

John Hart Generating Station Replacement Project

December 2017

Community Construction Update Report #54

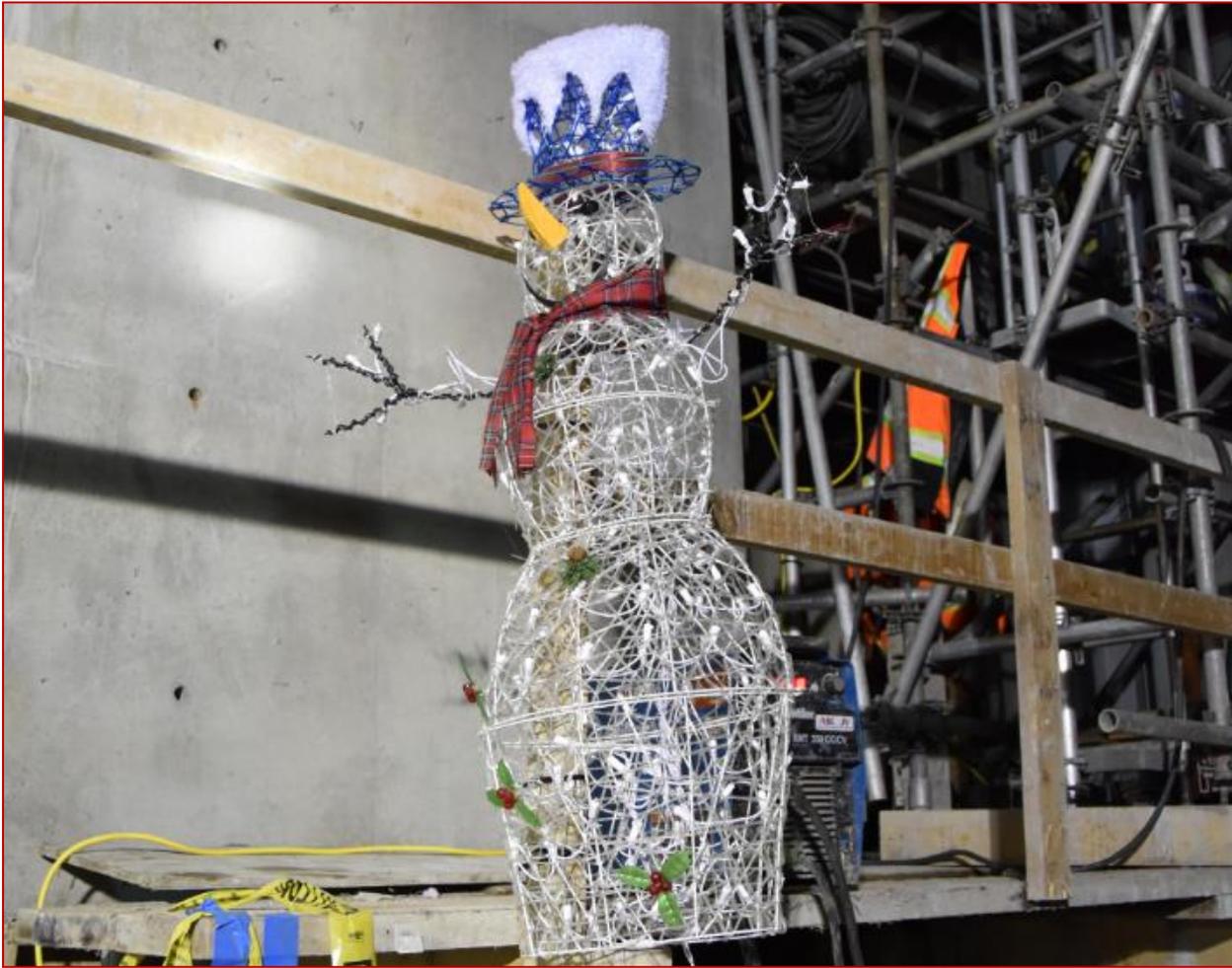
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Happy New Year!



John Hart Project Major Milestones In 2017

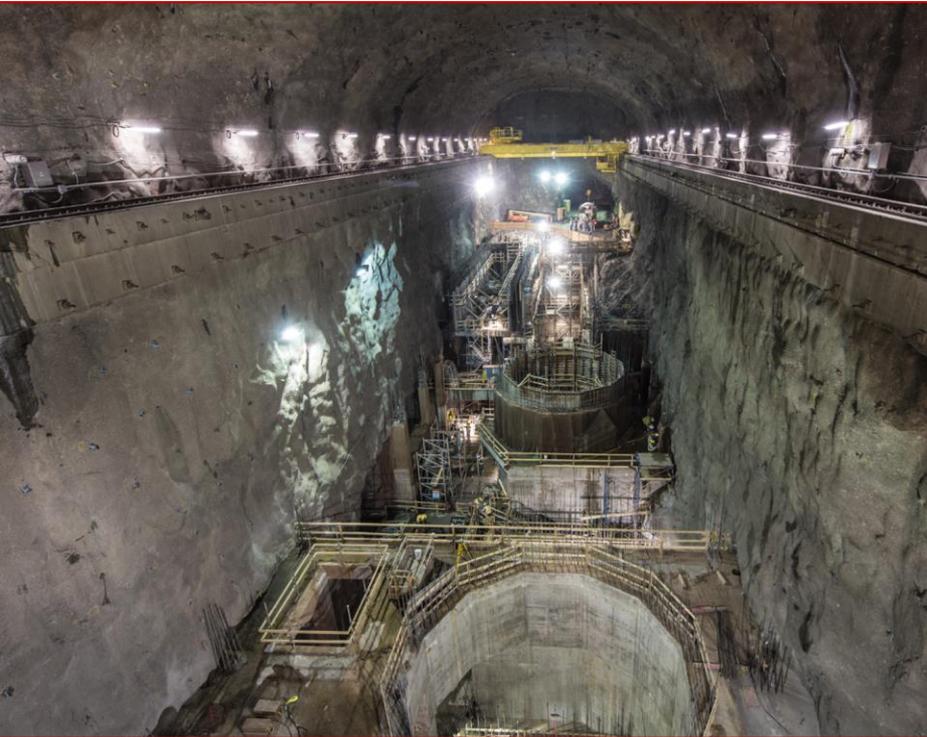


Underground drilling and blasting work: The tailrace tunnel (above) was completed in May, and the power tunnel (right bottom) was completed in June with it perfectly aligning to the vertical power tunnel shaft (right top).

The project's final two rock blasts were also successfully completed: the approach channel within the reservoir just upstream of the new water intake at the John Hart dam, and at the tunnel outlet where water will re-enter the Campbell River.

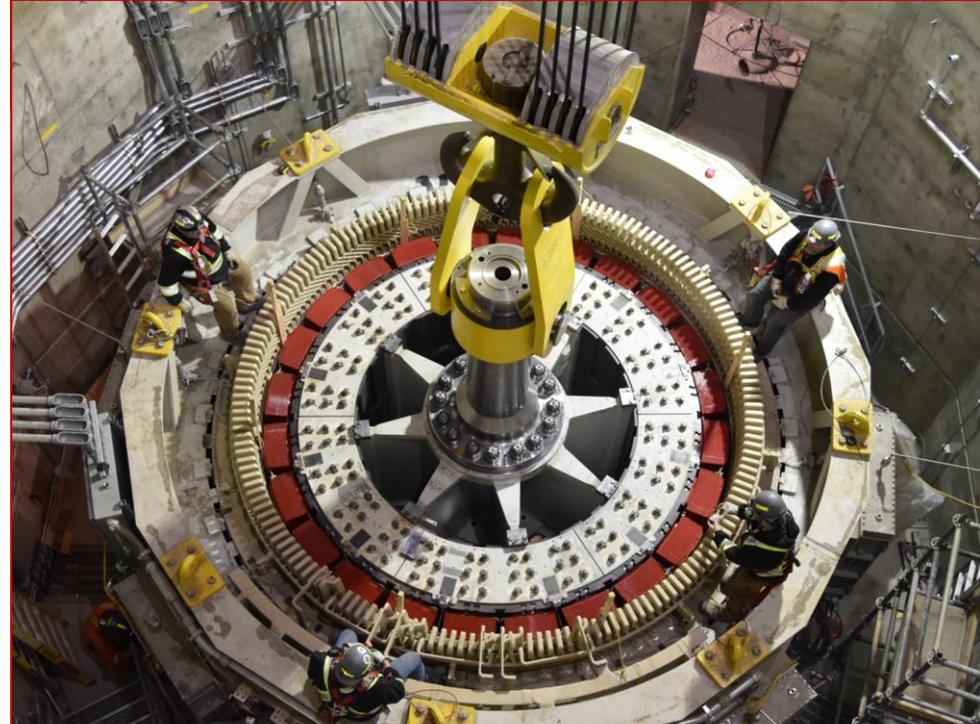


Construction Pictures – Powerhouse



The powerhouse cavern had significant advancements from the end of 2016 (left) to present (right), including the completion all the concrete placements. The cavern space has nicely filled up and is now looking like a hydroelectric powerhouse.

John Hart Project Major Milestones In 2017



We are well on our way in building the three turbines/generators. The three pictures show the scroll case (top), the stator (right top) and the rotor (right bottom). The stators and rotors have been installed within turbines/generators #2 and #3.

Construction Pictures – John Hart Dam



A December 2016 photo of the new water intake works under construction. The next page shows how far this work has advanced over the past year.

Construction Pictures – John Hart Dam



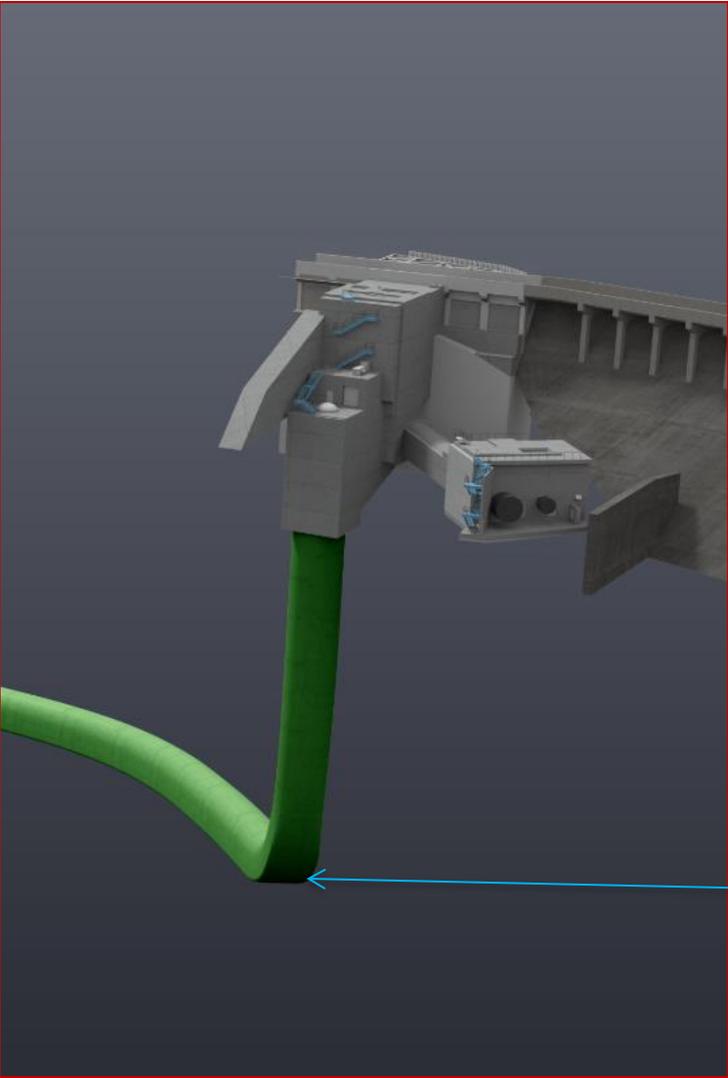
The low level outlet works downstream of the dam that will provide fish habitat flows down Elk Falls Canyon.



The low level outlet works (bottom left) and the power tunnel shaft (bottom right).



Construction Pictures – Power Tunnel Shaft Elbow



Bottom of the power tunnel shaft and transition to the horizontal power tunnel.



Looking downstream within the power tunnel and the newly placed concrete invert (floor) placement.



At 20 metres tall, along the power tunnel alignment, the surge tank's concrete placements are now complete.



View down the power tunnel manifold, with the three water bypass inlets on the left, and the larger inlets to the turbines/generators located further down.





Water inlet to Water Bypass Valve #3.

Water inlet to Turbine/Generator #1.

Powerhouse view towards the service tunnel.



Powerhouse view of the turbines/generators, the office space complex and main access tunnel entrance.



View of the cable trays on the far wall and the office complex.



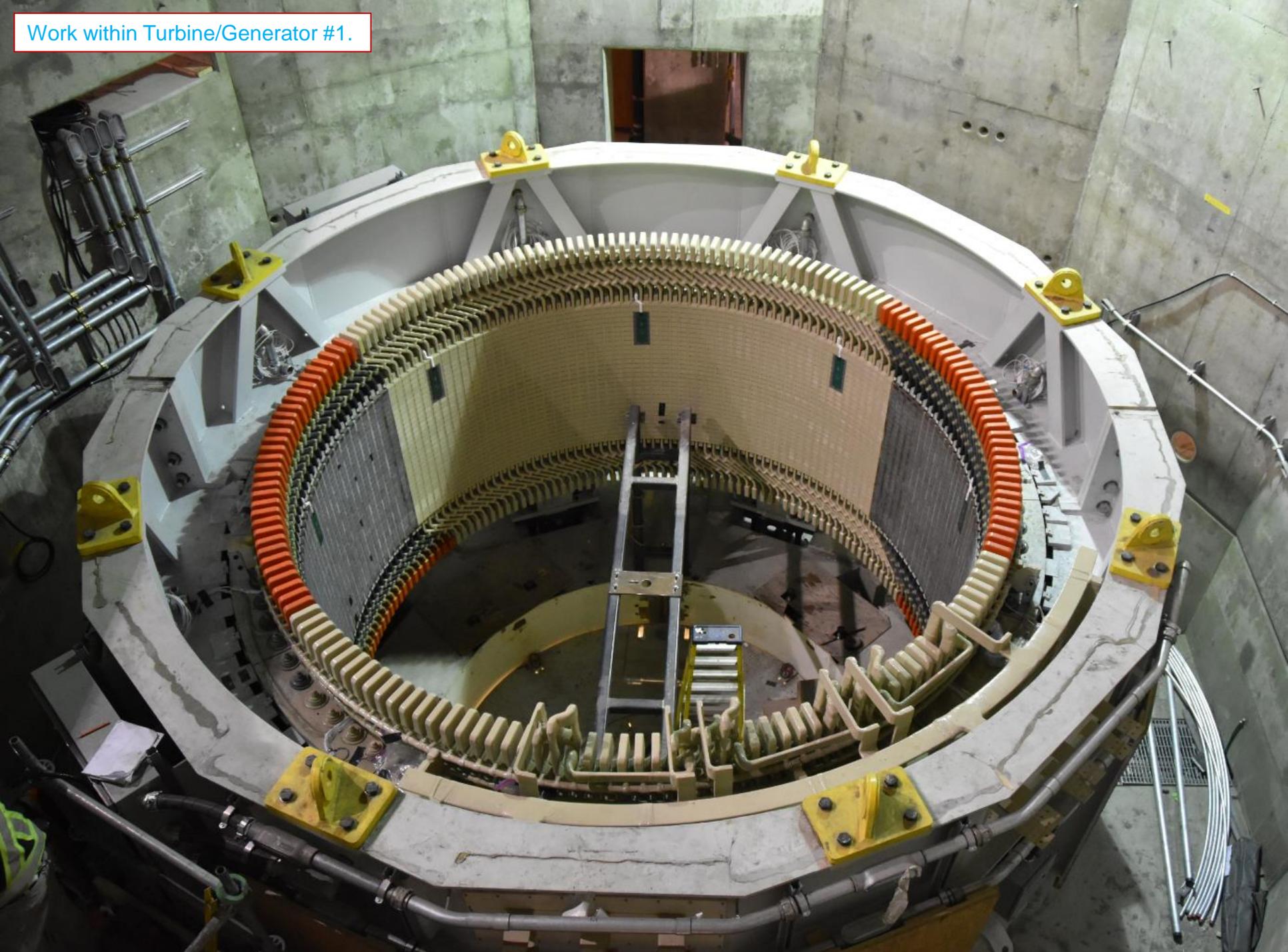
Another vantage of the powerhouse area.





Work activities within Turbine/Generator #3

Work within Turbine/Generator #1.



The gantry crane within the gate gallery, located downstream of the powerhouse.



Crews working on the gate guides and related works within the gate gallery which will move the gates up and down within the surge chamber below.



The surge chamber area and work on the gate guide slots (gate gallery directly above) for the turbine water outlets, and a view down the tailrace tunnel that goes to the Campbell River about 600 metres away.



Last plug of rock between new underground tunnel and the Campbell River removed

Dec. 5, 2017 7:00 a.m. / LOCAL NEWS / NEWS

Campbell River Mirror

The last big rock blast for the John Hart Generating Station Replacement Project went according to plan on Monday, BC Hydro says.

BC Hydro's contractor InPower BC performed the blast right beside the existing generating station to remove the large area of rock that was between the outlet from the new tunnel and the Campbell River.

The blast took place at 5:20 p.m. on Monday. Sections of the Canyon View Trail near the John Hart facility were briefly closed during the blast for public safety.

"Just like the successful underwater rock blast near the John Hart dam in early October, a great deal of preparation went into this blast event to ensure that it went as planned, and it did," Paul Sawyer, InPower BC CEO, said in a press release. "We will now begin removing the shattered loose rock by using a crane and clam bucket method to create a clear open channel from the tunnel into the river."

Sawyer said that about 200 holes were drilled into the bedrock for the placement of the packaged explosives. The blast dislodged about 2,500 cubic metres of rock. The specifications of the blast were to have very little ground vibrations, which was achieved, given it taking place very close to the 70-year-old generating station.

Bubble curtains and other scare tactics were employed to get any fish that may have been in the area to move out just prior to the blast. The timing of the blast in early December was also done out of consideration of the end of the salmon spawning cycle, and was coordinated through discussions with federal and provincial government fish agencies.



"The generators inside the powerhouse are in poor condition and very susceptible to conditions that could cause them to go off-line," said BC Hydro spokesperson, Stephen Watson. "The best course of action, to protect the units and most importantly the downstream fish habitat from a sudden reduction in river flow should some generators go offline, was to temporarily divert all the generating station water flow down Elk Falls Canyon. When we got the all clear after the successful rock blast, we slowly transferred water flows back through the generating station. That process went well."

BC Hydro was coming to an end of their flood risk management operations from all the storm activity and snowmelt into the system reservoirs. The Campbell River flows below the John Hart generating station were reduced down 105 m3/s on Monday night. The flows in the river were as high as 200 m3/s last week.

"We're excited about the prospect of having water, from the new intake at the John Hart dam, flowing down the new 2.2 kilometres of underground tunnels and into the Campbell River around March or April 2018," says Watson. "That will be another big milestone, one of many that this project keeps hitting. For now, we'll celebrate how well the tunnel outlet rock blast was successfully completed."

The John Hart project remains on schedule for the new facility to be in full operation by fall 2018.



Rock removals taking place from the rock blast. This will connect the tailrace tunnel outlet to the Campbell River.



The first new transformer is in place, with two more to come, within the John Hart substation.



Environment

Managing large volumes of water that accumulates on a construction site in a rain forest is no small task – and ensuring that run off doesn't impact adjacent habitats and waterways is critical to the project's environmental team.

- The water treatment plant processes about 120,000 gallons of water on dry days, and about 200,000 gallons on wet days.
- Work at the low-level outlet (downstream of the existing John Hart dam) is just metres from the river and yet there have been no construction impacts on the water flow there. Water is carefully captured and managed to ensure that anything going down Elk Falls Canyon meets environmental standards.
- Ongoing care of equipment and materials intended to protect the environment is critical. Managing pumps for the onsite water treatment plants requires diligent attention (including designated monitors over weekends/holidays) and regular maintenance of sediment fences keeps them working well.
- Any water used in work is collected and treated – for example, the drill water used in preparation of the recent tailrace rock plug removal was collected to ensure that sediment didn't run into the water and create turbidity.
- In addition to water management, we've had 31,000 liters of oil recycled.



Stephen Watson BCH

@Puntledge

Great work by @SNCLavalin @AeconGroup @HatfieldConsult for completing all in-reservoir work without one water quality issue: containment. #CampbellRiver drinking water supply.
John Hart hydro project.



3:59 PM - 4 Dec 2017

9 Retweets 21 Likes



People Profile – Mike Blanchard

About Mike

Background:

While Mike was born in Ottawa, 23 years ago he was supposed to be just passing through Campbell River when he decided he didn't want to leave.

Home:

Mike is 41 years old and has 32 years of work experience. Starting as a farmhand at age 9, he's spent time as a landscaper, wood cutter, construction labourer and carpenter (residential/commercial and civil).

Hobbies:

With his wife and four sons at home, his family is his main focus when he's not at work. When he finds time, he's also a singer/songwriter and visual artist who also enjoys technical drawing and computer programming.

Project Responsibility:

While he was hired onto the John Hart project as a carpenter, he's become known as "Rigger Mike" for working the rig on the downstream side of the water intake by the dam.

"My favourite part of the job is the people."



Construction – Point Of Interest

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

Point of Interest – Station View Trail temporary closures for power line interconnection.

To connect the new underground powerhouse to the existing John Hart substation, new power cables will be installed. Work on this will begin in mid-December, and the active Station View Trail users will encounter construction activities over the first three months of 2018, including a full trail closure beside the existing three surge tower from January 18 to 23.

- Beginning January 8 to the end of March there will be intermittent and short duration delays on the trail, with the work located on the south side of the pedestrian bridge crossing over the three penstocks (shown by the red rectangle below).
- A full closure will be required from January 18-23, 6 a.m. to 6 p.m., seven days a week. This is due to the heavy equipment required at this early stage of the site preparations and the tight workspace that's available for crews.
- Signage will be in place to alert trail users. Flaggers will be on hand when needed to advise pedestrians of delays, or assist in safely navigating temporary alternative routes.

