

Site C Clean Energy Project

Quarterly Progress Report No. 26

F2023 First Quarter

April 1, 2022 to June 30, 2022

PUBLIC

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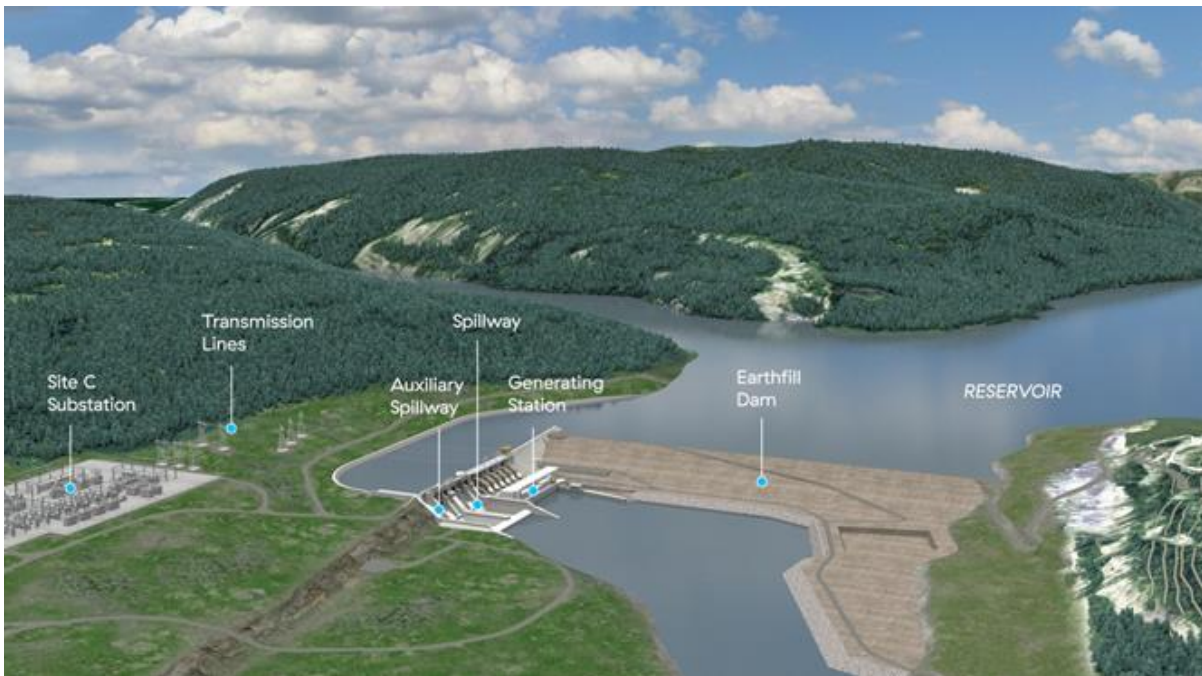
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1 **1 Executive Summary**

2 **1.1 Overview and General Project Status**

3 Site C will be the third dam and hydroelectric generating station on the Peace River
4 in northeastern British Columbia (B.C.). Once complete, Site C will provide
5 1,100 megawatts of capacity, and produce about 5,100 gigawatt hours of energy
6 per year – enough to power the equivalent of 450,000 homes per year in B.C.



7 Construction on Site C began on July 27, 2015.

8 Quarterly Progress Report No. 26 covers the period April 1 to June 30, 2022 (the
9 reporting period).

10 As of June 30, 2022, the Site C Project is more than 65% complete and BC Hydro
11 remains on track to complete the Project within the approved budget of \$16 billion
12 and the Project final in-service date of 2025.

1 The overall Project health status remains “amber” as cost, schedule, safety,
2 environment, and scope risks remain. These risks include the attraction and
3 retention of sufficient skilled craft labour, inflationary pressures including interest rate
4 increases, potential additional mitigation measures for potentially acid-generating
5 rock, the potential re-emergence of COVID-19 cases impacting the Project,
6 commercial negotiations with contractors, possible design changes due to unknown
7 field conditions, and obtaining all of the remaining authorizations for the completion
8 of the Project.

9 BC Hydro continued to work and communicate with the Project Assurance Board,
10 special advisor Peter Milburn, EY Canada, and the Technical Advisory Board to
11 actively manage these ongoing Project risks.

12 As a result of BC Hydro’s COVID-19 vaccination policy which came into effect on
13 January 10, 2022, Site C continues to be a fully vaccinated work site. During this
14 reporting period, cases of COVID-19 remained low, mirroring what was happening
15 throughout the rest of the province. BC Hydro continues to work with Northern
16 Health to monitor the latest developments of the COVID-19 pandemic to help
17 prevent the spread of the virus on the Project.

18 As the Project entered the summer months, construction activities ramped up. A
19 significant milestone was achieved with the arrival and placement of the final
20 penstock segment. Construction has continued to advance on all aspects of the
21 Project, including ongoing placement of materials at the earthfill dam, approach
22 channel excavations, right bank foundation enhancements and the Highway 29
23 realignment.

24 BC Hydro and Site C contractors continue to schedule work and explore strategies
25 to complete work delayed by the COVID-19 pandemic as efficiently as possible. If
26 successful, this will result in lowering the schedule risk and could result in an earlier
27 in-service date; however, achieving an earlier in-service date remains subject to

1 uncertainty and to the risks summarized in this report. The following sections discuss
2 some of the current risks facing the Project as well as highlights from the quarter.

3 **1.2 Attracting and Retaining Sufficient Skilled Craft Labour**

4 A current risk facing the Project is the risk that Site C contractors cannot attract and
5 retain sufficient skilled craft workers. As of June 30, 2022, contractors have reported
6 that they have been able to access the workers they need to complete their scopes
7 of work for the upcoming summer construction season. However, workforce
8 demographics, increased competition for labour from other major projects, the
9 requirement for specialized workers, and the lingering effects from COVID-19 could
10 result in potential impacts to schedule, safety, productivity, and cost. BC Hydro and
11 Site C contractors are actively responding to the situation by working with unions to
12 develop plans to attract and retain labour. In cases where labour obtained is less
13 experienced, contractors are retaining more experienced supervisory staff.

14 **1.3 Monitoring Recent Inflationary Pressures Affecting the Project**

15 BC Hydro is monitoring relates to recent inflationary pressures (primarily in labour
16 costs), rising fuel prices and interest rates, and some schedule delays noted by
17 contractors for the supply and shipping of materials. By the end of the reporting
18 period, a large portion of the on-site construction scope had been contracted, with
19 the remaining items limited to BC Hydro-initiated change orders. Although the
20 Project contractors often have specific contractual responsibility for many of the cost
21 escalations and supply chain challenges they are facing, these risks could still have
22 cost implications to BC Hydro and potentially cause schedule delays.

1.4 Management of Potentially Acid-Generating Rock Exposures

On April 21, 2022, the Project received a final inspection report and order from the Environmental Assessment Office related to various potentially acid-generating rock exposures across the Project. BC Hydro and the Environmental Assessment Office are working together on amendments to the Site C Construction Environmental Management Plan, which are expected to clarify that the current approaches to managing potentially acid-generating rock provide adequate environmental protection. Concurrently, BC Hydro is developing final treatment plans for potentially acid-generating sites that will not be addressed through dam construction or creation of the reservoir.

1.5 COVID-19 Pandemic at Site

COVID-19 cases at site remained at a low level through the quarter, with 90 cases reported on the Project during the three-month reporting period. BC Hydro continues to work with Northern Health to monitor the latest developments of the COVID-19 pandemic to help prevent the spread of the virus on the Project.

Rapid testing continues to be used as requested by workers, and to test symptomatic workers reporting to the clinic.

1.6 Settlement of West Moberly First Nations' Treaty Infringement Claims

On June 24, 2022, a full and final settlement of West Moberly First Nations' treaty infringement claims related to the Site C Project was reached between West Moberly First Nations, the Government of British Columbia, BC Hydro, and the Government of Canada.

This settlement is an important step in advancing BC Hydro's relationship with West Moberly First Nations. The agreements provide BC Hydro with a foundation to move

1 forward in a way that fosters a mutually beneficial relationship and a meaningful path
2 to reconciliation.

3 The components of the settlement related to Site C include:

- 4 • An impact and benefits agreement between BC Hydro and West Moberly First
5 Nations;
- 6 • Two agreements between BC Hydro and West Moberly First Nations that
7 provide the Nations contracting opportunities;
- 8 • A tripartite land agreement between the Government of British Columbia,
9 BC Hydro and West Moberly First Nations;
- 10 • An agreement providing for the release of West Moberly First Nations' claims
11 against the Site C Project; and
- 12 • A separate settlement agreement between Canada and West Moberly.

13 **1.7 Upholding Commitments to the Environment, Indigenous** 14 **Nations and Local Communities**

15 During the reporting period, BC Hydro continued to uphold its commitments to the
16 environment, Indigenous Nations and local communities.

17 Throughout the quarter, BC Hydro continued to engage, build relationships and find
18 solutions together on topics that are most important to the Indigenous Nations
19 affected by Site C.

20 BC Hydro continued to secure the appropriate permits, authorizations and leaves to
21 commence construction required for the Project. As of June 30, 2022, 566 (88%) of
22 the estimated 644 provincial and federal permits have been received.

23 Work advanced in the areas of environmental monitoring and assessment, as well
24 as in the Project's fish, wildlife, habitat, vegetation management and heritage

1 programs. The temporary fish passage facility started operating for the 2022 season
2 as scheduled on April 1, 2022.

3 Consultation is ongoing with impacted First Nations regarding options and
4 site-specific plans for managing identified burial and cultural sites impacted by
5 reservoir filling, in particular in the Halfway River and Cache Creek Bear Flats areas.

6 BC Hydro continues to advance economic opportunities for First Nations through
7 capacity building and procurement opportunities. Approximately \$645 million in
8 Site C procurement opportunities have been awarded to companies designated by
9 First Nations since the beginning of the Project. Working on the Site C Project has
10 helped businesses designated by First Nations to build and grow their reputations,
11 expand the scale of their operations, and develop new expertise to compete in the
12 regional economy.

13 In June 2022, 407 Indigenous people were working on the Site C Project, compared
14 to 375 in June 2021. The Project high was reached in October 2019, with
15 428 Indigenous people working on the Site C Project.

16 Throughout the quarter, BC Hydro worked closely with First Nations, local
17 government, and health authority stakeholders to ensure worker and public safety
18 while managing the COVID-19 pandemic at Site C. Through regular
19 communications, these stakeholders were kept informed about pandemic-related
20 updates on the Project.

21 **1.8 Project Work Ramped Up in Advance of Summer Construction** 22 **Season**

23 Construction of the Project continued to advance through the quarter, in preparation
24 for the upcoming summer 2022 construction season.

25 In the generating station and spillways civil works area, construction progressed with
26 the ongoing placement of concrete in the powerhouse, intakes and spillways, and

1 installation of the penstock sections. The final segment for the last penstock unit was
2 placed; in total, 90 segments are welded together to form six penstock units.

3 In the main civil works area, the placement of materials for the earthfill dam
4 progressed, with approximately 1.1 million cubic metres of dam fill material placed
5 for the core, filter and shell.

6 The Project continues to implement foundation enhancements to address
7 geotechnical issues in the bedrock foundation on the Project's right bank. Ongoing
8 reviews by the Technical Advisory Board and independent dam experts continue to
9 confirm that the design of the foundation enhancements meets the highest safety
10 standards and international best practices. The foundation enhancements include
11 the installation of 96 large diameter concrete-filled vertical steel piles to further
12 extend the foundation deeper into the bedrock and enhancements to the design of
13 the approach channel above the powerhouse and spillways. During the reporting
14 period construction began on the enhanced lining of the approach channel. Work
15 also continued in the powerhouse tailrace, with the installation of eight of the
16 48 large diameter vertical steel piles required in that area. The completion of the
17 installation of the 48 piles in the spillway area was described in previous reports.

18 Off-dam site, activity continued or resumed on the Highway 29 realignment,
19 including installation of the cast-in-place concrete bridge deck and the cast-in-place
20 concrete parapets at the Cache Creek segment. Construction continued on the
21 Hudson's Hope berm.

22 Consistent with the increase in construction activities at the dam site and off-dam
23 site, the total Project workforce reached a new Project high in June 2022 with
24 5,209 workers.

1.9 Post Reporting Period Update

The following sections contain discussion on Project updates that occurred subsequent to the reporting period. Further discussion will be provided in future Quarterly Progress Reports.

1.9.1 Powerhouse Bridge Cranes Inspection Reveals Wear

Site C's two powerhouse bridge cranes are located in the powerhouse and are used to move and install large components embedded in each of the six generating units. During the July 2022 inspection by the crane original equipment manufacturer, significant wear was observed on the wheel flanges of both cranes. As a safety precaution, the cranes were temporarily taken out of service in August 2022 and maintenance work began on the cranes. BC Hydro has implemented contingency plans to minimize the impacts of this maintenance work on Project construction. Specific construction impacts to work in the powerhouse are being determined.

1.9.2 Hudson's Hope Water Treatment Plant Issues

On July 20, 2022, the District of Hudson's Hope water treatment plant failed. A "do not consume" order was issued as a result and the District began to provide bottled drinking water to its residents.

Early in the Project, BC Hydro committed to mitigating the effects of the dam and reservoir on the community's infrastructure by providing funding to the District to replace their existing community water supply plant, which took water from the Peace River, with a similar reservoir-based water treatment plant (refer to section [12.1.1](#)). In 2019, the District requested that funding be provided for a well system plant based on the performance of two test wells, instead of from the reservoir. BC Hydro agreed to the change and the parties entered into the 2019 Water Agreement under which the District is responsible for all decisions, tendering, design, and construction of the well water system. Under the Water Agreement, the District is also responsible for all operations, maintenance, and

1 warranty costs. BC Hydro's obligation under the Water Agreement is to fund the well
2 water facility (approximately \$5 million), which became operational in 2021.

3 In August 2022, and without waiving its rights under the Water Agreement,
4 BC Hydro confirmed to the District that it will provide the District with a maximum of
5 \$500,000 in additional funds to assist the District with extraordinary costs it has
6 incurred for the supply of potable water to residents as a result of the plant failure for
7 the period of time until the plant is able to resume normal operations.

8 The District has advised that additional investments are required to understand the
9 long-term viability and performance of the well water system and depending on the
10 results, to explore long-term solutions to ensure a reliable community water supply.

11 **1.9.3 Old Fort Community Concerns**

12 In July 2022, a group of Old Fort residents used their vehicles to block access to the
13 Gate B entrance at Site C to voice their concerns regarding issues such as dust, air
14 quality, noise and traffic. In late July 2022, an in-person meeting took place between
15 Old Fort residents and BC Hydro to follow-up on these concerns. In response to this
16 meeting, BC Hydro has offered to temporarily relocate residents until the end of
17 October 2022, reimburse residents for cleaning the exterior of their homes, and
18 continue to provide updates on dust suppression and road improvement activities as
19 they relate to the community of Old Fort.

20 As of the writing of this report, the Project has not recorded any exceedances of the
21 24-hour rolling provincial air quality objectives over the previous 90 days and is often
22 well below these objectives.

23 **1.10 Project Status Dashboard for the Quarter**

24 BC Hydro, with oversight from the Project Assurance Board, is focused on
25 completing the Site C Project within the approved budget of \$16 billion and a
26 2025 in-service date, without compromising on safety, scope and quality. To report

1 on Project status, BC Hydro uses a dashboard system where key Site C Project
2 areas are classified as red (at risk), amber (moderate issues) or green (on target).

3 The Project Status Dashboard as of June 30, 2022, is provided in [Table 1](#). The
4 three notable changes from the previous quarter are:

- 5 • The Regulatory, Permits and Tenures indicator changed from “amber” to
6 “green” to reflect the amendments issued by the Environmental Assessment
7 Office to allow the relocation of the Cache Creek boat launch and to allow for
8 contingency hauling on public roads in the event the conveyor carrying till
9 material from 85th Avenue Industrial Lands to the dam site breaks down for
10 reasons beyond BC Hydro’s control;
- 11 • The Environment indicator changed from “green” to “amber” this quarter,
12 reflecting the Environmental Assessment Office order related to the different
13 interpretation of the environmental plan and mitigation requirements related to
14 potentially acid-generating rock exposures; and
- 15 • The Litigation indicator changed from “amber” to “green” this quarter, reflecting
16 that a full and final settlement of West Moberly First Nations’ treaty infringement
17 claims related to the Site C Project was reached.

1
2

Table 1 Project Status Dashboard

● On Target ● Moderate Issues ● At Risk

Status as of:	June 30, 2022	
Overall Project Health	●	<p>As of June 30, 2022, overall Project health remained “amber.” The Project is more than 65% complete and work continues to advance; however, there are still potential risks remaining. BC Hydro continues to review, assess, mitigate, manage and monitor potential risks to the Project.</p> <p>The Technical Advisory Board and independent experts continued to review and confirm that BC Hydro’s foundation enhancements solution is appropriate and sound, and will make the right bank structures safe and serviceable over the long operating life of Site C.</p>
Safety	●	<p>Safety remained “amber” as of June 30, 2022. BC Hydro is experiencing a very active 2022 construction season on the Project, with multiple contractors and active work fronts across the site. As a result, the number of safety and security incidents is consistent with the increase in construction activity and there has been a corresponding increase in safety and security incidents. When corrected for work hours, the Project’s serious incident frequency is trending higher; however, the lost time injury and all injury safety performance metrics remain consistently low. BC Hydro continues to conduct contractor safety verifications and field-based safe work observations remain a priority.</p> <p>In anticipation of 2022 being a peak construction year, the Project is undertaking site-specific safety reviews looking at current, active construction safety concerns. These reviews are being completed by independent safety experts.</p> <p>COVID-19 at site is stable and cases remain consistently low and manageable. Employers and workers continue to use the rapid testing program for symptomatic workers.</p>
Scope	●	<p>Scope remained “amber” as of June 30, 2022. Provisions are included in the Project plans for potential scope adjustments for site conditions and interfaces. As construction progresses, there remains a risk of design changes due to unknown field conditions.</p>
Schedule	●	<p>Schedule remained “amber” as of June 30, 2022. The Project is currently on schedule to achieve the approved 2025 in-service date and is more than 65% complete; however, a significant amount of work and potential schedule risks remain. BC Hydro is actively reviewing, assessing, mitigating, managing and monitoring these remaining risks.</p> <p>BC Hydro and Site C contractors continue to schedule work and explore strategies to complete work delayed by the COVID-19 pandemic as efficiently as possible. If successful, this will result in lowering the schedule risk and could result in an earlier in-service date; however, achieving an earlier in-service date remains subject to uncertainty and to the risks summarized in this report.</p>

Status as of:	June 30, 2022	
Cost	●	<p>Cost remained “amber” as of June 30, 2022. Potential cost risks remain including attraction and retention of sufficient skilled craft labour, inflationary pressures including interest rate increases, potential additional mitigation measures for potentially acid-generating rock, the potential re-emergence of COVID-19 cases impacting the Project, commercial negotiations with contractors, possible design changes due to unknown field conditions, and obtaining all of the remaining authorizations for the completion of the Project.</p> <p>As of June 30, 2022, the life-to-date actual costs are \$9.3 billion, which results in an estimated \$6.7 billion of remaining costs.</p>
Quality	●	<p>The quality rating for the Project remained “green” as of June 30, 2022, indicating that the work generally conforms to the requirements of the drawings and specifications. When quality issues are identified, BC Hydro works with the responsible contractor to rectify them in a timely manner.</p>
Regulatory, Permits and Tenures	●	<p>The regulatory, permits and tenures indicator changed from “amber” to “green” as of June 30, 2022.</p> <p>During the reporting period, BC Hydro received two amendments to the Project’s Environmental Assessment Certificate. On May 6, 2022, the Environmental Assessment Office issued an amendment to allow the relocation of the Cache Creek boat launch to a location close to the Halfway River. On June 30, 2022, the Environmental Assessment Office issued an amendment to allow for contingency hauling on public roads if the conveyor carrying till material from 85th Avenue Industrial Lands to the dam site breaks down for reasons beyond BC Hydro’s control.</p> <p>Overall, BC Hydro continues to be issued permits and authorizations in accordance with construction timelines. As of June 30, 2022, 566 of the estimated 644 provincial and federal permits required for the Project have been received and are actively being managed.</p>
Environment	●	<p>The Project environment status changed from “green” to “amber” as of June 30, 2022.</p> <p>During the reporting period, BC Hydro responded to one Environmental Assessment Office inspection record (from an inspection that took place from April 4-7, 2022), received a final inspection record from inspections completed in August 2021 and received an order related to potentially acid-generating rock exposures. BC Hydro and the Environmental Assessment Office are working together on amendments to the Site C Construction Environmental Management Plan which are expected to clarify that the current approaches to managing potentially acid-generating rock provide adequate environmental protection.</p> <p>An inspection by the Impact Assessment Agency of Canada was completed between June 13-16, 2022 but its draft inspection report was not issued during the reporting period.</p> <p>The temporary fish passage facility operated throughout the reporting period except for a brief period where equipment was replaced, partly to help improve performance. Early in the reporting period, due to high water elevations, fishway operations were augmented by a contingent trap and haul program.</p>

Status as of:		June 30, 2022
Procurement	●	<p>As of June 30, 2022, the status of the procurement indicator remained “amber” due to the remaining right bank foundation enhancements procurements that still need to be negotiated. A number of commercial agreements have been established to deliver the right bank foundation enhancements and the remaining changes are anticipated to be approved in 2022.</p> <p>The Highway 29 decommissioning and Halfway River East boat launch contracts were awarded to two First Nations as direct awards at the end of June 2022.</p>
Indigenous Relations	●	<p>BC Hydro has a mandate from the Government of British Columbia to reach project or impact benefits agreements with the 10 First Nations that are most impacted by Site C. Eight of 10 agreements are fully executed and in implementation. BC Hydro has a standing offer to negotiate with the remaining two First Nations that have not signed agreements related to the Site C Project. BC Hydro also maintains a working relationship with those Nations through operational consultation and engagement.</p> <p>Consultation is ongoing with impacted First Nations regarding options and site-specific plans for managing identified burial and cultural sites impacted by reservoir filling, in particular in the Halfway River and Cache Creek Bear Flats areas.</p>
Litigation¹	●	<p>The litigation indicator changed from “amber” to “green” as of June 30, 2022.</p> <p>On June 24, 2022, a full and final settlement of West Moberly First Nations’ treaty infringement claims related to the Site C Project was reached.</p> <p>The remainder of West Moberly’s civil claim (asserting that the existing Peace River hydroelectric dams and the cumulative impacts of resource development in their territory are an infringement of their Treaty 8 rights) are in abeyance by agreement of the parties to this litigation. The Government of British Columbia and West Moberly First Nations have agreed to enter into confidential government-to-government discussions to resolve the remaining matters in the litigation.</p>
Stakeholder Engagement	●	<p>BC Hydro continues to work with the communities, regional district and stakeholder groups on the implementation of various community agreements. BC Hydro also held one community open house during this period.</p>

¹ For future quarterly progress reports, BC Hydro will revisit whether to include a litigation indicator (to be consistent with its Project and Portfolio Management practice) and the level of reporting in section [8](#).

1.11 Significant Project Updates for the Quarter

Significant Project updates that occurred between April 1 and June 30, 2022, include the following:

- On April 1, 2022, the temporary fish passage facility started operating for the 2022 season as scheduled. Refer to section [10.5](#) for more information;
- On April 21, 2022, the Project received an Environmental Assessment Office Order related to potentially acid-generating rock exposures across the Project. Refer to section [10.3](#) for more information;
- On June 24, 2022, the Government of British Columbia, BC Hydro, the Government of Canada and West Moberly First Nations reached a full and final settlement of West Moberly First Nations' treaty infringement claims related to the Site C Project. Refer to sections [1.6](#) and [8](#) for more information;
- On June 29, 2022, the final segment for the last penstock unit was placed. Refer to section [3.1.3](#) for more information;
- In June 2022, there were 5,209 total workers on the Site C Project. Of the total workers, 3,507 (67%) were from British Columbia, and there were 951 workers on site from the Peace River Regional District (22% of the construction and non-construction contractors' workforce). The on-site contractor workforce number also includes 551 women (13%), 407 Indigenous workers, and 167 workers who are working for various contractors as apprentice carpenters, electricians, millwrights, ironworkers, mechanics, boilermakers, and plumbers. Refer to section [11.3](#) for further information;
- As of June 30, 2022, the GO Fund, administered by Northern Development Initiative Trust on behalf of BC Hydro, had distributed \$608,720 to 70 projects since the fund was launched. Refer to section [12.1.2](#) for more information;

-
- 1 • In June 2022, two Peace Region agriculture projects received \$1 million in
2 funding through the BC Hydro Peace Agricultural Compensation Fund’s
3 Agricultural Impact and Opportunities Initiative. More than \$2.6 million had been
4 distributed to 74 projects as of June 30, 2022. Refer to section [10.6](#) for more
5 information;
 - 6 • Main civil works construction continued, including in the approach channel, right
7 bank, earthfill dam and conveyor belt system. Refer to section [3.1.1](#) for more
8 information;
 - 9 • In May 2022, construction began on the foundations for the three transmission
10 lines connecting the Site C substation to the Site C powerhouse. Refer to
11 section [3.1.7](#) for more information;
 - 12 • Work on the Highway 29 realignment resumed or continued across all
13 remaining segments. Refer to section [3.1.8](#) for more information; and
 - 14 • Work began on two fish habitat sites during the reporting period, in April 2022 at
15 Dry Creek and in June 2022 at Maurice Creek. Refer to section [3.1.9](#) for more
16 information.

17 Refer to [Appendix A](#) for Site Construction photos from the reporting period and refer
18 to [Appendix B](#) for a list of work completed since the Project commenced in 2015.

19 **2 Safety and Security**

20 BC Hydro is experiencing a very active 2022 construction season on the Project,
21 with multiple contractors and work fronts active across site.

22 As a result, the number of safety and security incidents is consistent with the
23 increase in construction activity; when corrected for work hours, Project safety
24 performance metrics remain consistent and relatively low.

1 **2.1.1 Management of COVID-19**

2 During this reporting period, COVID-19 at site was stable and case counts remained
3 easily manageable (with 90 cases reported during the quarter). Employers and
4 workers continue to use the rapid testing program for symptomatic workers. Rapid
5 tests are available to all Site C workers for their personal use.

6 With support from Northern Health, the Project has eased several measures,
7 including no mask mandates and the restoration of all facilities and services in the
8 camp. BC Hydro continues to monitor the COVID-19 situation closely.

9 Northern Health has reviewed and accepted BC Hydro’s Communicable Disease
10 Management Plan, effective April 7, 2022.

11 **2.1.2 Safety Review**

12 In anticipation of 2022 being a peak construction year, the Project engaged
13 third-party safety experts to undertake a safety review. As all the Site C major
14 contractors have comprehensive and well documented safety programs in place and
15 hold WorkSafeBC Certificates of Recognition, this safety review was specifically
16 targeted to current, active construction safety concerns and risks across the dam
17 site.

18 There were three major components to the safety review: (a) an assessment of
19 higher risk hazards on the Project, including shared construction roads, construction
20 power infrastructure, fire safety performance, and a wildfire risk assessment; (b) a
21 point-in-time assessment of WorkSafeBC regulatory compliance; and (c) a review of
22 workers’ risk awareness/risk tolerance.

23 As of June 30, 2022, all field work for the safety reviews had been completed and
24 preliminary reports provided to BC Hydro. Work continues to finalize the reports,
25 assess the findings and prioritize recommendations for the Site C Project. Several
26 actions have already been completed including sharing the point-in-time regulatory

1 compliance reports with contractors, implementing safety mitigations on the shared
2 construction roads, and remediating some imminent fire safety hazards in a
3 contractor's office complex.

4 **2.1.3 Safety Verifications**

5 In this reporting period, the Site C safety team completed a total of 242 formal,
6 planned safety verifications for the Project – an average of 80 per month. The
7 closure rate for these verifications (resolution of nonconformances identified in the
8 verifications) was 84%. Of these 242 safety verifications, 17% were clean sheet
9 verifications, where no nonconformances were found during the verification.
10 Additionally, 87% of all safety verifications conducted during the reporting period
11 identified at least one good safety practice.

12 During this reporting period, safety team verifications focused on the following
13 hazards:

- 14 • Excavations and berms;
- 15 • Human and equipment interfaces;
- 16 • Occupational exposure limits of hazardous materials such as silica, welding
17 gases, fumes, and vapours;
- 18 • Road use and traffic management compliance;
- 19 • Field compliance with safe work procedures; and
- 20 • Working at heights (fall protection and dropped object controls).

21 **2.1.4 Security Update**

22 During this reporting period, the Project completed safety and security upgrades to
23 Gate C (a site access point) to support efficient hauling of both logs and aggregates
24 resulting from the new Area E Aggregate Program. These upgrades included the

1 implementation of radiofrequency identification (**RFID**) tagging for haul trucks and
2 workers.

3 In June 2022, under BC Hydro’s Site C Drug Prevention Program, BC Hydro invited
4 RCMP officers from the Fort St. John Drug Unit to present on local drug trends,
5 including what current drugs of choice look like, how these drugs are consumed,
6 types of paraphernalia being used, and how the drugs are being transported and
7 concealed. The sessions were well attended and well received by the onsite Site C
8 contractors.

9 **2.1.5 Summary of Safety Performance Metrics**

10 From July 2015 through June 2022, more than 44 million work hours have been
11 completed across all Project work fronts, including on-dam site and off-dam site. As
12 of June 30, 2022, there have been no fatalities and one permanent partial disabling
13 injury (in 2017).

14 During the reporting period, there were 11 serious safety incidents consisting of
15 eight near misses with the potential for a serious injury, and three serious incidents
16 with a moderate injury requiring medical treatment.

17 In total for this reporting period, there were 183 non-serious incidents, including
18 139 low grade injuries that required first aid or medical attention treatment (e.g.,
19 stitches or prescriptions) and 44 near misses. A near miss is defined as an incident
20 that could have resulted in an injury, but did not because of effective hazard barriers
21 or the person was out of harm’s way/missed. BC Hydro considers near miss
22 reporting as indicative of an effective and transparent safety culture and strongly
23 encourages all Site C contractors and employees to report near misses.

24 [Table 2](#) reflects safety performance results for the Project, including all contractors
25 and all sub-projects.

1

Table 2 Summary of Site C Safety Metrics

	Reported April 1, 2022 to June 30, 2022 ²	Reported Since Inception (July 27, 2015 to June 30, 2022) ²
Fatality ³	0	0
Permanently Disabling Injury ⁴	0	1 ⁵
Serious Incidents ⁶	11	124
Lost Time Injuries ⁷	1	40
All-Injury Incidents ⁸ (Lost Time Injuries ⁷ and Medical Attention Requiring Treatment ⁹)	11	286

2

2.1.6 Safety Performance Frequency Metrics

3

To assess safety performance over time, the Project considers key safety metrics in the context of the total amount of hours worked (frequency), which corrects for the volume of work. [Table 3](#) summarizes these key safety frequencies by quarter, for a rolling 12-month average.

4

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² Numbers are subject to change due to timing of when data is retrieved and when injury is categorized.

³ Excludes any non-occupational incidents.

⁴ A permanently disabling injury is one in which someone suffers a probable permanent disability.

⁵ In June 2018, an injured worker received a permanent partial disability award from WorkSafeBC due to a lost time injury incident in August 2017. 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.

⁶ Serious incidents are any injury or near miss with a potential for a fatality or serious injury.

⁷ Lost time injuries are those where a worker 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.

⁸ All-injury incidents are work-related medical attention requiring treatment, lost time injuries, and fatalities.

⁹ Medical attention requiring treatment is where a medical practitioner has rendered services beyond the level defined as “diagnostic or first aid” and the worker 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.

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**Table 3 Summary of Safety Performance
Frequency Metrics (2021 vs 2022)**

	January – December 2021 (Rolling 12-Month Average)				January – December 2022 (Rolling 12-Month Average)			
	Q1 Jan-Mar	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar	Q2 Apr-Jun	Q3 ¹⁰ Jul-Sep	Q4 ¹⁰ Oct-Dec
Serious Incident Frequency	0.51	0.49	0.59	0.67	0.70	0.81	n/a	n/a
Lost Time Injury Frequency	0.12	0.09	0.13	0.11	0.11	0.09	n/a	n/a
All Injury Frequency	1.14	1.19	1.41	1.24	1.29	1.19	n/a	n/a

3 The serious incident frequency (on a 12-month rolling average basis) for the April to
4 June 2022 quarterly reporting period was 0.81, compared to 0.49 for the same
5 period in 2021. This can be attributed to a significant increase in new and returning
6 workers as COVID-19 restrictions were relaxed, the start-up of new work activities
7 and onboarding of some new contractors (e.g., new aggregate excavation sites,
8 approach channel), and the continued intensity of higher hazard construction
9 activities on the Project, such as working at heights, confined space, and haul truck
10 traffic.

11 For the quarter, the lost time injury frequency and all-injury frequency did not change
12 from the same quarter in 2021, at 0.09 and 1.19, respectively. Managing lost time
13 injuries and return to work programs has remained a priority for contractors. Refer to
14 [Appendix C, Figure C-1](#) Employee and Contractor Serious Incident/Near Miss
15 Frequency, Lost Time Injury Frequency and All-injury Frequency
16 for safety performance frequency metrics in graphic format.

¹⁰ Key safety frequencies for Q3 and Q4 for calendar year 2022 will be provided in subsequent progress reports.

2.1.7 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 worker safety (employee and contractor) for the Project, both on the dam site and off the dam site. The Ministry of Energy, Mines and Low Carbon Innovation is the regulatory authority for worker safety on any work fronts subject to the *Mines Act*, including West Pine Quarry, Portage Mountain Quarry, Wuthrich Quarry, and Area E.

As shown in [Table 4](#), from April to June 2022, WorkSafeBC issued eight regulatory inspection reports and 12 regulatory orders. Of the eight WorkSafeBC inspection reports, five were ‘clean sheets’ with no orders which were mostly centred on WorkSafeBC construction high-risk education initiatives. There were two regulatory inspections and four orders from the Ministry of Energy, Mines and Low Carbon Innovation during this reporting period.

Table 4 Safety Regulatory Inspection and Orders

	Reported April 1, 2022 to June 30, 2022 ¹¹	Reported Since Inception (July 27, 2015 to June 30, 2022) ¹¹
Regulatory Inspections	-	278
Regulatory Orders	16	385

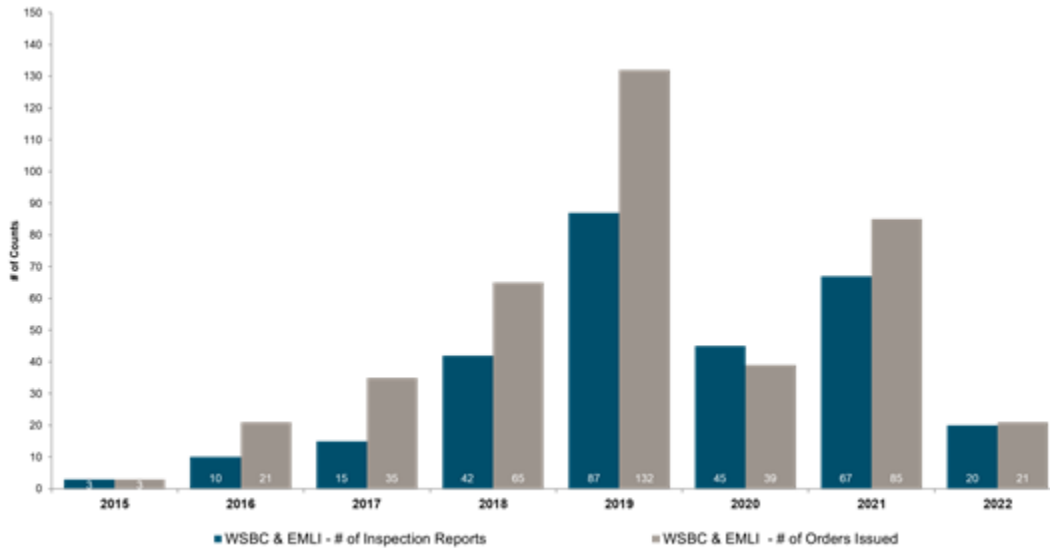
[Figure 1](#) shows the number of regulatory inspections and orders issued for the Project since 2015. The reduction in the regulatory activity in 2020 and 2021 can be partially attributed to WorkSafeBC officers not attending site as frequently due to internal WorkSafeBC COVID-19 restrictions.

Refer to [Appendix C, Table C-1](#) Safety Regulatory Inspections and Orders for a summarized version of the listing of regulatory inspection reports.

¹¹ Numbers are subject to change due to timing of when data is retrieved and when injury is categorized.

1
2

Figure 1 Regulatory Inspections and Orders, July 2015 to June 2022



3 **3 Construction, Engineering and Quality Management**
4 **Major Accomplishments, Challenges and Work**
5 **Completed**

6 **3.1 Construction**

7 Construction of the Project continued to advance during the reporting period.
8 BC Hydro and Site C contractors continue to schedule work and explore strategies
9 to complete work delayed by the COVID-19 pandemic as efficiently as possible.

10 **3.1.1 Main Civil Works**

11 During the reporting period, construction activities took place on the right bank,
12 earthfill dam and conveyor belt system, and are described below.

13 *Right Bank Drainage Tunnel*

14 The final concrete slab placements in the right bank drainage tunnel continue to
15 progress, along with the drilling of drain holes from the roller-compacted concrete
16 drainage gallery to the right bank drainage tunnel, and from the top of the

1 roller-compacted concrete in the approach channel to the roller-compacted concrete
2 drainage gallery. Slab placements are forecast to be completed in the upcoming
3 quarter.

4 *Earthfill Dam*

5 The placement of materials for the earthfill dam progressed well this quarter and is
6 on track with approximately 1.1 million cubic metres of dam fill material (core, filter,
7 and shell) placed. The cumulative progress of material placed for the earthfill dam is
8 approximately 35% of the total material placements.

9 *Conveyor Belt System*

10 The conveyor system that transports till material being used in the construction of
11 the dam core commenced seasonal operations in March 2022 and has been
12 operating throughout the quarter. Till material transported by the conveyor has been
13 sufficient to maintain material placements on the dam core, as well as providing a
14 stockpile of till material, to allow for maintenance outages of the conveyor.

15 **3.1.2 Infrastructure and Site Operations**

16 Infrastructure and site operations includes construction and operations of the worker
17 accommodation facility and debris management.

18 *Worker Accommodation*

19 The total capacity of the worker accommodation, including camp operations staff,
20 is 2,350.

21 In collaboration with Northern Health, BC Hydro and the camp operator have eased
22 several COVID-19 measures in the camp including making masks optional within the
23 facility, reducing the frequency of enhanced cleaning, and returning the dining and
24 lounge to previous occupancy limits.

1 BC Hydro has also updated the screening process for people accessing the site.
2 BC Hydro continues to use COVID-19 screening questions when workers access the
3 site, however temperature scanning was discontinued at the end of January 2022.
4 BC Hydro continues to implement the protocols mandated by the Provincial Health
5 Authority and the British Columbia Centre for Disease Control for the worker
6 accommodation lodge.

7 *Debris Management*

8 There are four debris retention structures on the Moberly and Peace Rivers that
9 provide coverage for all head pond elevations to capture and prevent debris from
10 entering the diversion tunnels. Debris management is seasonal with activities from
11 approximately April to November each year and no activities over the winter season
12 (approximately December to March).

13 During the quarter, the debris management contractor conducted debris removal
14 operations on both the Peace and Moberly River debris booms. The current contract
15 to manage debris at both the Peace River and Moberly River is in place until the end
16 of 2023, with an option to extend to 2024.

17 **3.1.3 Generating Station and Spillways**

18 During the reporting period, construction progress took place on the generating
19 station and spillways civil works, cranes, and hydromechanical equipment as
20 described below.

21 *Generating Station and Spillways Civil Works*

22 The generating station and spillways civil works contract includes the delivery of civil
23 works associated with the powerhouse, intakes, penstocks, and spillways.

24 By concrete volume, the generating station and spillways civil works sub-project is
25 approximately 77% complete as of June 30, 2022.

1 *Powerhouse*

2 By concrete volume, the powerhouse is approximately 85% complete as of
3 June 30, 2022. The second stage concrete (concrete that embeds the turbines and
4 forms the floors) is advancing at a pace to match the turbines and generators
5 contractor's schedule.

6 *Intakes Headworks*

7 Intakes first stage concrete is more than 89% complete. Intakes first stage concrete
8 is essentially complete for units 1, 2, 3, and 6. Intake 4 is approximately 50%
9 complete and intake 5 is approximately 90% complete.

10 *Penstocks*

11 All of the penstock steel for all penstocks has been installed.

12 The flexible couplings (which are penstock sections that allows the penstocks to
13 move slightly) were redesigned due to technical issues. Testing will commence in
14 July 2022.

15 *Spillways*

16 The contractor has completed approximately 70% of the spillways concrete. The
17 spillways headworks concrete will reach its maximum elevation in August 2022.

18 The spillways are forecast to be complete by mid-2023.

19 *Cranes*

20 The assembly of the headworks gantry crane will begin in August 2022.

21 The tailrace gantry crane has been shipped to the site. Crane erection will
22 commence in October 2022.

1 *Hydromechanical Equipment*

2 Gates and components are being shipped to site in advance of need. Much of the
3 structural hydromechanical equipment is now onsite.

4 **3.1.4 Right Bank Foundation Enhancements**

5 During the reporting period, construction work began on the enhanced lining of the
6 approach channel. Activities included shallow excavations to reach the bottom
7 elevation of the approach channel's rock surface, and cleaning and grouting of the
8 bedrock. Following cleaning and grouting, the rock was covered with a combination
9 of either unreinforced concrete, glacial till or granular material. In addition, work
10 started for the construction of the reinforced concrete grouting plinth and central
11 channel berm structures. Drilling activities began, including the drilling of drain holes
12 from the surface of the approach channel into the roller-compacted concrete buttress
13 drainage gallery.

14 Additionally, during the reporting period, work continued with the installation of the
15 48 large diameter concrete-filled vertical steel piles in the powerhouse tailrace. Work
16 included completion of the first of the four phases of the excavations required to
17 provide access into the bottom of the excavation for the piling equipment. Following
18 completion of the excavation, a total of eight piles were installed, which includes pile
19 drilling, installation of steel piles and concrete backfilling.

20 The powerhouse piles will be installed from west to east, with the final piles
21 scheduled for completion in spring 2023.

22 **3.1.5 Balance of Plant**

23 The balance of plant contracts are split between three contractors and include the
24 following scopes of work: (1) mechanical; (2) electrical (includes architectural,
25 heating, ventilation, and air conditioning, and fire detection and protection contracts);
26 and (3) permanent upstream fishway and other out structures.

1 The mechanical and electrical work has progressed well inside the powerhouse in
2 the areas made available to the contractors, which has been limited to the
3 downstream section of the generator floor, the operations building, and the draft tube
4 and dewatering levels in the powerhouse. The mechanical contractor commenced
5 the drainage and dewatering system installation and the electrical contractor
6 commenced installation of the electrical station service in the powerhouse and the
7 architectural work in the operations building. The permanent upstream fishway and
8 other out structures contractor has commenced concrete placements at the fishway
9 and is projecting to complete the balance of the concrete prior to winter 2022.

10 **3.1.6 Turbines and Generators**

11 The manufacturing and installation for the turbines and generators are on schedule;
12 however, there have been some delays to the work due to the COVID-19 pandemic,
13 which has used up some of the float in the schedule. BC Hydro and the contractor
14 have agreed on a recovery schedule that has all six units in service on schedule.

15 Manufacturing is expected to be substantially completed by the end of 2022.

16 Three of six turbine runners have arrived at site and the fourth turbine runner is
17 being stored off site. The remaining two runners are being stored in Prince Rupert
18 and will likely be delivered next winter when road conditions allow.

19 **3.1.7 Transmission**

20 The following reflects progress to June 30, 2022:

21 *Transmission Lines*

22 Construction of the foundations for the three transmission lines connecting the
23 Site C substation to the Site C powerhouse was started by the contractor. The
24 foundations are expected to be complete by September 2022.

1 **3.1.8 Highway 29 and Hudson’s Hope Shoreline Protection Berm**

2 The permanent Highway 29 realignment is planned to be completed by
3 summer 2023 to ensure the highway remains accessible once the reservoir is filled
4 and the dam is operational.

5 The Highway 29 realignment also includes the construction of a shoreline protection
6 berm within the District of Hudson’s Hope to protect against bank erosion due to
7 reservoir wind waves and water table rise; the development and operation of the
8 Portage Mountain Quarry, which supplied riprap and filter materials for highway and
9 berm construction; and the construction of boat launches at Halfway River,
10 Lynx Creek, and Hudson’s Hope.

11 The following reflects progress to June 30, 2022:

12 *Cache Creek*

13 The Cache Creek highway segment has been divided into the Cache Creek East
14 (8.6 kilometres) and Cache Creek West (4.1 kilometres) segments.

15 Construction continued on the Cache Creek East segment during the reporting
16 period, including installation of the cast-in-place concrete bridge deck and the
17 cast-in-place concrete parapets. Overall, construction on this segment was 72%
18 complete at the end of the reporting period.

19 Construction of the Cache Creek West segment was completed in August 2020.

20 *Halfway River*

21 The Halfway River segment includes the realignment of 3.7 kilometres of highway
22 and the construction of a new one-kilometre long bridge crossing the Halfway River,
23 approximately 500 metres north of the current structure.

1 Construction resumed on the Halfway River segment with paving of the east bridge
2 approach completed and paving of the west bridge approach 50% complete. Overall
3 progress was 94% complete at the end of the reporting period.

4 Due to a technical issue with the bridge expansion joints, the new Halfway River
5 bridge will not open to traffic until new expansion joints have been procured and
6 installed by the contractor. In the interim, traffic will continue to use the existing
7 highway.

8 *Farrell Creek East*

9 The Farrell Creek East segment includes the realignment of 8.4 kilometres of
10 highway. Geotechnical studies in 2019 concluded that 5.7 kilometres of this segment
11 could be removed from the scope of work and monitored following the creation of the
12 Site C reservoir, reducing the length of the Farrell Creek East realignment work to
13 2.7 kilometres.

14 Construction resumed on Farrell Creek East in May 2022, and all outstanding
15 grading, drainage, and reseeding work was completed. The only remaining work on
16 the segment is the completion of the top lift of asphalt, which is tentatively scheduled
17 for the end of July 2022, pending availability of the paving subcontractor.

18 *Farrell Creek*

19 The Farrell Creek segment includes the realignment of 1.9 kilometres of highway,
20 including the construction of a new 411-metre-long bridge.

21 At the end of the reporting period, the contractor had completed 20% of the
22 cast-in-place concrete bridge deck. Overall, construction on this segment was 80%
23 complete at the end of the reporting period.

1 *Dry Creek*

2 The Dry Creek segment includes the realignment of 1.4 kilometres of highway,
3 including the construction of a new 192-metre-long bridge.

4 Construction resumed at Dry Creek with the remaining components of the bridge
5 completed, and approaches to the east and west of the bridge being constructed.
6 Overall progress on the segment was 80% complete at the end of the reporting
7 period.

8 *Lynx Creek*

9 The Lynx Creek segment includes the realignment of 9.1 kilometres of highway and
10 the construction of a 169-metre-long bridge.

11 During the reporting period the Lynx Creek contractor completed the cast-in-place
12 concrete bridge deck and continued to construct the grading and drainage works on
13 the new highway alignment. At the end of the reporting period, the Lynx Creek work
14 was 66% complete.

15 *Portage Mountain Quarry*

16 Portage Mountain Quarry supplied riprap and berm filter materials for various
17 segments of the Highway 29 realignment and the construction of the shoreline
18 protection berm in the District of Hudson's Hope.

19 All production of riprap for Highway 29 and the Hudson's Hope berm was completed
20 and focus is now on the design and implementation of quarry reclamation, which is
21 anticipated to occur in 2023.

22 *Hudson's Hope Shoreline Protection Berm*

23 The Hudson's Hope shoreline protection scope of work includes a 2.6-kilometre
24 shoreline protection berm along the Peace River that will protect the slopes adjacent

1 to the town of Hudson’s Hope from shoreline erosion due to impacts from the Site C
2 reservoir.

3 As of the end of the reporting period, the contractor had completed 100% of the
4 berm stripping and vegetation clearing, placement of 99% of the 70-kilogram riprap,
5 96% of the 250-kilogram riprap as well as 90% of the berm filter production and
6 placement. The installation of culverts and the berm running surface was started and
7 was 39% and 11% complete respectively.

8 As part of the shoreline protection work, BC Hydro has funded and installed a new
9 raw water intake should the District of Hudson’s Hope decide to source water from
10 the reservoir in the future. Due to a delay in the supply of piping materials for the raw
11 water intake installation, the construction of the berm is now expected to be
12 complete by the end of August 2022, instead of the original plan to be completed in
13 July 2022.

14 *Highway 29 Decommissioning*

15 The contract for the Highway 29 decommissioning was awarded in June 2022.

16 *Halfway River East Boat Launch*

17 The contract for the Halfway River East boat launch was awarded in June 2022.

18 **3.1.9 Reservoir**

19 The following reflects progress to June 30, 2022:

20 *Lower Reservoir, Moberly River Drainage and Eastern Reservoir including Cache* 21 *Creek Drainage*

22 All clearing and burning activities are complete for these areas.

23 *Middle Reservoir, Halfway River Drainage and Western Reservoir*

24 As planned, clearing activities ceased in early April 2022 with no further work
25 planned until late summer 2022.

1 During the reporting period, designs were advanced and procurement initiated for
2 the final clearing contract for the Watson Slough area. This work will be offered as a
3 direct award to a First Nations-designated business.

4 *Other Reservoir Work*

5 The scope of other reservoir work includes infrastructure relocations as well as
6 environmental offset works, which are required as part of reservoir filling.

7 BC Hydro's existing transmission line crossing of the Halfway River needs to be
8 relocated prior to reservoir filling. Minor foundation construction activities remain and
9 are scheduled for late summer 2022. Pole fabrication is complete, and the
10 installation and overhead stringing is planned for fall 2022.

11 The construction of two fish habitat sites began during the reporting period. Work at
12 Dry Creek began in April 2022 and was completed in July 2022. Work at Maurice
13 Creek began in June 2022 and is expected to be completed in summer 2022. A
14 request for quotation was issued for the final fish habitat site situated at Wilder
15 Creek. This work is a select tender and is being offered to three First
16 Nations-designated businesses.

17 **3.2 Engineering**

18 The Site C engineering team is responsible for defining the Project's design
19 requirements, preparing the Project designs and contract specifications, and
20 ensuring the safety and quality of the assets. The team consists of in-house design
21 specialists from BC Hydro and a range of external consultants from engineering
22 firms who are responsible for the various design components.

23 Through the reporting period, substantial effort was given to engineering supervision
24 and field review at the construction site.

1 **3.2.1 Main Civil Works**

2 Support for the main civil works contract continued during the reporting period
3 supporting excavations, foundation mapping, dam fill placements, grouting, and
4 instrumentation reading interpretation. Dam fill placements for the 2022 season
5 started in late March 2022, and as of the end of June 2022, the dam till elevations
6 and adjacent filter and shells were at 421 metres. Grouting of the right and left
7 abutments is on hold until the fall. Instrumentation monitoring in the reporting period
8 has indicated positive results with respect to dam stability and has confirmed that the
9 dam foundation is responding to dam fill placement as predicted.

10 Detailed geological mapping of the excavations in the approach channel will
11 continue throughout the summer. This geological information will continue to be
12 used to update the design parameters for the site geology and foundations.

13 **3.2.2 Right Bank Foundation Enhancements**

14 During the reporting period, value engineering activities continued in support of
15 improvements to the design of the approach channel. Work included advancing the
16 design of the channel's central channel berm.

17 BC Hydro continued to engage the independent dam experts, Technical Advisory
18 Board and other subject matter experts to provide oversight of activities associated
19 with the design of the foundation enhancements and construction of the Project.
20 Refer to section [3.2.7](#) for a summary of the Technical Advisory Board meetings and
21 [Appendix E](#) for the report issued by the Technical Advisory Board during this
22 reporting period.

23 **3.2.3 Large Cranes, Hydromechanical, and Turbines and Generators**

24 Engineering support to construction, manufacturing and vendor submittal reviews
25 and integration continued throughout the reporting period for the large cranes,
26 hydromechanical equipment and turbines and generators contracts.

1 **3.2.4 Generating Station and Spillways, Balance of Plant, and Equipment**
2 **Supply**

3 During the reporting period, work focused on the production of record drawings for
4 the powerhouse, along with supporting construction with review of submittals for the
5 powerhouse, intakes, penstocks, and spillways.

6 With the successful conclusion of the balance of plant procurement processes, work
7 focused on the preparation and issuance of the issued-for-construction drawings for
8 the balance of plant mechanical, electrical, permanent upstream fishway and other
9 out structures, fire detection and protection, and the heating, ventilation, and air
10 conditioning contract packages. In addition, the engineering team supported
11 construction activities under these contracts, including review of the technical
12 submittals and contractor design drawings. The balance of plant team also
13 continued to support the review of the technical submittals and design drawings,
14 factory acceptance testing, and virtual factory visits for the seven outstanding
15 equipment supply contracts, including the generator terminal equipment, generator
16 circuit breakers, generator step-up transformers, AC station service, DC station
17 service, 500 kV motor-operated disconnects, and diesel generators contracts. The
18 engineering team also participated in a manufacturer's kick-off meeting and factory
19 inspection/quality audit for the generator step-up transformers. In early June 2022,
20 BC Hydro conducted a manufacturing quality audit for the generator step-up
21 transformers at the contractor's factory in Busan, Korea, followed by a
22 manufacturing kick-off meeting. A Site C engineering team member was present for
23 both activities.

24 Engineering design and fabrication continued to be advanced on the protection and
25 control systems and integrated testing is also progressing on fabricated equipment.

26 Overall, the detailed engineering on the generating station and spillways is
27 complete. This excludes the foundation enhancements design, for which the detailed

1 engineering, constructability reviews, and value engineering is approximately 90%
2 complete.

3 **3.2.5 Transmission**

4 During the reporting period, engineering support was provided to complete
5 substation and transmission line record drawings and provide construction support
6 to the powerhouse transmission lines that will connect the Site C substation to the
7 Site C powerhouse.

8 **3.2.6 Highway 29**

9 Engineering support is being provided to the various highway segments and the
10 Hudson's Hope berm as required to progress the construction activities.

11 **3.2.7 Technical Advisory Board**

12 A series of video conferences occurred from April to June 2022. The Technical
13 Advisory Board issued a report (#25) in April 2022. Refer to [Appendix E](#) for the
14 Technical Advisory Board Report #25.

15 **3.3 Quality Management**

16 During the reporting period, the Project team continued its activities to support the
17 Project quality management plan, including:

- 18 • Ongoing meetings with the quality management teams of key manufacturers;
- 19 • Ongoing meetings with the quality management teams of the Site Contractors
20 to address quality issues;
- 21 • Performing quality audits of the Site Contractors; and
- 22 • Continuing with monthly quality performance indicator assessments for the
23 engineering, manufacturing and construction activities across each sub-project.

1 **3.3.1 Quality Nonconformance Management**

2 The identifying and reporting of nonconformances is an important part of quality
 3 management on construction projects like Site C.

4 The number of nonconformances can vary through the different phases of the
 5 Project and will fluctuate depending on the amount and type of work underway, the
 6 number of contractors on site, and the number of work locations.

7 The Project team continues to track and manage quality nonconformances. [Table 5](#)
 8 summarizes quality nonconformity instances during the reporting period.

9 **Table 5 Quality Management Nonconformity**
 10 **Report (NCRs) Metrics**
 11 **Reporting Period – April 2022 to**
 12 **June 2022**

Contract	NCRs Reported April 1, 2022 to June 30, 2022	NCRs Closed April 1, 2022 to June 30, 2022	NCRs Reported as of June 30, 2022	NCRs Closed as of June 30, 2022	NCRs Open as of June 30, 2022
Main Civil Works	10	40	1,990	1,966	24
Turbines and Generators (total = manufacturing + installation)	61 (=12+49)	43 (=23+20)	769 (=566+203)	652 (=510+142)	117 (=56+61)
Generating Station and Spillways Civil Works	116	111	1,220	1,132	88
Large Cranes	0	0	27	27	0
Hydromechanical Equipment	5	5	47	46	1
Transmission	0	0	119	116	3

13 During the reporting period, there were no significant quality issues to report on the
 14 main civil works sub-project and the quality of the work continues to be good.
 15 BC Hydro received positive results from a quality audit of the main civil works
 16 contractor’s processing and testing operations for the main dam materials,
 17 confirming that materials continue to be processed, placed and tested in accordance
 18 with contract requirements. BC Hydro has retained a contractor to perform
 19 independent testing of the main dam materials, similar to the program implemented
 20 during the 2021 construction season. BC Hydro and the main civil works contractor

1 continue to meet weekly to discuss and resolve open nonconformity reports as well
2 as discuss broader topics related to the contractor's quality performance.

3 The quality of the constructed works in the generating station and spillways and
4 intake structures continues to be good. BC Hydro continues to meet with the
5 contractor daily to discuss the thermal control performance of concrete placements
6 under cure, and to push for timely corrective actions when excursions are noted.
7 BC Hydro notes that there were some challenges with thermal control during the
8 reporting period, but as ambient temperatures at site have stabilized, the
9 contractor's performance has improved. The penstock coating operations are now
10 underway and specialists from Powertech Labs are on site to assist BC Hydro with
11 the quality assurance activities for the preparation and application activities.

12 Following the failed hydrostatic pressure test of the unit 1 penstock flexible coupling
13 in November 2021, the generating station and spillways civil works contractor and its
14 flexible coupling supplier have developed a modified design and are in the process
15 of installation and field testing. Preliminary results are expected in August 2022. The
16 generating station and spillways civil works contractor has also engaged an
17 alternative supplier to design a new flexible coupling as a contingency if the modified
18 design is unsuccessful. BC Hydro and the contractor continue to meet weekly to
19 discuss and resolve open nonconformity reports as well as discuss broader topics
20 related to the contractor's quality performance.

21 For the turbines and generators contract, there continues to be no significant quality
22 issues for the manufactured components. At site, the quality of the turbine
23 embedded parts and rotor hub welding continues to be good, as does the quality of
24 the unit 1 rotor rim piling. During a pre-installation inspection of the unit 1 spiral case
25 flexible coupling housing, surface defects were found on the housing that affected
26 the couplings' ability to seal. The contractor has implemented corrective actions on
27 the unit 1 coupling housing and is investigating the extent of the issue for the

1 remaining couplings. BC Hydro continues to meet with the contractor on a weekly
2 basis to discuss upcoming inspections, quality issues and the overall quality
3 assurance program.

4 In early June 2022, BC Hydro representatives met with local quality inspectors at the
5 contractor's facility in South Korea to perform a quality audit and to participate in a
6 manufacturing kick-off meeting in advance of the generator step-up transformer
7 manufacturing.

8 **3.3.2 Site C Quality Management Audit**

9 During the reporting period, BC Hydro Audit Services completed an audit of Site C's
10 Quality Management Program. The audit reviewed whether Site C's quality
11 management plans are being followed to ensure quality objectives are met and
12 focused on the design, manufacturing and construction quality aspects. The audit
13 team was supplemented with an independent subject matter expert. Overall, the
14 audit was rated as "green" and concluded that processes exist to provide a
15 reasonably high degree of quality assurance for the Site C Project and that a quality
16 management system has been implemented to identify, communicate and address
17 quality-related issues.

18 **3.4 Assets In-Service**

19 Prior to the first generating unit coming into service, there are several construction
20 activities that need to be substantially completed both on the dam site and off the
21 dam site.

22 The first generating unit is scheduled to be in-service approximately one year before
23 the sixth and final generating unit goes into service. Before the first generating unit is
24 put into service, diversion tunnel conversion must be completed to allow for reservoir
25 filling. In order to complete the diversion tunnel conversion and proceed with

1 reservoir filling, each of the following key construction activities must be substantially
2 complete:

3 *Dam Site*

- 4 • The earthfill dam, approach channel, powerhouse and spillways;
- 5 • The first generating unit ready for commissioning;
- 6 • The powerhouse connected to the substation via transmission lines;
- 7 • The removal of the right bank cofferdam; and
- 8 • The watering up of the powerhouse and spillways tailraces.

9 *Off-Dam Site*

- 10 • Clearing the Site C reservoir;
- 11 • Realignment of Highway 29; and
- 12 • The Hudson's Hope shoreline protection berm.

13 Before all major pieces of equipment and assets are placed into service on the
14 Project, inspecting, testing, and commissioning activities are completed to ensure
15 that all components are fit for service and safe to transition to BC Hydro Operations.

16 The pre-commissioning testing includes testing of individual pieces of equipment.
17 The offline testing is completed prior to the signing of a Commissioning Notice to
18 Energize, which states that the asset is safe to connect to the BC Hydro grid to
19 commence the online testing. At the conclusion of the online testing, the signing of a
20 Commissioning Notice to Operate formalizes the handover of the asset to the
21 BC Hydro Operations group to operate. The commissioning process undertaken for
22 the earthfill dam and associated assets will form part of the comprehensive dam
23 safety and reservoir filling plan.

1 Once assets are placed in-service, BC Hydro Operations is responsible for the
2 long-term operations and maintenance of the equipment and assets.

3 As of June 30, 2022, the following permanent assets have been placed into service
4 on the Project:

- 5 • Site C substation;
- 6 • 500 kV gas-insulated switchgear expansion at the Peace Canyon substation;
7 and
- 8 • Two new 500 kV transmission lines that connect Site C to the Peace Canyon
9 generating station.

10 **4 Project Schedule**

11 **4.1 Project In-Service Dates**

12 BC Hydro is currently on track to achieve the approved in-service date of 2025;
13 however, BC Hydro continues to actively monitor and assess Project risks, including
14 attraction and retention of sufficient skilled craft labour, inflationary pressures
15 including interest rate increases, potential additional mitigation measures for
16 potentially acid-generating rock, the potential re-emergence of COVID-19 cases
17 impacting the Project, commercial negotiations with contractors, possible design
18 changes due to unknown field conditions, and obtaining all of the remaining
19 authorizations for the completion of the Project.

20 BC Hydro and Site C contractors continue to schedule work and explore strategies
21 to complete work on the Project delayed by the COVID-19 pandemic as efficiently as
22 possible.

23 [Table 6](#) shows the status of key Project milestones in relation to the approved
24 in-service date of 2025.

1

Table 6 In-Service Dates

Description	In-Service Dates based on Approved Budget and Schedule (June 2021) ¹²	Status
5L5 500 kV Transmission Line	October 2020	Complete
Site C Substation	October 2020	Complete
5L6 500 kV Transmission Line	July 2023	Complete
Unit 1 (first power)	December 2024	On Track
Unit 2	February 2025	On Track
Unit 3	May 2025	On Track
Unit 4	July 2025	On Track
Unit 5	September 2025	On Track
Unit 6	November 2025	On Track

2

5 Project Governance, Costs and Financing, and Risk

3

5.1 Project Governance

4

During the reporting period, activities supporting Project governance included:

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- The Project Assurance Board continued to meet monthly to provide independent due diligence and oversight of the Site C Project to enable the Project to be fit for purpose and to be completed safely, on time and on budget;

6

7

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- The Project Assurance Board – along with members of the BC Hydro Board of Directors, the Minister of Energy, Mines and Low Carbon Innovation, and the Premier – held a site visit in May 2022 to observe construction progress and meet Project team members;

9

10

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- The commercial sub-committee of the Project Assurance Board continued to meet monthly to provide oversight on claims management, commercial strategy and contractual negotiations;

13

14

¹² In-service dates based on Treasury Board's approval of the revised budget in June 2021.

-
- 1 • The Technical Advisory Board continued to provide technical expertise and
2 guidance and support to the Project team;
 - 3 • EY Canada continued to provide independent oversight for the Project, including
4 budget oversight, schedule and commercial management evaluation and risk
5 assessment analysis;
 - 6 • BC Hydro and EY Canada worked collaboratively to complete the quarterly
7 update of the cost risk analysis and schedule risk analysis for the Project; and
 - 8 • Special advisor Peter Milburn continues to work with the Project to review that his
9 recommendations, which have been implemented, continue to be sustained.

10 **5.2 Project Budget Summary**

11 With the Project more than 65% complete, BC Hydro, with oversight from the Project
12 Assurance Board, continues to actively manage potential Project risks.

13 As of June 30, 2022, the life-to-date actual costs are \$9.3 billion, which results in an
14 estimated \$6.7 billion of remaining costs. The Project remains on track to be
15 completed within the \$16 billion budget and meet the Project in-service date in 2025.

16 **5.3 Project Expenditure Summary**

17 The Project Budget in [Table 7](#) reflects the Project budget of \$16 billion approved in
18 June 2021 by key work area, life-to-date actual expenditures to June 30, 2022, and
19 the remaining budget.

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**Table 7 Project Budget by Key Work Area
 (\$ million)**

Description	Project Budget ¹³	Actuals, Life-to-Date (as of June 30, 2022)	Remaining Budget (as of June 30, 2022)
Dam, Power Facilities and Associated Structures and Transmission ¹⁴	8,258	5,260	2,998
Offsite Works, Direct Construction Supervision and Site Services ¹⁵	2,895	1,857	1,038
Total Direct Construction Cost	11,153	7,117	4,036
Indirect Costs ¹⁶	2,082	1,260	822
Total Construction and Indirect Costs	13,235	8,377	4,858
Interest During Construction and Contingency	2,765	966	1,799
Total	16,000	9,343	6,657

3 [Table 8](#) provides a summary of the approved total Project budget, the current
 4 forecasts, and related variances. The table also presents the cumulative plan and
 5 actual costs to June 30, 2022 and the related variances.

¹³ The total Project budget was approved in June 2021 by Treasury Board.

¹⁴ Key items included are river diversion infrastructure, earthfill dam and related works, spillways, powerhouse, generation equipment and transmission and substation work.

¹⁵ Key items included are highway re-alignment and reservoir related work, direct construction supervision, and site services such as worker accommodation.

¹⁶ Key items included are mitigation and compensation programs, development and regulatory costs, project management, engineering and other support services such as Project controls, contracts management, environmental, and Indigenous relations.

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Table 8 Total Project Budget Compared to Forecast Amounts to Completion and Life-to-Date Plan Compared to Actuals to June 30, 2022 (\$ million Nominal)

Description	Total Project			Life-to-Date (LTD) to June 30, 2022		
	Budget	Forecast to Completion	Variance	Plan	Actual	Variance
Total Construction & Indirect Costs	13,235	13,235	0	9,516	8,377	1,139
Interest During Construction and contingency	2,765	2,765	0	1,187	966	221
Total	16,000	16,000	0	10,703	9,343	1,360

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Details of the variances between actual and plan are in [Appendix H](#).

[Table 9](#) provides a Fiscal 2023 year-to-date (YTD) summary as of June 30, 2022, for the plan, actual cost and related variance based on the 2022/23 to 2024/25 Service Plan.

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Table 9 2022/23 to 2024/25 Service Plan Compared to Actuals to June 30, 2022 (\$ million Nominal)

Description	2022/23 to 2024/25 Service Plan (June 30, 2022)	Actuals, YTD (June 30, 2022)	Variance
Total Project	664	534	130

12

Details of the variances between actual and plan are in [Appendix H](#).

13

5.4 Site C Project Financing

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Most of BC Hydro's capital projects, including the Site C Project, are debt financed. The Site C Project costs are included as part of BC Hydro's overall borrowing and included in the Government of British Columbia's budget and fiscal plan. The debt and related interest costs are managed corporately by BC Hydro.

1 **5.5 Material Project Risks and Opportunities**

2 Material project risks and opportunities are identified and reviewed by BC Hydro
3 management and the Project Assurance Board on an ongoing basis. Project risks
4 are uncertain events that, if they occur, could result in a negative impact or loss to a
5 project. Similarly, opportunities are uncertain events that, if they occur, could result
6 in a positive impact, or benefit, to a project.

7 As the Project progresses through implementation phase, the Project risks and
8 opportunities will continue to evolve.

9 The criteria for selecting which risks and opportunities to include in internal and
10 external reporting include both objective and subjective measures; these criteria
11 have been utilized to select the risks and opportunities included in this report.¹⁷

12 Refer to [Table 10](#) and [Table 11](#) for a list of the material Project risks and
13 opportunities as of June 30, 2022.

14 **Table 10 Material Project Risks**

Risk Description	Impact and Response Plan Summary
Risk of a safety incident resulting in a fatality or disabling injury.	<p>Impact: Serious worker injury or fatality; Project delays and associated costs.</p> <p>Response: Continue to monitor safety performance through BC Hydro's field-based Safe Work Observations program and ongoing safety management and analytics; support continuous improvements to the Safe Work Observations program to reinforce safety behaviours in the field; continue to share safety learnings; work with Project contractors on more collaborative safety incident investigations and track/follow up on corrective actions; work with WorkSafeBC and contractors on safety equipment and process audits and programs focused on high hazard work activities at site; conduct joint safety planning workshops for upcoming work scopes; and continue to include safety in BC Hydro and contractor onboarding orientations to promote and encourage a strong safety culture across the Project.</p>

¹⁷ The lists do not include risks and opportunities 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.

Risk Description	Impact and Response Plan Summary
<p>Risk that the Project contractors cannot attract and retain sufficient skilled craft workers.</p>	<p>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, the requirement for specialized workers, and the effects of COVID-19. This may result in potential impacts to schedule, safety, productivity and cost.</p> <p>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.</p>
<p>Higher interest during construction on Project than planned due to increases in weighted average cost of debt rates</p>	<p>Impact: Higher than budgeted interest during construction cost.</p> <p>Response: BC Hydro to hedge debt based on BC Hydro’s approved hedging strategy.</p>
<p>Risk of right bank foundation enhancements interface conflicts.</p>	<p>Impact: Existing contractors' scopes of work and schedule impacts due to the right bank foundation enhancements.</p> <p>Response: Rely on change schedule terms of existing contracts to proceed with change orders for the right bank foundation enhancements work scope.</p>
<p>First Nations burial site management and community support take longer than planned</p>	<p>Impact: Schedule delays and/or cost implications to recover schedule and obtain necessary regulatory approvals.</p> <p>Plan: Work closely with affected First Nations to develop and implement appropriate burial site management options. Ensure sufficient amounts of time, including schedule float, are available in the Project schedule.</p>
<p>Increasing regulatory requirements relating to management of potentially acid-generating rock</p>	<p>Impact: Potential cost implications and schedule impacts.</p> <p>Response: Clarify any new regulatory requirements and/or non-compliances and ensure all potentially acid-generating rock locations have a suitable environmental prescription that mitigates the risk of acidic water.</p>

Risk Description	Impact and Response Plan Summary
Risk of tunnel conversion delay due to constructability, condition, safety or operational issues.	<p>Impact: Schedule delay, Project cost increases; damage to structures requiring repairs, and acceleration needed to recover.</p> <p>Plan: Continue implementation of operations, maintenance, and surveillance programs to ensure successful installation of the diversion outlet stoplogs. Conduct joint detailed constructability and planning exercises with the contractor, continuously monitor the performance of the diversion tunnels, complete inspections of accessible tunnel areas prior to tunnel conversion. Work jointly with contractor and WorkSafeBC to ensure all hazards and mitigations have been identified and executed. Collaboratively develop and execute processes with BC Hydro Operations team to condition the upstream facilities to be ready to support the conversion works.</p>
Risk of contractor claims.	<p>Impact: Increased construction management and contract management effort required to respond to and investigate claims; settlement of claims may result in increased costs.</p> <p>Response: Ensure sufficient commercial management resources in place, proactively resolve claims as received, and ensure commercial management procedures are in place and are being followed.</p>
Risk that reoccurrence of COVID-19 impacts continuation of construction activities at site or in Vancouver.	<p>Impact: BC Hydro and contractors do not have access to the required labour for daily construction and Project management activities. BC Hydro and contractor costs increase to respond to COVID-19 and schedule delay impacts; camp capacity reduction and/or shutdown due to COVID-19 outbreaks.</p> <p>Response: Minimize non-essential travel to site. Screen workers before travel to site and before entry; implement camp mitigation measures; put in place BC Hydro and contractor worker proof of vaccination policies and protection exposure protocols and plans.</p>
Risk that regulatory approvals are not available by the date required for construction.	<p>Impact: Schedule delay to the Project while regulatory approvals are acquired, and Project cost increases.</p> <p>Response: Ongoing engagement with contractors, regulators, and First Nations.</p>
Inability to attract and retain sufficient skilled BC Hydro employees to work on the Project	<p>Impact: BC Hydro lack of resources cause schedule delays and additional costs.</p> <p>Response: Implement targeted programs to attract and retain BC Hydro employees.</p>
Contractor workforce strike, work stoppages and lockouts impact site work	<p>Impact: Workforce disruptions causing schedule delays and increased costs.</p> <p>Response: BC Hydro to enforce contracts and potentially seek injunctions.</p>
Risk of erosion of outlet riprap material.	<p>Impact: Cost of remediation; schedule delay and potential generation flow restrictions on G.M. Shrum and Peace Canyon generation stations.</p> <p>Response: Complete both temporary and permanent solutions to prevent erosion. Monitor outlet area for any signs of erosion.</p>

Table 11 Material Project Opportunities

Opportunity Description	Impact and Response Plan Summary
Lower interest during construction due to timing of Project expenditures.	Impact: Lower Project interest costs than the amount budgeted. Response: Monitor Project expenditure timing. Where feasible, delay expenditures.

6 Key Procurement and Contract Developments

6.1 Key Procurements

The vast majority of the major Site C contracts have been awarded. The remaining procurements on the Project are summarized in [Table 12](#).

Table 12 Remaining Major Project Contracts and Delivery Models

Component	Contract	Procurement Model	Anticipated Timing
Reservoir/ Transmission Clearing	Multiple reservoir-clearing contracts to be awarded over seven to eight years	Design-Bid-Build	Fifteen contracts completed (Reservoir 13, transmission 2). Two remaining access and clearing packages are expected to be procured in 2022 or 2023.
Reclamation Program	Multiple seeding supply contracts and reclamation contracts to be awarded over three to four years	Design-Bid-Build	Under the pilot program: <ul style="list-style-type: none"> • Three seeding supply contracts awarded; and • Three reclamation contracts will be awarded in mid 2022. For the full program: <ul style="list-style-type: none"> • Packaging of work will be determined once the pilot program is completed in summer 2023.

6.2 Major Construction Contracts Exceeding \$50 Million

Since inception of the Project, 13 major construction contracts have been awarded that exceed \$50 million in value, as shown in [Table 13](#). The contract values reflect the current value including executed approved changes to the end of the reporting period.

1 All construction contracts have been procured and awarded in accordance with
 2 BC Hydro procurement policies.

3 **Table 13 Major Project Construction Contracts**
 4 **Awarded**

Contract	Contract Value at June 30, 2022 ¹⁸ (\$ million)	Contract Execution Date
Site Preparation: North Bank	60	July 2015
Worker Accommodation	682	September 2015
Main Civil Works	2,974	December 2015
Turbines and Generators	536	March 2016
Transmission and Clearing	93	October 2016
Quarry and Clearing	133	February 2017
Generating Station and Spillways Civil Works ¹⁹	2,252	March 2018
Hydromechanical Equipment	70	April 2018
Transmission Line Construction	139	May 2018
Highway 29	379	October 2019
Balance of Plant Mechanical	71	July 2021
Balance of Plant Electrical (includes balance of plant architectural; heating, ventilation, and air conditioning; and fire detection and protection contracts)	222	September 2021
Balance of Plant Permanent Upstream Fishway and Other Out Structures	87	January 2022

5 **6.3 Contracts Exceeding \$10 Million**

6 For open contracts procured and awarded in excess of \$10 million, refer to
 7 [Appendix F](#).

¹⁸ Contract value reflects the current value including executed change orders to the end of the reporting period.

¹⁹ Includes some of the scope of work for the right bank foundation enhancements.

1 **6.4 Contract Management**

2 **6.4.1 Material Changes to the Major Contracts**

3 The main civil works contract is a unit price contract and, as a result, variations in
4 quantities and design are expected over the term of the contract. Since contract
5 award in December 2015, the main civil works contract value has increased by
6 \$1.23 billion to reflect approved changes to June 30, 2022. This increase in contract
7 value is primarily the result of a number of contract amendments since contract
8 award in 2015, including three large contract amendments, the first in 2018, the
9 second in 2020, and the third in 2021.

10 The generating station and spillways contract is also a unit price contract and, as
11 such, variations in quantities and design are expected over the term of the contract.
12 Since contract award in March 2018, the generating station and spillways contract
13 value has increased by \$648 million to reflect approved changes to June 30, 2022.

14 The turbine and generators contract is a milestone-based design, supply, and
15 installation contract. Since the March 2016 contract award date, the contract has
16 increased by \$70 million to reflect approved changes to June 30, 2022, which
17 includes one large contract amendment in 2022.

18 The worker accommodation contract is comprised of camp construction and camp
19 operations and maintenance. Since the September 2015 award date, the contract
20 has increased by \$218.5 million to reflect approved changes to June 30, 2022.

21 **7 First Nations Consultation**

22 Pursuant to the Environmental Assessment Certificate and Federal Decision
23 Statement, BC Hydro is required to engage with 13 Indigenous Nations with respect
24 to the construction stage of the Project. This consultation includes the provision of
25 information on construction activities, support for the permit review process, and

1 review and implementation of mitigation, monitoring and management plans, and
2 permit conditions.

3 Accommodation offers were originally extended to 10 First Nations communities.
4 Eight agreements have been fully executed and are in various stages of
5 implementation. Impact Benefits Agreements with the McLeod Lake Indian Band,
6 Doig River First Nation, Halfway River First Nation, Prophet River First Nation,
7 Saulteau First Nations, West Moberly First Nations, and Project Agreements with
8 Dene Tha' First Nation and Duncan's First Nations have been publicly announced.
9 BC Hydro has a standing offer to negotiate with the two remaining First Nations that
10 have not signed agreements related to the Site C Project. BC Hydro also maintains
11 a working relationship with those Nations through operational consultation and
12 engagement.

13 Engagement on Project construction activities has continued through regular Project
14 update meetings with First Nations. The Environment Forum and Cultural Working
15 Group have also continued to meet regularly, primarily through virtual means.
16 Through the Environmental Forum, BC Hydro collaborates with Indigenous Nations
17 on a number of Project-related environmental programs to combine traditional
18 knowledge with western science. The Culture and Heritage Resource Committee
19 meets once or twice per year. It has implemented a number of cultural recognition
20 projects, such as a travelling exhibit, commemoration videos, a cultural curation and
21 archaeology training program, and signage at the Site C viewpoint describing the
22 culture and history of Treaty 8 First Nations communities. The Committee has
23 recently agreed to focus their efforts on a proposed Cultural Centre Development
24 Project. The design and content for this facility are Indigenous led. This quarter, the
25 conceptual design cost estimate was received and will be shared with the Cultural
26 Working Group in August 2022.

1 Subsequent to the reporting period, an Environment Forum was held in early
2 July 2022, which included a Highway 29 tour to view sites and discuss and share
3 information on reservoir filling preparations. Sites included highway re-alignments
4 and environmental projects. Additional objectives of the day were to seek funding
5 approval for the Indigenous Traditional Use Fund Multi-Nation Ungulate
6 Enhancement Project and to seek input on and confirm interest in the Traditional
7 Beaver Harvest Plan for fall 2022.

8 Consultation is ongoing with impacted First Nations regarding options and
9 site-specific plans for the management of identified burial and cultural sites impacted
10 by reservoir filling, in particular in the Halfway River and Cache Creek Bear Flats
11 areas. Based on consultation and field investigations undertaken by BC Hydro and
12 First Nations, two burial sites were identified in the future reservoir area, which have
13 been registered as heritage sites under the *Heritage Conservation Act*. BC Hydro is
14 working closely with affected Nations to develop the most appropriate management
15 options and any community support needs. BC Hydro will require permits from the
16 Archaeology Branch under the *Heritage Conservation Act* prior to undertaking any
17 activities that may impact the registered burial sites.

18 The cultural monitoring program continues with First Nations monitors observing
19 Project construction at various Project sites as well as environmental enhancement
20 and mitigation programs. During summer 2022, the monitors are participating in
21 professional training combining western and Indigenous knowledge. The training has
22 been very successful and greatly appreciated by the monitors and their Nations. Two
23 modules (wetlands and vegetation) are now complete, with two more (wildlife and
24 avian) remaining.

25 BC Hydro continues to advance economic opportunities for First Nations through
26 capacity building and procurement opportunities. Since the beginning of the Project,
27 approximately \$645 million in Site C procurement opportunities have been awarded

1 to companies designated by First Nations. Working on the Site C Project has helped
 2 these businesses to build and grow their reputations, expand the scale of their
 3 operations, and develop new expertise to compete in the regional economy.

4 In June 2022, 407 Indigenous people were working on the Site C Project, compared
 5 to 375 in June 2021. The Project high was reached in October 2019, with
 6 428 Indigenous people working on the Site C Project.

7 **8 Litigation**

8 The details of open proceedings as of June 30, 2022, are summarized in [Table 14](#).

9 **Table 14 Litigation Status Summary**

Description		Date
B.C. Supreme Court: Treaty Infringement Claims		
West Moberly First Nations	Civil claim filed.	January 15, 2018
	Injunction application filed.	January 31, 2018
	Injunction hearing date.	July 23 to August 3, 2018 and September 4 to 7, 2018
	Injunction denied (no appeal filed).	October 24, 2018
	Amended civil claim filed.	September 25, 2019
	Scheduled trial date.	Adjourned on January 21, 2022
	Settlement of Claims related to Site C	June 24, 2022
B.C. Supreme Court: Civil Claims		
Building and Construction Trades Council	Civil claim filed.	March 2, 2015
	Response to claim filed.	April 10, 2015
	No steps have been taken in litigation that require a response from BC Hydro.	
Michael Acko, etal (residents of Old Fort community)	Civil claim filed.	January 18, 2021
	Application for particulars hearing date.	June 25, 2021
	Response to claim filed.	September 8, 2021

Description		Date
Allianz Global Risks US Insurance Company, etal	Civil claim filed. Claim was filed by BC Hydro to preserve BC Hydro's rights to claim under Site C property insurance for losses related to left bank tension crack events	February 5, 2021
Allianz Global Risks US Insurance Company, etal	Civil claim filed. Claim was filed by BC Hydro to preserve BC Hydro's rights to claim under Site C property insurance for losses related to rockfall event near a diversion tunnel inlet portal.	July 13, 2021
Vezer Industrial Professionals Canada Ltd.	Civil claim served	March 29, 2022
B.C. Supreme Court: Civil Claims – Expropriation Act		
Lloyd Stewart Bentley and Katheryn Lynn Bentley	Civil claim filed	April 23, 2021
	Response to claim filed	November 9, 2021
Joy Eileen Ross	Notices of claim filed to keep open plaintiffs' rights to claim further compensation under the <i>Expropriation Act</i> . The claims do not impact BC Hydro's property rights. Further appraisals and other information are required from the owners to advance their claims. No requirement for BC Hydro to file responses at this time.	July 22, 2019
Chipmunk Holding Ltd., et al		July 22, 2019
Samuel James Mahood and Judy Edith Mahood		July 22, 2019
Gordon Roy Kelly and Heather Marie Kelly		May 13, 2020
Kenneth Victor Boon and Arlene Lois Boon (aka Arleen Lois Boon)		January 15, 2021
Lois Caroline Bentley		January 15, 2021
Dale Alvin London and Clara Anne London		January 15, 2021
Carla Jane Salmond		January 15, 2021
Lloyd Stewart Bentley, et al		January 15, 2021
Hudson's Hope Historical Society		March 18, 2021
Hudson's Hope Holdings Ltd., Robert Edward Bach and Beverly Jean Bach		March 26, 2021
Butler Ridge Energy Services (2011) Ltd.		April 23, 2021
Gwen Lillian Johansson		August 19, 2021
Robert Edward Bach and Beverly Jean Bach		September 20, 2021
Ryan Kurz		February 10, 2022

1 **9 Permits and Government Agency Approvals**

2 **9.1 Background**

3 BC Hydro continues to be issued permits and authorizations in accordance with its
4 construction timelines. As of June 30, 2022, 566 of the estimated 644 provincial and
5 federal permits and authorizations required throughout the life of the Project had
6 been obtained and are actively being managed.

7 Multiple conditions are attached to each permit or authorization, which cover
8 subjects such as air quality, water quality, fish and aquatics, wildlife, heritage, health
9 and safety, construction environmental management and First Nations consultation.
10 As of June 30, 2022, all required conditions and submissions have been met in
11 accordance with the schedule and requirements of the conditions.

12 **9.2 Federal Authorizations**

13 Site C requires federal authorizations under the *Fisheries Act* (Fisheries and Oceans
14 Canada) and the *Canadian Navigable Waters Act* (formerly *Navigation Protection*
15 *Act*) (Transport Canada). All major federal authorizations for construction and
16 operation of the Site C dam and reservoir were received in July 2016.

17 As of June 30, 2022, one additional *Fisheries Act* authorization is anticipated for the
18 temporary placement of fill material immediately downstream of the downstream
19 cofferdam. Additional *Canadian Navigable Waters Act* approvals and notifications for
20 discrete works in the reservoir (e.g., shoreline works, debris booms and
21 Highway 29 bridges) are being issued at the regional level. As of June 30, 2022, a
22 total of 115 federal approvals have been received and are actively being managed.
23 Sixteen future approvals are planned.

1 **9.3 Provincial Permits**

2 Site C requires provincial permits primarily under the *Land Act*, *Water Sustainability*
3 *Act*, *Forest Act*, *Wildlife Act*, *Heritage Conservation Act*, and *Mines Act*. These
4 permits include investigative permits, licences to occupy land, water licence
5 approvals, leaves to commence construction and leaves to construct, and licences
6 to cut vegetation, among others.

7 As of June 30, 2022, 442 of the estimated 502 provincial permits and approvals that
8 are required throughout the life of the Project had been obtained and are actively
9 being managed. These include permits for the dam site area, worker
10 accommodation, Highway 29 realignment, transmission line and eastern, middle,
11 and western reservoir. Future provincial permits are being planned for the remainder
12 of the generating station and spillways construction, fish habitat enhancement sites,
13 reservoir filling and operations as well as decommissioning sections of the existing
14 Highway 29.

15 **9.4 Environmental Assessment Certificate**

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

20 As with any large construction project, refinements to the design are expected. To
21 date, BC Hydro has requested, and received from the Environmental Assessment
22 Office, ten amendments to the Project's Environmental Assessment Certificate to
23 reflect changes in Project design. The amendments have not resulted in any
24 material impacts to the cost of the Project.

25 BC Hydro received two amendments to the Project's Environmental Assessment
26 Certificate during the reporting period.

1 On May 6, 2022, BC Hydro received an amendment to allow the relocation of the
2 Cache Creek boat launch required by the Environmental Assessment Certificate to a
3 location close to the Halfway River. As a result of engagement with First Nations,
4 this amendment included a requirement for BC Hydro to fund a Conservation Officer
5 position for five years.

6 On June 30, 2022, the Environmental Assessment Office issued an amendment to
7 allow for contingency hauling on public roads if the conveyor carrying till material
8 from 85th Avenue Industrial Lands to the dam site breaks down for reasons beyond
9 BC Hydro's control. As a result of engagement with residents, local governments,
10 and regulators, this amendment included a requirement for BC Hydro to develop an
11 85th Avenue Contingency Hauling Management Plan in consultation with First
12 Nations, local governments and regulators.

13 BC Hydro is currently complying with all requirements of the Environmental
14 Assessment Certificate amendments.

15 All amendments and amendment requests are posted on the Environmental
16 Assessment Office website.

17 **10 Environment**

18 **10.1 Mitigation, Monitoring and Management Plans**

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

23 **10.2 Project Environmental Compliance**

24 Environmental compliance on the Project remains high. During the reporting period,
25 16,641 environmental compliance inspections were completed by BC Hydro staff,

1 with a compliant or partial compliant result of 97% across all contractors and works
2 areas.

3 During the reporting period, BC Hydro responded to one Environmental Assessment
4 Office inspection report (based on an inspection completed in April 2022).

5 On April 21, 2022, the Project received a final inspection report and order from the
6 Environmental Assessment Office related to various potentially acid-generating rock
7 exposures across the Project. BC Hydro and the Environmental Assessment Office
8 are working together on amendments to the Site C Construction Environmental
9 Management Plan, which are expected to clarify that the current approaches to
10 managing potentially acid-generating rock provide adequate environmental
11 protection. Concurrently, BC Hydro is developing final treatment plans for potentially
12 acid-generating sites that will not be addressed through dam construction or the
13 creation of the reservoir. Refer to section [10.3](#) for more information.

14 An Impact Assessment Agency of Canada inspection occurred between
15 June 13-16, 2022 but the draft inspection report was not issued during the reporting
16 period.

17 During the reporting period, the Project worked to implement repairs required by the
18 Environmental Assessment Office order directing repair of ditch erosion within the
19 Ministry of Transportation and Infrastructure's ditch line along Old Fort Road and into
20 BC Hydro lands. The Project requested an extension to the repair completion date
21 for this order.

22 An Environment Canada investigation is still ongoing with regards to a rainfall event
23 in September 2018, during which approximately four million litres of low pH storm
24 water were released into the Peace River. BC Hydro subsequently increased the
25 care of water system capacity along with other actions to reduce the potential of
26 future similar events and no similar events have occurred.

1 The Site C Project team meets with provincial and federal regulators monthly to
2 ensure ongoing focus and attention to the areas of most importance and concern for
3 the regulators, and to proactively address any environmental or regulatory issues
4 that may arise.

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

13 **10.3 Potentially Acid-Generating Rock Management**

14 The Project's Construction Environmental Management Plan has a well-established
15 potentially acid-generating rock management plan that employs a variety of
16 recognized techniques to identify, test, monitor and treat, if necessary, any
17 potentially acid-generating rock during construction. Any potentially acid-generating
18 rock sites located within the reservoir will be rendered inert once the reservoir is
19 filled. Any potentially acid-generating rock sites remaining outside the reservoir post
20 construction will be addressed through location-specific prescriptions provided by
21 qualified environmental professionals.

22 The April 2022 Environmental Assessment Office order related to potentially acid-
23 generating rock exposures has necessitated revisions to the Construction
24 Environmental Management Plan. In parallel with these revisions, this order has
25 accelerated the need to consider potential mitigation options for potentially
26 acid-generating rock exposures on the dam site that will not be covered by the
27 reservoir. For this, the Project is seeking engineered design options and cost

1 estimates for a sub-set of the potentially acid-generating rock exposures across the
2 Project that will not be covered by the reservoir or that have been identified in past
3 Environmental Assessment Office inspection reports. Results of these efforts will be
4 summarized in future quarterly reports.

5 **10.4 Heritage**

6 In the reporting period, the heritage program provided guidance on the identified
7 Indigenous sites of importance, planned and commenced pre-construction
8 archaeological impact assessment field work, and provided ongoing heritage support
9 for Project construction. The scope of the heritage program is significantly smaller
10 than in previous years since there are few new work areas requiring archaeological
11 assessment.

12 *A Heritage Conservation Act* alteration permit was received, and a *Heritage*
13 *Conservation Act* alteration permit application for one Indigenous burial site was
14 submitted. No *Heritage Conservation Act* archaeological reports were submitted to
15 the B.C. Archaeology Branch and First Nations. Three potential heritage chance
16 finds were identified by contractors; one was determined to be an archaeological
17 chance find.

18 **10.5 Temporary Fish Passage Facility**

19 The temporary fish passage facility started operating for the 2022 season as
20 scheduled on April 1, 2022.

21 From April 1 to June 30, 2022, the facility passed 746 fish from eight different
22 species. In general, the passage rates in 2022 are following a similar seasonal
23 pattern as observed in 2021. Eight mortalities were observed during the reporting
24 period, representing 1% of all fish sorted in the facility; this figure is in-line with the
25 anticipated levels of mortality during operations.

1 Minor modifications were made over the winter and during the reporting period to
2 improve the facility’s biological performance. These modifications have performed as
3 intended and appear to have facilitated the capture of bull trout (the primary target
4 species) in 2022.

5 **10.6 Agricultural Mitigation and Compensation Plan**

6 In June 2022, two Peace Region agricultural projects received \$1 million in funding
7 through the BC Hydro Peace Agricultural Compensation Fund’s Agricultural Impact
8 and Opportunities Initiative. More than \$2.6 million had been distributed to
9 74 projects as of June 30, 2022. The fall 2022 grant intake will close on
10 September 30, 2022, with application review to take place in November 2022.

11 **11 Employment and Training Initiatives and Building**
12 **Capacity Initiatives**

13 **11.1 Labour**

14 Unions that have participated in the construction of Site C since the beginning of the
15 Project are listed in [Table 15](#).

16 **Table 15 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
Millwrights Union, Local 2736
Ironworkers, Local 97
International Brotherhood of Electrical Workers (IBEW)
MoveUP, Local 378
Pile Drivers Union, Local 2404
Boilermakers, Lodge 359
United Association of Journeymen & Apprentices of the Plumbing & Pipefitting Industry of the U.S. & Canada, Local 170
Teamsters, Local 213

1 In addition, ten unions affiliated with the B.C. Building Trades are signatory to the
2 special project needs agreement for the installation of the turbines and generators.

3 The Site C balance of plant contractors are signatory to a special project needs
4 agreement between the Construction Labour Relations Association and the
5 Bargaining Council of B.C. Building Trades Unions.

6 **11.2 Labour Update on Scaled Back Activities at Dam Site due to** 7 **COVID-19 Pandemic**

8 BC Hydro continues to provide updates to key Project unions on site regarding
9 information that is being shared with workers, including BC Hydro's COVID-19
10 vaccination policy, which came into effect on January 10, 2022.

11 The latest number of active cases on the Project, and applicable Northern Health
12 Orders, are posted weekly on the Site C website.

13 **11.3 Employment**

14 Contractors submit monthly workforce data to BC Hydro. [Table 16](#) presents
15 the monthly number of construction contractors, non-construction contractors,
16 engineers, and Project team workers for this period.

17 As with any construction project, the number of workers – and the proportion from
18 any particular location – will vary month-to-month and also reflects the seasonal
19 nature of construction work.

1
2

**Table 16 Site C Jobs Snapshot Reporting Period –
April 2022 to June 2022**

Month	Number of B.C. Primary Residents ²⁰	Total Number of Workers ²¹
April 2022	3,212	4,659
May 2022	3,454	5,060
June 2022	3,507	5,209

3

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

4

In June 2022, there were 5,209 total workers on the Site C Project. Sixty-seven per cent of the workforce (3,507 workers) was made up of residents of British Columbia, while 22% of the workforce (951 workers) lived in the Peace River Regional District. The onSite Contractor workforce number also includes 13% women (551 workers), 407 Indigenous workers and 167 workers who are working for various contractors as apprentice carpenters, electricians, millwrights, ironworkers, mechanics, boilermakers and plumbers.

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[Figure 2](#) shows the monthly Site C workforce over the period from June 1, 2021 to June 30, 2022.

12

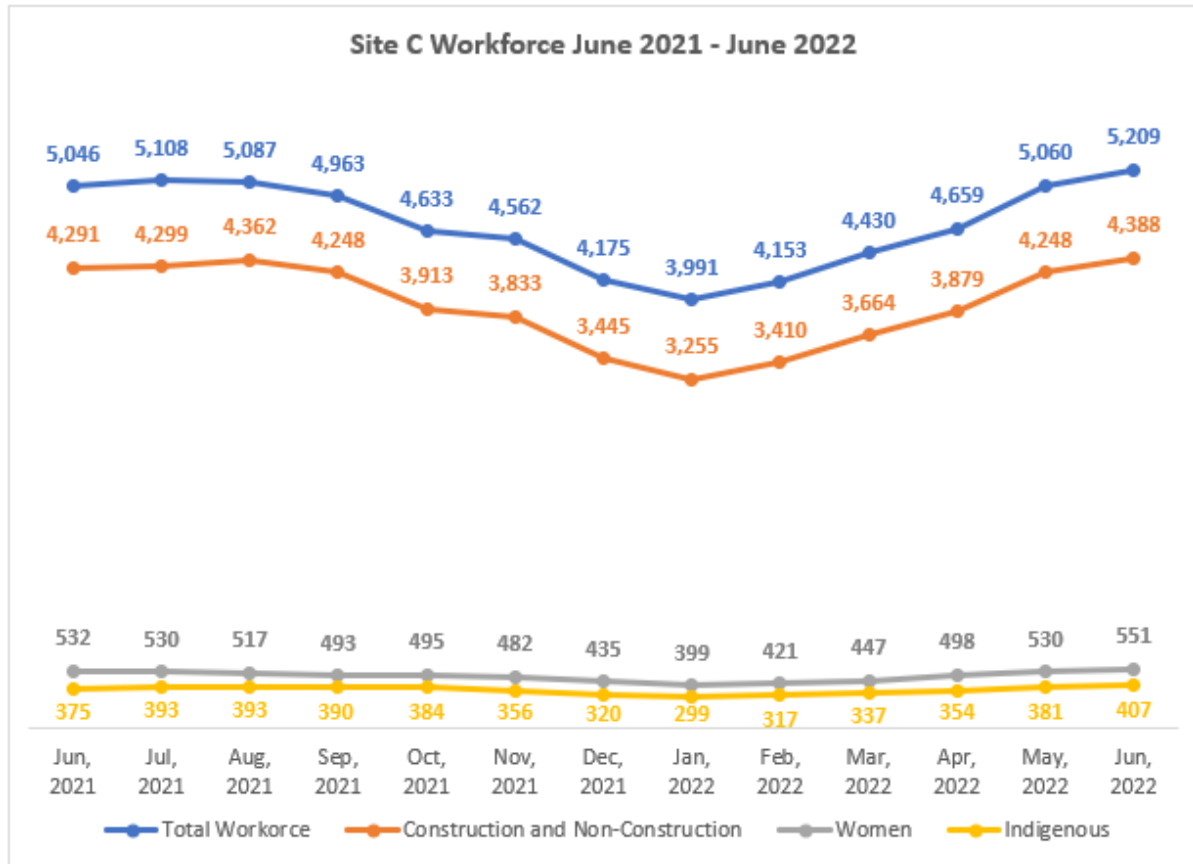
²⁰ Employment numbers provided by Site C contractors and consultants are subject to revision. Data not received by the Project deadline may not be included in the above numbers. Employment numbers are direct only and do not capture indirect or induced employment.

²¹ 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 onsite and offsite workers; and
- The Project team, which includes BC Hydro construction management and other offsite personnel. An estimate is provided where possible if primary residence is not given.

1
2

Figure 2 Site C Workforce June 2021 to June 2022²²



3 **11.4 Training and Capacity-Building Initiatives**

4 BC Hydro has included apprentice targets in the generating station and spillways
5 civil works contract, the transmission lines and the substation contracts, the balance
6 of plant contracts and the Highway 29 work procured by BC Hydro, as appropriate.

7 Northern Lights College Foundation continues to distribute the BC Hydro Trades and
8 Skilled Training Bursary Awards, established in 2013. As of June 30, 2022, a total of
9 289 students had received bursaries, including 135 Indigenous students who have

²² The Indigenous and women numbers are a subset of the construction and non-construction contractors workforce number.

1 benefitted from the bursary in programs such as electrical, welding, millwright,
2 cooking, social work, and many others.

3 BC Hydro continues to work with local employment agencies to ensure that as job
4 opportunities become available, they are posted on the WorkBC website as well as
5 on the Fort St. John Employment Connections website.

6 *Contractor Indigenous Employment and Training information Session*

7 Site C contractors have noted that certain trades will continue to be in high demand
8 during peak Project construction periods. As such, in early 2020, major
9 on-site contractors started exploring new opportunities for apprentice and other
10 training to take place on-site. BC Hydro worked with Northern Lights College and
11 Site C contractors to develop several on-site pilot programs, which have been
12 successfully delivered at site and virtually over the past couple of years. Additional
13 pre-skills training plans are being developed for 2022.

14 In June 2022, BC Hydro hosted nine local Indigenous youth at site, along with
15 employment and training representative from local Indigenous communities and the
16 North East Native Advancement Society, for a Summer Trades Exploration Day. The
17 purpose of this event was to educate and bring awareness to local Indigenous youth
18 regarding employment opportunities in the construction trades, as well as the work
19 available in the construction trades on the Project. This event focused on the
20 practical aspects of the trades such as the types of jobs available, the education
21 required, and the type of work performed on a daily basis, including a typical day in
22 the life of a tradesperson. Participants also had the opportunity to reside in camp for
23 the night, to experience the full scope of life as a Site C worker. Youth and
24 employment representatives from five First Nations participated in the event.

25 All five of the major on-site contractors participated and contributed to this event.

12 Community Engagement and Communication

12.1 Local Government and Community Engagement Activities

BC Hydro continues to advance commitments within four community agreements: the District of Chetwynd (2013), the District of Taylor (2014), the City of Fort St. John (2016) and the District of Hudson’s Hope (2017). A community agreement between BC Hydro and the Peace River Regional District has yet to be finalized.

The Regional Community Liaison Committee, which is comprised of local elected officials and local First Nations communities, most recently met virtually for its regularly scheduled quarterly meeting on June 15, 2022. Eight local governments and four local First Nations communities (McLeod Lake Indian Band, Doig River First Nation, Sauleau First Nations, and Blueberry River First Nations) 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.

12.1.1 District of Hudson’s Hope Well Water System

As a result of the Project, BC Hydro has the obligation to provide the District of Hudson’s Hope with funding to allow the District to replace its community river water intake system with a similar surface water source (reservoir) based water treatment plant.

In 2019, the District requested that instead of a reservoir-based intake system, funding be provided for a well water system. BC Hydro agreed to the change and in 2019 BC Hydro entered into an agreement with the District under which the District is responsible for all decisions, tendering, design and construction of the well water system. Under the Water Agreement, the District is also responsible for all operations, maintenance, and warranty costs. BC Hydro’s obligation under the Water Agreement is to fund the well water facility (approximately \$5 million), which became operational in the spring of 2021.

1 Since the water well facility became operational, BC Hydro has been advised by the
2 District that it is not functioning as expected and the District has incurred
3 extraordinary and unexpected costs for the supply of potable water to its residents.
4 BC Hydro has provided up to an additional \$500,000 to the District for these
5 extraordinary costs, on a without-prejudice basis and without waiving its rights under
6 the Water Agreement.

7 The District has also indicated that additional investments are required to improve
8 the operation of the existing system, to evaluate the performance of the well water to
9 understand the long-term viability of the well water system and to explore long-term
10 solutions to ensuring a reliable community water supply.

11 **12.1.2 Generate Opportunities Fund**

12 In 2016, BC Hydro launched the Generate Opportunities (**GO**) Fund, an
13 \$800,000 fund to support Peace Region non-profit organizations. The GO Fund is
14 being distributed to organizations that provide services to vulnerable populations
15 including children, families, and seniors.

16 The GO Fund is administered by Northern Development Initiative Trust on behalf of
17 BC Hydro. During this reporting period, approximately \$23,700 was distributed to
18 three non-profit organizations in the Peace Region and as of June 30, 2022,
19 70 projects had received \$608,720 since the fund was launched in 2016.

20 **12.2 Business Liaison and Outreach**

21 No procurement notifications were sent out in this quarter.

22 **12.2.1 Community Relations and Construction Communications**

23 BC Hydro continued to implement its construction communications program
24 throughout the reporting period. The program includes updating and maintaining the
25 Project website (www.sitecproject.com) with current information, photos and videos

1 of construction activities, as well as providing information to local and regional
2 stakeholders as required.

3 BC Hydro hosted a virtual townhall with the community of Old Fort on April 7, 2022,
4 to discuss BC Hydro’s plans for building fish habitat in the local area and the
5 associated impacts from construction.

6 *Construction Bulletins*

7 Bi-weekly construction bulletins are posted on the Project website and sent by email
8 to a web-subscriber list. There were seven construction bulletins and one quarterly
9 construction notification letter issued in the second quarter of 2022.

10 *Public Enquiries*

11 In total, BC Hydro received 175 public enquiries between April 1 and June 30, 2022.
12 [Table 17](#) shows the breakdown of some of the most common enquiry types.

13 In total, BC Hydro has received more than 13,500 enquiries since August 2015.

14 **Table 17 Public Enquiries Breakdown by Topic**

Enquiry Type ²³	April 1 to June 30, 2022
Employment Opportunities	65
Business Opportunities	23
General Information	42
Construction Impacts ²⁴	23
Other ²⁵	26

²³ This table is a sample of enquiry types and does not include all enquiry types received. Some enquiries received cover more than one topic.

²⁴ The nature of the construction impact enquiries are primarily noise, traffic and road conditions, air quality, and safety.

²⁵ “Other” accounts for enquiries related to a variety of other topics, such as environment, tour requests, and procurement.

1 12.2.2 Communications Activities

2 Based on a search using the media database Infomart, there were 236 stories about
3 the Site C Project in B.C. news media between April 1 to June 30, 2022.

4 12.3 Labour and Training Plan

5 In accordance with an Environmental Assessment Certificate condition, a Labour
6 and Training Plan was developed and submitted to the Environmental Assessment
7 Office on June 5, 2015. This plan, as well as Environmental Assessment Certificate
8 Condition 45, includes annual reporting requirements to support educational
9 institutions in planning their training programs to support potential workers in
10 obtaining Project jobs in the future. The next report will be issued in August 2022.

11 12.4 Human Health

12 12.4.1 Health Care Services Plan and Emergency Service Plan

13 The on-site health clinic provides workers with access to primary and preventative
14 health care and work-related injury evaluation and treatment services and is
15 currently open seven days a week, 24 hours a day. Since opening the health clinic,
16 there has been a total of 40,351 patient interactions. During the reporting period,
17 there were 1,526 patient interactions, of which 276 were occupational and
18 1,250 non-occupational. Several preventive health themes were promoted to
19 workers including alcohol awareness and the associated health risks, first aid
20 knowhow and a focus on health and safety in the workplace as April 7 was World
21 Health Day and April 28 was the National Day of Mourning.

22 12.5 Property Acquisitions

23 With all required land rights for the Highway 29 realignment now acquired, BC Hydro
24 continues to focus on land acquisitions to enable upcoming reservoir clearing and
25 filling. Thirty-one remaining private landholdings are required for reservoir filling. All

1 the remaining properties can be characterized as “partial acquisitions” whereby only
2 a portion of an overall property will be acquired.

3 In cases where BC Hydro acquired or expropriated land or rights for the Project
4 under the *Expropriation Act*, notices of claim have been filed by the owners to keep
5 open their rights to claim further compensation under the *Expropriation Act*. Further
6 appraisals and other information are required from the owners to advance their
7 claims. BC Hydro will respond as required.

8 **12.6 Plans During Next Six Months**

9 [Table 18](#) shows the key milestones for activities planned during the next six months,
10 July 2022 to December 2022.

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2
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**Table 18 Key Milestones for Activities Planned
 During the Next Six Months (July 2022 to
 December 2022)**

Milestone	Performance Measurement Baseline (June 2021)	Plan Date (Control Date ²⁶)	Forecast ²⁷	Status ²⁸ (Measured by Month)
Generating Station and Spillways				
Headworks gantry crane commissioned and ready for travel load tests.	June 2022	October 2022	October 2022	On Track
Main Civil Works				
Earthfill dam placement to elevation 433 metres complete.	September 2022	September 2022	August 2022	On Track
Turbines and Generators²⁹				
Unit 5 – Stay ring and spiral case assembled and handover of generator embedded parts.	March 2022	August 2022	August 2022	On Track
Unit 6 – Stay ring and spiral case assembled and handover of generator embedded parts.	May 2022	October 2022	October 2022	On Track
Highways				
Construction finish – Hudson’s Hope berm.	July 2022	August 2022	August 2022	On Track
Construction finish – Halfway River (highway and bridge).	August 2022	August 2022	August 2022	On Track
Construction finish – Cache Creek (East).	October 2022	October 2022	October 2022	On Track
Construction finish – Farrell Creek.	October 2022	October 2022	October 2022	On Track
Construction finish – Lynx Creek.	October 2022	October 2022	October 2022	On Track

²⁶ Control date reflects plan, adjusted for approved changes to milestone dates.

²⁷ As of June 30, 2022.

²⁸ As of June 30, 2022.

²⁹ The identified status reflects a comparison of the current forecast for each milestone relative to the contractual date for that milestone. The contractual milestone dates include substantial schedule float relative to the approved in-service date.

1 **13 Impacts on Other BC Hydro Operations**

2 During the reporting period, the operation of system storage at Williston Reservoir
3 (including G.M. Shrum and Peace Canyon generating stations) was planned to meet
4 flow releases necessary for Site C construction, and this operation continues. Water
5 releases from Peace Canyon Generating Station were maintained at or below the
6 levels necessary for Project construction. BC Hydro maintained adequate vacant
7 storage in Williston Reservoir to protect Site C construction works from flows that
8 could otherwise exceed the capacity of the diversion works.

9 The Site C Project team is working closely with BC Hydro Operations on the
10 integrated planning required in advance of filling the Site C reservoir.

Site C Clean Energy Project

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Appendix A

Site Photographs

Figure A-1 Ongoing assembly of the Unit 6 Spiral Case and Stay Ring (April 2022)



Figure A-2 A West Facing View Over the 85th Ave Industrial Lands Where Glacial Till is Excavated to Build the Site C Dam (April 2022)



Figure A-3 The Hopper and Feeder are The Primary Supply Loading Point for the Conveyor that Transports Glacial Till from the 85th Ave Industrial Lands to Site C (April 2022)



Figure A-4 Steel Installation is Complete on the Farrell Creek Bridge Deck (April 2022)



Figure A-5 Spillways, Penstocks, Powerhouse and Operations Building (May 2022)



Figure A-6 Penstock Units 1 Through 6 (Unit 1 on the Right) in Varying Stages of Construction (May 2022)



Figure A-7 Pre-Cast Concrete Panels are Moved into Position on the Farrell Creek Bridge at The Highway 29 Realignment (May 2022)



Figure A-8 An Upstream View of the Powerhouse and Generating Station, with Laydown Areas, Temporary Fishway and Outlet Portals (May 2022)



Figure A-9 Ongoing Construction of the Approach Channel (May 2022)



Figure A-10 The Powerhouse and Operation Building are Substantially Complete, with Foundation Enhancements Work Ongoing in Front of the Tailrace (May 2022)



Figure A-13 Unit 1 and 2 Rotor Fabrication (June 2022)

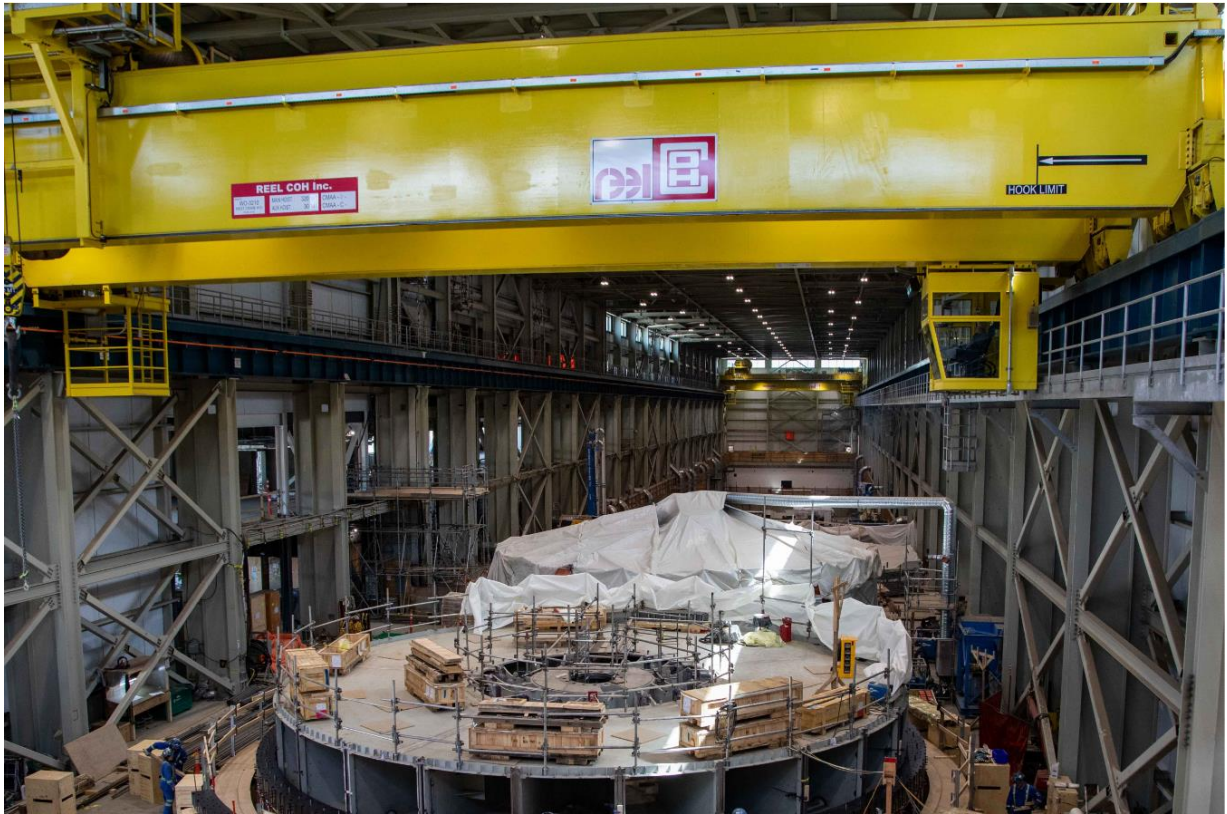


Figure A-12 Installation of Cable Trays is Underway in the Powerhouse (June 2022)

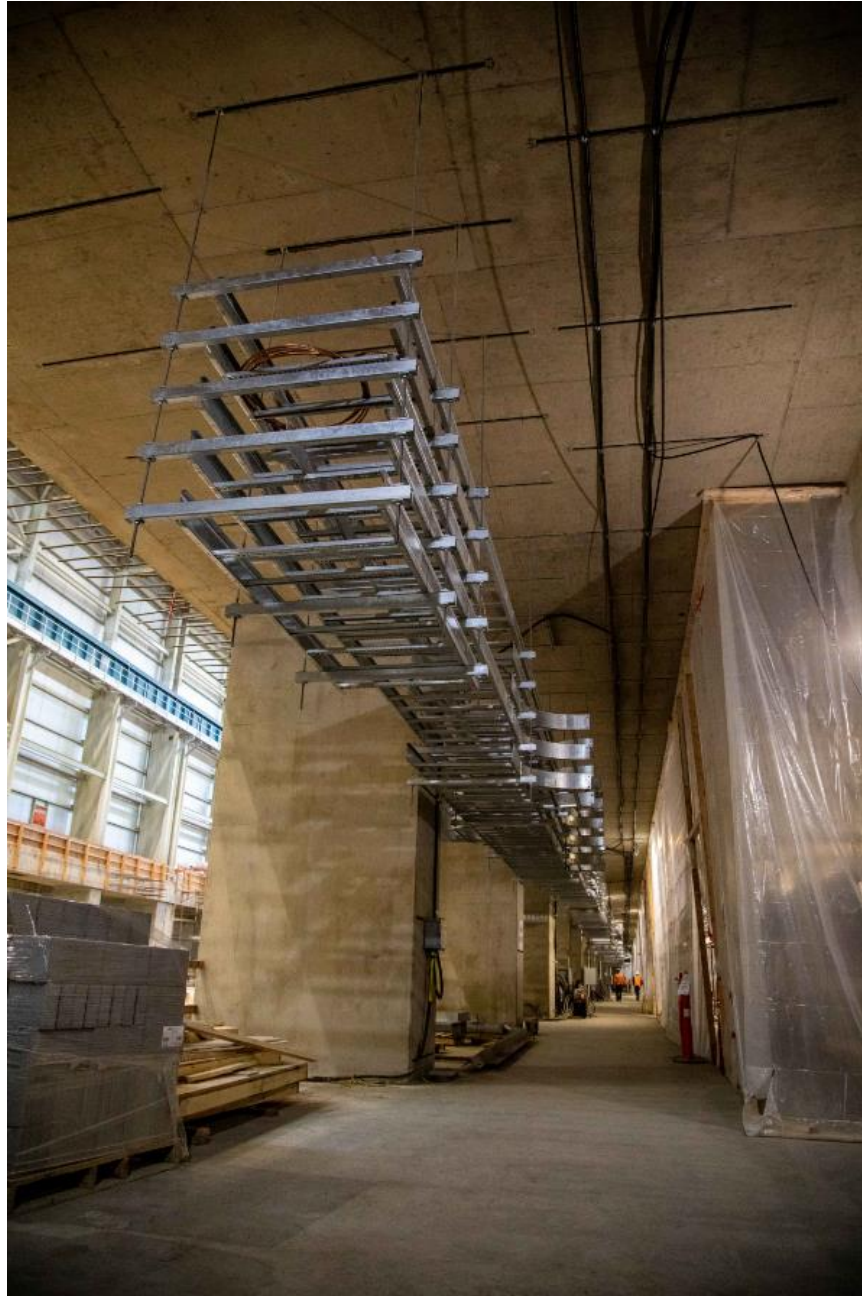


Figure A-14 The Last Penstock Segment is Lowered into Position (June 2022)



Figure A-15 Lynx Creek Bridge Before the Final Concrete Pour (June 2022)



Site C Clean Energy Project

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Appendix B

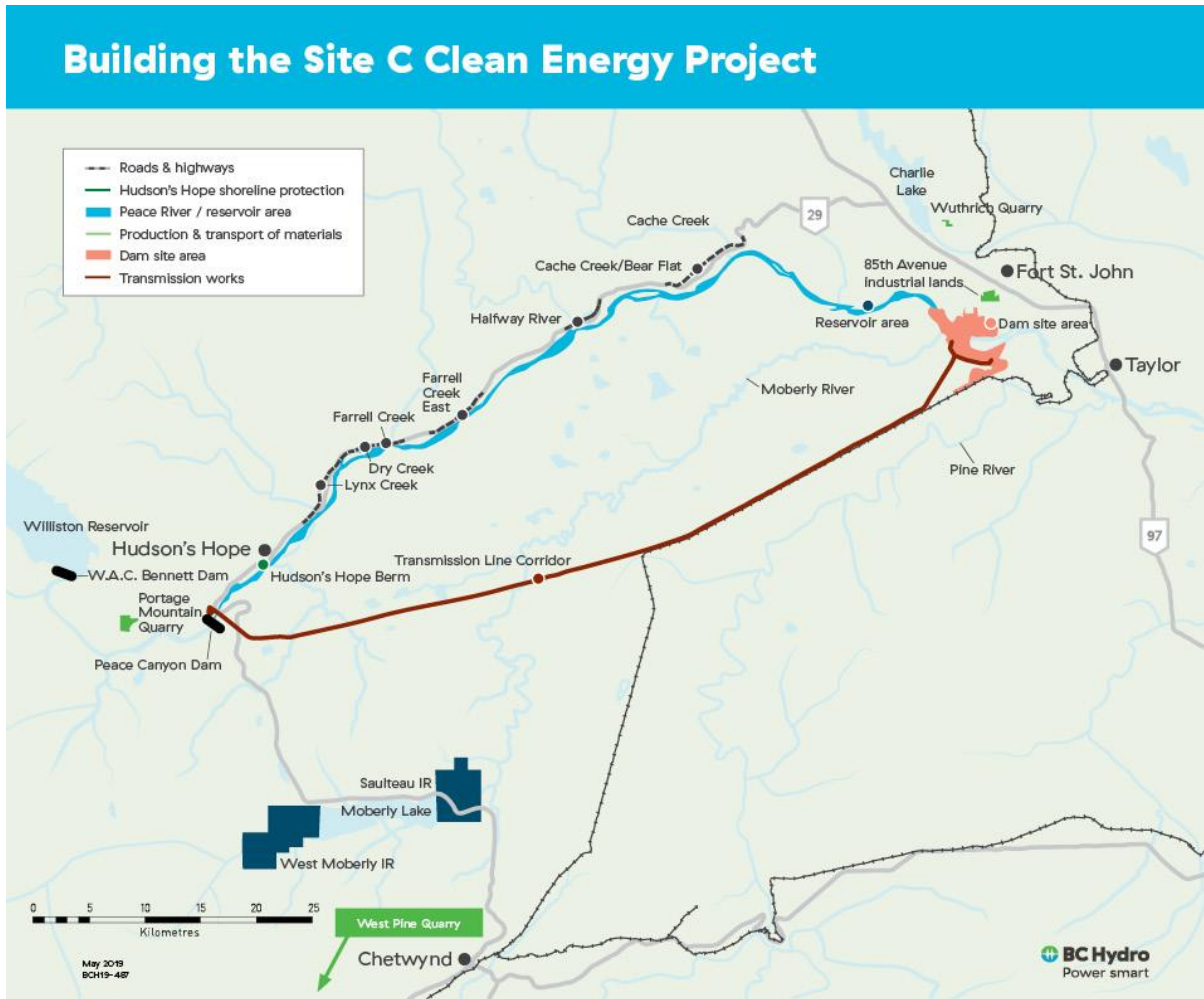
**Work Completed Since Project Commencement
in 2015**

- 1 Construction began on July 27, 2015 and is ongoing. Since the commencement of
2 construction, the following work has been completed:
- 3 • Site preparation, including onsite access roads;
 - 4 • Clearing of the left and right banks at the dam site and clearing of the lower
5 reservoir area;
 - 6 • Construction of the worker accommodation lodge and Peace River construction
7 bridge;
 - 8 • Powerhouse excavation, and the placement of 650,000 cubic metres of
9 roller-compacted concrete in the powerhouse buttress;
 - 10 • Spillways excavation, and the placement of 600,000 cubic metres of
11 roller-compacted concrete in the spillways buttress;
 - 12 • Construction of dam site access public roads;
 - 13 • Construction of the Site C viewpoint;
 - 14 • Construction of 50 affordable housing units in Fort St. John;
 - 15 • Fish habitat enhancements downstream of the dam site;
 - 16 • Excavation of the diversion tunnel inlet (upstream) and outlet (downstream)
17 portals, allowing for the commencement of diversion tunnel excavations;
 - 18 • Excavation of the right bank drainage tunnel, which will be used to monitor and
19 drain the water from within the foundation under the powerhouse, spillways and
20 dam buttresses and will eventually be connected to services within the
21 powerhouse;
 - 22 • Clearing activities in the lower reservoir;

- 1 • Completion of two river diversion tunnels, which are used to reroute a short
2 section of the Peace River to allow for the construction of the main earthfill
3 dam;
- 4 • Completion of the upstream and downstream cofferdams;
- 5 • Construction and commissioning of the temporary fish passage facility;
- 6 • Diversion of the Peace River around the Site C construction site;
- 7 • Completion of the Peace Canyon 500 kV gas-insulated switchgear expansion to
8 enable connection of Site C to the BC Hydro electrical system;
- 9 • Completion of the Site C substation and first of two new 500 kV transmission
10 lines;
- 11 • Completion of the finishing concrete work inside the 454-metre-long left bank
12 drainage tunnel;
- 13 • Dam and core excavation, and the placement of 450,000 cubic metres of
14 roller-compacted concrete in the dam and core buttress, marking the
15 completion of the Project's overall roller-compacted concrete placement
16 program. In total, nearly 1.7 million cubic metres of roller-compacted concrete
17 has been placed since 2017;
- 18 • Completion of the steel super-structure for the powerhouse; and
- 19 • Completion of the second of two new 500 kV transmission lines that connect
20 Site C to the Peace Canyon generating station.

1

Figure B-1 Site C Project Components



Site C Clean Energy Project

Quarterly Progress Report No. 26

Appendix C

Safety

1 **Safety Incidents**

2 The following safety incidents occurred during the quarter ending June 30, 2022:

3 *Serious Safety Incidents*

4 The 11 serious incidents that occurred during this reporting period include:

- 5 1. During flushing of a paint gun, the paint thinner ignited in a bucket. The worker
6 suffered minor first degree burns on their neck.
- 7 2. An excavator bucket dropped while unloading from the truck. There were
8 workers working in the area.
- 9 3. A worker failed to stop at a controlled intersection and drove across an active
10 haul road, cutting off a 100-tonne haul truck.
- 11 4. A load of logs was not secured before the truck left Area 24.
- 12 5. A tower crane contacted a concrete placing boom.
- 13 6. A light duty truck was non-compliant with haul road traffic management
14 controls.
- 15 7. The load line of a tower crane contacted the jib of another tower crane.
- 16 8. A concrete hose became loose and struck a worker.
- 17 9. Worker slipped on a ladder and cut their thigh on unprotected rebar in the
18 fishway area.
- 19 10. A dozer snagged a guy wire. The power pole broke and brought a powerline
20 down.
- 21 11. A contractor moved a live cable without de-energizing the cable.

22 *All Injury Incidents*

23 The 11 injury incidents that occurred during this reporting period include one lost
24 time injury and 10 medical attention requiring treatment injuries. Note that serious

1 incidents resulting in an injury will be listed under both serious incidents and all injury
2 incidents.

3 *Lost Time Injuries:*

4 1. An employee tripped on a parking lot divider and suffered knee, shoulder, hand
5 and face injuries.

6 *Medical Attention Requiring Treatment Injuries:*

7 1. A dozer and haul truck contacted each other. The worker suffered a minor back
8 injury.

9 2. A worker's head contacted a rebar matting after they lost their footing on a
10 ladder. The worker suffered a two-inch laceration.

11 3. A worker was using a power tool and injured their hand.

12 4. A worker slipped on uneven ground and fractured their foot.

13 5. A worker was grinding and metal particles entered their eye.

14 6. A light duty vehicle slipped on ice and the driver lost control of their vehicle. The
15 vehicle went into the ditch and rolled over.

16 7. A worker was grinding and debris entered their eye.

17 8. A worker was using a measuring tape and injured their finger.

18 9. A worker was removing their welding personal protective equipment and metal
19 fillings entered their eye.

20 10. A worker slipped on a ladder and cut their thigh on unprotected rebar in the
21 fishway area.

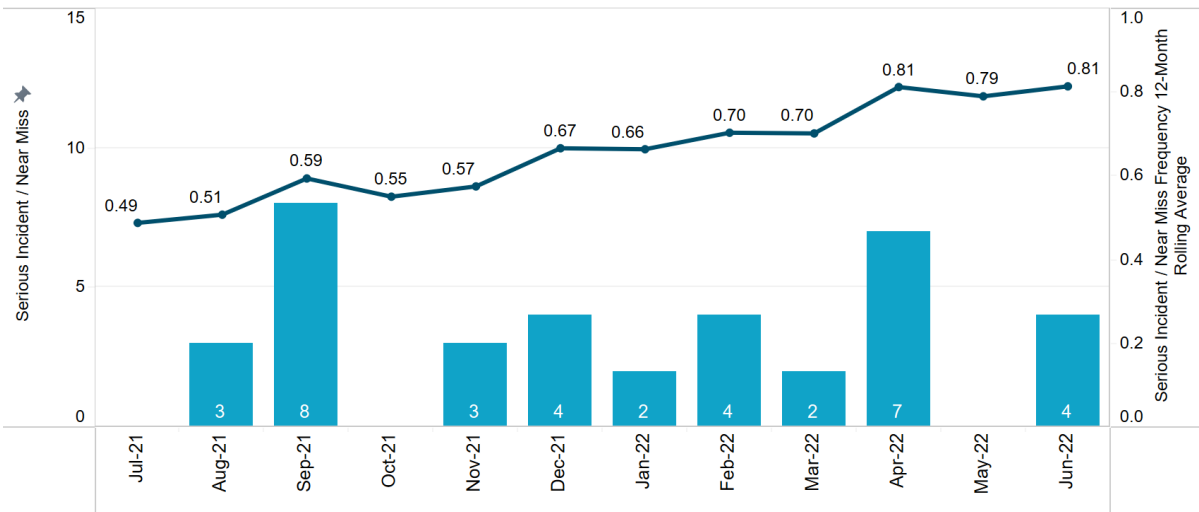
22 *Safety Performance Frequency Metrics*

23 [Figure C-1](#) Employee and Contractor Serious Incident/Near Miss Frequency, Lost
24 Time Injury Frequency and All-injury Frequency

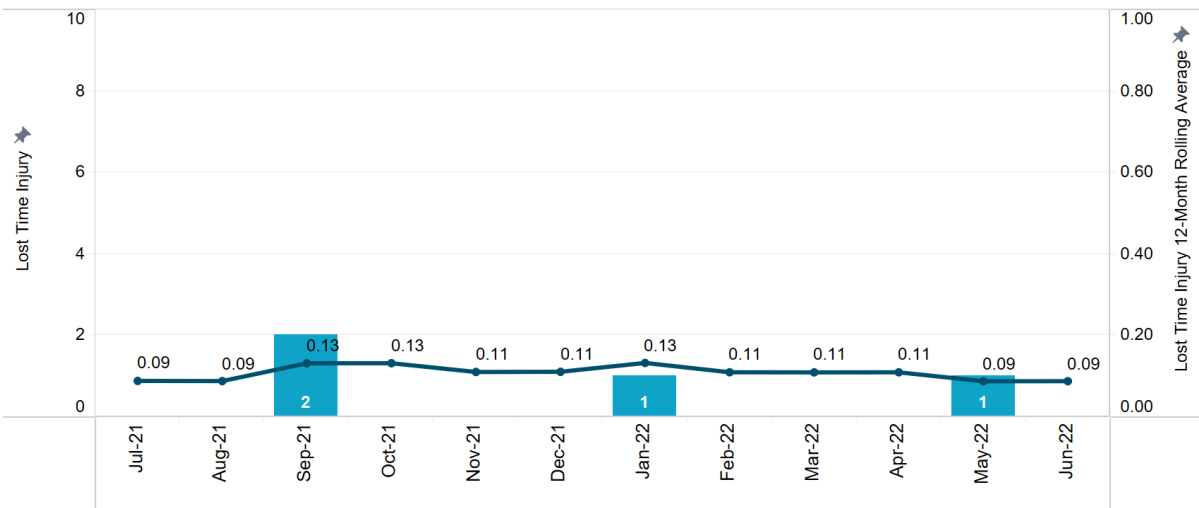
1 provides information on employee and contractor serious incidents/near miss
2 frequency, lost time injury frequency and all-injury frequency from July 2021 to
3 June 2022.

4 **Figure C-1 Employee and Contractor Serious**
5 **Incident/Near Miss Frequency, Lost Time**
6 **Injury Frequency and All-injury**
7 **Frequency**

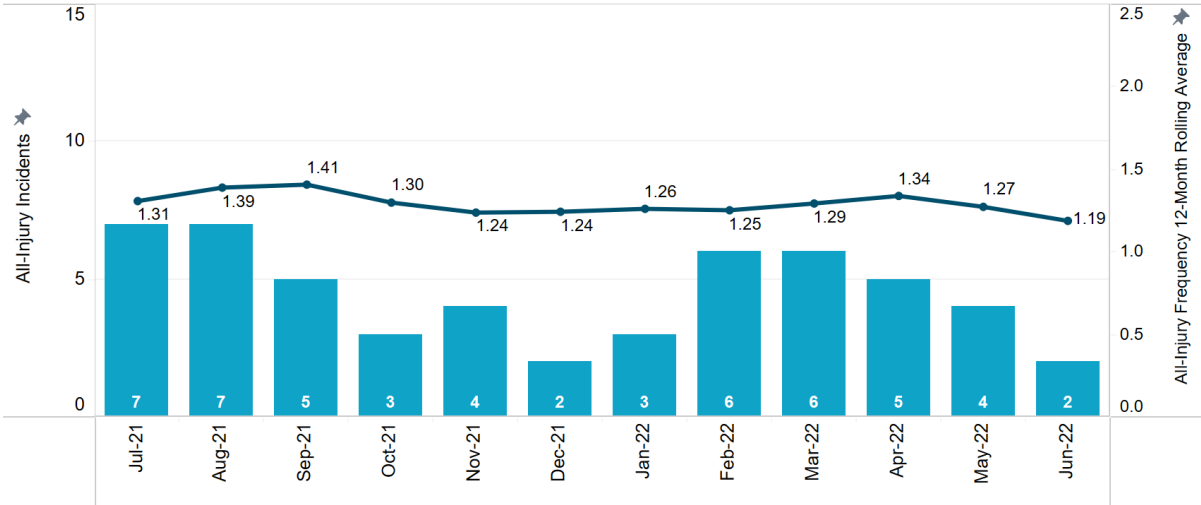
Employee & Contractor Serious Incident / Near Miss Frequency



Employee & Contractor Lost Time Injury Frequency



Employee & Contractor All-Injury Frequency



1 **Regulatory Inspections and Orders**

2 [Table C-1](#) Safety Regulatory Inspections and Orders

3 lists the safety regulatory inspections and orders received from WorkSafeBC and the Ministry of Energy, Mines and Low Carbon Innovation from April 1 to June 30, 2022.

4 **Table C-1 Safety Regulatory Inspections and Orders**

#	Date of Inspections	Regulatory Agency	Site C Subproject	Inspection Report #	Inspection Report Type	Inspection Report Status	Number of Orders Issued	Subject of Orders	Regulation Order / Reference
1	April 11, 2022	WorkSafeBC	Main Civil Works	202217876033A	Incident Investigation - heavy equipment contact	Closed	0	-	References: WCA69(1)(b); WCA71(2)(c); WCA72(2)(b)
2	April 14, 2022	WorkSafeBC	GSS	202217876035A	Incident Investigation: Crane Misadventure	Closed	2	Overlapping operating zone procedures Clearance and freedom to slew	Orders: OHS14.84.1(5); OHS14.85(2) References: WCA69(1); WCA71(2)(c); WCA72(2)(b); WCA89(1); WCA88(1); WCA88(2); OHS14.16.1(2); OHS14.49.1(b); OHS14.85(1)
3	April 14, 2022	WorkSafeBC	Main Civil Works	202217876034A	Risk Management Basics Inspection	Closed	0	-	References: OHS3.3; OHS3.5; WCA31; OHS3.26(1); OHS3.26(2); WCA69(1); WCA21(1)
4	April 19, 2022	WorkSafeBC	GSS	202217876037A	Incident Investigation: Crane Misadventure	Closed	0	-	References: WCA71(2)(c); WCA72(2)(b); WCA89(1); OHS14.16.1(2); OHS4.3(3)
5	May 3, 2022	Ministry of Energy, Mines and Low Carbon Innovation	Infrastructure	188175	General site inspection	In Progress	4	Safe Work Practices Haul Road Compliance	Orders: Section 3.9.1; Section 6.19.2; Section 6.9.1; Section 6.9.2
6	May 3, 2022	Ministry of Energy, Mines and Low Carbon Innovation	Infrastructure	188187	General site inspection	Closed	0	-	No orders / references
7	June 26, 2022	WorkSafeBC	Turbine Generator	202217791072A/B	Site Inspection - welding	In Progress	7	Ventilation System Hazard Assessments Safe Work Practices	Orders: OHS5.64(1); OHS5.61; OHS4.3(2); OHS5.57(3); OHS9.5; WCA21(2)(e); WCA21(1)(a) References: WCA88(1); WCA89(2)
8	June 27, 2022	WorkSafeBC	GSS	202217876053A	Incident Investigation - injury of a worker	Closed	3	Inspections of Ladders Ladder Position and Stability Protruding Objects	Orders: OHS13.3; OHS13.5(2)(b); OHS20.25(1) References: WCA69(1); WCA71(2)(c); WCA72(2)(b); OHS4.39(1); OHS4.41; OHS13.2(1)(a); OHS13.13
9	June 29, 2022	WorkSafeBC	Turbine Generator	202217791068A	Site Inspection - welding and confined space entry	Closed	0	-	References: OHS3.3; OHS3.5; WCA31; OHS3.26(1); OHS3.26(2); WCA69(1); WCA21(1); OHS5.57(1)(a); WCA84(1); WCA21(2)(h)
10	June 29, 2022	WorkSafeBC	Turbine Generator	202217791074A	Site Inspection - welding and confined space entry	Closed	0	-	References: OHS3.3; OHS3.5; WCA31; OHS3.26(1); OHS3.26(2); WCA69(1); WCA21(1); OHS5.57(1)(a)

Total **16**

Site C Clean Energy Project

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Appendix D

Workforce Overview

1
 2

**Table D-1 Current Site C Jobs Snapshot
 (April 2022 to June 2022)³⁰**

	Number of B.C. Workers and Total Workers	Construction and Non-Construction Contractors³¹ (including some subcontractors). Excludes Work Performed Outside of B.C. (e.g., Manufacturing)	Engineers and Project Team³²	Total
April 2022	B.C. Workers	2,499	713	3,212
	Total Workers	3,879	780	4,659
May 2022	B.C. Workers	2,708	746	3,454
	Total Workers	4,248	812	5,060
June 2022	B.C. Workers	2,751	756	3,507
	Total Workers	4,388	821	5,209

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

Employment numbers provided by Site C contractors are subject to revision. Data not received by the 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 June 2022, there was one worker in a specialized position working for a Site C construction contractor, which were subject to the Labour Market Impact Assessment process under the Federal Temporary Foreign Worker Program. Additionally, there were 32 management and professionals working for Site C construction and non-construction contractors through the Federal International Mobility Program.

³⁰ Employment numbers are direct only and do not capture indirect or induced employment.

³¹ Construction and non-construction contractors total workforce employment number includes work performed on the Site C dam site, transmission corridor, reservoir clearing area, public roadwork, worker accommodation and services.

³² Engineers and Project team are comprised of both onsite and offsite workers. The Project team includes BC Hydro construction management and other offsite personnel. An estimate is provided where possible if primary residence is not given.

1
2

**Table D-2 Preliminary Site C Apprentices Snapshot
 (April 2022 to June 2022)**

Month	Number of Apprentices
April 2022	170
May 2022	162
June 2022	167

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

4
5

Table D-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						

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

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8

**Table D-4 Indigenous Inclusion Snapshot
 (April 2022 to June 2022)**

Month	Number of Indigenous Workers
April 2022	354
May 2022	381
June 2022	407

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

10 The information shown has been provided by BC Hydro’s onsite³³ construction and
 11 non-construction contractors and their subcontractors that have a contractual
 12 requirement to report on Indigenous inclusion in their workforce.

³³ Onsite includes work performed on Site C dam site, transmission corridor, reservoir clearing area, public roadwork, worker accommodation and services.

1 Employees voluntarily self-declare their Indigenous status to their employer and
2 there may be Indigenous employees that have chosen not to do so; therefore, the
3 number of Indigenous employees may be higher than shown in [Table D-4](#).

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

8 *Women*

9 In June 2022, there were 551 women working for Site C construction and
10 non-construction contractors. The number of women was provided by on-site
11 construction and non-construction contractors and engineers that have a contractual
12 requirement to report on the number of women in their workforce.

Site C Clean Energy Project

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Appendix E

Technical Advisory Board Report

Site C Clean Energy Project

Technical Advisory Board Meeting No. 25

Report

(March 29 to April 1, 2022)

April 2022

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Attachment A – Technical Update Conference Calls Agendas and List of Attendees
Attachment B – Meeting Agenda and List of Attendees

1. Introduction

The 25th meeting of the Site C Technical Advisory Board (TAB) was convened via MS Teams video calls between March 29 and April 1, 2022. The meeting did not include a site visit. The primary objectives were to assess the progress and performance of the works, including construction performance of the Right Bank Foundation Enhancements (RBF E) and the earthfill dam. Attention was also given to further planning toward reservoir filling and operations. These technical discussions and updates focused primarily on the Main Civil Works (MCW). Also, some aspects associated with the GSS were discussed.

1.1 Meeting Organization

Since the last meeting, Meeting No. 24 in June 2021, the TAB has convened for a number of technical updates via MS Teams, which are recorded in the following documents:

- Notes from technical updates for the periods of July 16, August 5, September 10, October 29, December 10, 2021, and January 7, February 11 and March 7, 2022. These notes are filed on the TAB Sharepoint site ([TAB Sharepoint Site](#)) and are also available on request.
- The agendas and list of attendees for each of these technical updates are included in Attachment A.

The agenda for this meeting and the list of attendees are included as Attachment B.

A debriefing is scheduled to be conducted with members of the Project Team and Executives of BC Hydro (BCH), the Project Assurance Board and the Independent Engineers on April 19, 2022. This report was submitted to BC Hydro on April 11, 2022 and subsequently transmitted to the Project Assurance Board.

The TAB wishes to acknowledge the excellent overviews and presentations that it received. It recognizes the substantial effort that goes into the preparation for the TAB meeting and the technical update conference calls. It appreciates the frank and informative discussions that took place during the meetings.

2. Project Update

In the past months, the TAB has received a series of project updates that included the following:

- Status of major construction activities and schedule
- Project quality
- Performance of the diversion works
- Construction of the right bank foundation enhancements (RBF E)

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F2023 First Quarter – April 1, 2022 to June 30, 2022
Appendix E

Technical Advisory Board Reports - 2022

Site C Clean Energy Project
Advisory Board Meeting No. 25 – Report

- Construction of the Generating Stations and Spillways (GSS)
- Equipment and Balance of Plant (BoP) Updates

Detailed presentations built on the monthly meetings but concentrated at this meeting on the following:

- Overall Quality Assurance and Quality Control (QA/QC)
- Design of the RBF E with particular reference to the pile program
- Design of the RBF E with particular reference to the Approach Channel including drainage assessment and design
- Performance and construction of the earthfill dam with particular reference to the seepage assessment, pore pressure development and grouting
- GSS status and quality assessment
- Planning with respect to Reservoir Filling and Tunnel Conversion
- Long term monitoring following reservoir filling and development of an OMS manual



Progress Photo, March 2022

3. Technical Commentary

3.1 Overall QA/QC

The Overall Project Health is measured using a “Dashboard” concept, which considers and measures several aspects of the Project, such as Safety, Quality, Schedule, and Budget. Although there are many aspects of a project; Quality is one of the most significant factors to the Owner and life of the Project. The overall quality of this Project is Good and thus is designated as “Green”, on the “Dashboard” for the Project.

As in the past, each of the quality aspects is being evaluated, in terms of engineering, manufacturing and construction. The TAB was advised that Quality Performance Indicators continue to be used and that they show that good quality is being obtained in a consistent manner. This is illustrated by the table below.

Quality Performance Indicators (March 01, 2022)

			Engineering	Manufacturing	Construction
● Main Civil Works (MCW)	● Main Dam (MND)		●	N/A	●
● GSS Civil Works (GSS)	● Generating Station (STA)		●	●	●
	● Intake and Penstocks (IAP)		●	●	●
	● Spillway (SPL)		●	●	●
● GSS Equipment Supply	● Hydromechanical (HME)		●	●	●
	● Large Cranes (CRA)		●	●	●
● Turbines-Generators (TG)			●	●	●
● Balance of Plant Contract (BoP)	● Balance of Plant Contract (BoP)		●	●	●
	● Transformers (TXM)		●	●	●
	● Generator terminal Equipment (GTE)		●	●	●
	● AC Station Service (ACS)		●	●	●
● Transmission & Substation	● Transmission Lines (TRM)		●	●	●
● Highway 29 Realignment (HWY)			●	●	●
			Legend:	● = No Risk to Quality	
				● = Potential Risk to Quality	
				● = Actual Risk to Quality	

Another indicator of quality in the constructed Project is to monitor the number of non-conformance reports (NCRs). Most of the NCRs for the GSS work are focused on thermal control of concrete, reinforcing bar detailing and procedural processes. With recognition of these aspects, through the NCR process, these areas are being corrected so that better quality can be maintained in these areas in future. Both the GSS work and the MCW are also being monitored and controlled by reviewing and studying the range and distribution of the NCRs. Of the total of 989 NCRs raised to date, only 6% are open and only 4% are

open for longer than 90 days. This reflects improved quality control on the part of the contractors as well as diligent management by the designers.

The TAB recognizes that the cause of the earlier and steady decline in GSS concrete strengths has been determined and corrected. Consistency in fly ash seems to have been the problem. The TAB was advised that strengths have now stabilized and remain at acceptable levels. Given the high volumes of GSS concrete placement in 2021, and the fact that there is an additional several hundred thousand cubic meter volume to place in 2022, the TAB encourages continued vigilance over this aspect of concrete quality control.

The TAB also recognizes the details and quality aspects of the work associated with the RBE pile installation. This pertains to all aspects of this work, namely from the purchase of the steel pipe, to the welding, to the drilling, to the tremie concreting and the installation of detailed instrumentation during construction and assurance of the procedures. The quality of the first 48 piles installed in the spillway area was good with only eight NCRs raised. This is commendable, given the complications of the work and the attention to NCR tracking. There are further detailed discussions regarding the pile enhancements in Section 3.2 below.

3.2 Design of the RBE with particular reference to the pile program

In applying the Observational Method, the requirement to restrict movements on bedding shears, located below the depth of the shear key at the base of the buttresses, had emerged and, as a result of extensive studies, the installation of piles had been selected as the appropriate means for achieving this requirement.

3.2.1 Status and way forward

To date, a staggered arrangement of 48 piles, Type 1 (36 m depth) and Type 2 (46 m depth), drilled from the bottom of the stilling basin, has been constructed. The steel pipe-piles have been installed and have been filled and encased with concrete, completing the program for the spillway. At the powerhouse tailwater, the piles will be drilled from the top of the rock and subsequently a concrete pile cap will be cast connecting the piles to the powerhouse. The excavation to the working bench for the drilling operation is well advanced. No critical aspects for the general time schedule are anticipated.

3.2.2 Information gathered

A range of tools was used for collecting information on the characteristics of the materials in which the piles were installed, and to assist in assuring the quality of the piles:

- Collection and lithologic analysis of drill cuttings
- Photogrammetry of the pile walls

- Video and sonar scans of the pile walls
- Locating of seeps and assessing the rates of infiltration
- Checks of verticality and determination of the circumference of the drilled shafts
- QA/QC on welding and concrete details

The scans and surveys of the drilled shafts confirmed the cleanliness of the walls and of the bottom. They also served for determining the required volume of concrete for guaranteeing the proper encasement of the piles.

3.2.3 Findings

The surveys showed location, persistence and orientation of the discontinuities. The RCC displayed sub-vertical (shrinkage) cracks. In the rock, the bedding planes, steep joints dipping preferentially in an eastern direction and a few flat shears (dipping in a westerly direction) were recorded. Persistence of the discontinuities is limited, the joints and shears typically terminating at bedding planes. Seeps mainly discharge from the cracks in the RCC and from the contact between the RCC and the rock, reaching a flow rate of 25 l/min in one of the shafts (see Figure 1). In the rock, the seeps concentrate along bedding planes with flow rates mainly below 2 l/min. The contact zone between RCC and rock, and the permeability of the RCC, will have to be given particular attention in the hydrogeological model that is being developed for drainage control beneath the Approach Channel. This is recognized by the design team and was the purpose of the careful attention to water inflow conditions during the excavation, dewatering and installation of the piles.

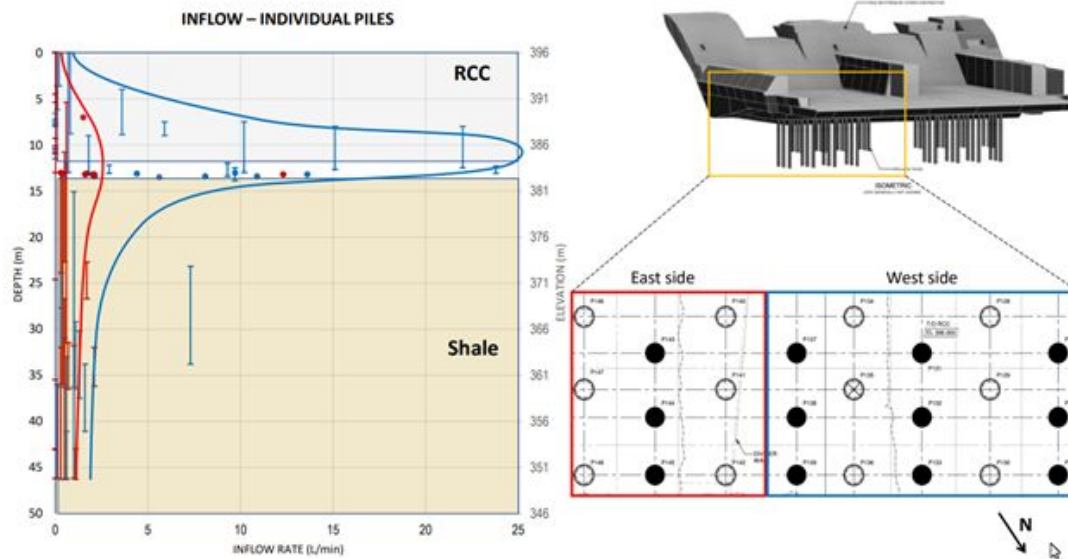


Figure 1. Location and flow rates observed in the shafts drilled from the right bay of the stilling basin (copied from BC Hydro presentation). The red diagrams refer to the piles on the east side and the blue to the west side.

3.2.4 Comparison with design base

The orientation of the discontinuities is consistent with displacement in the direction analyzed in the geotechnical model. Spacing and persistence of the discontinuities correspond to a rock mass quality somewhat more favorable than introduced in the model, according to observations in surface excavations. Thus, the findings support the conceptual model and place the modelling parameters on the safe side. In view of the observed geotechnical conditions and the quality of construction, the TAB is confident that the desired performance will be obtained.

3.2.5 Plan and schedule

Construction of the piles at the powerhouse can be completed within schedule and with satisfactory quality following the methodology developed at the stilling basin.

3.3 Design of the RBFE with particular reference to the Approach Channel including drainage assessment and design

The evolution of the design of the Approach Channel has received ongoing attention by the TAB for many months (see Attachment A). The items that have been discussed more recently were noted to establish status and the scheduling of documentation into IFC drawings, design basis memoranda and other documents related to quality assurance

and operations. The TAB is content that the resolution of design issues and documentation for construction and subsequent operations are all proceeding on schedule.

Over the past year or so, the observation of water seepage on the downstream face of the RCC originating from construction activities during RCC placement highlighted some high local permeabilities associated with the RCC structure, including its joint system. This is a common occurrence in such works. Although existing measures were included within the buttress design to protect against water ingress, additional measures have been considered to provide redundancy in protection against water ingress into the dam and core buttresses. A geomembrane lining system has been proposed as an extension of the Approach Channel lining system for the retaining elements of the RCC structures. This liner system will be consistent with the robust design of the Approach Channel liner. The TAB agrees that this is a prudent measure and accepts the design as proposed. The TAB recommends that since this membrane will be exposed to flowing ice and debris, the design team should confirm with the consultant specialist, CARPI, that the design details are sufficiently robust to address this issue.

Since the last overview meeting of the TAB, Meeting No. 24, progress has been made in developing a computational model that integrates the potential seepage beneath the Approach Channel with the detailed local geology and any defects assumed or discovered in the containment system. This is an important state-of-the-art tool that will assist in validating final design assumptions and long-term management of leakage from the Approach Channel. It is discussed in the meeting dated March 7, 2022, see Attachment A.

Additional design matters under discussion included the following: 1) a review of grouting procedures associated with the Approach Channel grout curtain, based on experience from the dam grout program, and 2) assumptions with regard to leakage to be managed beneath the Approach Channel and the formulation of the risk management criteria. There is ample time to address these issues.

3.4 Performance and construction of the earthfill dam with particular reference to the seepage assessment, pore pressure development and grouting

3.4.1 Construction monitoring of the earthfill dam to date

During the winter months the placement of the central core of the main embankment was on hold but substantial volumes of shale excavated from the Approach Channel were placed in the upstream zone. Temperature monitoring demonstrated a fully satisfactory performance of the insulating layer for the central core.

3.4.2 Status and plan for a mid April resumption of the earthfill dam construction

BC Hydro has updated the supply capacity of the borrow areas according to the past performance and adjustment to available resources. The supply can meet the demand for raising the dam to El. 445 m, i.e., above the level of the Approach Channel. If the dam is to be raised to a higher level in 2022, marginal shortages may arise but can be resolved by adjustments in the construction schedule/program. Beyond 2022, supply can meet the demand for the complete dam.

3.4.3 Detailed assessment of piezometric data

BC Hydro has assembled the geological information gathered from logging of the excavations and from the grouting works and the piezometer hydrographs. Further useful data were obtained from the records of pore pressure responses to the Zone 8 upstream fill placement and the temporary downstream stockpile. The objectives are to refine the geologic features incorporated in the FLAC 3D predictive model of the dam and its foundations, and to validate the input parameters in the model. In this relation it was of interest to observe the reaction of the piezometric regime to the dewatering operations of the contractor.

With the initially operated pump system, the water levels in the sumps were dropped to El. 400 m, approximately, collecting up to 800 l/min at the downstream side and 250 l/min on the upstream side of the core trench. With the river at around El. 415 m this is a modest seepage rate, attesting to the satisfactory performance of the cofferdams. This condition is also reflected in the piezometer response, for instance at Section B where the levels upstream of the cut-off synchronize with the river level, whereas the downstream piezometer stays about 15 m lower with oscillations in the centimetre range. Geohydraulic gradients downstream of the cofferdams display significant upward components, also indicative of the efficiency of the cut-off of the cofferdams.

With the current dewatering operation, a difference of 6 m in piezometer head across the core trench has developed showing the effect of the grout curtain. The efficiency of the grout curtain will be tested during construction this year.

Normalized pore pressures monitored under the downstream stockpile rose to only about 0.2 and dissipated rapidly, which is a more favorable performance than observed in earlier measurements. BC Hydro attributes this to the drainage influence of the cross-cutting shears such as the Little Ricky shear, and the overlying granular alluvium.

3.4.4 Grouting status

A grout curtain is an essentially impervious element installed by drilling and injection of cement slurry (grout) beneath a dam to control downstream seepage and pore pressure. Final grouting activities at Site C have continued in the area of the core buttress (Zone

11) and up to approximately El. 440 m in the left abutment core trench (Zone 1). The grout curtain combines a deep center line and accompanying upstream and downstream lines extending to 30 m depth. The holes were drilled from a ramp, angled at 60° inclination into the slope. Grout takes were generally insignificant but locally exceeded 100kg/m, apparently in places where bedding planes or relaxation joints were intercepted. Some grout may also have been lost to the drainage wells inside the abutment. Following completion of the curtain holes, the ramp was taken down and concurrently five check holes have been drilled, tested and grouted. Four holes were inclined 10° from the horizontal and the fifth check hole was vertical.

In a few places where the curtain holes had only insignificant grout takes, the take in the check holes exceeded 100 kg/m. The shallow inclination in conjunction with the drilling method (rotational core drilling versus down-the-hole percussion), the influence of the water pressure tests (Lugeon) performed prior to the grouting and the circumstance that the check holes are located 3 m upstream of the main curtain holes, may have contributed to these isolated grout takes. Nevertheless, traces of grout were encountered in four of the five check holes.

The high water absorption in the check holes at the top of the foundation rock can be attributed to the low stress levels remaining after removal of the ramp. The TAB agrees with the additional check holes to be drilled at a steeper inclination to obtain confinement.

The TAB is content that the curtain grouting has met specifications and served its purpose but there is merit in considering additional seepage control on the left abutment beyond the drainage measures already installed. Favorable elements are provided by the design of the dam. There is an array of drain holes downstream of the core that will control pore pressures possibly generated by a pervious zone at the base of the core. A glass fiber will detect seepage flows if they should become significant. Eventually, if the monitoring should suggest a need for remedial action, complementary treatment can be done from the drainage adit extending inside the abutment below the core.

Nonetheless, additional measures which include flaring the core in the higher areas of the left abutment and an upstream till blanket at the current elevation should be evaluated. The TAB understands that the design team is exploring these measures and looks forward to its recommendation.

Based on the experience in grouting to date, the TAB recommends that the design team review the proposed criteria and sequencing for the grout curtain planned beneath the Approach Channel. This should not affect contractual circumstances but is intended to ensure recognition and sensitivity to the additional geological information that will be available and to make use of check hole validation early in the acceptance process.

3.5 GSS status and quality assessment

The GSS Works are proceeding well in terms of both program and quality. Approximately 200,000 cubic metres of concrete were placed last year, and a similar volume is envisaged to be placed this year. Work is being undertaken in all areas, i.e., the powerhouse, the power intakes and throughout the spillway complex.

Most concreting now being carried out is repetitive, suggesting there should be no surprises. For example, while much remains to do on Intake and Penstock No 4, the equivalent works on Nos 1, 2, 3 and 6 are virtually complete. This is illustrated on the figure below, which is taken from the Building Information Model (BIM) being used by BC Hydro to manage overall construction sequences and which will itself form a valuable record of work done, and construction dates achieved.

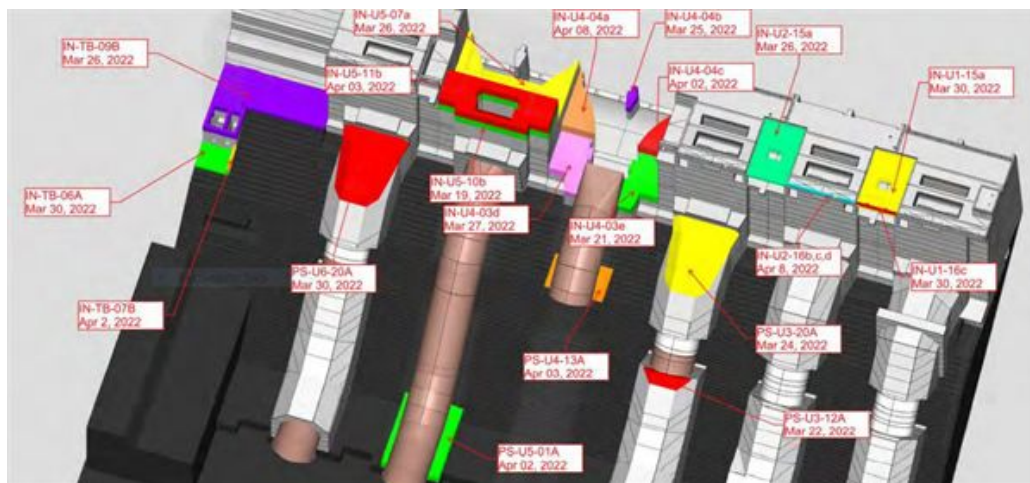


Figure 2. Construction sequences planned for the Power Intakes during April 2022

One new area underway is the sloping downstream hydraulic surfaces of the spillway headworks. Following some trials of alternative placement methods, final construction of these has now started using top shutters. Preliminary indications are that this will achieve the surface and structural qualities required.

Overall concrete quality is being monitored both in terms of achieved strengths and temperature control. In the latter case the maximum temperature differential between inner and outer zones of a concrete pour is the key indicator. While some non-conformities occur, the records indicate a very good compliance with specification requirements. The same is true of achieved concrete strengths, see also associated discussions in Section 3.1.

Steel erection of the penstocks and spiral casings is also being carried out to a good standard with independent verification of weld quality. However, one issue has emerged regarding the upper flexible joints that are sited on the penstocks immediately downstream of the intakes. At present, it has not proved possible to obtain the required watertightness of the flexible joint at this connection. The issue is not yet affecting program but will need to be resolved in the upcoming months. The TAB was assured that the relevant issues are now being addressed with the contractors concerned. The TAB recognizes that contingency measures are being evaluated in the event that a solution to the matter proves elusive and/or is delayed.

3.6 Planning with respect to Reservoir Filling and Tunnel Conversion

Focus is now being applied to reservoir filling and the associated closures of the current river diversion works.

Put simply the existing plan is as follows (see Figure 3):

- Tunnel Conversion: Diversion Tunnel 2 will be closed and fitted with internal orifices to throttle flows. This work is scheduled to take 2 months. During this time, diversion flows will pass only through Tunnel 1.
- Reservoir Filling: once Tunnel 2 is reopened, both Tunnel 1 and newly throttled Tunnel 2 can be operated.
- Tunnel 1 will then be closed with all flows then passing through the newly throttled Tunnel 2. The orifices in Tunnel 2 will limit capacity and over the course of 2 to 4 weeks, and upstream water levels will rise from El. 425 m to El. 440 m at which time they will spill into the Approach Channel. Downstream river flow will then be passed through the spillway low level outlets. Tunnel 2 will then be closed, and upstream water levels will continue to rise but at a slower rate due to control using the low level outlets and Williston reservoir. The figure below illustrates the reservoir rising into the Approach Channel and being controlled by the low level outlets.
- Once upstream water levels reach El. 452 m, outflows can be controlled by the spillway radial gates. Water levels will be held at between El. +452 m to El. 454 m while the performance of the works is evaluated through observation and monitoring.
- Thereafter the reservoir can be allowed to rise more slowly with increased flexibility, to the full supply level of El. 461.80 m using the spillway gates to control the process and limit rates of rise.

The timing of this will be dependent on various factors, some calendar based. Upstream inflows will be partly dependent on the storage capacity at Williston reservoir and power

generation demands. Environmental factors will include addressing requirements of migratory birds and other considerations. At the start of winter, sufficient outflows are required to control the downstream ice front. Dam safety considerations constrain reservoir filling rates above El. 440 m. The proposed reservoir filling rates also take into account that the Approach Channel will be tested by pumping water into it to El. 438 m in advance of reservoir filling.

BC Hydro has carefully balanced and addressed these concerns. The best timing of the initial closure of Tunnel 2 is foreseen as early July. This should allow final reservoir impoundment to full supply level four to five months later in December, in readiness for releases sufficient to control any downstream winter ice front. These timings are optimal with little float.

Filling is currently programmed to take place in 2024, but with 2023 as a possibility, provided the main dam and all necessary GSS works are sufficiently complete. The four to five-month period from initial tunnel closure to full supply level also assumes that no unforeseen delays arise from monitoring or operational anomalies.

Whether or not an early closure in 2023 will be possible should become apparent over the course of the next 12 months. The main benefit of early reservoir impoundment is usually early revenue from power generation and a shorter diversion period. This will depend on predicted dates for machine commissioning, and the TAB recommends that these should be included in any overall assessment of options.

The TAB was pleased to see a contingency scenario being progressed. This contingency is a result of the calendar date restrictions on reservoir filling noted above. It involves installing the orifices on Tunnel 2 but then leaving both Tunnels 1 and 2 operating over the winter and through the following year freshet until a point when requirements are satisfied for reservoir filling to proceed.

There are pros and cons to such a scenario. Considerations include the prolonged adoption of flow conditions, both in the tunnel and in the downstream outlet channel, that were previously seen as temporary. However previous and current model testing will enable informed decisions to be made on both aspects. Other potential advantages include greater timing flexibility for final filling earlier the following year. The TAB compliments the design team on their assessment of the filling options.

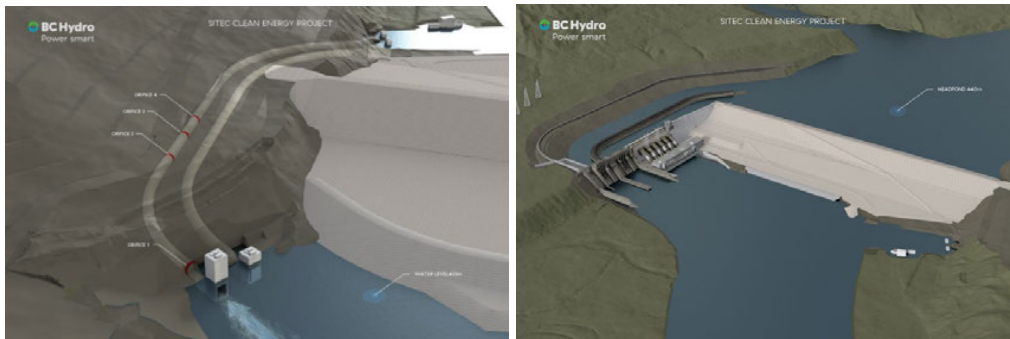


Figure 3. The image on the left shows the start of reservoir filling with water flowing through the converted Tunnel 2 after the closure of Tunnel 1 at El. 425 m. The image on the right shows flow of water into the Approach Channel.

3.7 Long term monitoring following reservoir filling and development of an OMS manual

The TAB received a summary of the Reservoir Slope Monitoring Plan and its ongoing work. The Plan is being undertaken by BGC, who have a high level of expertise in ground hazard assessment using both remote and instrumentation-based techniques as applied to other industrial undertakings, such as pipelines. This is a rapidly evolving area with respect to technology and data management, and the TAB is pleased that it is in such capable hands.

The objectives of the Plan so far have focused on ground movements that might affect dam operations, other infrastructure, public safety and environmental considerations, such as erosion. It is generally concentrated on ground response within the impact boundaries associated with the Project approval.

The TAB was informed of advances in understanding the accuracy of various remote sensing techniques (e.g., InSAR), new site instrument installations to improve monitoring at specific locations and field inspections at selected sites. Going forward, plans are being developed for enhanced surveillance during reservoir filling (2023), post impoundment monitoring (to 2026) and a long-term monitoring plan thereafter. The TAB is content with the execution of the monitoring plan to date and expects that this will continue into the future.

The TAB is of the view that post reservoir filling, ground response to the reservoir should be assessed over a larger area as part of the Operations, Maintenance, and Surveillance (OMS) process. The TAB was briefed on the organization and supporting documentation for OMS, under the guidance of the Director of Dam Safety and senses that it handily embraces an expanded monitoring program. This expanded program should address past or potential ground instability beyond the footprint of the Project, changes in ground

response in general and migration of groundwater away from the Project and around the dam, such as might occur in ancestral channels of the Peace River. The TAB would welcome a discussion on such a proposal at some convenient time in the future.

4. Additional Commentary

4.1 Tracking Log

The TAB has been informed that the Tracking Log is being updated and maintained. It will be transmitted to the TAB and reviewed in the near future.

5. Future Meetings

The TAB recommends that the next TAB meeting be virtual and the date to be determined. In addition, TAB update teleconferences will convene as follows: May 3, June 9, July 6, August 3, and August 31, 2022. Other conference calls will be scheduled as required.

Respectfully submitted,



Dr. Norbert R. Morgenstern



Dr. Wynfrith Riemer



Mr. Joseph L. Ehasz, P.E.



Dr. Peter J. Mason

**Attachment A – Technical Update Conference Calls Agendas and List
of Attendees**

Technical Advisory Board Reports - 2022



Site C Clean Energy Project
Technical Advisory Board
Conference Call
July 16, 2021

Location: Conference Call and Screenshare

AGENDA

July 16, 2021

1. Project Update [REDACTED]
2. Approach Channel – Design Update
 - a) Design and Construction Plan [REDACTED]
 - b) Region 1 and 2 Update [REDACTED]
3. Earthfill Dam
 - a) Grouting Update [REDACTED] nson
 - b) Foundation Preparation and Fill Placement Update [REDACTED]
 - c) LB Colluvium Berm [REDACTED] rtin
4. RCC Dam and Core Buttress – Update [REDACTED]
5. Right Bank Drainage Update [REDACTED]

LIST OF ATTENDEES

TAB: Norbert Morgenstern, Joe Ehasz, Peter Mason, Wynfrith Riemer

PAB Advisor: Kaare Høeg

Other: [REDACTED]

Design Team: [REDACTED]

Technical Advisory Board Reports - 2022



Site C Clean Energy Project
Technical Advisory Board
Conference Call
August 05, 2021

Location: Conference Call and Screenshare

AGENDA

August 05, 2021

- 1. Project Update [REDACTED]
- 2. Approach Channel
 - a) Introduction [REDACTED]
 - b) Durability and Longevity of GCL and Cold Weather Requirements [REDACTED]
- 3. Earthfill Dam
 - a) Foundation Preparation – Update [REDACTED]
 - b) 3D Modelling Update [REDACTED]
 - c) Instrumentation Update [REDACTED]
- 4. Right Bank Foundation – Drainage Update [REDACTED]
- 5. Right Bank Drainage Tunnel
 - a) Review of Mapping [REDACTED]
 - b) Review of Failures Occurred during Construction [REDACTED]
 - c) Work Plan for Assessment of As-built Condition [REDACTED]

LIST OF ATTENDEES

TAB: Norbert Morgenstern, Joe Ehasz, Peter Mason, Wynfrith Riemer

PAB Advisors: Kaare Høeg, John France

Other: [REDACTED]

Design Team: [REDACTED]

Technical Advisory Board Reports - 2022



Site C Clean Energy Project
Technical Advisory Board
Conference Call
September 10, 2021

Location: Conference Call and Screenshare

AGENDA

September 10, 2021

- 1. Project Update [REDACTED]
- 2. Approach Channel Sequence of Construction and Design Update [REDACTED]
- 3. Earthfill Dam
 - a) Earthfill Dam Construction and QC/QA Update [REDACTED]
 - b) Instrumentation Update [REDACTED]
 - c) Update on Downstream Laydown Area and Plan for Stability Measures [REDACTED]
- 4. Dam and Core Buttress RCC Construction Update [REDACTED]

LIST OF ATTENDEES

TAB: Norbert Morgenstern, Joe Ehasz, Peter Mason, Wynfrith Riemer

PAB Advisor: Kaare Høeg

Other: [REDACTED]

Design Team: [REDACTED]

Technical Advisory Board Reports - 2022



**Site C Clean Energy Project
Technical Advisory Board
Conference Call
October 29, 2021**

Location: Conference Call and Screenshare

AGENDA

October 29, 2021

- 1. Project Update [REDACTED]
- 2. Approach Channel – Design Update [REDACTED]
- 3. Earthfill Dam
 - a) Construction and QC/QA Update [REDACTED]
 - b) Grouting Update [REDACTED]
 - c) Instrumentation Update [REDACTED]
- 4. Dam and Core Buttress – Construction Update [REDACTED]
- 5. Piling in Spillway Stilling Basin Area – Construction Update [REDACTED]

LIST OF ATTENDEES

TAB: Norbert Morgenstern, Joe Ehasz, Peter Mason, Wynfrith Riemer

PAB Advisor: Kaare Høeg

Other: [REDACTED]

Design Team: [REDACTED]

Technical Advisory Board Reports - 2022



Site C Clean Energy Project
Technical Advisory Board
Conference Call
Dec 10, 2021

Location: Conference Call and Screenshare

AGENDA

Dec 10, 2021

8am to noon (PST)

Will open MS Team Meeting at 745am so we can start at 8am

- 1. Project Update [REDACTED]
- 2. GSS Update [REDACTED]
- 3. Grouting Update [REDACTED]
- 4. Piling in Spillway Stilling Basin Area [REDACTED]
- 5. RCC Buttress Monitoring Update [REDACTED]

LIST OF ATTENDEES

TAB: Norbert Morgenstern, Joe Ehasz, Peter Mason, Wynfrith Riemer

PAB Advisor: Kaare Høeg, John France

Other: [REDACTED]

Design Team: [REDACTED]

Technical Advisory Board Reports - 2022



Site C Clean Energy Project
Technical Advisory Board
Conference Call
Jan 7, 2022

Location: Conference Call and Screenshare

AGENDA

January 7, 2022

- 1. Project Update [REDACTED]
- 2. Approach Channel Design Update
 - a) Excavation, Backfill and Liner System [REDACTED]
 - b) Erosion Protection Stabs [REDACTED]
 - c) Centre Berm [REDACTED]
 - d) Grouting Gallery [REDACTED]
 - e) Grouting Plinths [REDACTED]
 - f) Grouting [REDACTED]
 - g) Instrumentation [REDACTED]
 - h) Design Work Plan [REDACTED]

LIST OF ATTENDEES

TAB: Norbert Morgenstern, Joe Ehasz, Wynfrith Riemer

PAB Advisors: Kaare Høeg, John France

Other: [REDACTED]

Design Team: [REDACTED]

Technical Advisory Board Reports - 2022



Site C Clean Energy Project
Technical Advisory Board
Conference Call
Feb 11, 2022

Location: Conference Call and Screenshare

AGENDA

Feb 11, 2022

- 1. Project Update [REDACTED]
- 2. RBFE Execution Status (all scopes) [REDACTED]
- 3. Approach Channel
 - a) Centre Berm in Region 1 [REDACTED]
 - b) Questions from TAB:
 - Centre Berm Invert Slab – Distribution of Contraction Joints [REDACTED]
 - Uplift during Drawdown [REDACTED]
 - 3D Seepage Model (Recording Sent Separately) [REDACTED]
 - c) Drains from RCC Drainage Gallery to RBDT [REDACTED]
- 4. Earthfill Dam
 - a) Questions from the TAB
 - Instrumentation Update [REDACTED]
 - 3D Deformation Modelling – Performance Base Design (Deferred) [REDACTED]
- 5. RCC Buttress – Investigation Program (Deferred) [REDACTED]

LIST OF ATTENDEES

TAB: Norbert Morgenstern, Joe Ehasz, Wynfrith Riemer, Peter Mason

PAB Advisors: Kaare Høeg, John France

Other: [REDACTED]

Design Team: [REDACTED]

Technical Advisory Board Reports - 2022



**Site C Clean Energy Project
Technical Advisory Board
Conference Call
Mar 07, 2022**

Location: Conference Call and Screenshare

AGENDA

Mar 7, 2022

1. Approach Channel 3D Seepage Modelling [REDACTED]
2. Earthfill Dam – Instrumentation response to Zone 8 Placement [REDACTED]

LIST OF ATTENDEES

TAB: Norbert Morgenstern, Joe Ehasz, Wynfrith Riemer, Peter Mason

PAB Advisors: Kaare Høeg, John France

Other: [REDACTED]

Design Team: [REDACTED]

Attachment B – Meeting Agenda and List of Attendees



Site C Clean Energy Project
Technical Advisory Board
Conference Call
March 29 to April 1, 2022

Location: Conference Call and Screenshare

AGENDA

Mar 29, 2022 (TAB, John France, Kaare Hoeg)

1. Project Update [REDACTED]
2. Reservoir Filling [REDACTED]
3. Earthfill Dam Grouting Update [REDACTED]
4. Upstream Liner Extensions for RCC Buttress, Intake and Spillway Structures [REDACTED]
5. Approach Channel placeholder

March 30, 2022 (TAB)

1. GSS Update [REDACTED]
2. Project Quality [REDACTED]
3. TAB report preparation

March 31, 2022 (TAB)

1. [REDACTED] update on reservoir slopes [REDACTED]
2. Discussion
3. TAB report preparation

April 1, 2022 (TAB)

1. Discussion
2. TAB report preparation

Technical Advisory Board Reports - 2022



Site C Clean Energy Project
Technical Advisory Board
Conference Call
March 29 to April 1, 2022

Location: Conference Call and Screenshare

LIST OF ATTENDEES

March 29, 2022

TAB: Norbert Morgenstern, Joe Ehasz, Wynfrith Riemer, Peter Mason

PAB Advisor: Kaare Høeg

Other: [REDACTED]

Design Team: [REDACTED]

March 30, 2022

TAB: Norbert Morgenstern, Joe Ehasz, Wynfrith Riemer, Peter Mason

Other: [REDACTED]

Design Team: [REDACTED]

March 31, 2022

TAB: Norbert Morgenstern, Joe Ehasz, Wynfrith Riemer, Peter Mason

Other: [REDACTED]

Design Team: [REDACTED]

April 1, 2022

TAB: Norbert Morgenstern, Joe Ehasz, Wynfrith Riemer, Peter Mason

Design Team: [REDACTED]

Site C Clean Energy Project

Quarterly Progress Report No. 26

Appendix F

**Summary of Individual Contracts Exceeding
\$10 Million**

PUBLIC

CONFIDENTIAL

ATTACHMENT

Site C Clean Energy Project

Quarterly Progress Report No. 26

Appendix G

Project Progression

PUBLIC

CONFIDENTIAL

ATTACHMENT

Site C Clean Energy Project

Quarterly Progress Report No. 26

Appendix H

Detailed Project Expenditure

PUBLIC

CONFIDENTIAL

ATTACHMENT