

Accidents and Malfunctions Plan Annual Update: 2022

Site C Clean Energy Project

March 31, 2023

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Impact Assessment Agency of Canada
160 Elgin Street, 22nd Floor
Ottawa, ON K1A 0H3

Attention: Mr. Nicolas

Courville Dear Mr. Courville:

Re: Site C Clean Energy Project - Accidents and Malfunctions Plan 2022 Annual Update

I am writing to provide an annual update on BC Hydro's Accidents and Malfunctions Plan for 2022. This update is being submitted in accordance with Condition 2.6 of the Site C Project Clean Energy Project's Decision Statement, issued to BC Hydro on November 25, 2014, and with reporting requirements outlined in the Accidents and Malfunctions Plan.

As per Condition 2.6 of the Decision Statement:

"The Proponent shall implement the plan and provide to the Agency a review and summary of the implementation of the plan as well as any updates required to the plan on an annual basis commencing with construction. In the event of an occurrence of an accident or malfunction, the Proponent shall update the plan to incorporate new procedures and measures to avoid a reoccurrence, as necessary."

As per Section 5.0 Reporting of BC Hydro's Accidents and Malfunctions Plan, BC Hydro will:

"... develop a procedure for notifying BC Ministry of Environment; BC Ministry of Forests, Lands and Natural Resource Operations; Environment Canada and Fisheries and Oceans Canada in the event that an accident or malfunction as described in Section 3 occurs. The procedure will be developed in consultation with the named agencies prior to commencement of dam construction."

In accordance with Decision Statement 2, the Accidents and Malfunctions Plan was developed by BC Hydro, in consultation with Environment Canada and the Environmental Assessment Agency, to prevent accidents and malfunctions and outline procedures in the case of occurrence of an accident or malfunction. The draft Accidents and Malfunctions Plan was submitted to the CEA Agency (now the Impact Assessment Agency of Canada, or IAAC) and Environment Canada on October 17, 2014. The final was submitted on June 5, 2015, and is available on the Site C Project Website at:

https://www.sitecproject.com/sites/default/files/Accidents_and_Malfunctions_Plan.pdf

Background

Construction began at the Site C Project on July 27, 2015 and has been ongoing since. In late November 2022, the entire earthfill dam reached elevation 445 metres above sea level (final elevation will be 470 metres). As of December 31, 2022, the earthfill dam was 88% complete with 3.1 million cubic metres of dam material being placed in 2022.

The excavation of the approach channel was substantially completed in 2022. The work to complete waterproofing the bottom of the channel, as part of the right bank foundation enhancements, began in April of 2022 and will continue through 2023. The waterproofing scope includes construction of reinforced concrete, installation of polyvinyl chloride (PVC) liners, and grouting of the underlying bedrock. Due to the wide variety of activities and interfaces between contractors and interdependent nature of the design, the work requires diligent coordination and close management of interfaces. Several of the construction activities are weather sensitive, reducing their ability to be completed during the winter months or periods of rainy weather. The work is being completed by a large skilled labour force which is working on multiple active work fronts at the same time.

A new aggregate supply located southwest of the dam site (Area E), began supplying the Project with dam material. Hauling began in July 2022 after the access road was upgraded

Several new areas of fish habitat were built this year, part of a broader program to create 60 hectares of shoreline habitat in preparation for reservoir filling. The habitat areas provide nutrient rich, sheltered environments to support a variety of fish and vegetation. These habitats include P6 Island (an island in the Peace River across from the community of Old Fort) and spawning shoals at Maurice Creek near the Peace Canyon Dam.

The construction of the penstocks, spillways and approach channel continued to advance and remain on-track for completion in 2023. Risk remains with the supply and installation of the upper penstock couplers and BC Hydro is working closely with contractors to complete this work. The radial spillway gates were fabricated in 2022, delivered to site, and are in the process of being installed. At the powerhouse itself, concrete placements are 90% complete. Inside the powerhouse, two of the six units have been handed over to the turbine manufacturer to begin assembly of the generating unit. Construction of the three 500-kilovolt transmission lines connecting the Site C powerhouse to the Site C substation progressed in 2022.

The contract for the balance of plant electrical components was awarded in September 2021, with the remaining balance of plant components for the powerhouse construction (e.g., heating, ventilation) awarded in 2022. The balance of plant contractors have mobilized to site and work is currently underway. Due to the outage

of the powerhouse bridge cranes in August 2022, installation of cable trays and cables by one of the balance of plant contractors has been impacted and additional workers are required to recover the contractual schedule.

Away from the dam site, construction also progressed. The second 75-kilometre-long transmission line between Site C and the Peace Canyon generating station was completed and energized in March 2022, ahead of schedule. As of December 31, 2022, Highway 29 is 90% complete, with five of the six segments being opened to traffic. The final bridge at Halfway River is expected to open in February 2023. The decommissioning and removal of the old sections of highway began in fall 2022. The Hudson's Hope berm, which protects the shoreline from erosion from the new reservoir, was completed in November 2022. Clearing for the entire reservoir area and waste wood removal will be completed in 2023.

2022 Accidents and Malfunctions

BC Hydro reported 2,219 environmental incidents within the internal BC Hydro incident management system (IMS) from January 1st to December 31st, 2022. The incident type summary for all reported environmental issues is as follows:

- 2,113 Spill/Pollution
- 31 Fish/Water
- 20 Land/Vegetation
- 51 Bird/Wildlife
- 4 Archeological

The vast majority of incidents on the Site C Project in 2022 were related to small volume spills of less than 5 litres. In these incidents, workers deployed spill response measures and contaminated soil was disposed of appropriately.

Reporting

Through its Fish Hydro Management Committee (FHMC), which has representation of Fisheries and Oceans Canada (DFO) and the Province of B.C., BC Hydro has established an agency notification protocol that defines the nature of an accident/incident, its level/severity, who to notify and how (i.e., by phone, website, or e-mail). Although Environment Canada is not represented at FHMC, DFO did ensure that any notifications to them related to a deleterious substance spill to water would be conveyed to Environmental Canada upon receipt of an applicable notification. This notification procedure was agreed upon by FHMC on July 23, 2015, within roughly one week of the start of Site C Construction. A detailed description of this notification procedure is provided in Appendix A.

Plan Updates

Section 6 of the Accidents and Malfunctions Plan requires that the Plan is updated annually. In 2022 BC Hydro reviewed this plan and since there were no significant learnings or modifications to procedures developed to avoid reoccurrence of incidents, BC Hydro determined that an update to the Plan was not required for 2022.

Closure

Please do not hesitate to contact me at if you have any questions.

Regards,



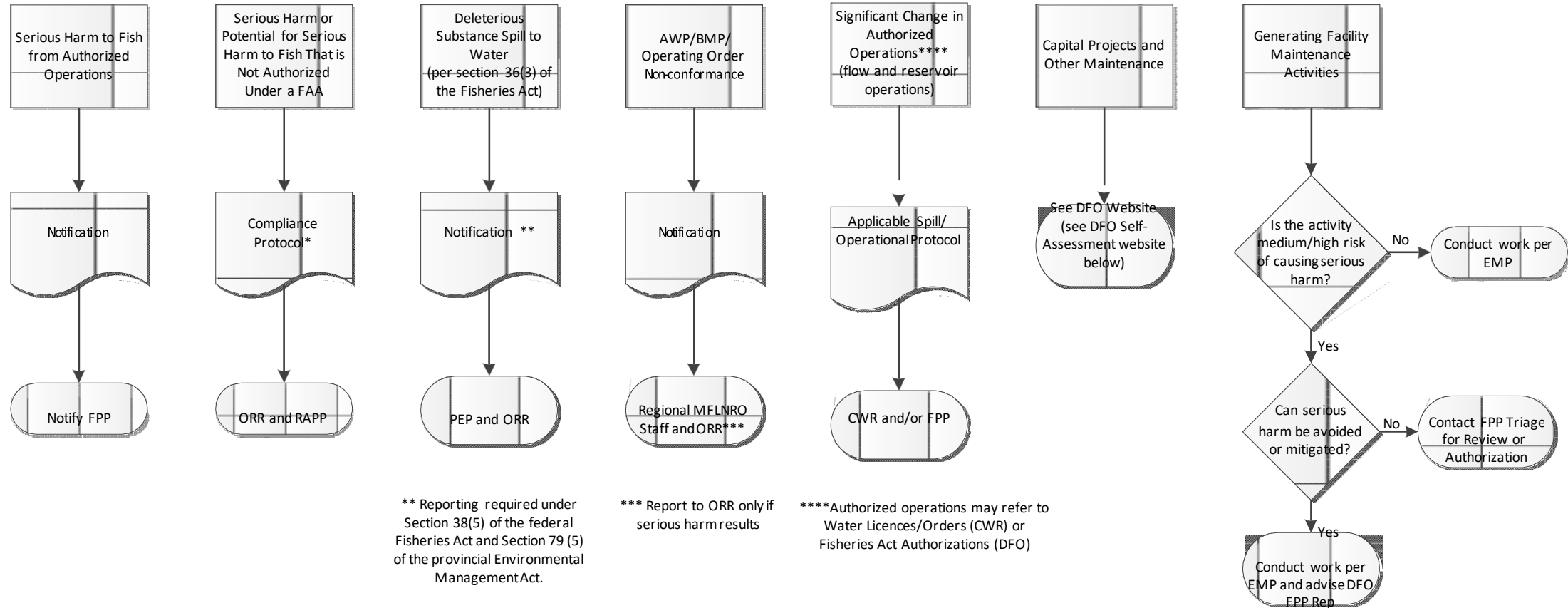
Greg Scarborough
Manager, Environmental Mitigation, Monitoring and
Compliance Site C Clean Energy Project

Attachments

Appendix A – Agency Notification Process Chart

Agency Notifications

Applicable to incidents, agreement non-compliance and generating plant maintenance. Does not include notifications in advance of projects related to request for review, permits or authorization.



Note on notification: ensure that any reports to regulatory agencies state whether the event being reported is authorized/licenced/permited or not and which regulatory requirement (e.g. serious harm, deposit of a deleterious substance, etc.) has triggered the notification.

* Compliance Protocol timelines:

(notification of Serious Harm required per Section 38(4) of the Fisheries Act)

1. Report to local contacts as soon as possible.
2. Preliminary assessment within 24 hour or such time frame as otherwise agreed.
 - depending on nature of incident, assessment may include stranding and/or salvage.
3. Within 5 days or a time frame agreed to by all parties, review of the preliminary assessment and notify location contacts as to the status of compliance with all Acts, regulations, licenses, permits and authorizations.

See full Compliance Protocol for complete process.

Types of Incidents

- Serious Harm: Stranding, entrapment, TDG, destruction of fish, habitat
- Protocols and procedures: deviation from ordered operational requirements and BMPs
- AWP Non-conformance: clearing exceedance, riparian area trespass
- Spills of Deleterious Substances to Water (administered by EC federally, MoE provincially)

Contacts:

Department of Fisheries and Oceans

Triage & Planning Unit (Authorizations & Reviews)

Telephone: Toll free 1-866-845-6776
 Email: ReferralsPacific@dfo-mpo.gc.ca
 Self-Assessment Website: <http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>

Observe, Record & Report (ORR)

Telephone: Toll free 1-800-465-4336
 Email: PACRadioRoomRHQ@pac.dfo-mpo.gc.ca

DFO Fisheries Protection Program – Large Hydro Unit

Brian Naito (Large Hydro Lead and Peace)
 Telephone: 604-790-4260
 Email: Brian.Naito@dfo-mpo.gc.ca

Dan Sneep (Lower Mainland and Coastal)
 Telephone: 604-209-5764
 Email: Daniel.Sneep@dfo-mpo.gc.ca

Dean Watts (Columbia)
 Telephone: 250-371-1286
 Email: Dean.Watts@dfo-mpo.gc.ca

Contacts:

Province of BC

Report All Poachers and Polluters (RAPP)
 Telephone: 1-877-952-7277

Provincial Emergency Program (PEP)
 Telephone: Toll free 1-800-663-3456