

Accidents and Malfunctions Plan Annual Update: 2023

Site C Clean Energy Project

April 3, 2024

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

Attention: Julie Buron

Dear Ms. Buron:

Re: Site C Clean Energy Project - Accidents and Malfunctions Plan 2023 Annual Update

I am writing to provide an annual update on BC Hydro's Accidents and Malfunctions Plan for 2023. 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. Considerable progress was made and significant milestones were reached both on and off the dam site in 2023. BC Hydro remains on track to achieve the approved in-service date of December 2025.

With the completion of tunnel conversion in September 2023, there was the possibility that reservoir filling could start in late fall 2023, one year earlier than the approved schedule. However, as of early November 2023, some critical work areas still needed to be completed before reservoir filling could begin, including the approach channel, spillway gates and powerhouse intake gates. With winter weather and colder conditions setting in, the window to safely begin reservoir filling was coming to close. As a result, in mid-November 2023, BC Hydro decided to stay on track with the approved Project schedule. Work on the Site C Project continues to advance on schedule with reservoir filling planned to begin in fall 2024.

Key activities during 2023 included:

- Completion of the earthfill dam to the elevation required to enable reservoir filling. The earthfill dam is approximately 60 metres tall, stretches more than one kilometre across the Peace River and is about 500 metres wide at its base. As of December 31, 2023, the capping of the earthfill and the construction of the dam crest road and the dam face road were both completed. The conveyor system that transported glacial till material used in the construction of the core of the earthfill dam ceased operations and its decommissioning is in progress.
- Completion of the Highway 29 Realignment, improving safety and travel times for those travelling along the corridor. This work involved the realignment of six highway segments and five new bridges. The new alignment reduces curves along the road and improve sightlines. Additionally, wider vehicle travel lanes and paved shoulders improve safety for cyclists, pedestrians, and all roadway users.
- Completion of tailrace filling in October 2023. This process used pumps to move water from the Peace River into the tailrace area, to equalize the water level on both sides of the cofferdam in advance of breaching the right bank cofferdam. Once the filling was completed, the cofferdam was removed and completed in December 2023
- Substantial completion of concrete placement. Concrete placements for the generating station and spillways are essentially complete. A small amount of concrete will be placed behind generating units 5 and 6 in spring 2024 for access to the flexible couplings (penstock sections that allow the penstocks to expand and contract). All of the concrete placements for the spillways were complete as of December 31, 2023.

- Redesign of the penstock flexible couplings fully meet BC Hydro's specifications. The installation of the redesigned flexible couplings began in February 2024. The coatings for the penstocks are forecast to be complete in summer 2024 to optimize the interfaces with the installation of the upper and lower flexible couplings.
- Substantial completion of right bank foundation enhancements, addressing the geotechnical issues that were identified in the bedrock foundation on the Project's right bank. As of December 31, 2023, enhancements to the approach channel were substantially complete, including the excavation and cleaning of the bedrock surface, the installation of waterproofing lining materials, grouting, and the placement of reinforced concrete and granular fill. Earlier in 2023, 96 concrete-filled, vertical steel piles were installed beneath the right bank structures to further extend the foundation deeper into the bedrock. Ongoing reviews by the Technical Advisory Board and the two independent, world-leading dam experts continue to confirm that the design of the foundation enhancements meets the highest safety standards and international best practices.

In addition, "balance of plant" construction activities continued within the powerhouse, including mechanical and electrical work, architecture installation/construction, and installation of heating, ventilation and air conditioning systems, and installation of fire protection systems. Construction also continued on the permanent upstream fishway, which is on schedule for completion in spring 2024.

2023 Accidents and Malfunctions

BC Hydro reported 1,870 environmental incidents within the internal BC Hydro incident management system (IMS) from January 1st to December 31st, 2023. The incident type summary for all reported environmental issues is as follows:

- 1,816 Spill/Pollution
- 21 Fish/Water
- 3 Land/Vegetation
- 30 Bird/ Wildlife
- 0 Archeological

The vast majority of incidents on the Site C Project in 2023 were related to small volume spills of less than 10 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 2023 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 2023.

Closure

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

Regards,

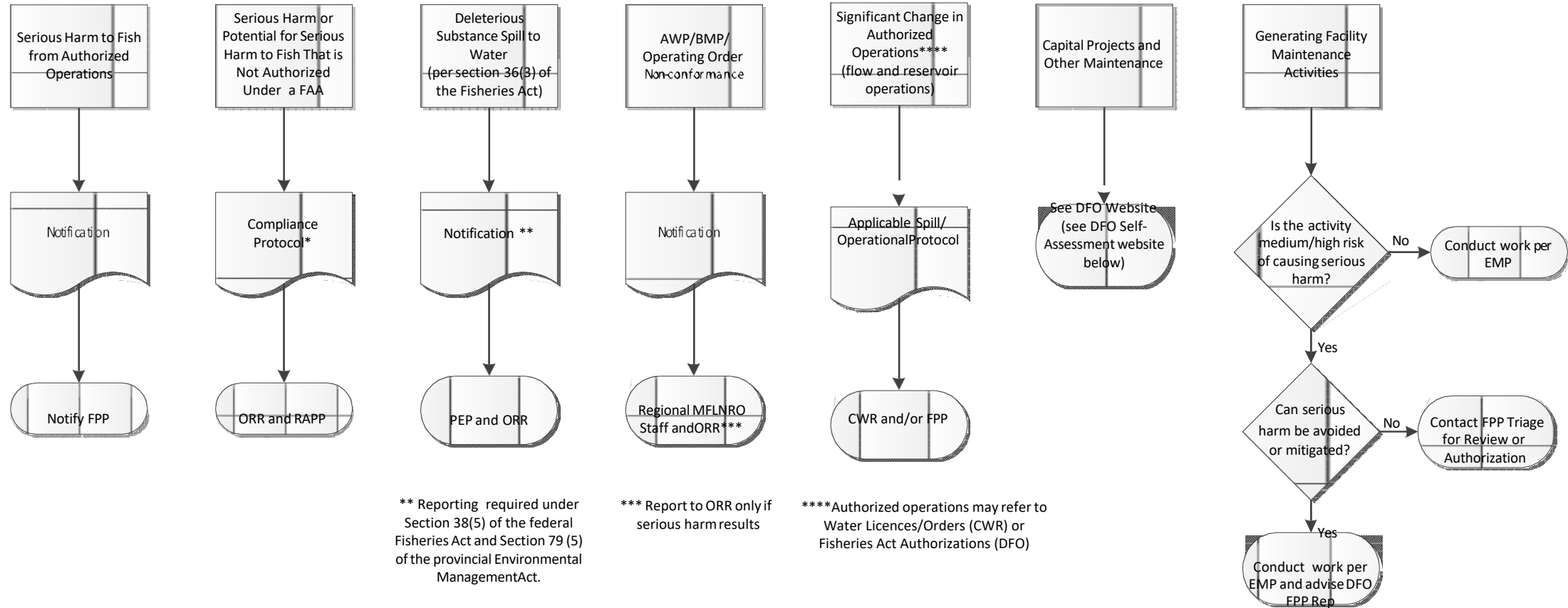


Greg Scarborough
Manager, Environmental Mitigation, Monitoring and
Compliance Site C Clean Energy Project

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/licensed/permitted 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, entrainment, 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

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

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

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