

# **John Hart Generating Station Replacement Project**

**July 2017**

## **Community Construction Update Report #49**

Prepared by: Stephen Watson, BC Hydro

(O) 250-755-4795 or (C) 250-616-9888

Twitter: @Puntledge Email: [steve.watson@bchydro.com](mailto:steve.watson@bchydro.com)



# Project Status

- Another project milestone has been reached in the powerhouse with Turbine/Generator #3 now pit free. This means the concrete work for this unit is now finished and work can begin on the electrical and mechanical;
- The stator for Turbine/Generator #2 and the rotor rim for Turbine/Generator #3 have arrived on site, having travelled from the GE manufacturing plant in Sorel-Tracy, Quebec;
- Fraser River Pile & Dredge is back on site to remove the cofferdam. Drilling is ready to begin on the underwater approach channel to the water intake;
- Upper and lower blast protection is in place for the trashracks and maintenance gates, and a new silt curtain has been installed in the reservoir by the cofferdam;
- The first elbow section is installed in the upper power tunnel shaft and work to complete the bracing on the next elbow segments is underway;
- The surge chamber hook bars (for the water bypass outlets) have been drilled and the formwork has begun; and
- Frontier-Kemper/ASL JV will be demobilized by month's end, signaling a transition from the project's tunneling and heavy civil works and shift into the mechanical and electrical works to complete and commission the new generating station.

**John Hart project construction video #5 is out!** Check out the drone footage through the project tunnels:

[https://www.youtube.com/watch?v=nIMM\\_fxNeYs](https://www.youtube.com/watch?v=nIMM_fxNeYs)

View up the 65 metre power tunnel shaft. The inset photo is looking half-way down the shaft.



# Project Schedule

- August: Powerhouse office/control complex installation continues;
- August: Tailrace rock chipping of the rock plug continues;
- August: Excavation of water intake channel in the reservoir commences;
- August: Power tunnel to intake shaft concrete paving is underway;
- September: Second-stage concrete work starts to prepare for operating gate installation at the water intake;
- October: The first unit (Generator #5) of the 69-year old generating station will permanently go off-line. This is to allow for transformer replacement work for the new station;
- October: Water intake site to be backfilled in preparation for restoration and landscaping of that area;
- October-December: Cable bus installation begins for Turbine/Generator Units #1, #2, and #3; and
- December: Fire detection system complete.



Water intake works.

# Construction Pictures – John Hart Dam

July 26





View of the low level outlet works being constructed on the downstream side of the dam.

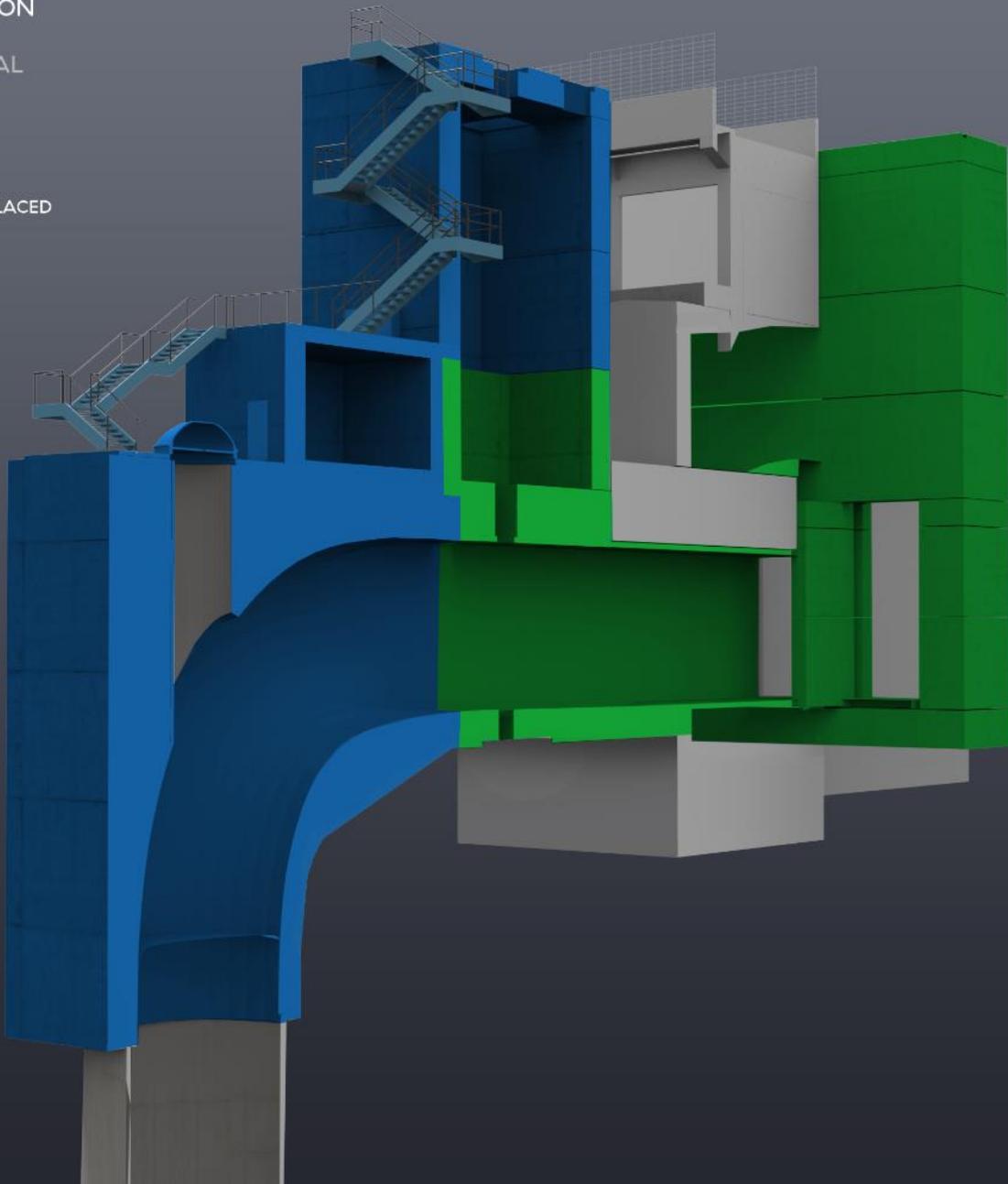
# Water Intake Concrete Placements

JOHN HART GENERATING STATION  
REPLACEMENT PROJECT:  
INTAKE CONCRETE / MECHANICAL



PROGRESS AS OF 2017.07.19

- EQUIPMENT INSTALLED / CONCRETE PLACED
- LOOKAHEAD TO DECEMBER 31, 2017





The formwork view from the top of the dam.



On the left, view of water intake works with the power tunnel shaft below, and above, the low level outlet works.

Advancements of the water intake formwork.



The first section of steel liner elbow placed on the power tunnel shaft.



Preparations being made for the next section of elbow liner.



Downstream view of the power tunnel manifold, and on the right, one of the water inlets.



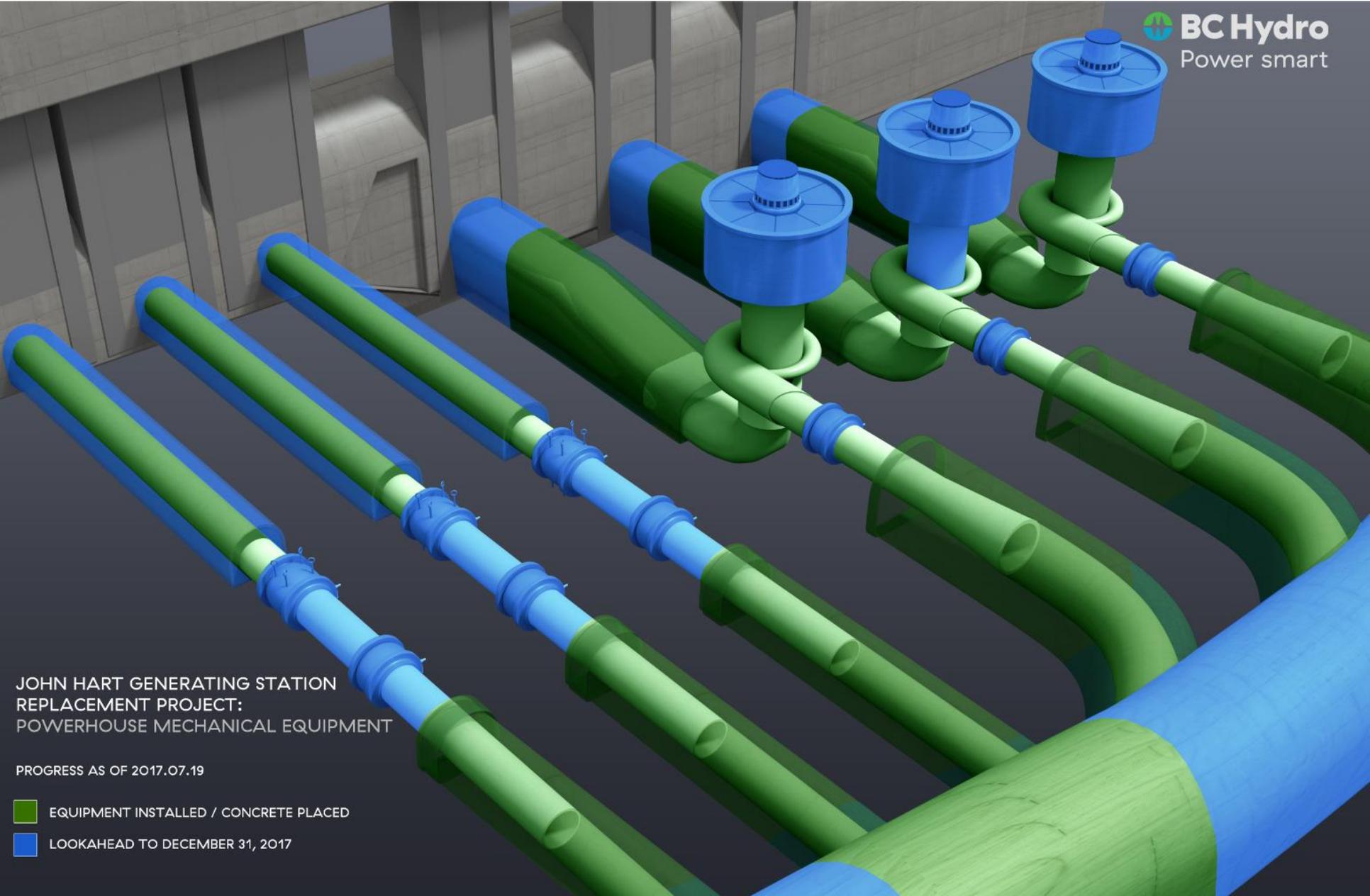
Power tunnel manifold.



Summer sunshine lighting up the entrance to the service tunnel, which leads to the powerhouse.



# Powerhouse Area



JOHN HART GENERATING STATION  
REPLACEMENT PROJECT:  
POWERHOUSE MECHANICAL EQUIPMENT

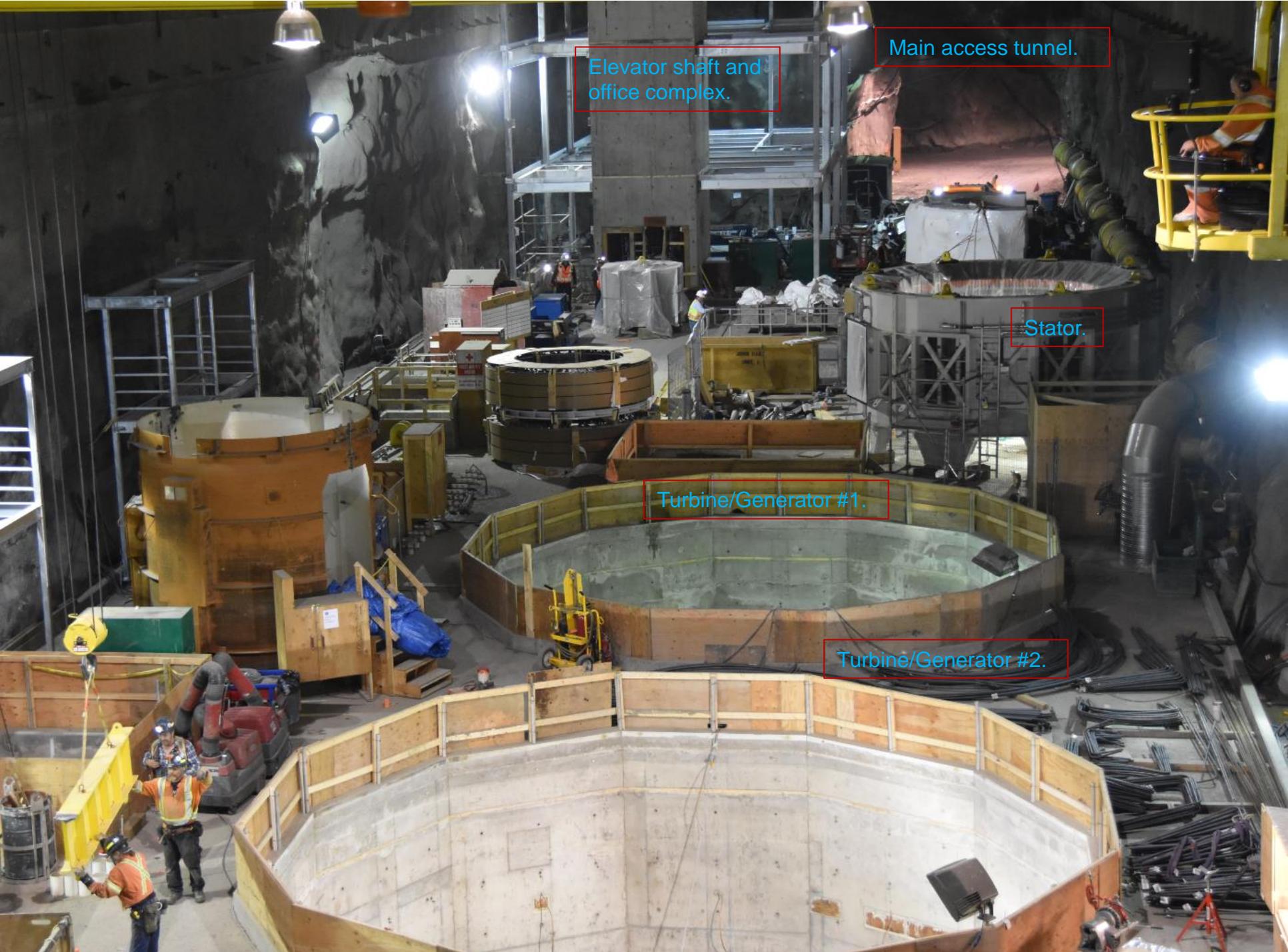
PROGRESS AS OF 2017.07.19

- EQUIPMENT INSTALLED / CONCRETE PLACED
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Powerhouse area.



COH Inc.  
POWERHOUSE CRANE  
01 - 140 M.T. CMAA Class B  
02 - 15 M.T. CMAA Class C  
03 - 1 M.T. CMAA Class E  
3186 - 2516002



Elevator shaft and office complex.

Main access tunnel.

Stator.

Turbine/Generator #1.

Turbine/Generator #2.

# Environment

- As the cofferdam removal (shown below) and excavation of the underwater intake channel excavation get underway, activity in and around the reservoir is being monitored on an ongoing basis. The advance planning to protect water in the reservoir is being implemented, such as:
  - A new extended double silt curtain has been installed;
  - Water quality sondes are in place in front of the water intakes and are being monitored 24/7 with an alarm system; and
  - Equipment operating in the area is regularly inspected and absorbent pads and leak trays are placed underneath to prevent any drips from making their way to the soil or water.
- The project environmental management team won the Environmental Management Association of British Columbia “Members’ Choice Award” for their popular and effective “I Saved A Frog” environmental education program. Shown below with their award are Amber Ashenhurst, environmental manager (right) and Valerie Masterman, environmental coordinator, creators of the “I Saved a Frog” hardhat sticker program: “Bring us a frog found on the project site, protect habitat or clean up a spill, and get a sticker!”
- Through this initiative, the environmental team has been able to educate the workforce about environmental protection, while emphasizing that the most effective way to meet environmental protection goals is to build pride and ownership among the workforce.



# 3<sup>rd</sup> Annual John Hart Project Community Site Event

The project team was very pleased with the community interest shown with the 1,100 people who went on the buses with the tour guides to the four sites (see next four pages).

Everyone seemed to have a good time and appreciated the opportunity to see the site. The project team event volunteers were proud to show off the site, with about 40 combined staff from BC Hydro, SNC-Lavalin and Aecon. This annual event achieved our ongoing goal of community openness and engagement. Special thanks to our community partners who participated.



PHOTOS BY JOCELYN DOLL/CAMPBELL RIVER MIRROR  
Guests got to see the current generating station that will be decommissioned once the new station is complete.

## BCHydro opens doors to original John Hart generating station

JOCELYN DOLL  
Campbell River Mirror

BCHydro held their annual John Hart Generating Station community information event on Sunday. Guests hopped onto buses in Spirit Square and were

driven out to the current generating station, which was built in the 1940s and will be decommissioned when the new station is complete.

While on site, guests had the chance to see where the water will re-en-

ter the river.

The second stop on the tour was at the dam where everyone could see the water intake system.

From there everyone was dropped off at the John Hart Interpretive Centre where they could

take a ride in a BCHydro lift truck, peruse some community booths and have lunch.

Members of a local First Nation family also did some traditional singing and dancing for the crowd.



Site 1: Old John Hart Generating Station.



Site 2: Tailrace tunnel outlet



Courtesy Campbell River Mirror



Site 3: Water intake works.



# Site 4: Interpretive Centre.



# Subcontractor Profile – FK-ASL Joint Venture

## Background:

The Frontier-Kemper/ASL Joint Venture (FK-ASL JV) was formed to construct the underground workings of the John Hart project. The earliest team members began working on the project in April 2014, and the underground rock excavation began in January 2015. The final team members disbanded the site at the end of July.

## What you may not know about them:

Renowned for its underground and heavy civil construction capabilities Frontier-Kemper together with Aecon and SNC-Lavalin formed this special FK-ASL JV team to drill, blast and muck more than three kilometres of tunnels and remove approximately 300,000 m<sup>3</sup> of rock. The excavation team was also employed on the City of Campbell River water project to drill the new deep water intake into the John Hart reservoir.

## Project role:

FK-ASL JV's role on the project was excavating the powerhouse, gate chamber, intake shaft, power tunnel, surge shaft, tailrace, and various access tunnels. The surge shaft was excavated using raised bore technology, with all other underground project areas using the drill-and-blast method. Putting an entire power generating station underground is more complex than simply tunnelling, blasting and removing rock. Beyond excavation, the scope of the FK-ASL JV contribution to the project, valued at over \$110 million, included the underground and finishing works to ensure that the underground structures are stable. Aspects of this work included: steel reinforcement, concrete placement, shotcreting, non-destructive testing, and so on. The leaders of the team also worked extensively with other project partners to successfully navigate complex challenges that emerged – such as rerouting part of the service tunnel and the timely changes to excavation methods due to shifting geological conditions throughout the tunnelling process.



# Subcontractor Profile – FK-ASL Joint Venture

## People working on the project:

The FK-ASL JV was led by project manager Matt Kendall and his team of subject matter experts. This includes engineers, managers, safety coordinators, demolition/explosives specialists, to skilled labourers from the mining field. At the peak of the excavation, about 122 people were employed under the FK-ASL JV umbrella, which allowed for crews to staff the three daily shifts that kept this part of the project moving forward.

## What makes Campbell River a great place to live and work?

Campbell River is a perfect blend of mountains and ocean. You can drop a line in the river for salmon, or head to a lake to fish for trout. You can go skiing or go drip your toe in the ocean. Who could ask for more than that?

## Quote:

“The long term pay-off for this project for Campbell River, and surrounding areas, is something to take great pride in. It’s not often a person can say ‘I was part of building the project safely and with no environmental impacts.’ That is a statement to be proud of.” - Dave Johnson



# People Profile – Jory Dion

## About Jory

### Background:

Jory began his mining career at Myra Falls, where he worked for a decade from 2005 – 2015. He credits his skills to having spent two years training with and shadowing the best miners at Myra Falls. In August 2015, he joined FK-ASL JV as a jumbo (drill) operator.

### Home:

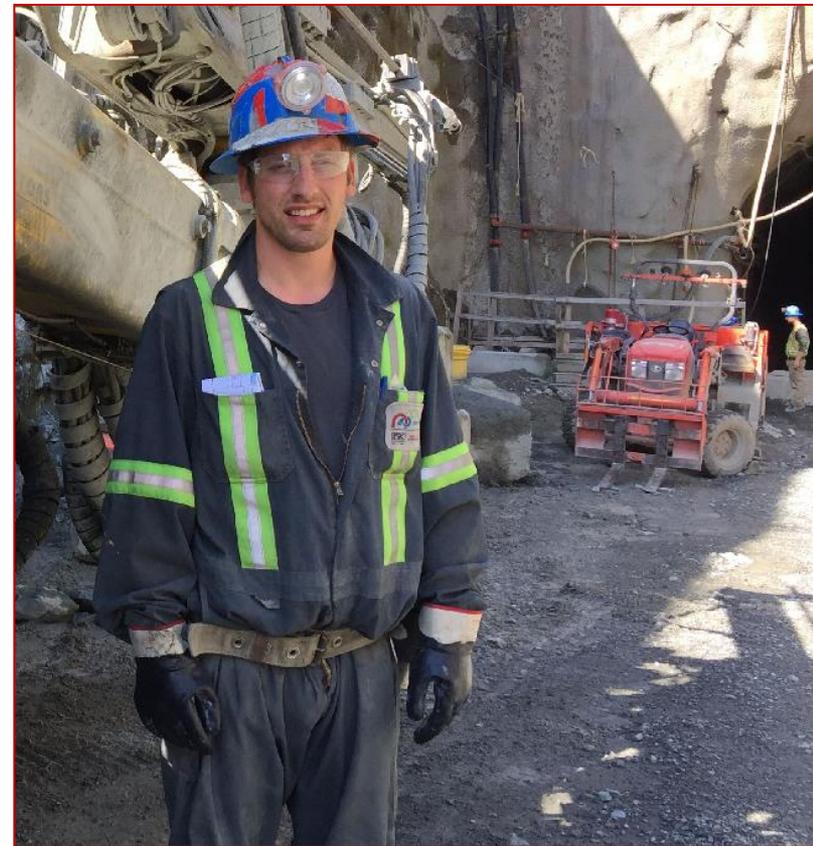
Born and raised in Campbell River, Jory grew up less than 5 kilometres from the John Hart dam. He comes from a mining family – his grandfather, dad and uncle mined, and his brother also worked on this project – so he’s been right at home drilling the project’s tunnels.

### Hobbies:

With four little girls (ages 8, 7, 4, and 10 months), most of Jory’s off time is spent doing something he loves: hanging out with his daughters and wife. He also works at his electronics store repairing consumer electronics like cell phones and laptops, and he finds time to enjoy photography, in spite of being a very busy dad.

### Project Responsibility:

Simply put, Jory is a driller. Working rotating shifts of two weeks on days and two weeks on nights, he has put in many hours on both Jo2 and Jo3 jumbo. He began drilling in the powerhouse, and then moved to the main access tunnel to drill pipe canopy for ground support. He recently finished the power tunnel which required drilling approximately 140 six-metre blast holes for each blast.



“Growing up in the nearby area and coming from a mining family, words can't describe how proud I am to have been a part of this historic project.”

# Construction – Point Of Interest

Each month, BC Hydro and InPower BC will provide a construction fact, occurrence, or situation.

## Forest Fire Safety on the John Hart Generating Station Replacement Project

Fire prevention in the forested areas of the Elk Falls Provincial Park surrounding the project is vitally important during the dry summer months. Project personnel undertake the following practices to prevent forest fires:

- An exemption for “hot work” (grinding, welding) during fire danger ratings of high and extreme has been granted to the project by the BC Ministry of Forests. All project personnel are familiar with and comply with the requirements detailed in the exemption;
- Depending on the fire danger rating, fire watch is in place for one to four hours following all hot work that occurs within five metres of forested lands;
- Hot work areas are wetted down continuously during conditions with high and extreme ratings;
- Smoking is restricted to assigned graveled areas with fire extinguishers and fireproof cigarette butt cans in place;
- Caches of forest fire fighting tools are located throughout the surface work areas on the project; and
- An update of the fire danger rating is sent out to project supervisors and managers each day.

BC Hydro and InPower BC advises the public that there is no smoking allowed on any of the nearby trail systems, including the Millennium Trail and Canyon View Trail.