



Crown-Indigenous Relations
and Northern Affairs Canada

Relations Couronne-Autochtones
et Affaires du Nord Canada

JERICHO DIAMOND MINE OPERATION, MAINTENANCE AND SURVEILLANCE PLAN

NUNAVUT IMPACT REVIEW BOARD FILE #16UN058 2019 ANNUAL REPORT

May 4, 2020

The Proponent shall submit a comprehensive annual report to the Nunavut Impact Review Board at the end of each year of permitted activities, and before December 31st of each year. It is expected that reporting requirements under NIRB File No. 16UN058 will be coordinated with existing reporting requirements associated with INAC's ongoing site management and monitoring functions related to the Jericho Diamond Mine Project (NIRB File No. 00MN059) as approved to proceed under Project Certificate No. 002. The Board expects to receive the first such report on or before December 31, 2017.

The annual report must contain, but not limited to, the following information:

a) A summary of activities undertaken for the year, including:

- **a map and associated details pertaining to remediation activities and site operations conducted to-date;**

The activities that took place during the year included:

- June 17th to 19th Site Visit
 - Mobilization via aircraft
 - Implementation of Year 2 of the Operation, Maintenance and Surveillance (OMS) Plan
 - Site Tour (CIRNAC Inspector, NIRB)
 - Demobilization via aircraft
- September 10th to 12th Site Visit
 - Mobilization via aircraft;
 - Complete Year 2 of the OMS Plan
 - Installation of a remote camera system to take photographs of the Pit Lake
 - Demobilization via aircraft

See Appendix A for maps of the site showing all work areas.

- **a map detailing the locations of all fuel storage areas illustrating all containment structures, accompanied with a description of all containment measures implemented;**

Current fuel storage is limited to drummed fuel located within the Truck Shop Building (see Appendix A, Figure 2). This building has an in-ground sump to contain any fuel spills.

- **a description of local hires and employee training initiatives;**

Due to the short duration of on-site activities there were no local hires or training initiatives.

- **details on transportation activities undertaken including:**

1. aircraft flight frequency, approximate flight routes, and altitudes;

Transportation to and from the site was completed via flights from Yellowknife using Twin Otter aircraft. A total of four flights into the site were completed in conjunction with the two site visits in 2019.

2. finalized winter road routing and vehicle traffic information (number of return trips, types of vehicles);

Not applicable.

- **site photos illustrating site conditions and areas of remediation works;**

Site photos are provided in the following Appendices:

- *Appendix B: Jericho Mine Site – Operation, Maintenance and Surveillance Program – 2019 Report*

- **a summary of wastes disposed on-site as well those transported for disposal offsite, including locations and any required mitigation during transportation;**

During the June 17-19 and September 10-12 site visits no wastes were disposed of on-site. All wastes were collected and back-hauled to Yellowknife for disposal.

b) An updated work plan for the following year including an approximate work schedule;

The project is now in long-term Operation, Maintenance and Surveillance (OMS), 2019 was the second year and the current plan involves 3 years of monitoring the effectiveness of the site stabilization work. Further OMS will be defined by the results of the initial 3 year program.

c) A summary of community consultations undertaken throughout the year, providing copy of materials presented to community members, a description of issues and concerns raised, discussions with community members and advice offered to the Proponent, as well as any follow-up actions that were required or taken to resolve any concerns expressed about the project;

None.

d) A log of instances in which community residents occupied or transited through the project area for the purpose of traditional land use or harvesting. This log should include the location and number of people

encountered, activity being undertaken (e.g., berry picking, fishing, hunting, camping, etc.), date and time; and any mitigation measures or adaptive management undertaken to prevent disturbance;

There were no instances where community residents occupied or transited through the project area during the 2019 field activities in June and September.

e) A brief summary of wildlife mitigation and monitoring results as well as any mitigation actions undertaken. In addition, the Proponent shall maintain a record of wildlife observations while operating within the project area and include it as part of the summary report. The summary report should include the following:

No wildlife was observed during the 2019 fieldwork.

- **Locations (i.e., latitude and longitude) and species of wildlife observed on-site including number of animals, a description of the animal activity, and a description of the gender and age of animals if possible; Prior to conducting project activities, the Proponent should map the location of any sensitive wildlife sites such as denning sites, calving areas, caribou crossing sites, and raptor nests in the project area, and identify the timing of critical life history events (i.e., calving, mating, denning and nesting);**

No wildlife was observed during the 2019 fieldwork.

- **The Proponent should indicate potential impacts from the project, and ensure that operational activities are managed and modified to avoid impacts on wildlife and sensitive sites;**

Given the short duration of on-site activities in 2019 (6 days) there were minimal impacts to wildlife.

- **A summary of the effectiveness of mitigation measures for wildlife impacts; and**

A member of the field team was equipped with a firearm in case of a wildlife encounter. This measure has proved effective when used in the past.

- **If mitigation measures are observed to be ineffective or not achieving the expected outcomes, a discussion of issues interfering with the mitigation and alternative plans to reduce impacts to the wildlife in the vicinity of the project;**

Not applicable.

f) A summary of any heritage sites encountered during the exploration activities, any follow-up action or reporting required as a result, and how project activities were modified to mitigate impacts on the heritage sites;

No heritage sites were encountered during the site activities.

g) A summary of its knowledge of Inuit land use in/near the project area and how project activities were modified to mitigate impacts on Inuit land use; and

Inuit land use in/near the project area is limited and mostly consists of winter access (via snowmobile) to Contwoyto Lake. There was no need to alter project activities to mitigate impacts on Inuit land use due to the fact that:

- the main area of use, Contwoyto Lake, is over 3 kilometres from the main part of the Jericho site; and
- project activities took place between June and September, when snowmobile access is not possible

h) A summary of how the Proponent has complied with conditions contained within the Screening Decision Report, and all conditions as required by other authorizations associated with the project proposal.

The Proponent complied with the Screening Decision Report and all other Permits, Licences and Authorizations throughout the completion of the site stabilization work. Compliance was achieved by:

- discussing all regulatory requirements during the pre-mobilization and all other project meetings;
- copies of all regulatory documents are readily available to the project team;
- the Crown had site representatives on-site during all activities to ensure compliance with contracts and regulatory authorizations; and
- Inspectors were given access to the site in order to complete compliance inspections.

Supplemental Questions

The Nunavut Impact Review Board issued Board Recommendations with the *2016-2017 Annual Monitoring Report for the Jericho Diamond Mine Project* on November 27, 2017. Below are the recommendations and responses:

By way of a motion carried during its regular meeting held in November 2017, Board via Recommendation #5 requests that Indigenous and Northern Affairs Canada (INAC) requests that Indigenous and Northern Affairs Canada provide the NIRB with a detailed report of the stabilization works undertaken at the Jericho site under NIRB File No. 16UN058. The report should include details related to all activities conducted, results of

the work, expected short and long-term management requirements, community consultation conducted or to be conducted, and an outline of the expected monitoring and management program. The Board requests that the report include, but not be limited to, the following information in addition to what is required by the Screening Decision Report for 16UN058. This report should be provided as part of the annual report to be submitted to the NIRB on or before December 31st of each year:

a) Details related to water monitoring, sampling, treatment, and discharge activities conducted during the reporting year;

Details on the water monitoring, sampling, treatment and discharge activities that took place in 2019 can be found in the *Jericho Mine Site – Operation, Maintenance and Surveillance Program – 2019 Report* in Appendix B.

A summary of water sampling activities and associated laboratory analyses can be found in Appendix A of the *Jericho Mine Site – Operation, Maintenance and Surveillance Program – 2019 Report* in Appendix B.

b) Details related to earthworks conducted during the reporting year including modifications to water management structures, berms, dykes, and pads;

No earthworks were completed in 2019.

c) Details related to stabilization activities in the open pit area;

No stabilization activities took place in the open pit area in 2019. The OMS activities completed in the open pit area are detailed in the *Jericho Mine Site – Operation, Maintenance and Surveillance Program – 2019 Report* in Appendix B.

d) Details related to the covering of the Processed Kimberlite Containment Area;

The covering of the Processed Kimberlite Containment Area (PKCA) was completed in 2017. The OMS activities completed on the PKCA are detailed in the *Jericho Mine Site – Operation, Maintenance and Surveillance Program – 2019 Report* in Appendix B.

e) Details related to the collection and disposal of hazardous wastes;

No hazardous waste was collected for disposal in 2019. All known hazardous wastes were previously addressed.

f) Details related to the collection, treatment/disposal of contaminated soils;

No contaminated soils were collected, treated or disposed of in 2019.

g) Plans to manage deteriorating structures on-site;

A long-term Operation, Maintenance and Surveillance (OMS) Plan has been drafted for the site. Implementation of the OMS Plan began in 2018 and included surveillance activities to ensure the stabilization actions completed (e.g. West Dam Breach, PKCA Cover) are meeting their design intent.

With respect to the buildings, tanks, and camp, all hazardous materials have been removed and disposed of off-site. There are currently no plans to manage these structures as their deterioration is considered a low risk to human and environmental health.

h) Details related to any other remediation activities undertaken and any additional hazards identified;

No remedial activities were undertaken in 2019. No additional hazards were identified during the site activities.

i) Community consultation summaries; and

No community consultations were conducted this year.

j) Monitoring and management plans to ensure the environmental stability of the site and to ensure the effectiveness of the stabilization activities undertaken.

A long-term Operation, Maintenance and Surveillance (OMS) Plan is being implemented at the site. Year 2 of OMS activities were completed in 2019, the results of these activities are provided in the *Jericho Mine Site – Operation, Maintenance and Surveillance Program – 2019 Report* in Appendix B. These results will be used to inform and plan OMS activities going forward.

**APPENDIX A:
JERICHO DIAMOND MINE
SITE MAPS**



Figure 1: Site Overview

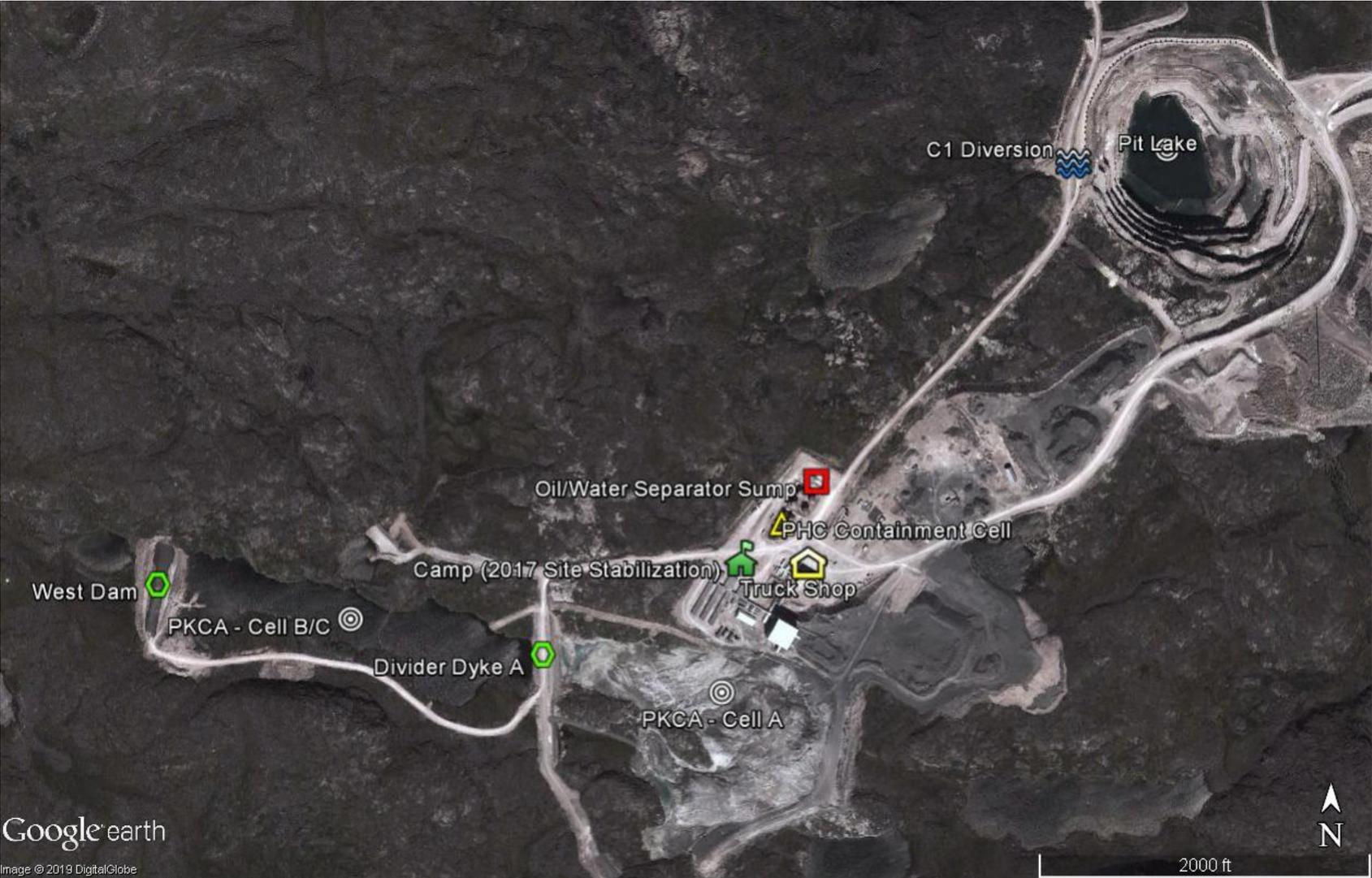


Figure 2: South End of Site – Showing 2019 OMS Activity Areas

**APPENDIX B:
JERICHO MINE SITE
OPERATION, MAINTENANCE AND SURVEILLANCE PROGRAM
2019 REPORT – FINAL**

**JERICO MINE SITE – OPERATION, MAINTENANCE AND SURVEILLANCE PROGRAM
2019 REPORT-FINAL**

Prepared for:

Public Services and Procurement Canada

By:

DXB Projects

March 12, 2020

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ABBREVIATIONS

CCME	Canadian Council of Ministers of the Environment
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
OMS	Operation, Maintenance and Surveillance
PHC	Petroleum Hydrocarbon
PKCA	Processed Kimberlite Containment Area
PSPC	Public Service and Procurement Canada

1.0 INTRODUCTION

DXB Projects was retained by Public Services and Procurement Canada (PSPC) on behalf of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) to undertake the 2019 operation, maintenance and surveillance program (OMS Program) for the Jericho Mine Site. The terms of reference for the work were based on the *Operation, Maintenance and Surveillance (OMS) Plan – Jericho Diamond Mine Site* (Arcadis, 2018), developed following completion of the 2017 Jericho Mine Site Stabilization project.

The OMS Program entered Year 2 in 2019, and consisted of two (2) field surveillance sessions.

This report is a presentation of the 2019 OMS surveillance sessions. General background information for the Jericho Mine Site is found in Section 2, a summary of the key points from the OMS Plan in Section 3, a description of the OMS Program-to-Date in Section 4; findings, updates to the Decision Criteria and Contingency Actions from the 2019 surveillance activities in section 5 through 7, and summary and conclusions in Section 8.

2.0 SITE BACKGROUND

The Jericho Mine Site is located in Nunavut; approximately 420 km northwest of Yellowknife, NT and 260 km southeast of Kugluktuk, NU, the closest local community. The former Jericho Diamond Mine was Nunavut's first and to-date only diamond mine; opened and operated beginning 2006 by the Tahera Diamond Mine Corporation (Tahera). In early 2008, after less than 2 years of operation and reported financial losses, active mining ceased at Jericho; and Tahera filed for creditor protection. Shear Diamonds Corp. eventually purchased the mine in 2010; and after limited re-processing of the existing recovery reject piles in early 2012, shut down all activities and abandoned the site in September of 2012.

CIRNAC assumed formal custodial responsibility of the Jericho Mine Site in 2014. In parallel with environmental protection of the site, development of a site stabilization plan was initiated; and implementation of the site stabilization work eventually began 2017. The design of the remedial work was focused on addressing priority human health and environmental hazards at the site; and included removal and off-site disposal of hazardous waste materials, construction of a tailings cover, and breaching of the former West Dam to reinstate natural drainage across the site. The project implementation was successfully executed and fully completed following some corrective work in 2018. Given that no further remediation or risk management activities were planned for the foreseeable future, the Jericho OMS Plan was developed, and Year 1 carried out in 2018.

3.0 OMS PLAN

The Jericho OMS Plan was developed as a guide for management of the Jericho site in its post-stabilization state. The key points and findings from the plan, in correlation with its six (6) objectives, consisted of the following:

- i. Summary of the remediation/ risk management approaches taken for each work component of the site stabilization project;
- ii. Summary of the surveillance activities planned for the Jericho Mine Site;
 - o Visual inspection for the stability of physical features, including
 - covers and cells,
 - dams and dykes,
 - pits (including water level),
 - roads,
 - o Long-term monitoring of the uranium concentration in the pit water,
- iii. Description of residual risks following the site stabilization work;
 - o Seven (7) risk items were listed with accompanying risk levels and proposed actions,
- iv. Conclusion that no planned operational activities will be required, and that maintenance will be performed on a reactive basis in response to ongoing surveillance;
 - o No preventative maintenance was warranted,
- v. Description of the surveillance activities, with proposed actions, required to mitigate the identified residual risks;
 - o Visual inspection of the West Dam breach for slope instability and sediment release,
 - o Visual inspection for changes in the PKCA potholes,
 - o Visual inspection of the pit lake elevation,
 - o Visual inspection of the pit lake road as the pit lake fills,
 - o Visual inspection of the stability and integrity of the PHC containment cell,
 - o Long term monitoring of the pit water uranium concentration trend,
 - o No action with respect to building condition,
- vi. Description of an iterative process to assess and adapt the OMS over time, presented as OMS Decision Criteria;
 - o Used to facilitate decisions on whether there should be modifications to the OMS activities during each phase review period,
 - o Organized as activities, triggers and contingency/ closure actions.

4.0 OMS PROGRAM TO DATE (LEADING INTO 2019)

The 2018 sessions marked the 1st year of the Jericho OMS Program. Stabilized mine components were observed for the first time following the 2017 construction, first winter season, and initial freeze/ thaw cycle. As noted in the 2018 report, the fall surveillance session was undertaken in parallel with some corrective work for the site stabilization project. Two key developments from the 2018 surveillance were observed:

1. Notable erosion at the outflow of the C1 channel (into Open Pit);
 - a. A new residual risk was recommended and added to the registry,
2. The risk identified for the Open Pit perimeter road was addressed;
 - a. The concern was that the invert elevation of the pit outflow was not at the lowest-point in the constructed perimeter road, and that the road would therefore be required to laterally hold back water as the Pit Lake reached its overflow elevation,
 - b. However, the invert of the outflow, at original ground, was surveyed in 2018 and confirmed to be the lowest point of the road and by inference the lowest point in the natural terrain (its location being at the pre-mine natural drainage pathway), and
 - c. That the Pit water would therefore flow out the designed channel and not rise to impact the constructed perimeter road.

Following the 2018 program, it was recommended that all physical features continue to be visually inspected and that the concentration of uranium in the pit lake continued be monitored for Years 2 and 3, i.e. no change to the activities or near-term frequency set out in the OMS Plan. A baseline of post-construction site conditions should be established prior to an evaluation to change the plan.

Table 1 presents a summary of the updated residual risks leading into the 2019 program; those from the original 2018 OMS Plan (seven original risks) and then the 2018 finding/ results (one addition risk added). A column was inserted to the table to note post-original conditions and recommended new actions, if applicable.

Table 1 – Summary of Residual Risks-to-Date

Risk ID	Residual Risk	Level	OMS Plan – Proposed Action	New OMS Program Notes/ Recommendations
1	Sediment release and instability of side slopes could result in poor performance of the West Dam breach.	Low	Surveillance of the West Dam breach. Erosion and slow failure not expected to pose a risk.	
2	Potholes in the PKCA cover were observed near the end of the 2017 field season. Further erosion could result in localized failure of the tailings cover and release windblown tailings.	Moderate	Potholes will be filled in 2018 field season and monitoring of the PKCA cover.	Continue assessment of potholes, and fill, if appropriate.
3	The Open Pit could result in injury to third party, as there are no access restrictions.	Moderately high	The Open Pit is being converted to a pit lake which is expected to take 11 to 15 years. Signage has been posted near the pit, at the airstrip and at the southwest end of site.	
4	Due to design inconsistencies, the road adjacent to the Open Pit could hold water and eventually wash out, resulting in a sediment release to Carat Lake.	Low	Survey the existing conditions and take corrective actions as appropriate.	A survey of the outflow area, relative to the pit perimeter road, showed that the channel inlet was lower than the rest of the road; and therefore, the road would not eventually hold back any of the pit lake. The residual risk is recommended to be closed.
5	Hydrocarbon contaminated soils have been placed into a lined containment cell. The liner could be compromised resulting in water contacting soil and contaminated water release to the environment.	Low	Surveillance of the PHC containment cell.	A work plan to correct the cover of the containment cell cover was completed in 2018.

Risk ID	Residual Risk	Level	OMS Plan – Proposed Action	New OMS Program Notes/ Recommendations
6	The water in the pit contains uranium concentrations above CCME guidelines for the protection of aquatic life. Eventually the pit lake will overflow into Carat Lake.	Low	Long term monitoring of the pit lake water, to determine if there is a risk prior to overflow.	
7	Building condition will deteriorate over time, resulting in loss of asset value.	Low	No action. Building asset value to progress towards \$0.	
8 (2018)	Washout erosion from the underside of the C1 Channel, at the outlet into the Open Pit, could cause sediment release and instability of side slopes and result in poor performance of the C1 Channel.	Low	<p>New risk noted for 2018.</p> <p>The risk level is assessed to be 'low', since vehicular access to the area is restricted and immediate environmental impact mitigated by flow directly into the open pit.</p> <p>Erosion and slow failure not expected to pose a risk.</p>	New surveillance of C1 Channel.

5.0 FINDINGS FROM 2019 SURVEILLANCE

5.1 2019 Site Visits

5.1.1 Spring Session – June 17-19, 2019

The 2019 spring surveillance was completed over a three (3)-day site trip, from June 17th to June 19th. Site conditions during the field work appeared representative of the spring season; and work carried out by a four-person team, PSPC, CIRNAC and 2x DXB Projects persons.

At the time of the spring session, snow on the ground had mostly melted, surface water runoff was at a high flow (visually observed and heard through rip rap channels and snow bases), and the ice surface broken up in the Open Pit. In general, weather during the surveillance session was cloudy with steady wind, and steady rain the 3rd day. Overall site conditions were good for observing the impacts of the thaw and freshet. A note to file that the initial dates for the site trip were pushed out from the early June timeline of 2018, since the site was reported to be in winter conditions; and then the schedule pushed out again to Jun 17th after weather reports in late May indicated that the Jericho region was still cold, ground snow-covered and surface water likely frozen.

Driving access was available to all the physical features inspected. Visual inspections of the Open Pit, Pit Outflow, C1 Channel and West Dam were completed the first day after set-up of camp. Visual inspections of the PKCA Tailings, Divider Dike A, PHC Containment Cell and roads were completed on the second day; and water samples collected from the Open Pit on the third. Aerial photos were taken by drone of the inspected features.

The water samples were collected on the morning of June 19th, packaged in a cooler and flown out midday with the demobilizing field team. The cooler was dropped off at the ALS Yellowknife Lab depot and samples submitted for total uranium in water analyses. Results were received on June 28, 2019.

As part of the spring field session, a site tour was coordinated for authorities having jurisdiction (similar to 2018). The inbound plane on June 19th flew in the regional CIRNAC Land and Waters Inspector and NIRB representatives for a tour of the site, held on-site, and flew all persons out following the inspection.

5.1.1 Fall Session – September 10-12, 2019

The 2019 fall surveillance session was also completed over a three (3)-day site trip, September 10th through September 12th. Site conditions were sunny and warm on the first day and shifted (wind direction) to much cooler temperatures and stronger gusting winds the second and third days; representative of typical late fall conditions for the area. In general, there was no snow on the ground (remaining from spring or early for winter) and overall surface water levels low. The work was carried out by a five-person team; a PSPC rep., CIRNAC rep., Pinchin remote camera installation technician and 2x DXB Projects personnel.

As a part of the fall work program, a remote satellite linked camera was installed overlooking the Open Pit. Two cameras were installed at one location mount, one with a direct view of the C1 Channel inflow into the Pit and a second wide-angled camera overlooking Carat Lake. A specialist from Pinchin was sub-contracted to supply and install the camera. The camera was confirmed in operation and daily photos from the site being collected.

Driving access was again available to all the inspected mine features, and notably the access road adjacently east of Divider Dike A not covered by water during the fall session. Visual inspections of the Open Pit, C1 Channel and Pit Outflow were completed the first day after set-up of camp. Visual inspections of the West Dam, Divider Dike A, PKCA, PHC Containment Cell and roads were completed on the second day; and water samples collected from the Open Pit on the third. Aerial photos were taken by drone of the inspected features.

Upon request from a local stakeholder, a visual inspection of the above-ground storage tanks within the emulsion plant was also completed on the second day; to check product levels in the tanks from the June inspection.

Water samples were collected on the morning of September 12th, packaged in a cooler and flown out as the team demobilized. The cooler was dropped off at the ALS Yellowknife Lab depot and samples submitted for total uranium in water analyses. Results were reported on September 24, 2019.

5.2 Surveillance Requirements

As described in the Jericho OMS Plan, the surveillance activities were designed to mitigate identified residual risk and expected to show evidence of natural attenuation over time. The surveillance requirements for the plan included detail on the following:

- i) OMS Decision Criteria;
 - Tool to facilitate decisions to modify OMS activities during each phase review period,
- ii) Stability of Physical Features Requiring Visual Inspection;
 - If this surveillance identified changes, maintenance activities may be required. It was expected that there would be minimal visual inspection requirements after approximately 25 years, and
- iii) Long-term Monitoring Considerations;
 - The only residual risk identified that required long-term monitoring was the uranium concentration in the pit water,
- iv) Frequency of Surveillance Activities;
 - The frequency of the surveillance activities for the Jericho site would be minimized, within reason, given the low level of residual risk, and

- v) Contingency Plans;
 - Based on items identified correlating to the residual risks, some will potentially require contingency plans if further action is required, as identified through surveillance activities.

5.2.1 2019 Inspection of Physical Features/ Long-Term Infrastructure

The installation of the remote camera now provides an inspection tool to view the Open Pit water level, as well as visual change of any further erosion of the C1 Channel into the pit. Figure 1 was an image collected from the camera on September 23, 2019.

A summary and 2018 comparison the 2019 inspections is presented in Table 2.



Figure 1 – Remote Camera Image of Open Pit from September 23, 2019

Table 2 – Summary and 2018 Comparison of 2019 Inspections

Feature ID	Physical Feature	2018 Inspections	2019 Inspections	Photos
1	West Dam Breach	<p>Drone visual inspection in June and walking inspection August.</p> <p>Minor erosion crack on South Bank and a minor erosion gully in North Bank.</p>	<p>Walking visual inspection during June and September field sessions.</p> <p>Cell C (upstream of West Dam) was at the designed water elevation during both June and September surveillances; with water observed and heard flowing through the base of channel base rip-rap.</p> <p>Some minor erosion gullies and settlement were observed; however, no significant change in the erosion noted from 2018 or that would affect the integrity of the structure</p>	1 – 6
2	PHC Containment Cell	<p>PHC Containment Cell cover re-constructed August 5, 2018.</p> <p>On-site for deficiency repair.</p>	<p>Walking visual inspection during June and September.</p> <p>Cover of Containment Cell appeared in good condition, i.e. no obvious settlement or erosion. A small area of settlement and drainage erosion on the East Bank was observed.</p>	7 – 11
3	PKCA	<p>Walking inspections June and August.</p> <p>Some surface melt channels formed during thaw, deeper erosion at ponded area before Divider Dike A.</p> <p>Nominal increase in depth of previously identified pot holes.</p>	<p>Walking visual inspection in June and September.</p> <p>In June, ponded water was observed in the PKCA, at the furthest downstream point of its natural drainage – directly against Divider Dike A (expected frozen/ partially frozen at the time of inspection). The water covered the east access road across the dike (access across Dike A was still possible by driving down and up across the</p>	12 – 26

Feature ID	Physical Feature	2018 Inspections	2019 Inspections	Photos
			<p>constructed 'notch'). The stabilization design for the Divider Dike was meant to accommodate the natural backup of water in the PKCA.</p> <p>The water in the PKCA had significantly dropped by the time of the September inspection (expected spring then fall condition); the east access road was available again to vehicle travel.</p> <p>Overall, there are some eroded gullies where the spring surface water runs into the ponded PKCA section, observed after the ponded water has receded. The upstream areas in the PCKA have been more protected from erosion, in part due to the coarse rock drainage path that was constructed.</p> <p>The underlying tailings are exposed in the developed gullies; however, represent a small percentage of the total covered area.</p> <p>Some new pothole depressions were observed in 2019. The largest pothole measured approximately 1.6 m in diameter.</p>	
4	C1 Channel	<p>Visual Inspection in June and walking inspection in August.</p> <p>Some notable erosion at the outlet of C1 Channel into the Open Pit. Water has been observed over the past 2 years flowing under the surface of the channel – some</p>	<p>Walking visual inspection in June and September.</p> <p>Some of the channel base was still snow covered during the June inspection; however, significant runoff was heard and seen below the snow.</p>	27 – 36

Feature ID	Physical Feature	2018 Inspections	2019 Inspections	Photos
		<p>significant erosion event likely during the 2018 freshet (between June and August) indicative of heavy snow load year and late winter conditions.</p>	<p>The channel base was visible in September, with surface water observed actively draining into the Pit and ponded water upstream of the channel structure. The channel erosion at the Pit Inflow was measured to be 6.3 m long</p> <p>A photo comparison of the sloughed material (2018 vs. 2019) did not show any obviously change in material slough; however, sediment was observed in the zone of runoff mixing into the pit water.</p>	
5	Pit Outflow Channel	<p>Walking inspection in August.</p> <p>Rod and level check of Pit Outflow inlet; confirmed low point of perimeter road.</p>	<p>Walking visual inspection in June and September.</p> <p>No noticeable change from 2018.</p>	37 - 38
6	Open Pit	<p>Walking inspection in August.</p> <p>The water level was observed to have risen half a bench level following the 2018 freshet (between June and August); Photo 31 illustrates the change in water level.</p> <p>An estimated water volume increase was calculated based on the following:</p> <ul style="list-style-type: none"> • Approximate water surface area of 88,000 m² (interpolated from digital file); • 1.5 m to 2 m water rise (based on visual estimate); and • therefore 132, 000 m³ to 176,000 m³. 	<p>Walking visual inspection in June and September.</p> <p>The water level was visually observed to have risen approximately 2 m from August 2018 to June 2019. Photos 28 (from 2018) and 29 (June 2019) provide a perspective of the change in water height.</p> <p>The pit water level was measured to have risen another 3.0 m (10 ft) between June and September.</p> <p>The pit water elevation was measured with a hand-held GPS device; reading of 455.3 masl. The change in water elevation from August 2018 to September 2019 was</p>	39 – 47

Feature ID	Physical Feature	2018 Inspections	2019 Inspections	Photos
		<p>Surveyed water level at 449.5 masl. <i>*note inconsistencies were identified with the front loop-survey data set, thus the back loop was used to determine the survey elevation.</i></p>	<p>approximately a 5.5 m rise (2 m rise August 2018 to June 2019 and 3.5 m rise June 2019 to September 2019), a correlating total annual increased water volume of ~ 484,000 m³ (estimated average 88,000 m² area).</p> <p>For reference, the Jericho Option Analysis Rev 02 (TetraTech, 2015) projected an infill flow rate of 241,000 – 328,000 m³/ year.</p>	
7	Roads	<p>Some significant erosion gullies were observed at an isolated section of the main road, east of the HWTA (towards the former mine site). The gullies were observed during the August 2018 Inspection, following the earlier June Inspection and therefore 2018 winter melt.</p> <p>Since heavy equipment work was underway during the 2018 inspection, the eroded section was backfilled with coarse processed kimberlite material to maintain the integrity of the road.</p>	<p>A section of the Main Road between the former Hazard Waste Transfer Area (HWTA) and Open Pit was partially flooded.</p> <p>A section of the Main Road past the north Open Pit access road showed significant runoff erosion</p>	48 – 50

5.2.2 Monitoring

The surface of the Open Pit was still partially frozen during collection of the Spring (June 19) pit water sample. The water was noted as not clear and depth of water column not 100% visible at the time of sampling; and therefore, possible that the water quality was affected by runoff water on top of the sections of surface ice. The fall surveillance session was used to normalize the results for 2019.

The water level in the Open Pit was observed to be noticeably higher during the fall water sampling period, noted by the receding-upslope location of the access road where the sample has been collected. The water in the pit appeared clear with small wave action from the morning wind. A sample and blind duplicate were collected of the Pit water on September 12th.

A summary of the uranium concentrations measured to date is shown in Table 3.

The lab certificate of analyses for the 2019 water samples (June and September) have been included in Appendix A .

Table 3 – Uranium Concentrations in Open Pit Water

Project Phase	Sample Date	Open Pit Water Uranium (mg/L)
CCME PFAL Guideline		0.015
Mining	Jun. 27, 2007	0.0508
Mining	Jul. 22, 2007	0.0184
Mining	Aug. 25, 2007	0.12
Mining	Oct. 9, 2008	0.234
2014 Assessment Work	Aug. 29, 2014	0.117
2017 Stabilization Work	Jun. 19, 2017	0.035
	Sep. 22, 2017	0.094
2018 Surveillance	Aug. 5, 2018	0.075
2018 Project Close-out	Aug. 28, 2018	0.069
2019 Spring Surveillance	Jun. 19, 2019	0.0185
	Sep 12, 2019	0.0576

Based on the melt conditions at the time, the June 2019 pit water sample represented water quality in the pit at the peak of the spring freshet. As seen in the other two June/ July sample periods (2007 and 2017), the water concentrations of uranium are typically higher in the corresponding year's fall result; although overall yearly trend shows annual decreasing concentrations.

The 0.0185 mg/L spring uranium concentration represents the lowest value reported since July 2007. The pit water fall result was at 0.0576 mg/L total uranium, and appears to show a continued trend for fall sampling vs. spring sampling, and notably a continued decreasing overall yearly trend:

- Fall 2017 at 0.094 mg/L;

- Fall 2018 at 0.075 mg/L and 0.069 mg/L; and
- Fall 2019 at 0.058 mg/L.

A water sample was also collected in June to check the water quality of the runoff draining into the pit, since sediment was observed in the mixed water. The sample location was in the pit where the runoff water flowed down the side of the pit (off the former road benches) before mixing into the main body of water. The uranium concentration in the drainage water was 0.00154 mg/L and well below the CCME PFAL Guideline.

5.2.3 Frequency Assessment

In accordance with the OMS Plan, visual inspection and long-term monitored at Jericho are planned for Years 1 (2018), 2 (2019) and 3 (2020). A planned evaluation of conditions and adjustment of surveillance/update risks are scheduled to occur after the completion of Year 3 (2020) OMS work.

Site conditions should continue to be monitored in Year 3.

6.0 OMS DECISION CRITERIA

The visual inspections of the mine features are showing only minor changes and may be trending towards stability.

Table 4 outlines the findings, in reference to the corresponding triggers, for the parameters to be monitored for 2019.

Table 4 – OMS Decision Criteria

Parameter	Activity	Trigger
Monitoring	The uranium concentration was measured for the Pit water in June 2019 and September 2019.	The June concentration was below CCME guideline; however, the fall monitoring session above CCME criteria, but showing a continued decreasing trend.
Visual Inspection	Inspection for the development of potholes, and changes to the stability of the long-term infrastructure components (i.e., roads, tailings cover, PHC containment cell, west dam breach, C1 channel).	<p>Some minor erosion at the West Dam breach, PKCA cover, and PHC soil cover; however, no significant failing of design intent.</p> <p>Notable erosion of the C1 Channel outflow; however, no design failing at this point.</p> <p>No significant development of additional pot holes. Continue monitoring of potholes.</p> <p>No specific triggers for contingency plans.</p>
Frequency	Site visit requirements	<p>Visual inspections are showing minor changes and may be trending towards stability. Uranium levels in Open Pit water are trending down and the Pit Lake will not overflow for several more years.</p> <p>No trigger to alter planned monitoring frequency. Recommend continuing with planned monitoring events in 2020.</p>

7.0 CONTINGENCY ACTIONS

Based on the findings of the surveillance activities, no contingency actions were warranted.

8.0 SUMMARY AND RECOMMENDATIONS

Table 5 presents an on-going tracking summary of the residual risks and potential actions for consideration, following the 2019 OMS Program.

Table 5 – Post-2019 Update of Residual Risk

Risk ID	Residual Risk	OMS Plan Proposed Action	Post-2019 Update
1	Sediment release and instability of side slopes could result in poor performance of the West Dam breach.	Surveillance of the West Dam breach. Erosion and slow failure not expected to pose a risk.	No update for proposed action.
2	Potholes in the PKCA cover were observed near the end of the 2017 field season. Further erosion could result in localized failure of the tailings cover and release windblown tailings.	Potholes will be filled in 2018 field season and monitoring of the PKCA cover.	Continue assessment of potholes, and fill, if appropriate.
3	The Open Pit could result in injury to third party, as there are no access restrictions.	The Open Pit is being converted to a pit lake which is expected to take 11 to 15 years. Signage has been posted near the pit, at the airstrip and at the southwest end of site.	No update for proposed action.
4	Due to design inconsistencies, the road adjacent to the Open Pit could hold water and eventually wash out, resulting in a sediment release to Carat Lake.	Survey the existing conditions and take corrective actions as appropriate.	<p>A survey of the outflow area, relative to the pit perimeter road, showed that the channel inlet was lower than the rest of the road; and therefore, the road would not eventually hold back any of the pit lake.</p> <p>The residual risk is recommended to be closed and removed as a residual risk as part of the planned evaluation of conditions scheduled to occur after the completion of Year 3 OMS work.</p>

Risk ID	Residual Risk	OMS Plan Proposed Action	Post-2019 Update
5	Hydrocarbon contaminated soils have been placed into a lined containment cell. The liner could be compromised resulting in water contacting soil and contaminated water release to the environment.	Surveillance of the PHC containment cell.	No update for proposed action.
6	The water in the pit contains uranium concentrations above CCME guidelines for the protection of aquatic life. Eventually the pit lake will overflow into Carat Lake.	Long term monitoring of the pit lake water, to determine if there is a risk prior to overflow.	No update for proposed action.
7	Building condition will deteriorate over time, resulting in loss of asset value.	No action. Building asset value to progress towards \$0.	No update for proposed action.
8 (2018)	Washout erosion from the underside of the C1 Channel, at the outlet into the Open Pit. Noted following the first winter cycle after construction.	New residual risk noted for 2018. The risk level is assessed to be 'low', since physical access to the area is restricted and immediate environmental impact mitigated by flow directly into the open pit. Erosion and slow failure not expected to pose a risk.	Continued surveillance of C1 Channel.

Following the 2019 program, it is recommended that all physical features continue to be monitored in Year 3 and evaluation of conditions be completed post-monitoring.

9.0 CLOSING

We trust this report suitable and in accordance with the terms of reference for the Jericho 2019 OMS Program.

Henry Wong, P.Eng.
DXB Projects – Senior Engineer

10.0 REFERENCES

Arcadis. 2018. *Operation, Maintenance and Surveillance (OMS Plan) – Jericho Diamond Mine Site.*

DXB. 2019. *Jericho Mine Site – Operation, Maintenance and Surveillance Program, 2018 Report – Final.*

TetraTech. 2015. *Options Analysis Rev 02 – Jericho Diamond Mine, Nunavut.*

APPENDIX A

Appendix A - Water Quality Monitoring Laboratory Certificate of Analyses

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DXB PROJECT MANAGEMENT INC.
ATTN: Henry Wong
315 Montgomery Avenue
Winnipeg MB R3L 1T6

Date Received: 19-JUN-19
Report Date: 28-JUN-19 17:19 (MT)
Version: FINAL

Client Phone: 416-575-8064

Certificate of Analysis

Lab Work Order #: L2294955
Project P.O. #: NOT SUBMITTED
Job Reference: 2019 JERICO OMS
C of C Numbers: 17-817568
Legal Site Desc:

Edward Ngai
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2294955-1	L2294955-2			
		Description	WATER	WATER			
		Sampled Date	19-JUN-19	19-JUN-19			
		Sampled Time	10:00	10:00			
		Client ID	2019-PIT-01	2019-C1			
Grouping	Analyte						
WATER							
Total Metals	Uranium (U)-Total (mg/L)	0.0185	0.00154				

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MET-T-XXX-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (mod)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-817568

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																																																																																																							
Company: DAB Projects	Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)	Quality Control (QC) Report with Report <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Regular [R] <input checked="" type="checkbox"/> Standard TAT if received by 3 pm - business days - no surcharges apply																																																																																																							
Contact: Henry Wong	<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked	Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX		PRIORITY (Business Days) 4 day [P4-20%] <input type="checkbox"/> 3 day [P3-25%] <input type="checkbox"/> 2 day [P2-50%] <input type="checkbox"/>	EMERGENCY 1 Business day [E - 100%] <input type="checkbox"/> Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] <input type="checkbox"/>																																																																																																						
Phone: 416-575-8064	Street:		Email 1 or Fax: henry.wong@dxbprojects.ca		Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm																																																																																																						
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Copy of Invoice with Report <input type="checkbox"/> YES <input type="checkbox"/> NO	Email 1 or Fax: dave.bynski@dxbprojects.ca	<table border="1"> <tr> <td rowspan="10" style="writing-mode: vertical-rl; transform: rotate(180deg);">NUMBER OF CONTAINERS</td> <td rowspan="10" style="writing-mode: vertical-rl; transform: rotate(180deg);">Uranium Total</td> <td colspan="10"></td> </tr> <tr> <td colspan="10"></td> </tr> </table>				NUMBER OF CONTAINERS	Uranium Total																																																																																																				
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	2019 - C1	19-Jun-19	10:00	Water																																																																																																							
Drinking Water (DW) Samples¹ (client use)		Speci		own list below																																																																																																							
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input type="checkbox"/> NO		 L2294955-COFC		SAMPLE CONDITION AS RECEIVED (lab use only)																																																																																																							
Are samples for human consumption/ use? <input type="checkbox"/> YES <input type="checkbox"/> NO				Frozen <input type="checkbox"/>	SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>	Ice Packs <input type="checkbox"/>	Ice Cubes <input type="checkbox"/>	Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>	Cooling Initiated <input type="checkbox"/>																																																																																																		
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Released by: H. Wong	Date: June 19, 2019	Time: 14:30	Received by: DL	Date: 19 Jun 19	Time: 14:30	Received by:	Date:	Time:																																																																																																			

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated in and form part of the Agreement between ALS Group's Environmental Division and the party named in the Offer (the "Client").

1. **Definitions.** Capitalized Terms not defined in these Terms and Conditions have the definitions set out in the other Agreement documents.
2. **The Services.** ALS will provide the Services to the Client as described in the Offer and in any chain of custody form provided with any sample.
3. **Prices.** ALS may review and change all prices, fees, surcharges or other charges set out in the Agreement if there are changes to ALS's cost beyond ALS's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding Condition 3, all quotations expire after three years.
4. **Payment Terms.** The Client shall pay ALS within 30 days of the invoice date OAC. ALS may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. **Quotation Numbers.** The Client shall provide the quotation number to ALS (where applicable) to ensure correct pricing.
6. **Taxes.** Applicable taxes are not included in prices. Applicable surcharges and additional fees will be added at the time of invoicing.
7. **Quality Control.** ALS has an extensive QA/QC program. Clients' samples are analyzed using approved, referenced procedures followed by thorough data validation prior to reporting of the analytical results.
8. **Test Results.** Results are obtained from analytical measurements that are subject to inherent variability. Measurement results reflect characteristics of submitted test samples at time of analysis. The Client is responsible for informing itself on the limitation of test results and acknowledges that test results are not guaranteed. When statements of conformity are requested on test reports (e.g. within Criteria Reports), measurement uncertainty is not applied to test results prior to the evaluation.
9. **Standard of Care.** ALS will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested.
10. **Storage.** Where possible, ALS will store; soil and water samples for 45 days from date of receipt, tissue/biota samples for 6 months from date of receipt, air samples or re-usable media for 14 days from date of receipt, and microbiological samples for 3 days from date of receipt.
11. **Holds.** If the Client requests a sample to be placed on hold, ALS will store the samples according to paragraph 10, after which ALS will invoice the Client and discard the sample. Each sample is subject to a minimum \$5.00 hold fee. Longer hold periods are available upon request. See paragraph 12.
12. **Archives.** If the Client requests a sample be archived, ALS will invoice in advance and store the sample for the period requested, after which ALS may discard the sample.
13. **Legal Sample Handling Protocol.** Legal sample handling protocol must be arranged before samples are collected. ALS charges a surcharge on the list price plus the hourly technologist or chemist rates for legal sample protocol. Additional charges will apply for samples that require storage by ALS.
14. **Samples.** The quality, condition, content and source of samples stored and tested are not known to ALS except as declared and described on the chain of custody form completed and submitted by the Client and accompanying the sample.
15. **Risk of Loss.** ALS will use reasonable care to protect samples during storage, however all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged, or destroyed and the Client releases ALS from any claim the Client may have for any loss or damage to the sample.
16. **Environmental.** The Client must comply with all applicable environment legislation, including labeling all hazardous samples to comply with GHS and TDG regulations, and must provide appropriate Safety Data that include the nature of the hazard and a contact name and phone number to call for information. The Client will indemnify ALS for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
17. **Hazardous Materials Disposal.** ALS may return, at the Client's cost, hazardous material to the Client for disposal.
18. **Hazardous Materials Surcharge.** ALS may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials (NORM), H2S, CN, etc.
19. **Sample Containers.** ALS may ship sample containers to the Client's location by the most cost effective means using ALS preferred courier suppliers, within the specified project timeline.
20. **Additional Charges.** ALS may charge the Client (a) its cost for emergency bottle shipments and shipments to and from a remote site, and (b) where pick up and delivery services are provided, subject in each instance to a minimum charge of \$25.00.
21. **Re-Tests.** ALS reserves the right to re-test any samples that remain in its possession. Re-tests requested by the Client may be subject to charges.
22. **Waiver.** The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any claims against ALS it may have as a result of the interpretation of the results. The Client shall indemnify ALS for all claims made by any third party against ALS in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
23. **Limitation of Liability.** In no event shall ALS be liable for any consequential, indirect, incidental, special, exemplary, or punitive damages, whether foreseeable or unforeseeable (including claims for loss of profits or revenue or losses caused by stoppage of other work or impairment of other assets), incurred by the Client arising out of breach or failure of express or implied warranty, breach of contract, breach of warranty, misrepresentation, negligence, strict liability in tort or otherwise. In any event, the liability of ALS to the Client shall be limited to the cost of testing the sample as requested in the chain of custody form under which the sample was originally deposited. For the purposes of this paragraph and paragraphs 8, 15, 16, 22 and 24, as applicable, "ALS" includes without limitations its directors, officers, employees and affiliates and the "Client" includes without limitation any third party that may have a claim against ALS through the Client.
24. **Notice of Liability.** Notwithstanding paragraph 23, ALS shall not be liable to the Client unless the Client provides notice in writing to ALS of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk under the Agreement between the Client and ALS, and the fees to be paid by the Client to ALS reflect this allocation of risks and the limitations of liability in this Agreement.
25. **Third Party Service Provider Indemnity.** For testing not performed at ALS, and where the Client requires ALS to forward samples to a third party service provider, the Client indemnifies ALS against any breach of this Agreement, all liabilities or losses incurred in connection with the third party service provider, including but not limited to courier services, testing turn-around time, and any additional costs associated with such third party.
26. **Third Party Service Provider Indemnity.** If ALS is required to engage a third party service provider for whatever reason, the Client indemnifies ALS against any breach of this Agreement, liabilities, or losses incurred in connection with the third party service provider, including but not limited to courier services, testing turn-around time, and any additional costs associated with such third party.
27. **Entire Agreement.** The Agreement is the entire agreement between the parties and supersedes and takes precedence over any terms and conditions contained in any documentation provided by the Client. ALS's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein. If there is a conflict between these terms and conditions and any other Agreement document, these terms and conditions prevail.
28. **Term.** Providing the first batch of samples to which this tender refers is submitted within three months of the starting date of this quotation, the following prices, terms and conditions will remain firm until the closing date. This offer, and its terms and conditions will automatically lapse if the offer has not been accepted and samples not delivered to ALS by the Closing Date.
29. **Termination.** (a) Either party may terminate this Agreement for any reason by giving the other party thirty (30) days written notice (Notice Period). (b) If the Agreement is terminated pursuant to clause (a), then the Client must pay ALS for all Services performed up to the expiry of the Notice Period.



DXB PROJECT MANAGEMENT INC.
ATTN: Henry Wong
315 Montgomery Avenue
Winnipeg MB R3L 1T6

Date Received: 13-SEP-19
Report Date: 24-SEP-19 13:28 (MT)
Version: FINAL

Client Phone: 204-795-5508

Certificate of Analysis

Lab Work Order #: L2346946
Project P.O. #: NOT SUBMITTED
Job Reference: JERICHO
C of C Numbers: 17-817795
Legal Site Desc:

Edward Ngai
Account Manager

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ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID	L2346946-1	L2346946-2			
		Description	WATER	WATER			
		Sampled Date	12-SEP-19	12-SEP-19			
		Sampled Time	10:00	10:00			
		Client ID	2019-PIT-02	2019-PIT-03			
Grouping	Analyte						
WATER							
Total Metals	Uranium (U)-Total (mg/L)	0.0576	0.0579				

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
MET-T-XXX-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-817795

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated in and form part of the Agreement between ALS Group's Environmental Division and the party named in the Offer (the "Client").

1. **Definitions.** Capitalized Terms not defined in these Terms and Conditions have the definitions set out in the other Agreement documents.
2. **The Services.** ALS will provide the Services to the Client as described in the Offer and in any chain of custody form provided with any sample.
3. **Prices.** ALS may review and change all prices, fees, surcharges or other charges set out in the Agreement if there are changes to ALS's cost beyond ALS's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding Condition 3, all quotations expire after three years.
4. **Payment Terms.** The Client shall pay ALS within 30 days of the invoice date OAC. ALS may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. **Quotation Numbers.** The Client shall provide the quotation number to ALS (where applicable) to ensure correct pricing.
6. **Taxes.** Applicable taxes are not included in prices. Applicable surcharges and additional fees will be added at the time of invoicing.
7. **Quality Control.** ALS has an extensive QA/QC program. Clients' samples are analyzed using approved, referenced procedures followed by thorough data validation prior to reporting of the analytical results.
8. **Test Results.** Results are obtained from analytical measurements that are subject to inherent variability. Measurement results reflect characteristics of submitted test samples at time of analysis. The Client is responsible for informing itself on the limitation of test results and acknowledges that test results are not guaranteed. When statements of conformity are requested on test reports (e.g. within Criteria Reports), measurement uncertainty is not applied to test results prior to the evaluation.
9. **Standard of Care.** ALS will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested.
10. **Storage.** Where possible, ALS will store; soil and water samples for 45 days from date of receipt, tissue/biota samples for 6 months from date of receipt, air samples or re-usable media for 14 days from date of receipt, and microbiological samples for 3 days from date of receipt.
11. **Holds.** If the Client requests a sample to be placed on hold, ALS will store the samples according to paragraph 10, after which ALS will invoice the Client and discard the sample. Each sample is subject to a minimum \$5.00 hold fee. Longer hold periods are available upon request. See paragraph 12.
12. **Archives.** If the Client requests a sample be archived, ALS will invoice in advance and store the sample for the period requested, after which ALS may discard the sample.
13. **Legal Sample Handling Protocol.** Legal sample handling protocol must be arranged before samples are collected. ALS charges a surcharge on the list price plus the hourly technologist or chemist rates for legal sample protocol. Additional charges will apply for samples that require storage by ALS.
14. **Samples.** The quality, condition, content and source of samples stored and tested are not known to ALS except as declared and described on the chain of custody form completed and submitted by the Client and accompanying the sample.
15. **Risk of Loss.** ALS will use reasonable care to protect samples during storage, however all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged, or destroyed and the Client releases ALS from any claim the Client may have for any loss or damage to the sample.
16. **Environmental.** The Client must comply with all applicable environment legislation, including labeling all hazardous samples to comply with GHS and TDG regulations, and must provide appropriate Safety Data that include the nature of the hazard and a contact name and phone number to call for information. The Client will indemnify ALS for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
17. **Hazardous Materials Disposal.** ALS may return, at the Client's cost, hazardous material to the Client for disposal.
18. **Hazardous Materials Surcharge.** ALS may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials (NORM), H2S, CN, etc.
19. **Sample Containers.** ALS may ship sample containers to the Client's location by the most cost effective means using ALS preferred courier suppliers, within the specified project timeline.
20. **Additional Charges.** ALS may charge the Client (a) its cost for emergency bottle shipments and shipments to and from a remote site, and (b) where pick up and delivery services are provided, subject in each instance to a minimum charge of \$25.00.
21. **Re-Tests.** ALS reserves the right to re-test any samples that remain in its possession. Re-tests requested by the Client may be subject to charges.
22. **Waiver.** The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any claims against ALS it may have as a result of the interpretation of the results. The Client shall indemnify ALS for all claims made by any third party against ALS in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
23. **Limitation of Liability.** In no event shall ALS be liable for any consequential, indirect, incidental, special, exemplary, or punitive damages, whether foreseeable or unforeseeable (including claims for loss of profits or revenue or losses caused by stoppage of other work or impairment of other assets), incurred by the Client arising out of breach or failure of express or implied warranty, breach of contract, breach of warranty, misrepresentation, negligence, strict liability in tort or otherwise. In any event, the liability of ALS to the Client shall be limited to the cost of testing the sample as requested in the chain of custody form under which the sample was originally deposited. For the purposes of this paragraph and paragraphs 8, 15, 16, 22 and 24, as applicable, "ALS" includes without limitations its directors, officers, employees and affiliates and the "Client" includes without limitation any third party that may have a claim against ALS through the Client.
24. **Notice of Liability.** Notwithstanding paragraph 23, ALS shall not be liable to the Client unless the Client provides notice in writing to ALS of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk under the Agreement between the Client and ALS, and the fees to be paid by the Client to ALS reflect this allocation of risks and the limitations of liability in this Agreement.
25. **Third Party Service Provider Indemnity.** For testing not performed at ALS, and where the Client requires ALS to forward samples to a third party service provider, the Client indemnifies ALS against any breach of this Agreement, all liabilities or losses incurred in connection with the third party service provider, including but not limited to courier services, testing turn-around time, and any additional costs associated with such third party.
26. **Third Party Service Provider Indemnity.** If ALS is required to engage a third party service provider for whatever reason, the Client indemnifies ALS against any breach of this Agreement, liabilities, or losses incurred in connection with the third party service provider, including but not limited to courier services, testing turn-around time, and any additional costs associated with such third party.
27. **Entire Agreement.** The Agreement is the entire agreement between the parties and supersedes and takes precedence over any terms and conditions contained in any documentation provided by the Client. ALS's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein. If there is a conflict between these terms and conditions and any other Agreement document, these terms and conditions prevail.
28. **Term.** Providing the first batch of samples to which this tender refers is submitted within three months of the starting date of this quotation, the following prices, terms and conditions will remain firm until the closing date. This offer, and its terms and conditions will automatically lapse if the offer has not been accepted and samples not delivered to ALS by the Closing Date.
29. **Termination.** (a) Either party may terminate this Agreement for any reason by giving the other party thirty (30) days written notice (Notice Period). (b) If the Agreement is terminated pursuant to clause (a), then the Client must pay ALS for all Services performed up to the expiry of the Notice Period.

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- Photo 4: June 17, 2019 West Dam Breach – No significant change in erosion gully on North Bank.
- Photo 5: Sept. 11, 2019 West Dam Breach – Fall aerial photo of North bank.
- Photo 6: Sept. 11, 2019 West Dam Breach – Fall aerial photo of South bank.
- Photo 7: June 18, 2019 PHC Containment Cell Cover, Looking N – Some settlement and drainage erosion along East Bank.
- Photo 8: June 18, 2019 PHC Containment Cell Cover, Looking NW – Drainage erosion in north corner of East Bank.
- Photo 9: June 18, 2019 PHC Containment Cell Cover, Looking E – Photo of West Bank.
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- Photo 12: June 18, 2019 PKCA Cover, Looking W – North PKCA.
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- Photo 14: Sept. 12, 2019 PKCA Cover, Looking W – Remaining pondered water during Fall visit.
- Photo 15: Sept. 12, 2019 PKCA Cover, Looking E – Downstream section of PKCA.
- Photo 16: Sept. 11, 2019 PKCA Cover, Looking E – Downstream section of PKCA.
- Photo 17: June 18, 2019 PKCA Cover, Looking SE – East PKCA.
- Photo 18: Sept. 11, 2019 PKCA Cover, East PKCA – Some erosion from drainage into PKCA.
- Photo 19: Sept. 12, 2019 PKCA Cover, Looking W – East PKCA.
- Photo 20: June 18, 2019 PKCA Cover, South PKCA – Looking S, potholes at bottom of photo.
- Photo 21: June 6, 2018 PKCA Cover, Southeast PKCA – 2018 aerial photo of potholes.*
- Photo 22: June 18, 2019 PKCA Cover, Looking N – View of potholes (note that the center potholes here were covered by snow in the 2018 photo above).
- Photo 23: June 18, 2019 PKCA Cover, Looking N – View of potholes.
- Photo 24: Sept. 11, 2019 PKCA Cover, Looking N – Fall view of potholes.
- Photo 25: June 18, 2019 Divider Dike A, Looking E – Dike and energy dispersion ramp.
- Photo 26: June 18, 2019 Divider Dike A, Looking W.
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- Photo 31: June 19, 2019 C1 Channel, Looking E and into Open Pit – Spring sediment observed into pit water.
- Photo 32: June 17, 2019 C1 Channel, Looking W – Upstream catchment.
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- Photo 37: June 17, 2019 Pit Outflow, Looking W.

Photo 38: Sept. 10, 2019 Pit Outflow – Aerial photo of Outflow and Pit Perimeter road.

Photo 39: June 19, 2019 Open Pit, Looking E – Photo of early staging for remote camera location.

Photo 40: August 4, 2018 Open Pit, Looking South – 2018 photo of Open Pit Water Level.

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Photo 43: August 4, 2018 Open Pit – 2018 photo of Water Level Survey.

Photo 44: June 19, 2019 Open Pit – Photo of pit water level.

Photo 45: June 19, 2019 Open Pit – Photo of Spring sample location for freshet water into pit.

Photo 46: June 19, 2019 Open Pit – Photo of Spring pit water sample location.

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Photo 48: June 18, 2019 Road Section – Photo of partially flooded Main Road section between HWTA and Open Pit, UTM coordinates 12 W N478868 E7320754.

Photo 49: June 18, 2019 Road Section – Photo of Main Road section by N pit access with drainage erosion, UTM coordinates 12 W N478414 E7319738.

Photo 50: Sept. 10, 2019 Road Section – Fall Photo of Main Road section by N pit access with drainage erosion.



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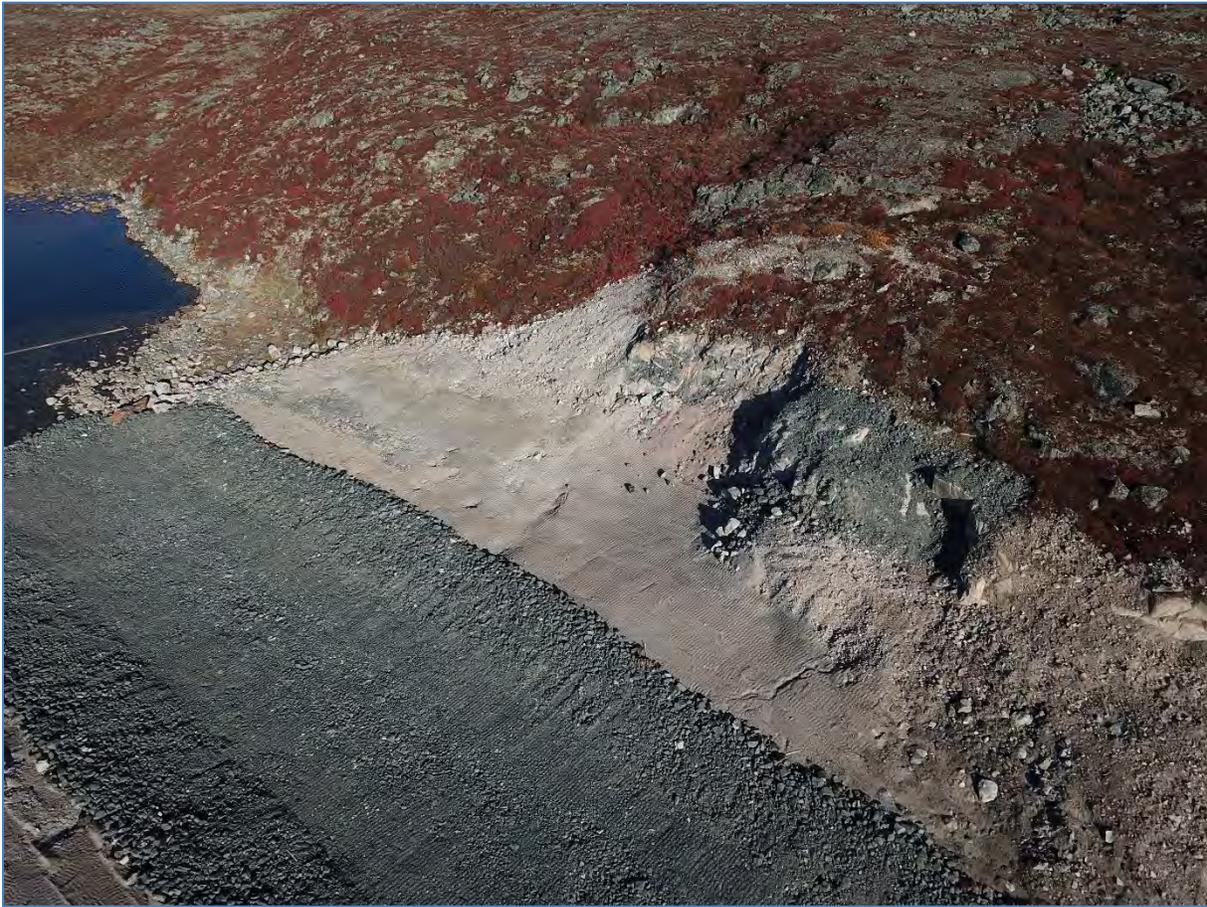


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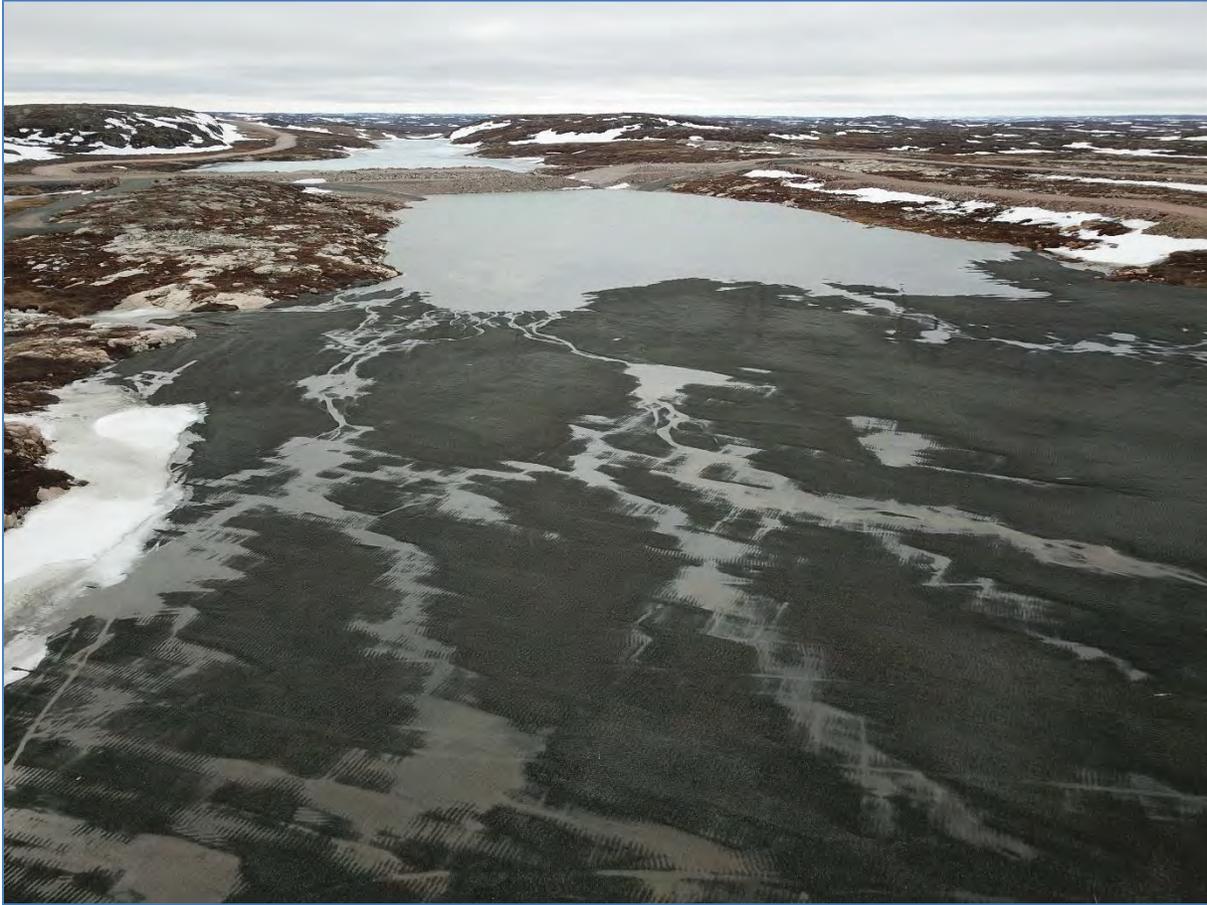


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