement and Communication

1.9.1 Local Government Liaison

There are a number of Environmental Assessment Certificate conditions that are relevant to local communities in the vicinity of the Project. BC Hydro is implementing some of these conditions through community agreements offered to five local governments. Through these discussions BC Hydro has, in some instances, agreed to additional measures to address concerns about local community impacts from construction and operation of the Project.

BC Hydro has concluded four community agreements with respect to the Project: the District of Taylor (2013), the District of Chetwynd (2013), the City of Fort St. John (2016) and the District of Hudson’s Hope (2017). BC Hydro and the City of Fort St. John established a Community Agreement Monitoring Committee to jointly oversee implementation of the community agreement. BC Hydro continues to work cooperatively with the City of Fort St. John, District of Hudson’s Hope, District of Taylor and the District of Chetwynd to ensure implementation of their respective agreements.

During this reporting period, the Regional Community Liaison Committee, which is comprised of local elected officials and local First Nations communities, met once (September 18, 2019). Eight local governments and four local First Nations communities (McLeod Lake, Doig River, Saulteau and Blueberry River) as well as the two MLAs for Peace River North and Peace River South, are invited to participate as committee members. Representatives from the Project's major contractors may also attend the meetings as invited guests.

1.9.2 Business Liaison and Outreach

BC Hydro continued to implement its business construction liaison and outreach by attending local chamber of commerce meetings in Fort St. John and Chetwynd. During this reporting period, the project team sent five notifications to the Site C business directory.

1.9.2.1 *Community Relations and Construction Communications*

BC Hydro continued to implement its construction communications program throughout the reporting period. The program includes updating and maintaining the Project website (www.sitecproject.com) with current information, photos and videos of construction activities, and providing information to local and regional stakeholders as required.

Between July 1, 2019 and September 30, 2019, the Site C community relations team hosted 23 external site tours showing key stakeholders, local government officials and Indigenous groups how the Project is progressing.

Construction Bulletins

There were seven bi-weekly construction bulletins and one quarterly construction notification letter issued throughout this reporting period. These bulletins are posted on the Project website and sent by email to the web-subscriber list.

Public Enquiries

In total, BC Hydro received 482 public enquiries between July 1, 2019 and September 30, 2019, compared to 580 in the previous quarter. The majority of these enquiries continued to reference business and job opportunities, with limited construction impact concerns from local residents. Table 8 below shows the breakdown of some of the most common enquiry types.

In total, BC Hydro has received more than 10,689 enquiries since August 2015.

Table 8 Public Enquiries Breakdown

Enquiry Type[11]	July 2019	August 2019	September 2019
Job Opportunities	102	112	98
Business Opportunities	27	31	26
General Information	10	14	11
Construction Impacts[12]	5	5	4
Other[13]	7	15	15
Total	**151**	**177**	**154**

1.9.2.2 Communications Activities

Based on a search using the media database Infomart, there were 100 stories referencing the Site C Project in B.C. news media from July 1, 2019 to September 30, 2019, compared to 98 media stories in the previous quarter.

1.9.3 Housing Plan and Housing Monitoring and Follow-Up Program

BC Hydro and BC Housing Management Commission (**BC Housing**) signed a contribution agreement on July 19, 2016 related to the development, construction and operation of a building in Fort St. John comprised of 50 residential rental units. The agreement structured the financial contribution from BC Hydro to enable viable

[11] This table is a sample of enquiry types and does not include all enquiry types received.
[12] The nature of the construction impact inquiries is primarily air quality, noise and traffic conditions.
[13] "Other" accounts for enquiries related to a variety of other topics, such as recreation access near construction sites, property owner correspondence, or requests for site tours.

financial operation of the affordable housing units by BC Housing in the near-term and viable financial operation of all 50 units of affordable housing in the longer term.

BC Hydro completed a head lease with BC Housing in May 2019 for 20 units in the building. Any suites not utilized by BC Hydro are available to BC Housing to offer for public rental. The grand opening of the building is expected to be held jointly by BC Housing, BC Hydro and the City of Fort St. John in November 2019.

1.9.4 Labour and Training Plan

In accordance with an Environmental Assessment Certificate condition, a Labour and Training Plan was developed and submitted to the Environmental Assessment Office on June 5, 2015. This plan, as well as Environmental Assessment Certificate Condition 45, includes reporting requirements to support educational institutions in planning their training programs to support potential workers in obtaining project jobs in the future. This report was issued to the appropriate training institutions in the northeast region of B.C. in July 2016, July 2017, July 2018 and July 2019.

1.9.5 Human Health

1.9.5.1 Health Care Services Plan and Emergency Service Plan

The Project health clinic is contracted by BC Hydro with Halfway River International SOS Medical Ltd., a partnership between Halfway River First Nation and International SOS. The clinic continues to operate in its permanent location within the Two Rivers Lodge, and based on camp occupancy, was staffed 24/7 during this period with a nurse practitioner and advanced care paramedics. BC Hydro and the clinic operator continue to liaise with the local health care community.

The clinic provides workers with access to primary and preventative health care and work related injury evaluation and treatment services and is currently open seven days a week, 24 hours a day. Since opening the health clinic, there have been a total of 11,853 patient interactions. During the reporting period, there were

1,229 patient interactions, of which 248 were occupational and 981 were non-occupational. Several preventive health themes were promoted to workers including: hepatitis, overdose awareness and foot health.

1.9.6 Property Acquisitions

During this quarter, BC Hydro continued to access private properties to inform design and mitigation options for the Project. BC Hydro also completed the acquisition of rights over three private properties impacted by Hudson's Hope shoreline protection project. An additional four property rights acquisitions have been negotiated and are expected to be completed next quarter. All property acquisition plans are now complete and land surveys are underway at Cache Creek and Halfway River.

1.10 Key Procurement and Contract Developments

1.10.1 Key Procurement

The procurement approach was approved by the board of directors in June 2012 for the construction of the Project. The procurement approach defined the scope of the major contracts and their delivery models, as summarized in Table 9 below.

Table 9 Major Project Contracts and Delivery Models

Component	Contract	Procurement Model	Anticipated Timing
Worker Accommodation	Worker accommodation and site services contract	Design-Build-Finance-Operate-Maintain	Completed
Earthworks	Site preparation contracts	Predominantly Design-Bid-Build	Completed
	Main Civil Works contract	Design-Bid-Build	Completed
Reservoir/ Transmission Clearing	Multiple reservoir clearing contracts to be awarded over seven to eight years	Design-Bid-Build	Seven contracts completed (2 transmission line, 5 reservoir) 5-9 contract packages remain to be procured; final number will depend on the scope of each package.
Generating Station and Spillways	Turbines and Generators contract	Design-Build	Completed
	Generating Station and Spillways Civil Works contract	Design-Bid-Build	Completed
	Hydromechanical Equipment contract	Supply Contract	Completed
	Balance of Plant Equipment Supply	Supply Contracts	Nine contracts completed (generator terminal equipment, protection and control panels, generator circuit breakers, AC station service equipment, DC station service equipment, large valves, motor-operated disconnect switches, compressed air receivers, generator step-up transformers) and one more contract to be awarded in November 2019
	Balance of Plant Contract	Design-Build/ Design-Bid-Build	Collaborative meetings with the three shortlisted proponents were held on July 17-19, 2019. Second draft contract was sent to shortlisted proponents in September 2019.
Electrical and Transmission Infrastructure	Transmission Lines Construction contract	Design-Bid-Build	Completed
	Site C substation contract	Design-Bid-Build	Completed

Component	Contract	Procurement Model	Anticipated Timing
	Site C substation contract	Design-Bid-Build	Completed
	Peace Canyon Substation upgrade contract	Design-Build	Completed
Highway 29 Realignment	Cache Creek West 2018 and 2020 scope of work	Design-bid-Build	Completed
	Halfway River Bridge, Grade and Paving	Design-Bid-Build	October 2019
	Cache Creek East Embankment	Design-Bid-Build	October 2019
	Design-Bid-Build in coordination with B.C. Ministry of Transportation and Infrastructure with anticipated contracts being awarded from 2019 to 2022		

1.10.2 Major Construction Contracts Exceeding $50 Million

Since inception of the Project, seven major construction contracts have been awarded that exceed $50 million in value, as shown in Table 10~~Table 10~~.

All of the construction contracts have been procured and awarded ~~through the competitive public procurement process within the budget established for each contract~~ as per BC Hydro procurement policies.

Table 10 Major Contracts Exceeding $50 Million

Work Package	Contract Value[14] ($ million)	Contract Execution Date
Site Preparation: North (Left) Bank	60	July 2015
Worker Accommodation	489	September 2015
Main Civil Works	2,150	December 2015
Turbines and Generators	464	March 2016
[redacted] ~~-~~Transmission ~~&~~ and Clearing ~~Blanket~~	73	October 2016
Generating Station and Spillways Civil Works	1,633	March 2018
Hydromechanical Equipment	69	April 2018
Transmission Line Construction	114	May 2018

[14] Contract value reflects the current value including executed change orders to the end of the reporting period.

1.10.3 Contracts Exceeding $10 Million

For open contracts procured and awarded in excess of $10 million, refer to Appendix C.

1.10.4 Contract Management

1.10.4.1 Material Changes to the Major Contracts

The main civil works contract is a unit price contract and as such variations in quantities and design are expected over the term of the contract. Since contract award in December 2015, the main civil works contract value has increased by $402 million to reflect approved changes to date. To September 30, 2019, the changes have been managed within project contingency.

1.10.4.2 Contingency and Project Reserve Draws

As a result of the change in timing for river diversion and other factors including an increase in direct and indirect costs, BC Hydro revised the Project budget to $10.7 billion, which was approved by the provincial Treasury Board in January 2018 and the BC Hydro board of directors in February 2018. This revised budget includes an $858.1 million contingency allowance and a $708.0 million reserve that is subject to Treasury Board's discretion.

The Project has a risk management plan that establishes the risk management framework for the Project and describes specific processes, procedures, organization, tools and systems that guide and support effective risk management. Utilizing this plan, risks are identified, assessed and managed on a continuous basis. The output of the risk management process is documented in the risk register. The risk register is utilized as an input into project forecasts and cost risk analysis is conducted periodically to inform contingency requirements. Subsequent to the reporting period, work commenced on the next cost risk analysis and that information will be used to inform the next quarterly progress report.

Refer to Appendix E for more detailed information regarding contingency and project reserve draws.

1.11 Plans During Next Six Months

Table 11 below presents the key milestones for activities planned during the next six months.

Table 11 Key Milestones for Activities Planned during the Next Six Months (October 2019 to March 2020)

Milestone	Performance Measurement Baseline	Plan Date (Control Date[15])	Forecast[16]	Status (Measured by Month)
Generating Station and Spillways				
Main service bay and building exterior complete	October 2019	September 2019	September 2019	Complete
Work area W3 access to generating station and spillways	November 2019	November 2019	November 2019	On track
Powerhouse bridge cranes commissioned and ready for travel load tests	December 2019	December 2019	December 2019	On track
Highways				
Halfway River grading, paving and bridge contract award complete	July 2019	October 2019	October 2019	On track
Main Civil Works				
Cast-in-place concrete & roller-compacted concrete of spillway (apron boundary around roller-compacted-concrete walls) complete	October 2019	October 2019	October 2019	On track
Diversion tunnel inlet structure complete	January 2020	January 2020	January 2020	On track
Diversion tunnel outlet structure complete	February 2020	February 2020	January 2020	On track
Diversion Tunnel Nos. 1 and no. 2 construction complete	November 2019	November 2019	February 2020[17]	At risk

[15] Control date reflects plan, adjusted for approved changes to milestone dates.

[16] As of September 30, 2019.

[17] In response to some delays with the excavation of the diversion tunnels, the construction activities required to complete the diversion tunnels have been re-sequenced, by advancing some activities and delaying others, to optimize the schedule. This optimized schedule still achieves the key schedule milestones associated with river diversion in fall 2020.

Milestone	Performance Measurement Baseline	Plan Date (Control Date[15])	Forecast[16]	Status (Measured by Month)
(M3.1) Diversion works stage 2 works complete, excluding portions to be completed in M3.2	March 2020	March 2020	March 2020	On track
Diversion inlet portal & channel Complete	March 2020	March 2020	March 2020	On track
Spillway roller-compacted concrete buttress (excluding drainage gallery) and install access to gallery W4 (access to generating station and spillways) complete	May 2020	May 2020	October 2019	Complete
Reservoir Clearing				
Reservoir prepared for diversion	March 2020	March 2020	March 2020	On track
Transmission				
Peace Canyon GIS in-service date	October 2019	October 2019	July 2019	Compete

1.12 Impacts on Other BC Hydro Operations

In the reporting period, GM Shrum and Peace Canyon dams were operated as expected during this phase of the Site C construction, with no material impacts on generation or water management relative to plan. BC Hydro continues to plan the operation of Williston Reservoir to reduce the risks to the Project during the Site C river diversion.

1.13 Site Photographs

Refer to Appendix A for Site Construction photographs.

2 Project Schedule

2.1 Project In-Service Dates

As filed with the British Columbia Utilities Commission Inquiry respecting Site C on October 4, 2017, BC Hydro identified that the river diversion milestone will move from 2019 to 2020. This did not impact the overall in-service dates, as shown in Table 12 below.

Table 12 In-Service Dates

Description	Final Investment Decision In-Service	Status
5L5 500 kV Transmission Line	October 2020	On Track
Site C substation	November 2020	On Track
5L6 500 kV transmission line	July 2023	On Track
Unit 1 (first power)	December 2023	On Track
Unit 2	February 2024	On Track
Unit 3	May 2024	On Track
Unit 4	July 2024	On Track
Unit 5	September 2024	On Track
Unit 6	November 2024	On Track

2.2 Project Governance, Costs and Financing, and Risk

2.2.1 Project Governance

In December 2017, the provincial government announced their approval to continue with construction of the Site C project. The approval to proceed included increased external and internal oversight of project performance. Measures to improve project governance implemented this quarter include:

- EY Canada continued to provide independent oversight for the Project including budget oversight, schedule evaluation and risk assessment analysis. BC Hydro and EY Canada are working collaboratively on enhancements to risk analysis and reporting;

- BC Hydro completed a cost risk analysis and schedule risk analysis during the reporting period. During these analyses BC Hydro worked collaboratively with EY Canada and implemented identified enhancements. EY Canada agreed with the results from the analyses;
- An Independent Construction Advisor was retained during the quarter to provide advice and opinions on construction planning by major contractors at the Dam Site; and
- A Technical Advisory Board workshop was held in September 2019 when a variety of technical and other issues were discussed. The two-day workshop took place in Fort St. John.

2.2.2 Project Budget Summary

As a result of the change in timing for river diversion and other factors including an increase in direct and indirect costs, BC Hydro presented a revised cost estimate of $10.7 billion to the board of directors in December 2017.

Table 13 below presents the overall project budget, based on the project budget approved in February 2018, represented in nominal dollars.

Table 13 Project Budget

Description	(Nominal $ million)
Dam, Power Facilities, and Associated Structures	4,548
Offsite Works, Management and Services	1,845
Total Direct Construction Cost	**6,393**
Indirect Costs	1,456
Total Construction and Development Cost	**7,849**
Contingency	858
Interest During Construction	1,285
Project Budget, before Treasury Board Reserve	**9,992**
Treasury Board Reserve	708
Total Project Budget	**10,700**

2.3 Project Expenditure Summary

Table 14 provides a summary of the budget for the *total* Project, the current forecast *total* Project cost and the variance between the two. It also presents the cumulative updated budget amount planned to September 30, 2019 compared to the cumulative actual costs incurred *to* September 30, 2019 and the variance between the two.

Table 14 Total Project Expenditures Budget Compared to Forecast and Life to Date – Budget Compared to Actual Expenditures to September 30, 2019 ($ million Nominal)

	Total Project			Life to Date, to September 30, 2019		
Description	**Budget**	**Forecast**	**Variance**	**Budget**	**Actual Expenditures**	**Variance**
Project	9,992	9,992	0	4,107	4,270	(163)
Treasury Board Reserve	708	708	0	0	0	0
Total Project	**10,700**	**10,700**	**0**	**4,107**	**4,270**	**(163)**

Table 15 below provides a summary of the 2019/20 to 2021/22 Service Plan Project expenditures for Fiscal 2020 to September 30, 2019, the actual Project expenditures for Fiscal 2020 to September 30, 2019 and the related variance.

Table 15 Actual Fiscal 2020 Project Expenditures Compared to 2019/20 to 2021/22 Service Plan ($ million Nominal)

Description	2019/20 to 2021/22 Service Plan September 2019 YTD	Actual Expenditures September 2019 YTD	Variance
Project	811	779	32
Treasury Board Reserve	-	-	-
Total Project	**811**	**779**	**32**

Details of the variances between actual and plan are in Appendix E.

2.4 Internal Project Financing versus External Borrowings to Date

To date, all project funding has been from internal borrowings and there has been no Site C Project-specific debt issued. As part of BC Hydro's debt management strategy, BC Hydro's exposure to variable debt is managed within a board-approved range of 5 per cent to 25 per cent and a target of 15 per cent. In addition, since fiscal 2017, BC Hydro has hedged $10.0 billion of its future forecast long-term debt issuances through the use of derivative contracts to lock in interest rates. As at September 30, 2019, $5.4 billion of hedges remained outstanding to hedge future debt issuances, hedging approximately 75 per cent of BC Hydro's forecast total borrowing requirements out to and including fiscal 2025.

2.5 Material Project Risks

Material project risks are identified and reviewed on an ongoing basis. As the Project progresses through implementation phase, the material project risks will evolve to reflect the current risks facing the Project. The following list of material project risks does not include risks that are subject to confidentiality obligations or solicitor client privilege, or that disclose commercially sensitive information relating to matters that are currently outstanding, including procurements and negotiations that are in progress at the time of this report, the disclosure of which would be harmful to BC Hydro's commercial interests.

Refer to Table 16 below for a list of the material project risks.

Table 16 Material Project Risks

Risk Description	Impact and Response Plan Summary
Risk of river diversion system delay if contractor productivity does not meet plan and/or differing geotechnical conditions	**Impact:** Diversion delay could cause the schedule to slip by a year and increase costs. **Response:** BC Hydro closely monitors the development of design and construction plans, and labour and equipment productivity for critical construction activities (tunnel excavation/linings, inlet/outlet portals, and gates and cofferdam); provision of additional incentives through settlement agreement with contractor.
Risk that BC Hydro's borrowing costs for project are higher than budgeted	**Impact:** Rising interest rates increase the Project's interest costs above the amount budgeted. **Response:** BC Hydro has hedged interest rates on approximately 75 per cent of future debt placements through fiscal 2025 to reduce the potential impact of rising interest rates.
Risk of contractor labour rate increases in excess of budgeted amount	**Impact:** BC Hydro has included provisions in major contracts that allow for labour escalation to a prescribed amount, as well as a cost/savings sharing formula based on general industry rates above or below the prescribed amount. Increased pressure on the labour market would likely drive labour wage rates higher, potentially resulting in general industry increases beyond the prescribed amounts. **Response:** BC Hydro has defined contract labour escalation formulas in all major contracts.
Risk of a safety incident resulting in fatality or disabling injury	**Impact:** Serious worker injury or fatality; project delays and associated costs. **Response:** Continue with BC Hydro and contractor safety steering committee to address shared safety issues and opportunities; BC Hydro and contractors have implemented safety cultural leadership training; increase BC Hydro executive involvement and engagement with site safety leadership; regularly hold on-site safety conferences; contractor to bring in senior safety manager to prepare safety improvement plan for BC Hydro review; continue to include safety in BC Hydro and contractor on-boarding orientations; and continue to promote a strong safety culture.
Risk of geotechnical issues on work fronts other than left bank diversion tunnel	**Impact:** Potential schedule delay and increased cost. **Response:** Completed detailed geotechnical investigations prior to construction; close monitoring and quick intervention to manage construction risk if geotechnical issues arise.
Risk of additional expenditures required for engineering support for the project	**Impact**: Exceed budget due to work required for as found site conditions, complete design, and support schedule and construction activities; Insufficient resources to complete, manage and/or oversee engineering work. **Response**: Optimize BC Hydro resources; optimize work front team structure and minimize duplication of activities. Work with contractors to increase their quality control staffing.

Risk Description	Impact and Response Plan Summary
Risk of Highway 29 costs exceeding the approved budget	**Impact:** As designs are finalized and procurement is conducted, costs could exceed the approved budget. **Response:** Conduct value engineering during design phase to find cost savings and/or reduce cost increases; conduct independent reviews of cost estimates and optimize the number of contracts using the Ministry of Transportation and Infrastructure's competitive public tender process.
Risk that spillway costs increase materially due to design changes	**Impact:** Increased quantities result in higher construction costs. **Response:** Issue revised drawings to the contractor. Meet with the contractor to plan work so that construction cost increases are minimized.
Risk that Indigenous groups do not support the Project	**Impact:** Indigenous groups file legal challenges (e.g. injunction applications) or engage in protest actions that could delay or stop the project work and/or increase costs. **Response:** Project team to continue to engage and consult with First Nations and ensure commitments to First Nations are met or exceeded; fully support the development of legal response documents; follow court order requirements, if applicable; continue to negotiate Impact Benefit Agreements.
Risk that reservoir clearing costs are higher than budget	**Impact:** Increased cost. **Response:** Review scope, modify approach, negotiate pricing, provide sufficient time to negotiate, work with Indigenous Relations on procurement of clearing services; develop alternative procurement options if planned procurements are not feasible.
Risk of dam construction delay	**Impact:** Contractor misses milestone(s) and BC Hydro incurs schedule related delay costs. **Response**: On-site physical progression captured and reported on a weekly basis for key work fronts. BC Hydro monitors key interface milestones and reviews with contractor on regular basis.
Risk that productivity for roller-compacted concrete is lower than planned	**Impact:** Lower productivity may result in delays to project schedule; potential interface issues may arise with other contractors. **Response:** Detailed planning completed in advance of work starting. Physical progress is captured and reported on a weekly basis for key work fronts. Key interface milestones are monitored and discussed on a regular basis. Meetings are held with the contractor on a regular basis.

Risk Description	Impact and Response Plan Summary
Risk that the Project cannot attract and retain sufficient skilled workers	**Impact:** Contractors may not be able to adequately source, supply, attract, and retain sufficient project labour due to workforce demographics, increased competition for labour from other major projects, and the requirement for specialized workers. This may result in potential impacts to schedule, safety, productivity and cost. **Response:** Contractors provide labour sourcing and supply plans, provide advance notice of foreign workers, and participate in local job fairs. BC Hydro encourages and facilitates capacity-building initiatives, and monitors employee turnover rates and labour conditions on other projects.
Risk of additional work for the Main Civil Works contractor to meet powerhouse, dam & spillway roller-compacted concrete buttress requirements	**Impact:** Increased costs for investigation; potential for scope change **Response:** Investigate (drill, sample, test, and monitor) and conduct engineering analysis and review. Update design basis as required and identify and scope measures that may be needed.
Risk of the stage 2 cofferdam overtopping or erosion	**Impact:** Damage to upstream and downstream cofferdams; uncontrolled river flow; flooding and damage to dam and powerhouse while under construction. **Response:** Clear reservoir area before river diversion and install debris booms; utilize Williston reservoir to provide water storage; complete river flow forecasting and manage water.
Risk of insufficient aggregate supply to meet demand on dam site	**Impact:** Decreased productivity, schedule delays and increased cost that could impact multiple contracts. Aggregate supply required for concrete production (roller-compacted concrete, cast-in-place concrete/conventional vibrated concrete and shotcrete) and dam (general fill, filter materials, drain material, and riprap). **Response:** Increase aggregate stockpiles; work with contractors to minimize waste and maximize aggregate production; release BC Hydro on-site contingency aggregate excavation sites and seek out additional aggregate on-site sources; procure off-site and haul in additional aggregate.
Risk that the river has been diverted but the Stage 2 Cofferdam is not completed on time	**Impact:** Unable to release restrictions upstream; overtopping of the cofferdam; construction delays; BC Hydro system (GM Shrum generation, etc.) impacts. **Response:** Contractor financial incentives in place to meet diversion date; contractor increases work force; BC Hydro and contractor evaluate schedule and optimize activities.

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Site C Clean Energy Project

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Appendix A

Site Photographs

Figure A-1 Diversion Tunnel No. 2 Breakthrough (July 2019)

Figure A-2 Construction Continues on the Powerhouse (July 2019)

Figure A-3 **View of Inside Unit 1 Draft Tube in the Powerhouse. Once Site C is Operational, Water will Enter the Penstocks, Move through the Turbines and Generators and then be Released into the Draft Tubes prior to Exiting through the Tail Race (July 2019)**

Figure A-4 **Assembly of a Multi-plate Culvert that will Provide Drainage under a Realigned Segment of Highway 29 in the Cache Creek Area. A variety of Culverts are being Installed as Part of the Highway 29 Realignment (July 2019)**

Figure A-5 **A Worker Conducts Archaeological Excavations near Farrell Creek, in Support of the Highway 29 Realignment Work (July 2019)**

Figure A-6 **The Site C Substation will be the Largest in BC Hydro's System. The Substation is 80 per cent Complete and Scheduled to go into Service in October 2020 (August 2019)**

Figure A-7 Installing Rebar at the Powerhouse (August 2019)

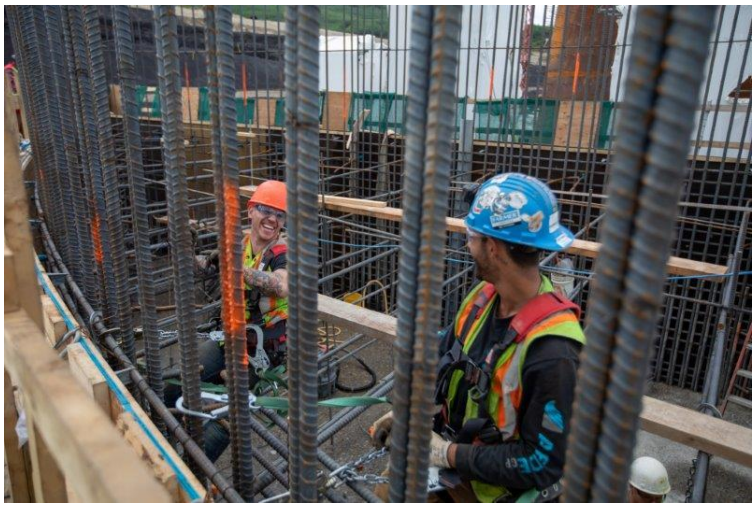

Figure A-8 To Compensate for the loss of Wetland Habitat resulting from the Project, we are Working with Ducks Unlimited to Construct and Restore over 500 hectares of Wetlands. The First of these is at a 50-acre Wetland Project at Golata Creek, a Complex System of 15 Ponds Retained with a Dam and Berms. These Wetlands provide Important Habitat for a Wide Range of Plants and Animals, including Fish, Invertebrates, Bats, Birds, and Rare Plants (September 2019)

Figure A-9 **The 5km Conveyor System, which Runs from the 85th Avenue Industrial Lands to the Dam Site, will Carry Glacial Till, an Impervious Clay-like Material that will Form the Core of the Dam. The Conveyor System was Chosen as the Primary Form of Transport because it will Reduce Traffic on Local Roads, Create Fewer Greenhouse Gas Emissions, and Result in Less Noise and Dust (September 2019)**

Figure A-10 **Construction Started on a Temporary Bridge to an Island in the Peace River near Halfway River, as Part of Clearing Activities for the Project. The Bridge allows Workers to Remove Vegetation from the Island and Prepare for the Creation of the New Reservoir (September 2019)**

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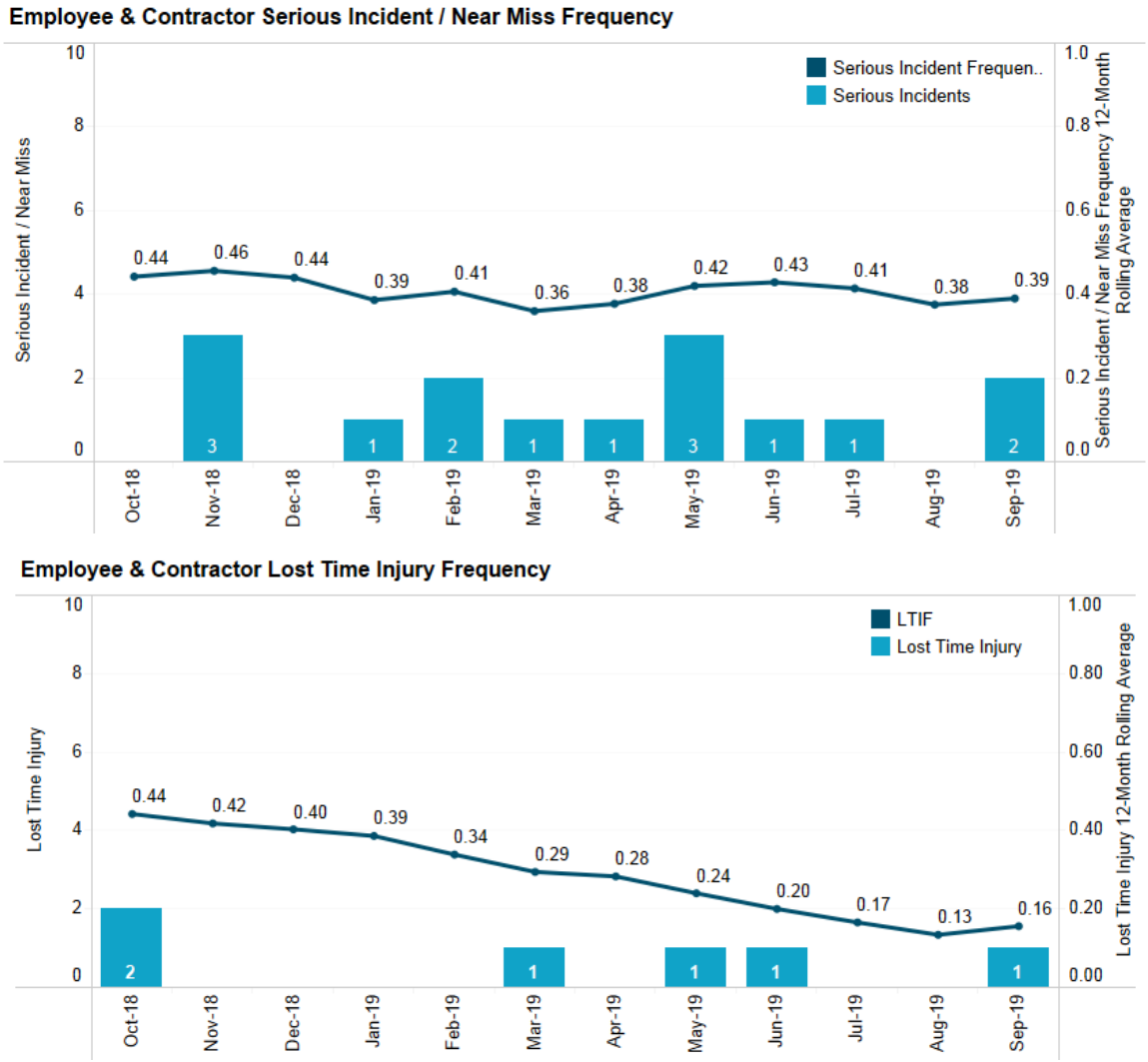
Appendix B

Safety and Security

Figure B-1 below provides information on employee and contractor serious incidents/near miss frequency, lost time injury frequency and all-injury frequency from July 1, 2018 to September 30, 2019.

Figure B-1 Employee and Contractor Serious Incidents/Near Miss Frequency, Lost Time Injury Frequency and All-injury Frequency



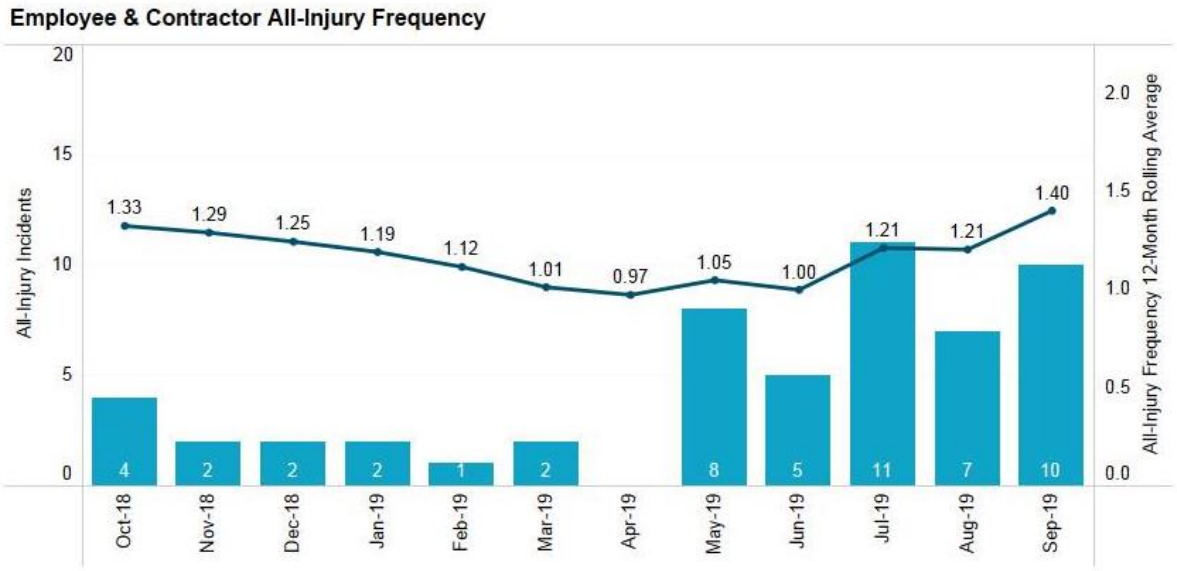

Employee & Contractor All-Injury Frequency
All-Injury Incidents
All-Injury Frequency 12-Month Rolling Average
20
15
10
5
0
2.0
1.5
1.0
0.5
0.0
1.33
1.29
1.25
1.19
1.12
1.01
0.97
1.05
1.00
1.21
1.21
1.40
4
2
2
2
1
2
8
5
11
7
10
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19

Table B-1 lists the safety regulatory inspections and orders received from July 2019 to September 2019.

Table B-1 Safety Regulatory Inspections and Orders

WorkSafeBC

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #1: WorkSafeBC conducted an inspection at the generating station & spillways powerhouse construction worksite due to a crane misadventure while the contractor was in the process of erecting the tower crane. Items discussed and areas of inspections included, but were not limited to the following: crane misadventure, manufacturer's erection instructions, and incident investigation. Crane misadventure - "misadventure" means a contact with a high voltage electrical source, a shock load, a loss of a load, a brake failure, a collision or upset, or any other circumstance that may impair the safe operation of the crane or hoist.			
High Risk	Certification following misadventure	**Order #1 – OHS14.16.1(2):** The tower crane was subject to a misadventure and due to the impact between the jib end, hoist cable and the jib boom, there may have been unknown damage to the tower crane. The contractor failed to remove the tower crane from service until a professional engineer has: a) supervised an inspection of, and supervised any necessary repairs to, the equipment; and b) certified the equipment as safe for use at the manufacturer's rated capacity for the equipment or as provided by section 14.16 if the manufacturer's rated capacity is not available.	July 2, 2019
Low Risk	Tower crane erection	**Order #2 – OHS 14.73(2):** The tower crane erection was not done in accordance with the instructions of the crane manufacturer or professional engineer	

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #2: WorkSafeBC conducted an inspection at the generating station and spillways powerhouse construction worksite due to a crane misadventure while the contractor was in the process of erecting the tower crane. Items discussed and areas of inspections included, but were not limited to the following: system to ensure compliance			
Low Risk	Tower crane erection	**Order #1 – WCA118 (2)(b):** The prime contractor of a multiple-employer workplace must do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the *Workers Compensation Act* Part 3 and the regulations in respect of the workplace.	July 2, 2019
Low Risk	Safety documentation	**Order #2 – OSH20.3(4)(c):** BC Hydro failed to have a set of construction procedures designed to protect the health and safety of workers at the workplace.	
Inspection #3: WorkSafeBC conducted an inspection at the generating station and spillways powerhouse construction worksite due to a crane misadventure while the contractor was in the process of erecting the tower crane 3. Crane misadventure - "misadventure" means a contact with a high voltage electrical source, a shock load, a loss of a load, a brake failure, a collision or upset, or any other circumstance that may impair the safe operation of the crane or hoist.			
High Risk	Certification following misadventure	**Order #1 – OHS14.16.1(2):** The tower crane was subject to a misadventure and due to the impact between the jib end, hoist cable and the jib boom, there may have been unknown damage to the tower crane. The contractor failed to remove the tower crane from service until a professional engineer has a)supervised an inspection of, and supervised any necessary repairs to, the equipment; and b)certified the equipment as safe for use at the manufacturer's rated capacity for the equipment or as provided by section 14.16 if the manufacturer's rated capacity is not available.	July 2, 2019

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #4: WorkSafeBC conducted an inspection at the generating station and spillways powerhouse construction worksite due to a crane misadventure while the contractor was in the process of erecting the tower crane 3. Items discussed and areas of inspections included, but were not limited to the following: system to ensure compliance			
		No Orders	July 2, 2019
Inspection #5: WorkSafeBC conducted an inspection at the generating station and spillways powerhouse construction worksite due to a crane misadventure while the contractor was in the process of erecting the tower crane 3. Crane misadventure - "misadventure" means a contact with a high voltage electrical source, a shock load, a loss of a load, a brake failure, a collision or upset, or any other circumstance that may impair the safe operation of the crane or hoist			
		No Orders	July 2, 2019
Inspection #6: WorkSafeBC conducted a general inspection at the quality control lab at the Project. A goal of the inspection was to verify crystalline silica management as part of the high risk strategy.			
Low Risk	Safety Administration	**Order #1 – WCA 138(B):** The contractor failed to post or kept the posted report of the three most recent joint committee meetings. A worker produced a set of minutes from January and the committee meets bi-weekly.	July 4, 2019
Low Risk	Safety Administration	**Order #2 – WCA 138(a):** The contractor failed to post and keep posted the names and work locations of the joint committee members.	
Rescinded	Safety Documentation	**Order #3 – OHS 5.14(2):** When a supplier safety data sheet obtained under subsection (1) for a hazardous product that is three years old, the contractor failed to obtain from the supplier an up-to-date supplier safety data sheet in respect of any of the hazardous project in the workplace at that time.	
Rescinded	Exposure Control Plan	**Order #4 – OHS 5.57(2):** The contractor failed to implement an exposure control plan for 600 basolit sulfur cement to maintain worker exposures to designated substances as low as reasonably achievable below the exposure limit established under section 5.48.	

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
High Risk	Occupational First Aid	**Order #5 – OHS 5.85:** The contractor failed to ensure that appropriate emergency washing facilities are provided within a work area where a worker's eyes or skin may be exposed to harmful or corrosive materials or other materials which may burn or irritate.	
Low Risk	Occupational First Aid	**Order #6 - OHS5.88:** The contractor failed to ensure that the selection of emergency washing facilities is based upon an assessment of the risks present in the workplace.	
High Risk	Safety Documentation	**Order #7 – OHS 5.10(1):** The contractor had various products in containers other than the supplier container and the contractor failed to ensure that the container has a workplace label applied to it.	
Low Risk	Occupational First Aid	**Order #8 – OHS 5.93(2):** The contractor failed to ensure that a plumbed emergency eyewash or shower facility is full flow tested at least once per month, for a sufficient length of time to completely flush the branch of the water line supplying the eyewash.	
Low Risk	Ventilation	**Order #9 – OHS 5.67(2):** The exhaust ventilation system used to control air contaminants at the 600 Sulfur Cement pots and the sieve testing machines has not been regularly inspected or monitored to ensure that it remains effective.	
Low Risk	Ventilation	**Order #10 – OHS 5.61:** The ventilation system for controlling airborne contaminants from the molten 600 basolit sulfur cement in the workplace has not been designed and/or installed using established engineering principles as there one round collection point that does not cover the area of both pots.	

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
High Risk	Exposure Control Plan	**Order #11 – OHS 5.54(2)(e):** The contractor failed to ensure the exposure control plan incorporates hygiene facilities and decontamination procedures, when required.	
High Risk	Noise Exposure	**Order #12 – OHS 7.7(1)(b):** If it is not practicable to reduce noise levels to or below noise exposure limits, the contractor failed to post warning signs in the noise hazard areas.	
High Risk	Noise Exposure	**Order #13 – OHS 7.3(1):** The contractor failed to measure the noise exposure for the use of the diamond coring tool where a worker is, or may be, exposed to potentially harmful levels of noise, or if information indicates that a worker may be exposed to a level exceeding 82dBA Lex.	
High Risk	General Duties	**Order #14 – WCA 115(1)(a)(i):** The contractor failed to ensure the health and safety of all workers working for the contractor.	
Inspection #7: A near miss incident resulted from two 50mm shotcrete support layers at heading section failed within a newly constructed left bank diversion Tunnel No. 1 outlet area.			
Low Risk	Reporting and Investigation	**Order #1 – WCA 172(1)(b):** The contractor failed to immediately notify WorkSafeBC of the occurrence of a shotcrete failure incident that involved a major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system or excavation.	July 8, 2019
Low Risk	Reporting and Investigation	**Order #2 – WCA 172(2):** The contractor disturbed the scene of an incident that is reportable.	
High Risk	Special Inspection	**Order #3 – OHS 3.7:** The contractor failed to conduct a special inspection when required by malfunction or accident.	

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #8: A near miss incident resulted from two 50mm shotcrete support layers at heading section failed within a newly constructed left bank diversion Tunnel No. 1 outlet area.			
Low Risk	Reporting and Investigation	**Order #1 – WCA 172(1)(b):** The contractor failed to immediately notify WorkSafeBC of the occurrence of a shotcrete failure incident that involved a major structural failure or collapse of a building, bridge, tower crane, hoist, temporary construction support system or excavation.	July 9, 2019
Low Risk	Reporting and Investigation	**Order #2 – WCA 172(2):** The contractor disturbed the scene of an incident that is reportable.	
High Risk	Special Inspection	**Order #3 – OHS 3.7:** The contractor failed to conduct a special inspection when required by malfunction or accident.	
High Risk	Special Inspection	**Order #4 – OHS 3.7:** The contractor failed to ensure that the temporary shotcrete support structure within the left bank diversion Tunnel No. 1 outlet is capable of withstanding any stress likely to be imposed on it.	
Inspection #9: WorkSafeBC was on site during the installation of a new, 34 mm x 600 meter load line onto the tower crane, the wire mesh grip device used to attach the lead-line to the load line failed. The failure allowed the new load line to be dropped uncontrolled approximately 90 Meters from the jib trolley sheave area to the ground.			
		No Orders	July 16, 2019

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #10: The contractor requested to pre-construction meeting to comply with the requirements of section 22.5 for the left bank drainage adit. The contractor stated that it planned to commence construction on September 17, 2019. The left bank drainage adit will be constructed using a drill and blast method of excavation. Due to the two left bank diversion tunnels are being directly below the contract must meet the requirements of OSH section 22.68 The contractor is constructing the entrance to the left bank drainage adit adjacent to the outlet of the left bank diversion tunnels is being asked to provide a traffic review to WorkSafeBC. The contractor is requested to provide the following to WorkSafeBC: • Engineering documents that outline the evaluation of blasting above the left bank diversion tunnel and the required measures to meet section 22.68; and • An evaluation of the potential impacts from traffic and ventilation equipment operation (normal and upset conditions) at the left bank drainage adit on ventilation equipment at the left bank diversion tunnel outlets and any measures, if any to address impacts. Prior to the documents and measures (if any are required) being in place no work may commence for the left bank drainage adit.			
		No Orders	July 26, 2019
Inspection #11: WorkSafeBC conducted an inspection at Gate B on the Site C Project. The inspection was requested due to an employee refusing unsafe work.			
Low Risk	Safe Buildings and Structures	**Order #1 – OHS4.2:** The contractor failed to ensure that each building and temporary or permanent structure in a workplace is capable of withstanding any stresses likely to be imposed on it.	July 29, 2019
Low Risk	Working Alone	**Order #2 – OSH 4.20.2(1):** Before a worker is assigned to work alone or in isolation, the contractor failed to identify any hazards to that worker.	
Low Risk	Safety Equipment	**Order #3 – OHS 4.3(1)(b)(i):** The contractor failed to ensure that each tool, machine and piece of equipment in the workplace is capable of safely performing the functions for which it is used and is selected, used and operated in accordance with the manufacturer's instructions. The extension cords at Gate B are being used to supply power where hardwired connections should be used.	

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #12: WorkSafeBC conducted a site inspection in the right bank drainage tunnel. The excavation of the tunnel has been completed and the contractor is working on finishing the floor area as per design. At the time of the inspection the air operated chipping hammer did not have a restraint on the air line. In addition, there was a skid steer parked in the tunnel at work location and the fire suppression system on the skid steer did not have an actuate in the cab.			
Low Risk	Restraining device	**Order #1 - OHS12.15(a):** The air operated chipping hammer did not have a restraint between the tool and the airline. The contractor failed to have an effective means of restraint on a connection of a hose or a pipe if inadvertent disconnection could be dangerous to a worker.	July 31, 2019
Low Risk	Fire suppression	**Order #2 - OHS22.86(2):** The skid steer did not have an activator for the fire suppression in the cab. The contractor failed to install a device to manually activate the fire suppression system by means of easily accessible ground level devices from the operator's station and from each side of the machine, and the activation of the system must cause engine shutdown.	
Inspection #13: The purpose of this inspection is to document the contractor's request to extend the date for submitting their final investigation report for an incident that occurred on July 8, 2019 in the main civil works area.			
		No Orders	August 8, 2019
Inspection #14: WorkSafeBC conducted an inspection to verify concerns expressed in a discriminatory action complaint. A worker expressed concerns about the operation of rock trucks at the Site C Dam Project. Specifically the excavation of the core trench on the right bank. The worker had concerns about the height of the berm/curb where trucks could dive over an edge. The worker expressed concerns about communication amongst drivers and other equipment operators, the worker had concerns about orientation and training and the lack of wheel chock use. The worker expressed these concerns to the general foreman and later a member of the health and safety team. The same evening that the concerns were expressed, the worker was told their employment was being terminated. It was confirmed from discussions with the contractor that the worker's concerns were not fully investigated and it was observed at the time of inspection they had not been remedied without undue delay.			

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Low Risk	Reporting unsafe conditions	**Order #1 - OHS3.10:** Whenever a person observes what appears to be an unsafe or harmful condition or act, the person must report it as soon as possible to a supervisor or to the contractor, and the person receiving the report must investigate the reported unsafe condition or act and must ensure that any necessary corrective action is taken without delay.	August 9, 2019
Low Risk	General Conditions	**Order #2 - OHS4.63:** The contractor failed to install a curb, where practicable, whenever there is a danger of a vehicle or other equipment running off the edge of an elevated area.	
Low Risk	General Conditions	**Order #3 - OHS4.3(1)(b)(i):** The contractor failed to ensure that each tool, machine and piece of equipment in the workplace is capable of safely performing the functions for which it is used and is selected, used and operated in accordance with the manufacturer's instruction, if available.	
Low Risk	Safety Documentation	**Order #4 - OHS3.25:** The contractor failed to keep records of all training proved under sections 3.23 and 3.24 as the contractor does not have written records of the on-the-job-training (e.g., ride along/competency verification)	
Low Risk	General duties of employers	**Order #5 - WCA115(2)(e):** The contractor failed to provide the workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace.	
Low Risk	General duties of employers	**Order #6 - WCA115(1)(a):** The contractor failed to ensure the health and safety of all workers working for that contractor and any other workers present at a workplace where the contract is being carried out.	

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #15: WorkSafeBC attended the workplace as a result of a shotcrete failure incident that involved the potential for serious injury to workers. The contractor noted a failure of fibre reinforced shotcrete at station 0+672 to 9+690. Work was stopped and WorkSafeBC was notified. No workers were present at the time of failure.			
High Risk	Stop Work Order	**Order #1 - WCA191(1):** Pursuant to section 191(1) of the Workers Compensation Act, the Board orders that all work in the right bank drainage tunnel is immediately stopped, and that the workplace or any part of the workplace be cleared of persons and isolated by barricades, fencing or any other means suitable to prevent access to the area until the danger is removed.	August 14, 2019
Low Risk	Special inspection	**Order #2 - OHS3.7:** A special inspection must be made of the right bank drainage tunnel due to a failure of the shotcrete between stations 0+670 and 0+690.	
Inspection #16: This inspection report contains an order for BC Hydro to complete a special inspection of the right bank drainage tunnel following a shotcrete collapse. BC Hydro is pursuing completion of this activity. This had been immediately reported to WorkSafeBC by the responsible prime contractor (not BC Hydro). BC Hydro's involvement is related to engineering and design.			
Low Risk	Special inspections	**Order #1 - OHS3.7:** A special inspection must be made when required by malfunction or accident.	August 14, 2019

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #17: Due to some questions being posed by BC Hydro, the following comments are from WorkSafeBC. The remediation procedures accepted for the left bank diversion tunnel outlet #1 may need to be revisited for the following reasons: • The outlet portal has been excavated, leaving a 20 to 30 foot drop to ground level that has changed the access; • The rock/tunnel conditions may have changed since the original incident; and • Due to the above two items procedures may need to be adjusted to reflect the current situation and ensure all of part 22 and other parts of the regulation are being followed. After the verification and potential re-submission of the remediation plan, WorkSafeBC would expect to see the following steps: • Remediation; • Assurance in writing that the tunnel is now safe; • Apply the updated inspection/verification process as occurred in left bank diversion tunnel outlet #2. After work is fully completed an updated package signing off the changes by a qualified professional; and • In left bank diversion tunnel outlet #1 apply potential changes that align with CO275 as completed in left bank diversion tunnel outlet #2. Same sign off as the line above. Across site apply the updated inspection/verification process and resulting work.			
		No Orders	August 23, 2019
Inspection #18: Due to some questions being posed by the prime contractor, the following comments are from WorkSafeBC. The remediation procedures accepted for the left bank diversion tunnel outlet #1 may need to be revisited for the following reasons: • The outlet portal has been excavated, leaving a 20 to 30 foot drop to ground level that has changed the access; • The rock/tunnel conditions may have changed since the original incident; and • Due to the above two items procedures may need to be adjusted to reflect the current situation and ensure all of part 22 and other parts of the regulation are being followed. After the verification and potential re-submission of the remediation plan, WorkSafeBC would expect to see the following steps: • Remediation; • Assurance in writing that the tunnel is now safe; • Apply the updated inspection/verification process as occurred in left bank diversion tunnel outlet #2. After work is fully completed an updated package signing off the changes by a qualified professional; and • In left bank diversion tunnel outlet #1 apply potential changes that align with CO275 as completed in left bank diversion tunnel outlet #2. Same sign off as the line above. Across site apply the updated inspection/verification process and resulting work.			
		No Orders	August 23, 2019

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #19: The contractor has provided inspection results as part of the incident immediate compliance inspection report on August 14, 2019. This inspection report revealed that there are known hazard areas in the right bank drainage tunnel. Through meetings and conversation it has been revealed that the contractor intends to proceed to the failure area unless significant hazards are discovered following their entry procedures. The contractor report risk ranked known hazards and an area (670 m to 690 m) highlighted in orange failed while working on area further into the tunnel system. This indicates that the contractor has previously been traveling past known hazard areas to conduct work.			
Low Risk	Emergency Requirements	**Order #1 OHS22.53(1):** Only workers trained for emergencies may enter or remain in any underground working dangerous to life or health by virtue of other hazardous conditions, and no other work may be performed until the hazardous condition has been eliminated or controlled.	August 27, 2019
Inspection #20: WorkSafeBC conducted an inspection on the sub-contractor's river boat vessel.			
Low Risk	Vehicle design	**Order #1 - OHS17.10(1)(h):** The contractor failed to equip the vessel with the appropriate first aid equipment, under Occupational Health and Safety Regulation section 3.16 or 3.2, and with appropriate fire extinguishers in good working order.	August 28, 2019
Low Risk	Seating design	**Order #2 - OHS17.12(a):** The contractor failed to equip the vessel with seats that are safely located and securely attached to the vehicle, with a width of at least 41 cm (16 in) for each passenger and an upholstered seat and seat back which provides normal and comfortable seating for passengers.	
Low Risk	Maintenance and inspection	**Order #3 - OHS17.24(1):** The contractor failed to ensure the vessel is inspected before initial use that is fit for safe operation, and at intervals that will prevent the development of unsafe conditions.	

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #21 – 201917876042A (Peace River Hydro Partners): The purpose of this inspection report is to document the contractor request to extend the date for submitting their final investigation report for an incident that occurred on July 8, 2019. This incident resulted from two 50mm shotcrete support layers at heading section failed within a newly constructed left bank diversion Tunnel No. 1 outlet area.			
		No Orders	August 29, 2019
Inspection #22 – 201918983014A (Duz Cho Construction): WorkSafeBC conducted an inspection as part of the 2019 WorkSafeBC Forestry High Risk Strategy. The contractor is in a multiple employer workplace which have the responsibility to coordinate activities relating to occupational health and safety.			
Low Risk	Coordination at multiple-employer workplaces	**Order #1 - WCA 118(2)(b):** The prime contractor of a multiple-employer workplace failed to do everything that is reasonable practicable to establish and maintain a system or failed to ensure compliance with the *Workers Compensation Act* Part 3 and the regulations in respect of the workplace.	September 5 , 2019
Inspection #23: WorkSafeBC conducted an inspection as part of the 2018-2020 WorkSafeBC Forestry High Risk Strategy. The contractor has been contracted to conduct hand falling, bucking, and slashing operations. The job-site (Block OLTC7) has been established as boat access only and is located approximately 7 km up river from the Site C main boat launch. Due to the isolated location and high risk of work activities, the following was discussed: • Emergency Response Plan; • Falling cuts and maintaining control of the tree being felled; • Avoiding unnecessary brushing of standing trees and timber; and • Falling plan and active falling area.			
Low Risk	Access to work areas	**Order #1 - OHS4.32:** The contractor failed to ensure a safe way of entering and leaving each place where work is performed and a worker must not use another way, if the other way is hazardous.	September 5 , 2019

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #24: This inspection report is related to a July 16, 2019 tower crane misadventure that included contractors worker dropping, uncontrolled a new, 34 mm X 600 meter load line approximately 90 meters from tower crane 3 jib to the ground during installation. This was the final assembly of the tower crane before placing it into service at this workplace.			
Low Risk	Modifications	**Order #1 OHS14.15(1):** Each crane or hoist must be erected, dismantled, operated, adjusted, inspected and maintained as specified by the manufacturer's manual unless otherwise approved by the original equipment manufacturer or a professional engineer.	September 9, 2019
High Risk	Tower Crane Erection	**Order #2 OHS14.73.2:** The erection, climbing and dismantling of a tower crane must be done by qualified persons and in accordance with the instructions of: (a) the crane manufacturer; or (b) a professional engineer; if the installation varies from the crane manufacturer's instructions.	
Inspection #25: This inspection report is the result of discussions between WorkSafeBC and BC Hydro. The Inspection report contains one order to BC Hydro. The order is a Directive Order and is not a regulatory non-compliance order. The order directs BC Hydro, as owner of the Site C project, to provide certain technical information to the prime contractor on the Project.			
Low Risk	General duties of owner	**Order #1 WCA119(b):** Every owner of a workplace must give the prime contractor at the workplace the information known to the owner that is necessary to identify and eliminate or control hazards to the health or safety of persons at the workplace. The Prime contractor responsible for tunneling work does not have the information they require to make decisions.	September 10, 2019

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #26: WorkSafeBC conducted an inspection as part of the WorkSafeBC's 2018-2020 Construction High Risk Strategy Initiative. The goal of this initiative is to prevent unsafe acts or conditions that cause workplace serious injuries and fatalities by addressing identified shortcomings in planning and supervision and by ensuring a proper selection of tools, equipment, or processes. At the time of the inspection, scaffolding and formwork was being erected and maintained at the left bank diversion tunnels for the purpose of constructing various inlet and outlet structures.			
Low Risk	Scaffold stability	**Order #1 - OHS 13.17(2):** The contractor failed to ensure the base of the scaffold at the base of the Fishway entrance pool formwork have sills resting on a solid surface and are sufficient to support the weight of the scaffold.	September 18, 2019
Low Risk	Manufactured components	**Order #2 - OHS 13.15(a):** The contractor failed to ensure the major components of scaffolds are used in accordance with the technical data provided by the manufacturer, or in writing by a professional engineer, that shows the rated load, erection procedures and compliance with an applicable standard under section 13.2	
Low Risk	Inspections	**Order #3 - OHS 13.3:** The contractor failed to ensure the stair tower at the left bank diversion Tunnel No. 2 Inlet is inspected before use on each shift, after any modification, and any condition that might endanger workers that must be remedied before the equipment is used.	
Inspection #27: WorkSafeBC conducted an inspection in the new rebar laydown area within the left bank cofferdam area above the tunnel outlet portal as part of the 2019 Construction High Risk Strategy. WorkSafeBC discussed with the contractor's health and safety responsibilities with regards to preventing falls from heights.			
High Risk	Specifications for guards and guardrails	**Order #1 – OHS 4.58(2):** The contractor failed to install complaint guardrails to ensure the workers are protected from the fall hazard.	September 18, 2019

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #28: WorkSafeBC conducted a follow-up meeting with the contractor. The purpose of the conversation was in part to review the progress towards submission of the final investigation report for the 50 mm shotcrete support layers at the heading section failed within a newly constructed left bank diversion Tunnel No. 1 outlet area. Following a meeting on September 20, 2019, the contractor sent an email to WorkSafeBC to formally request an extension until November 4, 2019. The original due date for the contractor 30 day 'full investigation' report was August 8, 2019 as per inspection report issued by the Occupational Safety Officer. An extension had been previously granted which was documented within an inspection report to extend the due date. A further extension had been granted by the Occupational Safety Officer. After considering the most recent explanation and progress report provided by the contractor and further verified by BC Hydro, another extension has been granted until November 4, 2019 to complete and submit the incident investigation report.			
		No Orders	September 20, 2019
Inspection #29: WorkSafeBC has learned that a misunderstanding has occurred in regards to roles, responsibilities and compliance requirements. BC Hydro, the owner of the Site C Project has conducted the engineering and is the official engineer of record for the design on the main civil works contracts for the Site C Clean Energy Project. The contractor has entered into a contract from the owner that identifies them as the prime contractor for main civil works, the contract provides for the construction activities to execute the work process to complete to the final design as per the engineer of record. During previous inspection activities, the contractor has been requested, advised or directed, through inspectional text or orders, to provide assurances relating to some of the construction activities. In order to clarify those expectations, the following parameters are being provided to identify who is expected to provide the assurances. Where the requested/directed assurance is related to: safe workplace, safe for entry, (etc.), the assurance must be provided by the engineer of record. Where the requested/directed assurance is related to confirming work practices or standards, conformity to design or field instruction, the assurance is to be provided by the contractor or the engineer of record. BC Hydro was previously directed to provide information to the prime contractor information in their possession, as per the requirements of WCA 119, to date this has been substantially complied. The opportunity has been provided to the contractor to review the design criteria and modelling. The contractor's responsibility for the design is limited to the implementation of the design or any field instructions which have been prepared in accordance with good engineering principles.			
		No Orders	September 26, 2019

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #30: The inspection report cancels and replaces inspection report that was issued on August 23, 2019 to the contractor and suggested specific revisions to safe work procedures for the remediation of a shotcrete failure in diversion tunnel one at Site C. This updated inspection report specifies that written safety assurances are expected to come from the engineer of record.			
		No Orders	September 26, 2019
Inspection #31: The inspection report cancels and replaces inspection report that was issued on August 23, 2019 to BC Hydro and suggested specific revisions to safe work procedures for the remediation of a shotcrete failure in diversion Tunnel No. 1 at Site C. This updated inspection report specifies that written safety assurances are expected to come from the engineer of record.			
		No Orders	September 26, 2019

1 **Ministry of Energy, Mines and Petroleum Resources**

Risk Level	Theme	Inspection Reports and Orders Received	Date of Inspection
Inspection #1: The Portage Mountain quarry is being developed by the contractor with the material destined for BC Hydro's Site C project. The mine is located on a hillside, and the working face has been narrowed due to wildlife issues. This has resulted in a steep switchback ramp going up the face.			
Low Risk	Emergency Preparedness	**Order #1 *Mines Act* Section 3.9.1:** The contractor failed to ensure the fire extinguishers on the contract drills parked in the laydown area have up-to-date inspection records	July 25, 2019
Low Risk	Mine Design	**Order #2 *Mines Act* Section 6.9.1:** The contractor failed to ensure that the haul roads for single lane traffic must be twice the width of the largest haul truck running on that road and berms must be ¾ height of the largest tire running the road.	

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Appendix C

Summary of Individual Contracts Exceeding $10 Million

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Appendix D

Project Progression

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Appendix E

Detailed Project Expenditure

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Appendix F

Workforce Overview

Table F-1 Current Site C Jobs Snapshot (July 2019 to September 2019)[18]

	Number of B.C. Workers and Total Workers	Construction and Non-construction Contractors[19] (including some Subcontractors). Excludes Work Performed outside of B.C. (e.g., Manufacturing)	Engineers and Project Team[20]	Total
July 2019	BC Workers	2,925	671	3,596
	Total Workers	4,070	727	4,797
August 2019	BC Workers	3,060	641	3,701
	Total Workers	4,177	693	4,870
September 2019	BC Workers	2,949	685	3,634
	Total Workers	4,057	733	4,790

Employment numbers provided by Site C contractors are subject to revision. Data not received by project deadline may not be included in the above numbers.

BC Hydro has contracted companies for major contracts, such as main civil works, who have substantial global expertise. During the month of September 2019 there were seven workers in a specialized position working for Site C construction and non-construction contractors, which were subject to the Labour Market Impact Assessment process under the Federal Temporary Foreign Worker Program. Additionally, there were 60 management and professionals working for Site C construction and non-construction contractors through the Federal International Mobility Program.

[18] Employment numbers are direct only and do not capture indirect or induced employment.

[19] Construction and non-construction contractors includes work performed on the Site C dam site, transmission corridor, reservoir clearing area, public roadwork, worker accommodation and services.

[20] Engineers and project team are comprised of both on-site and off-site workers. The Project team includes BC Hydro construction management and other off-site Site C project staff. An estimate is provided where possible if primary residence is not given.

Table F-2 Preliminary Site C Apprentices Snapshot (July 2019 to September 2019)

Month	Number of Apprentices
July 2019	204
August 2019	184
September 2019	185

Data is subject to change based on revisions received from the contractors.

Table F-3 Current Site C Job Classification Groupings

Biologists and laboratory	Carpenters	Inspectors	Construction managers/ supervisors	Crane operators	Electricians	Engineers
Foresters	Health care workers	Heavy equipment operators	Housing staff	Heating, ventilation, and air conditioning	Kitchen staff	Labourers
Mechanics	Millwrights	Office staff	Pipefitters	Plumbers	Sheet metal workers	Truck drivers
Underground mining	Welders	Surveyors	Security guards	Boilermakers	Cement Masons	Crane Operators
Ironworkers						

Table F-4 Indigenous Inclusion Snapshot (July 2019 to September 2019)

Month	Number of Indigenous Workers
July 2019	377
August 2019	418
September 2019	401

The information shown has been provided by BC Hydro's on-site[21] construction and non-construction contractors and their subcontractors that have a contractual requirement to report on Indigenous inclusion in their workforce.

Employees voluntarily self-declare their Indigenous status to their employer and there may be Indigenous employees that have chosen not to do so, therefore, the number of Indigenous employees may be higher than shown in the table.

[21] On-site includes work performed on Site C dam site, transmission corridor, reservoir clearing area, public roadwork, worker accommodation and services.

As with any construction project, the number of workers, and the proportion from any particular location, will vary month-to-month and also reflects the seasonal nature of construction work. The number of workers will also vary as a contract's scope of work is completed by the contractor.

Women

In September 2019, there were 517 women working for Site C construction and non-construction contractors. The number of women was provided by on-Site Construction and non-construction contractors and engineers that have a contractual requirement to report on the number of women in their workforce.

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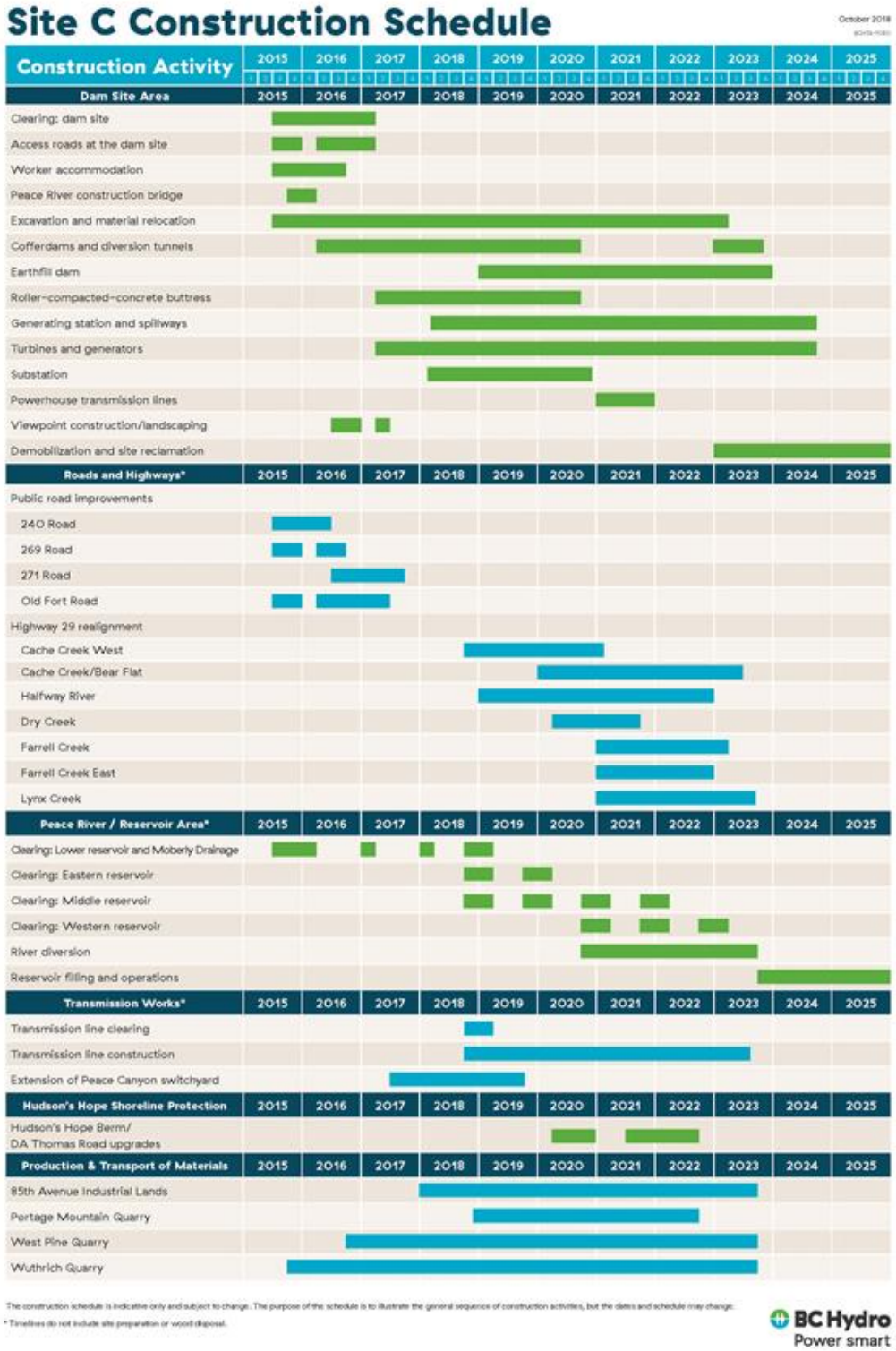
Appendix G

Site C Construction Schedule


Site C Construction Schedule
October 2018
Construction Activity
2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025
Dam Site Area
Clearing: dam site
Access roads at the dam site
Worker accommodation
Peace River construction bridge
Excavation and material relocation
Cofferdams and diversion tunnels
Earthfill dam
Roller-compacted-concrete buttress
Generating station and spillways
Turbines and generators
Substation
Powerhouse transmission lines
Viewpoint construction/landscaping
Demobilization and site reclamation
Roads and Highways*
Public road improvements
240 Road
269 Road
271 Road
Old Fort Road
Highway 29 realignment
Cache Creek West
Cache Creek/Bear Flat
Halfway River
Dry Creek
Farrell Creek
Farrell Creek East
Lynx Creek
Peace River / Reservoir Area*
Clearing: Lower reservoir and Moberly Drainage
Clearing: Eastern reservoir
Clearing: Middle reservoir
Clearing: Western reservoir
River diversion
Reservoir filling and operations
Transmission Works*
Transmission line clearing
Transmission line construction
Extension of Peace Canyon switchyard
Hudson's Hope Shoreline Protection
Hudson's Hope Berm/
DA Thomas Road upgrades
Production & Transport of Materials
85th Avenue Industrial Lands
Portage Mountain Quarry
West Pine Quarry
Wuthrich Quarry
The construction schedule is indicative only and subject to change. The purpose of the schedule is to illustrate the general sequence of construction activities, but the dates and schedule may change.
* Timelines do not include site preparation or wood disposal.
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