

UPPER LILLOOET HYDRO PROJECT
EAC E13-01 Amendment No. 8 RE Condition 35 - Hot Springs Alarm System
Summary of Consultation

DATE	AGENCY/NATION	TO:	FROM:	FORMAT	REFERENCE MATERIAL	SUBJECT	Purpose of Engagement
August 23, 2017	MFLNRO - Stewardship	Frank DeGagne	Julia Mancinelli	Voice Message		ULRPLP left a voice message requesting a status on the Regional Access Management Planning (AMP) since the last larger group meeting, in particular, what was the plan for the hot springs in the region (i.e. keep closed, deactivate trails, seasonal closures, management, etc.). Wanted to understand where the province was learning to help inform our decision on our EAC Condition 25 regarding installing a hot springs alarm.	Request for information
August 23, 2017	RSTBC	Alistair McCrone	Julia Mancinelli	Voice Message		ULRPLP left a voice message requesting a status on the AMP since the last larger group meeting, in particular, what was the plan for the hot springs in the region (i.e. keep closed, deactivate trails, seasonal closures, management, etc.). Wanted to understand where the province was learning to help inform our decision on our EAC Condition 25 regarding installing a hot springs alarm.	Request for information
August 23, 2017	MFLNRO - Stewardship	Frank DeGagne	Julia Mancinelli	Phone Call		MFLNRO provided ULRPLP with an update on the AMP: the Charter signatories have been meeting throughout the summer (i.e. not the larger working group); still waiting on the mapping to be prepared showing the grizzly bear movement data over the habitat layers; control measures will be implemented on the Lillooet South FSR (i.e. two gates); looking at implementing seasonal (spring and fall) closures; wasn't sure on the plan for the hot springs.	Response to request for information (August 23, 2017 voicemail)
August 24, 2017	MFLNRO - Stewardship	Frank DeGagne	Julia Mancinelli	Phone Call		MFLNRO spoke with RSTBC and provided ULRPLP with an updated that it is their intention to re-open the hot springs (Peager and Pebble) at some point in the future but they were still working through logistics (i.e. how to do it in a way that didn't cause negative human-bear interactions).	Response to request for information (August 23, 2017 voicemail)
September 12, 2017	MFLNRO - Water Allocation	Remko Rosenboom	Matt Kennedy	Email	Knight Piesold Ltd. Dam Failure Downstream Consequence Classification Study dated March 10, 2016 and associated MFLNRO Dam Safety Sign-off.	ULRPLP emailed MFLNRO advising them that in the 5 years since EAC issue much has occurred, including design, construction and commissioning of the Upper Lillooet River Hydroelectric Facility (the Facility). EAC clause 35 was included to address a perception during the EA of potential risk to public visiting the Hot Springs from Facility-related flow changes. Several factors contribute to this risk now being assessed as low to negligible. Below we propose an approach for MFLNRO's consideration to address EAC clause 35. ULRPLP provided a background on the dam studies completed/approved as well as the proposal to remove the requirement for a signaling system and that warning signage currently posted is sufficient to advise the public of potential risks from the natural environment.	Update and provision of information
September 12, 2017	MFLNRO - Water Allocation	Matt Kennedy	Remko Rosenboom	Email		MFLNRO requested confirmation from the EAO that they consider signage to be a form of "other signaling system" prior to MFLNRO considering ULRPLP's request. MFLNRO noted that if EAO provided confirmation that signage was acceptable that they would review our request.	Clarification
October 24, 017	Lil'wat Nation	Harriet VanWart Carrie Lester	Julia Mancinelli	Email	Innergex Memorandum dated December 12, 2016 RE Upper Lillooet River Hydroelectric Facility Leave to Commence Diversion Approval - Clause 23 and 24 - Signage and Navigable Water Protection Approval - Condition 9 Signage.	ULRPLP provided Lil'wat Nation with a heads up that we are seeking to obtain approval from agencies to allow signage at the Pebble Creek Hot Springs to be an acceptable means of warning the public about potentially dangerous flow releases. That we had some initial email correspondence with MFLNRO and they requested that we engage with BCEAO as it is their Certificate condition. ULRPLP provided the background on the condition, proposal and initial next steps (e.g. touch base with BCEAO on process and Knight Piesold preparing a technical memo).	Update and provision of information
October 26, 2017	Lil'wat Nation	Julia Mancinelli	Harriet VanWart Carrie Lester	Email	n/a	Lil'wat Nation confirmed that they had no questions at this point.	Response to update and provision of information (Oct 24, 2017)
November 2, 2017	Lil'wat Nation	Harriet VanWart Carrie Lester	Julia Mancinelli	Email	Knight Piesold Ltd. Memorandum dated October 27, 2017 RE Upper Lillooet River Stage Response to Full Load Rejection at the Upper Lillooet River Hydroelectric Facility.	<p>ULRPLP provided Lil'wat Nation with the Knight Piesold (KP) memorandum regarding the Upper Lillooet River Stage Response to a Full Load Rejection and a Sunny Day Dam Breach in relation to the hot springs.</p> <p>KP modelled a full load rejection and an updated sunny day dam breach, similar to what was done for the environmental assessment but on the constructed intake design (which is substantially different than the preliminary design but still in line with the EAC Project Description). The memo concludes that a full load rejection at the Upper Lillooet River HEF caused by a sudden facility trip would cause a change in water level estimated to be 067 m at the Pebble Creek Hot Springs, and 0.69m at the powerhouse for the modelled IFR. The peak water level under this condition would be well below the lowest hot spring pool and below the highest mean monthly streamflow in July. Consequently, there is no risk to the recreational users present in any of the pools, or on the trail above the hot pools. Figure 5 shows the various heights of the hot spring pools, the water level and the water elevation for a full load rejection and sunny day dam breach scenarios both of which are well below the lowest hot spring pool crest.</p> <p>After a preliminary discussion with BC EAO, we have decided to seek a formal amendment to the ULHP EA Certificate to remove Condition 35 (i.e. the requirement for an alarm or other signally system to be installed at the hot springs), as there is no risk to recreational user present in any of the pools or on the trail above the hot pools.</p> <p>As like past EA Certificate amendments, we would like to engage with Lil'wat Nation on this request, answer any questions that the Nation might have, and ,if amenable, work towards obtaining a letter of support.</p>	Update and provision of information. Request for comments.
November 14, 2017	Lil'wat Nation	Julia Mancinelli	Carrie Lester	Email	Consultation Response 7169-11022017-002	Lil'wat Nation provided confirmation that the request will be set up with a referral file and put it through their process, including it being discussed at their next scheduled meeting (i.e. November 22, 2017). Lil'wat Nation requested that a shapefile of the project boundary be provided to aid in their review.	Update and provision of information
November 17, 2017	Lil'wat Nation	Carrie Lester	Julia Mancinelli	Email	KMZ files identifying the location of the hot springs.	ULRPLP provided the Lil'wat Nation with the requested shapefile delineating the hot spring location.	Update and provision of information
November 20, 2017	Lil'wat Nation	Harriet VanWart Carrie Lester	Julia Mancinelli	Email & Voice Message	Ecofish Memorandum dated November 20, 2017 RE ULHP EAC #E13-01 Amendment Application for Schedule B to Seek Approval to Remove Requirement for Signaling System and Signage per Condition 35.	<p>Thank you for sending through the Lil'wat Nation Consultation Response dated November 14, 2017 informing us that our request will be presented to the referral committee on November 22, 2017. As requested in the letter, we provided the location of the hot springs (i.e. kmz) on November 17, 2017.</p> <p>In addition to the information provided to date, please find attached our formal submission that we will be submitting to BC EAO this week, specifically a covering memorandum that details the proposed change and rationale, assessment methods, assessment of proposed change, overlaps with federal and provincial permitting, and summary / conclusion.</p>	Update and provision of information
November 21, 2017	Lil'wat Nation	Harriet VanWart	Julia Mancinelli	Voice Message		ULRPLP left Lil'wat Nation a voice message following up on our November 20, 2017 email.	Update and provision of information
November 21. 2017	MFLNRO - Stewardship	Frank DeGagne	Julia Mancinelli	Phone Call		ULRPLP and MFLNRO provided each other with an update on the ULHP and Regional AMP, respectively. MFLNRO is holding internal meetings regarding the Regional AMP and next steps. A draft report has been prepared and is currently being reviewed by the core working group (MOE, MFLNRO, Lil'wat Nation and Coast-to-Cascades). The intent was to install the Lillooet South FSR gates this week but due to weather they may be postponed until spring 2018. MFLNRO had decided to not include recommendations on the Pebble Creek Hot Springs in the Regional AMP as they are focusing on motorized access and the hot springs are a non-motorized feature. ULRPLP provided MFLNRO with an update on the ULHP Project commissioning as well as the proposed EAC Amendment request.	Update and provision of information
November 21, 2017	RSTBC and MFLNRO - Stewardship	Alistair McCrone c.c. Frank DeGagne	Julia Mancinelli	Email & Voice Message	<p>Ecofish Memorandum dated November 20, 2017 RE ULHP EAC #E13-01 Amendment Application for Schedule B to Seek Approval to Remove Requirement for Signaling System and Signage per Condition 35, including Appendix A which is the Knight Piesold Ltd. Memorandum dated October 27, 2017 RE Upper Lillooet River Stage Response to Full Load Rejection at the Upper Lillooet River Hydroelectric Facility.</p> <p>Innergex Memorandum dated December 12, 2016 RE ULRHEF LTCD Approval - Clause 23 and 24 - Signage Navigable Water Protection Approval - Condition 9 - Signage.</p>	<p>ULRPLP informed RSTBC of our formal request to amend the ULHP's EAC to remove the requirement for signaling system and associated signage. ULRPLP requested an update from RSTBC on any decision on the future of the Pebble Creek Hot Springs and associated Lillooet River Tail. Or if RSTBC had any questions/comments about our amendment request?</p> <p>We retained Knight Piesold Ltd. to re-assess the consequence of an intake failure in both sunny day and flood induced scenarios based on the final design used for construction of the Upper Lillooet River HEF. On March 31, 2017, the Senior Dam Safety Engineer of MFLNRO approved the results of the study. Specific to the potential safety risk identified in the EAC, we further retained KP to assess the potential safety risk to users of the Pebble Creek Hot Springs. KP modelled stage changes (changes in water level) at the hot springs and the powerhouse under a worst case operational scenario (i.e. full load rejection). The results of this study confirmed that there is no risk of users of the Pebble Creek Hot Springs pools nor to the powerhouse and associated infrastructure. Appendix A - Figure 4 in the attached Ecofish memorandum provides a really great visual of the hot springs in relation to water level/stage changes.</p> <p>Based on the results of the KP study (see attached), combined with the BC EAO's Environmental Assessment Certificate Policy which advocates minimizing overlap with permitting, we are seeking to amend the EAC to remove the requirement for a signal system and associated signage.</p> <p>Note: The warning signage that was installed last year would remain in place to advise the public of general water level changes.</p>	Update and provision of information. Request for comments.

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November 21, 2017	Lil'wat Nation	Julia Mancinelli	Harriet VanWart Carrie Lester	Email		Informing ULRPLP that the referral committee meeting has been postponed until next week (i.e. November 29, 2017).	Update and provision of information
November 22, 2017	RSTBC and MFLNRO - Stewardship	Julia Mancinelli	Alistair McCrone and Frank DeGagne	Email		Frank DeGagne followed up with Dave Southam and confirmed that Dave doesn't feel that he needs to specifically endorse your application to remove condition #35. He's not opposed to removing the commitment as long as the report sufficiently demonstrates that there is no increased risk to the public at the hot springs. I've briefly reviewed the report and note that the conclusion indicates there is no risk to hot spring users unless they are physically in the river. Regarding your comment on the FLNRO Senior Dam Safety Engineer, can you confirm that this person is Robert McLean?	Update and provision of information
November 22, 2017	MFLNRO - Dam Safety	Robert McLean	Julia Mancinelli	Email & Phone Call	Ecofish Memorandum dated November 20, 2017 RE ULHP EAC #E13-01 Amendment Application for Schedule B to Seek Approval to Remove Requirement for Signaling System and Signage per Condition 35, including Appendix A which is the Knight Piesold Ltd. Memorandum dated October 27, 2017 RE Upper Lillooet River Stage Response to Full Load Rejection at the Upper Lillooet River Hydroelectric Facility. Innergex Memorandum dated December 12, 2016 RE ULRHEF LTCD Approval - Clause 23 and 24 - Signage Navigable Water Protection Approval - Condition 9 - Signage.	ULRPLP informed MFLNRO of our formal request to amend the ULHP's EAC to remove the requirement for signaling system and associated signage. ULRPLP provided a summary on the history of the ULRHEF Intake dam safety assessments and results as well as the conclusion of the KP memorandum detailing the results of the full load rejection scenario. ULRPLP provided an update on our discussions with MFLNRO Sea-to-Sky District Office (MFLNRO/RSTBC) and the status on the hot springs closure. Rob confirmed that they have put the review of these documents into his calendar to be completed the first week of December and will get back to ULRPLP at that time with any questions.	Update and provision of information. Request for comments.
November 22, 2017	MFLNRO - Water Allocation	Remko Rosenboom	Julia Mancinelli	Email	Ecofish Memorandum dated November 20, 2017 RE ULHP EAC #E13-01 Amendment Application for Schedule B to Seek Approval to Remove Requirement for Signaling System and Signage per Condition 35, including Appendix A which is the Knight Piesold Ltd. Memorandum dated October 27, 2017 RE Upper Lillooet River Stage Response to Full Load Rejection at the Upper Lillooet River Hydroelectric Facility. Innergex Memorandum dated December 12, 2016 RE ULRHEF LTCD Approval - Clause 23 and 24 - Signage Navigable Water Protection Approval - Condition 9 - Signage.	ULRPLP provided MFLNRO Water Allocation with an update on our request to amend our ULHP's EAC to remove the requirement for a signalling system. • Yesterday, we formally submitted our application request to BC EAO to amend our EAC. We will be meeting with BC EAO next week to discuss the request, process and timelines. • Consultation with Lil'wat Nation and MFLNRO Sea-to-Sky District Office (MFLNRO - Frank DeGagne and RSTBC - Alistair McCrone) is well underway as it has been part of larger discussions around the hot springs and regional access management planning that has been occurring over the last year and a half. The District office that oversees the management of recreation sites, including the non-designated Pebble Creek Hot Springs, confirmed today (November 22, 2017) that they are not opposed to removing the commitment as long as the report sufficiently demonstrates that there is no increased risk to the public at the hot springs (which the report does). Lil'wat Nation will be presenting our application request to their referral committee next week with the goal of obtaining a letter of support thereafter. • Today we had a short discussion with MFLNRO's Senior Dam Safety Officer assigned to the Upper Lillooet River HEF (i.e. Rob McLean) regarding our request for review as well as emailed him a copy of the application request (see attached). He is looking to complete his review the first week of December. Rob noted he would circle back with the MFLNRO Surrey office. Requested, confirmation if, in addition to the above noted agencies, someone from thier team will be reviewing our application request?	Update and provision of information. Request for information.
November 23, 2017	Lil'wat Nation	Harriet VanWart	Julia Mancinelli	Phone Call		ULRPLP and Lil'wat Nation reviewed the amendment request. Lil'wat Nation is recommending the referral committee support the amendment request and provide a letter of support.	Update and provision of information
November 27, 2017	MFLNRO - Water Allocation	Julia Mancinelli	Remko Rosenboom	Email		MFLNRO Water Allocation confirmed that a member of their team will review the amendment request.	Provision of information and response (to Nov 22, 2017 email)
December 1, 2017	Lil'wat Nation	Julia Mancinelli	Harriet VanWart Carrie Lester			Lil'wat Nation confirmed that the Referral Committee met on November 29th and approved the proposed ULHP EA Certificate amendment to remove Condition 35. We will be following up with a letter of support.	Update and provision of information
December 4, 2017	RSTBC and MFLNRO - Stewardship	Julia Mancinelli	Alistair McCrone and Frank DeGagne	Email		RSTBC applogized for the delayed reply. As your consultant has said there is no risk to the public I don't have any concerns about removing the signalling system. Did this report consider the use of pools on the gravel bars, as well as those on the banks? When the river is lower there are a number of pools at river level which get used?	Provision of information and response (for Nov 21, 2017 email). Request for information.
December 6, 2017	RSTBC and MFLNRO - Stewardship	Julia Mancinelli	Alistair McCrone and Frank DeGagne	Email		As part of the assessment only the defined hot spring pools were assess with the lowest one that KPL surveyed (as shown on Figure 1 and Figure 4 of the Report). The natural pools formed within the river channel were not specifically addressed neither at the Pebble Hot Springs, nor at other locations within the diversion reach, but KPL have referred to conditions within the river channel in the report. On a side note, during the EA the natural pool formed in the gravel bars were classified and assessed as Western Toad breeding habitat. The answer to your question is provided in the report in the following (paragraph 2 on page 10 of the report): "Although the increase in flow after a full load rejection is predicted to occur in about two minutes at the Pebble Creek Hot Springs, there is no risk to the recreational users present in any of the pools, or on the trail above the hot spring pools. Recreational users that are in the river or near the water edge anywhere within the diversion reach of the Upper Lillooet River HEF at the time the full load rejection flow was passing through, may not however, have sufficient time to move to safety. A similar flow and stage response would be expected to occur in diversion reaches of other run of river projects under similar full load rejection conditions." KPL also addressed this condition in the Conclusions: "A full load rejection at the Upper Lillooet River HEF caused by a sudden facility trip will result in a fast rise of flows and water levels occurring over approximately two minutes and gradually progressing downstream through the diversion reach of the facility. In terms of potential risk to the recreational users that may be within the diversion reach, the most critical conditions under which this scenario may occur are considered to develop when the facility is operating at full capacity and the flow in the diversion reach is at an IFR level. Under such conditions, the change in water level is estimated to be 0.67 m at the Pebble Creek Hot Springs, and 0.69 m at the Powerhouse for the modelled IFR of 4.5 m3/s, respectively." What this means is that if someone was in one of the natural pools at river level (as mentioned in the question below), that someone would see an approximate 70 cm rise of water level occurring over 2 minutes.	Provision of information and response (to Dec 4, 2017 email)
December 6, 2017	RSTBC and MFLNRO - Stewardship	Julia Mancinelli	Alistair McCrone	Phone Call		RSTBC called to discuss ULRPLP's response to their comment and confirmed that the response was acceptable. We discussed keeping the current signage located at the trailhead, along the trail and at the hot springs advising of the potential hazard of changing water levels. Discussed landslide hazard risks in the general area and the plans for Meager Hot Springs and Pebble Creek Hot Springs moving forward as part of the larger Regional AMP and recreation iniatives.	Update and provision of information

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December 7, 2017	MFLNRO - Dam Safety	Julia Mancinelli	Robert McLean	Email		<p>I have reviewed and accept the contents of the DEP and OMS manual dated August 29, 2017. I note section 3.5 of the DEP with regards to FLNRO Roles and Responsibilities has been modified significantly from the template that is available on the FLNRO dam safety website. I suggest this section be revised the next time the DEP is updated. The dam owner is responsible for deciding on any remedial actions to be undertaken in the event of an emergency.</p> <p>I have reviewed the Knight Piesold (KP) report dated October 27, 2017 regarding the full load rejection analysis and the EcoFish Memo regarding the amendment application dated November 20, 2017. The KP report concluded the following: “The peak water level under this condition [full load rejection] would be well below the lowest hot spring pool and below the highest mean monthly streamflow in July. Consequently, there is no risk to the recreational users present in any of the pools, or on the trail above the hot pools. Recreational users that are in the river or near the water edge within the diversion reach could, however, be at risk due to a sudden change in flow conditions.”</p> <p>I note in river photos taken adjacent to the hot spring pools shown in the above reference report that there are numerous rocks in the area that a person could walk out onto. It appears that while a person sitting in the lowest hot spring pool would not be affected by the projected sudden river rise of 0.6m that could potentially occur due to a full load rejection, there is still great risk to an individual who is in the stream (perhaps a child who is playing on the rocks while their parents sit in the hot spring pool.)</p> <p>It is common practice in British Columbia for the owner of a hydroelectric facility to post signs and have an audible alarm to warn the general public of potential, and occurring, sudden rises to river levels. I do not support this facility having no signs or an alarm system to warn people downstream of the potential danger.</p>	Response to Nov 22, 2017 email. Request for information.
December 7, 2017	RSTBC and MFLNRO - Stewardship	Alistair McCrone and Frank DeGagne	Julia Mancinelli	Email	Innergex Memorandum dated December 12, 2016 RE ULRHEF LTCD Approval - Clause 23 and 24 - Signage Navigable Water Protection Approval - Condition 9 - Signage.	<p>ULRPLP thanked RSTBC for the phone conversation yesterday and for confirming thier support for the removal of the alarm system. As discussed, safety signage will remain in place advising the public of the potential hazard from changing water levels.</p> <p>Attached is a copy of the signage that we previously developed together and that has been installed (trailhead, along the trail and at the hot pools).</p>	Update and provision of information. Response to Nov 21, 2017 email.
December 8, 2017	MFLNRO - Dam Safety	Robert McLean	Julia Mancinelli	Email		<p>ULRPLP asked MFLNRO Dam Safety if they were available for a phone call the afternoon of Tuesday, Dec. 12 to talk through a couple of items and if there was a time that would work best with your schedule?</p>	Request for meeting
December 8, 2017	MFLNRO - Dam Safety	Julia Mancinelli	Robert McLean	Email		<p>MFLNRO Dam Safety confirmed his available from 1 to 2pm on that day to discuss.</p> <p>I should let you know that I am not a decision maker with respect to the requirement for alarms or signs downstream of a dam. My group typically does not become involved with public safety issues such as these. Our focus rather is on the mitigation of the failure of the water containment structure. We are however asked from time to time to review documents and comment on reports such as Knight Piesold’s full load rejection analysis. By the way, I thought Knight Piesold did a very good job analyzing the situation.</p> <p>A few things I would suggest conveying to the decision maker(s) with respect to the request to remove the alarm requirement would be what is the expected frequency of such a full load rejection and subsequent rise in the river level, will it occur a few times a year or is it likely a 1 in 100 year event? Also what is the feasibility of the alarm system to warn an individual standing on a rock in the river, would there have to be alarms every 50m all along the river or would one alarm at the intake be sufficient?</p>	Update and provision of information. Request for information.
December 11, 2017	RSTBC and MFLNRO - Stewardship	Julia Mancinelli	Alistair McCrone and Frank DeGagne	Email		<p>RSTBC confrimed that those signs [previously installed in 2016] should be sufficient.</p>	Update and provision of information
December 11, 2017	Lil'wat Nation	Julia Mancinelli	Harriet VanWart Carrie Lester	Email	Lil'wat Nation Letter dated December 8, 2017 RE ULHP Pebble Creek Hot Springs - EAC condition 35 - Warning System Our File: 11022017-002	<p>Lil'wat Nation provided a letter confirming that they do not have any concerns with the proposed amendment and thanked ULRPLP for the opportunity to provide their review and comment.</p>	Response to request for comments (Nov 2, 2017 email)
December 12, 2017	MFLNRO - Dam Safety	Robert McLean	Julia Mancinelli and Tom Furst (Innregex), Violeta Martin (KPL) and Autumn Cousins (Ecofish)	Conference Call and Email Summary		<p>• Consultation Update:</p> <p>o Innergex provided an overview of consultation with agencies and the Lil'wat Nation in relation to the proposed amendment. Lil'wat Nation (sole First Nation whose traditional territory the project resides within), Recreational Sites and Trails BC (RSTBC: agency that manages public and recreational use in the Sea-to-Sky corridor, including the Pebble Creek Hot Springs and Trail and the larger Upper Lillooet area), and FLNRORD – Stewardship (environmental assessment and permitting review and coordination, forestry, regional access management, etc.) have completed their respective reviews of the amendment request and have confirmed that they have no concerns.</p> <p>o The only party who has raised any potential concerns regarding the proposed amendment is FLNRORD Dam Safety. The purpose of today’s call was to provide additional information to address those comments.</p> <p>• Signage:</p> <p>o Innergex sought clarification about the statement in Dam Safety’s December 7, 2017 email that he does “ not support this facility having no signs or an alarm system to warn people downstream of the potential danger”. Innergex confirmed to Dam Safety that signs informing people of the potential danger have been installed and will remain installed. Dam Safety agreed that it would definitely be good to keep the installed signage.</p> <p>o Innergex advised that RSTBC approved the sign wording/design in 2016 and recently re-confirmed that the wording was sufficient in 2017. Innergex confirmed that the signs will remain installed at the trail head, along the trail and at the hot spring pools.</p> <p>• Warning System:</p> <p>o Innergex provided additional context about the effectiveness and practicality of installing a warning system at the hot springs location. While it is feasible to install a system, it is important to consider the reliability of equipment to actually sound an alarm if the scenario presented itself (see Qualitative Risk Assessment). Compared to existing signage which warns the public of risks from rising water levels and to be mindful of their surroundings, there may be more risk if the public expects a signal in case of rising water levels that then may not work if the scenario presented itself.</p> <p>o The terrain in which the hot springs, and larger facility, is located poses some challenges for providing reliable communication and power. There are various options for the signal system, however each has potential limitations to reliable communication/power:</p> <p><input type="checkbox"/> satellite system: the satellite system option has delayed transmission timing and could exceed the full load rejection time lag to reach to hot springs;</p> <p><input type="checkbox"/> radio system: there isn’t a clear line of sight between the intake nor powerhouse with the hot springs limiting radio communication without installing radio towers throughout the valley and on the other side of the river (access limitations);</p> <p><input type="checkbox"/> hard wired system: this would require several kilometers of cabling and would be susceptible to vandalism. In one of the scenarios that would trigger a full mechanical failure (i.e. loss of power / communication between the intake and powerhouse) , it would also result in a loss of communication and power to an alarm system relying on the same system.</p>	Response to request for information (Dec 8, 2017)

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						<ul style="list-style-type: none">Qualitative Risk Assessment:<ul style="list-style-type: none">There are three (3) conditions that would all need to occur simultaneously to cause the potential risk to people in the river/near river's edge identified in amendment request and associated assessment: 1) hydraulic flow conditions (i.e. facility is diverting max flow and only the IFR remain in the river), 2) mechanical failure of the facility, and 3) people are in or near the river's edge and not able to react. There is a low likelihood that all three of the conditions would align.Any run-of-river facility in BC has the potential to abruptly shut down, unless they have an ability to store water. Based on Innergex's 18 operating facilities and knowledge of some others, most ROR facilities do not have alarm systems.	
December 12, 2017	MFLNRO - Water Allocation	Jim Davies	Julia Mancinelli	Phone Call		ULRPLP called to provide MFLNRO - Water Allocation with the following update and to see if MFLNRO - Water Allocation had any initial comments or questions on the amendment package. <ul style="list-style-type: none">Informed MFLNRO that Lil'wat Nation, RSTBC and MFLNRO - Stewardship have expressed no concerns with the removal of Condition 25.Confirmed that the signage installed in 2016 will remain in place and that RSTBC recently completed a secondard review of the signage and confirmed it should be sufficient.Provided an updated with our discussion with MFLNRO - Dam Safety (see above summary).MFLNRO Water Allocation noted that they have done a first review of the information but have not had the opportunity to formalize thier thoughts and comments but will do so upon thier winter break (i.e. mid-January 2018) but appreciated the additional discussion.	Update and provision of information. Request for comments.
December 13, 2017	MFLNRO - Dam Safety	Robert McLean	Julia Mancinelli	Email		Dam Safety confirmed "That is a good summary of our discussion."	Confirmation of meeting summary completeness (Dec 12, 2017)
December 14, 2017	BC EAO	Julia Mancinelli Autumn Cousins	David Angus Heather Noble	Email		BC EAO provided a proposed timeline to complete the amendment process. BC EAO request the below materials to aid in thier assessment: <ul style="list-style-type: none">Images of the signage in place at the hot springs and powerhouse;Information on the sound signals below the tail race required by Transport Canada;Additional context about the lack of signal systems at most other run of river facilities in BC referred to in your previous email; andInformation on the sound signalling system at the other Innergex ROR facility (I believe you mentioned that 1 of 15 of your facilities has a warning system).	
December 15, 2017	BC EAO	David Angus Heather Noble	Julia Mancinelli Autumn Cousins	Email	Innergex Memorandum dated December 12, 2016 RE ULRHEF LTCD Approval - Clause 23 and 24 - Signage Navigable Water Protection Approval - Condition 9 - Signage.	ULRPLP provided a copy of the signage memo as requested in the December 14, 2017 email.	Response to request for comments (Dec 14, 2017 email)
January 9, 2018	BC EAO	David Angus Heather Noble	Julia Mancinelli Autumn Cousins	Email		<ul style="list-style-type: none">Images of the signage in place at the hot springs and powerhouse;Provided December 15, 2017. <ul style="list-style-type: none">Information on the sound signals below the tail race required by Transport Canada [NOTE: the signal is required at the powerhouse, not below the tail race.];Transport Canada issued an approval in 2013 (TC approval 2013) under the Navigable Waters Protection Act (1985). The approval includes two conditions which together require an alarm system at the powerhouse and signage at put in/pull out locations to warn kayakers of substantial changes in flow.Although the TC approval 2013 requires an alarm/signage, the purpose is to warn recreational kayakers in the event of a substantial change in flows. TC stated that the purpose is to address 'the effect of your work on navigation.'Given the Project has not yet received its Leave to Commence Operations, we are not yet required to have the alarm required by TC. We will install it prior to, which is currently anticipated later in 2018. <ul style="list-style-type: none">Additional context about the lack of signal systems at most other run of river facilities in BC referred to in your previous email; andInnergex has 18 run of river projects, none of which require a signal system to warn of changes in flow, except Ashlu and Upper Lillooet.As described in the amendment application for and in our presentation to EAO for Upper Lillooet, the EA determined that it was necessary to assess the potential risk to users of the hot springs. Qualified professionals have determined that there is no risk to users of the hot springs.There is risk to recreational users in water in the diversion reach of any run-of-river facility. The Upper Lillooet condition was intended to address potential risk to users of the hot springs and kayakers near the powerhouse. The QPs have determined there is no risk to the users of the hot springs.As noted in the Upper Lillooet NIA (Typlan 2011)(Appendix AU to EA Application), observations support that the majority of whitewater kayaking activities most likely occur downstream of the project infrastructure. The reach from Keyhole Falls and the Powerhouse (diversion reach), the average gradient is 3.4% and the river is classed as a Class IV-VI rapid (advanced/expert kayakers). In addition, access to put-in and pull-out locations within the diversion reach is limited with the exception of the trail to the hot springs which is difficult. The NIA stated there were no specific measures required to mitigate navigation within the diversion reach. However, recommended safety signage and making flow data available (signage has been installed upstream of the powerhouse/tailrace – refer to the previously provided memo and flows are posted on Innergex's kayaking website: http://www.innergex.com/kayak/en). Transport Canada assessed and addresses risk to kayakers.During the four year construction period and this first year of commissioning, we did not observe any kayakers near the powerhouse. The only kayaking activity observed on the Upper Lillooet River (upstream of the intake, diversion and downstream of powerhouse) was a kayaker sponsored and outfitted with a crew by Red Bull to ride Keyhole Falls.As described below, the purpose of the Ashlu signal system is required by Transport Canada given a significant amount of kayaking within the diversion reach. <ul style="list-style-type: none">Information on the sound signalling system at the other Innergex ROR facility.As noted above, Innergex has 18 run of river projects, none of which require a signal system to warn of changes in flow, except Ashlu and Upper Lillooet.The Transport Canada/Navigable Waters Protection Act (TC/NWPA) approval includes conditions requiring an alarm and signage.Compared to other Innergex projects, Ashlu has significantly more kayaking within the diversion reach due to its higher value kayaking runs and classification range (II-VI), proximity to a city centre, relative ease of access to key put-in/pull-out locations as they are located right off the FSR.The TC/NWPA approval for Ashlu includes conditions 14 and 15 which require an alarm system and associated signage to 'warn recreational kayakers in the bypass reach of any sudden changes in water flow due to a load rejection by BC Hydro.' The system is Schneider Electric hardwired system. The system is fairly reliable as the cables (communication/power) are very short spurs (couple metres) from the main facility cable system between the powerhouse to intake which it is buried in the FSR that runs parallels the waterway.Whereas the TC/NWPA approval for Upper Lillooet requires an alarm at the powerhouse location, the Ashlu TC/NWPA requires the alarm/signage at various points within the diversion reach given the significant kayaking use. This is key as it is a fundamental difference between Ashlu and Upper Lillooet, which supports the request to amend the EAC to remove the alarm system at the Hot Springs. As the federal agency responsible, TC/NWPA have determined that the alarm is only required at the powerhouse for Upper Lillooet, not at the Hot Springs. This is further supported by the fact that RSTBC, the agency responsible for managing the hot springs, does not require an alarm system at the hot springs.	Response to request for comments (Dec 14, 2017 email)

UPPER LILLOOET HYDRO PROJECT
EAC E13-01 Amendment No. 8 RE Condition 35 - Hot Springs Alarm System
Summary of Consultation

DATE	AGENCY/NATION	TO:	FROM:	FORMAT	REFERENCE MATERIAL	SUBJECT	Purpose of Engagement
January 10, 2018	BC EAO	Julia Mancinelli Autumn Cousins	David Angus Heather Noble	Email		Do you have any information on potential risks to bathers under lower magnitude flow rejection scenarios? For example, I have heard that during low flow periods there is a lower pool within the creek bed that bathers sometimes frequent. I am trying to understand what risk (if any) a load rejection could pose to these bathers during low flows.	Request for information
January 11, 2018	BC EAO	David Angus Heather Noble	Julia Mancinelli Autumn Cousins	Email		<p>KPL modelled the critical operational scenario (i.e. full load rejection), which is when the ULRHEF is operating at full capacity diverting 53 m3/s to the powerhouse while the IFR is being released at the intake. If a full load rejection occurred during such flow conditions, the predicted rise in water level would be approximately 0.67 m at the Pebble Hot Springs. During the lower flow periods typically occurring in winter periods, the facility would not be operating at full capacity, thus the potential stage change would be lower than the modeled scenario (i.e. < 0.67 m).</p> <p>Thus, if a person was in a natural pool at river level, that person would experience an approximate 0.67 m rise in water level occurring over 2 minutes, if remaining in this natural pool. A natural pool appears to be located along the left river bank just downstream of the lowest hot pool, based on photos available on the Internet. This natural pool is surrounded by large boulders that provide some sheltering and that would allow for sufficient terrain and time for bathers to move up the natural banks to safety.</p>	Response to request for comments (Jan 10, 2018 email)
January 10, 2018	BC EAO	Julia Mancinelli Autumn Cousins	David Angus Heather Noble	Email		<p>From what Alistair McCrone has told me the lower pool would be inundated, cold, and unlikely to attract bathers under the modelled full load rejection scenario.</p> <p>Your answer has satisfied my question. Thank you for your prompt response.</p>	Update