



# ANNUAL REPORT 2015

**Inuit Land Use Licence Number: KVL308C09**

**INAC Land Use Permit Number: N2012C0030**

**Nunavut Impact Review Board File Number: 08EN052**



**Submitted to: KIA, INAC, NIRB**

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## PROPERTY DESCRIPTION AND LOCATION

The Angilak Property consists of 103 active mineral claims and Inuit Owned Land Parcel RI-30 (IOL), comprising a total area of 101,110.9 hectares in the Kivalliq region of southern Nunavut Territory (**Appendix A**). The Property is located 350 kilometres west of Rankin Inlet and 225 kilometres southwest of Baker Lake (Figure 1). The property dimensions measure 55 kilometres east-west by 35 kilometres north-south.

As indicated on Figure 2, all mineral claims and the IOL are contiguous and extend north, south, east and west between 6925000m N and 6965000m N and 479300m E to 533000m E, NAD83, Zone 14, NTS Map sheets 65 J/06, 65 J/07, 65 J/09, 65 J/10, 65 J/11 and 65 J/15 (latitudes 62° 27' North and 62°48' North and longitudes 98° 21' West and 99°24' West).

Land use permits enabling exploration work to be conducted on the property have been issued, renewed and amended by the Kivalliq Inuit Association (KIA) for parts of the property covering Inuit Owned Lands (IOL) and by Indigenous and Northern Affairs Canada (INAC) for Crown Lands. Kivalliq Energy Corporation (Kivalliq Energy) also operates under the terms and conditions of a Nunavut Water Board (NWB) licence, covering activities on both IOL and Crown Lands. 2015 was the eighth year that Kivalliq Energy operated on the lands described in this report. See Table 1 for a list of active permits and licences issued for lands that comprise the Angilak Property.

**Table 1: 2015 Land Use Permits and Licences**

Issuing/Screening Agency	Date Issued	File Number
KIA	August 1, 2008	KVL308C09
NIRB	July 31, 2008	08EN052
INAC	August 7, 2013	N2012C0030
NWB	March 4, 2013	2BE-ANG1318



**Figure 1: Angilak Property Location**

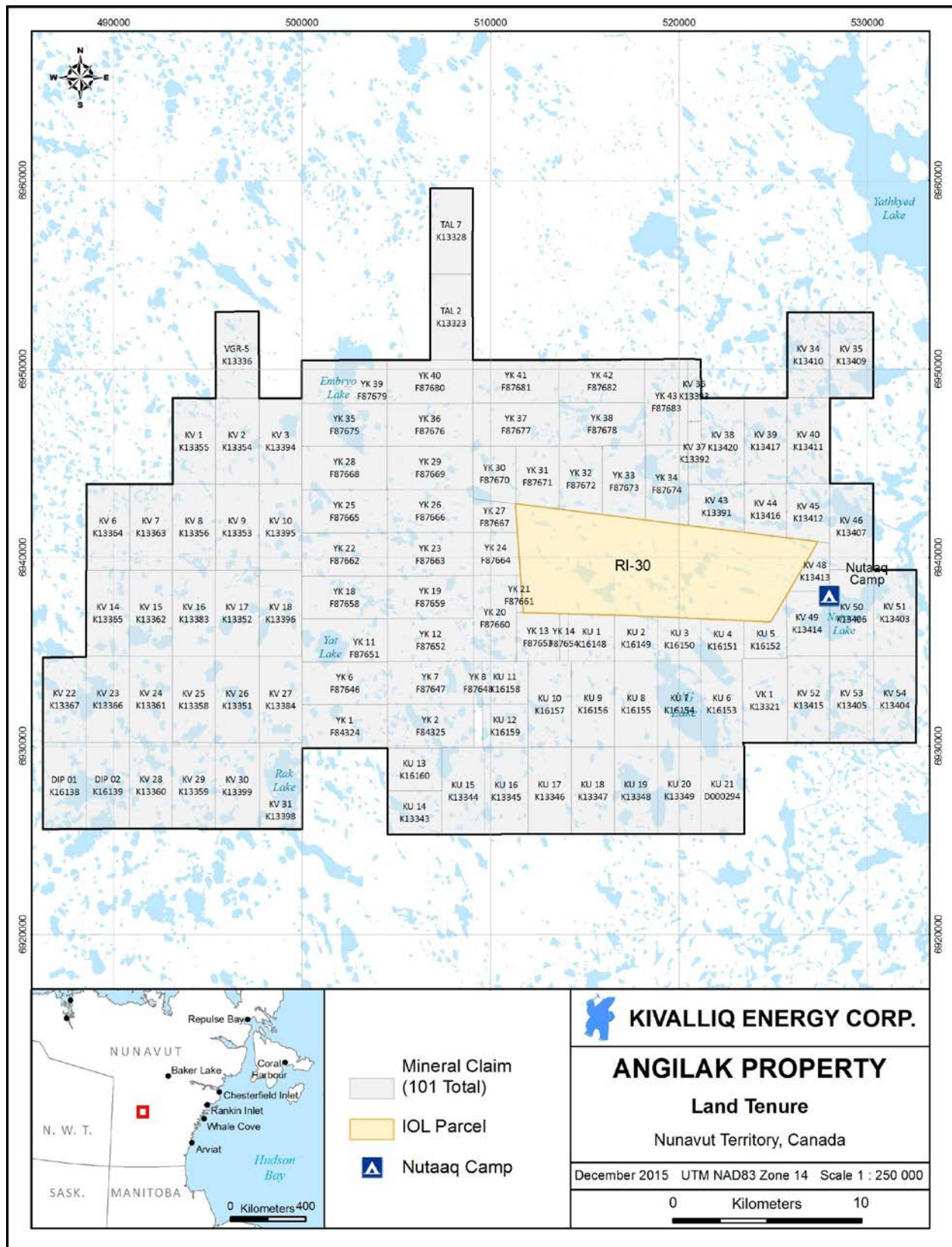


Figure 2: Angilak Property Land Tenure

## CORPORATE BACKGROUND AND GENERAL INFORMATION

Kivalliq Energy is a Vancouver-based uranium exploration company with Canada's highest-grade uranium resource outside of Saskatchewan's Athabasca Basin. The company has been operating in Nunavut since 2008. Its flagship project is the Angilak Property.

Kivalliq Energy was the first company in Canada to sign a comprehensive agreement with Nunavut Tunngavik Inc. (NTI) to explore on Inuit Owned Land for uranium. As part of this landmark partnership, Kivalliq Energy must meet certain expenditure and corporate commitments. Upon a production decision at the Angilak Property NTI can elect to have a 25% participating interest in the project, or collect a 7.5% Net Profits Royalty. The agreement not only applies to IOL RI-30, but also, extends to 103 Crown issued mineral claims. The Angilak Property totals 101,110.9 hectares (249,850.6 acres)

Kivalliq Energy Corporation was formed to advance the Angilak Property and other uranium opportunities in Nunavut. Management has extensive background working in Canada's north. John Robins is Chairman of the Company's board of directors, Jim Paterson is the Chief Executive Officer, Jeff Ward serves as President and Andrew Berry is Chief Operating Officer. Jim Malone, Jim Dawson, Dale Wallster and Garth Kirkham serve as directors. The group is committed to the social and economic development of the north while maintaining a level of excellence in minimizing environmental impacts. Kivalliq Energy is proud to have been presented in both 2011 and 2012 with the Environmental Excellence Award from the Kivalliq Inuit Association for outstanding environmental stewardship at Kivalliq Energy's Angilak Property. Kivalliq Energy looks forward to conducting a seventh tour of communities this year to meet with community members and increase awareness about the company and its projects.

Since 1979, the property and surrounding area has been called various names (i.e. LGT, Yathkyed, Lac Cinquante) however, Kivalliq Energy collectively refers to all land holdings as the "Angilak Property". The Angilak property hosts the high-grade Lac 50 (Lac Cinquante) uranium resource and more than 150 mineral showings.

From 2007 to 2013, Kivalliq Energy evaluated the Lac 50 trend uranium deposits through a series of exploration programs that included approximately 89,600 metres of diamond drilling and reverse circulation drilling. During that time the company delineated the Lac 50 Main Zone, Western Extension, Eastern Extension, J4 Zone and Ray Zone uranium deposits. On January 15, 2013 the company released an NI 43-101 inferred mineral resource estimate for the Lac 50 trend deposits of 43.3 million pounds  $U_3O_8$  in 2,831,000 tonnes grading 0.69%  $U_3O_8$  (at 0.2%  $U_3O_8$  cut-off). Smaller programs since 2013 have focused on acquiring additional property-wide geotechnical data, plus a modest 2015 drill program 25 kilometres southwest of Lac 50 at Dipole.

Kivalliq has also identified seven additional mineralized zones at Angilak through drilling that are not included in the resource estimate. The Blaze, Pulse, Spark, Forte, Southwest Extension, Hot, BIF and Dipole zones remain at an early stage of investigation. The geologic characteristics for the numerous uranium deposits within the Lac 50 trend are very similar. The deposit are basement hosted, vein-hydrothermal type. The emplacement of uranium is structurally controlled. Mineralization consists of disseminated and patchy pitchblende within fracture controlled brecciated, hematite-quartz-carbonate veins.

## 2015 WORK COMPLETED

Work in 2015 included diamond drilling, soil sampling, prospecting and environmental baseline monitoring.

### Diamond Drilling

Kivalliq Energy contracted Major Drilling Group International Inc. (Major Drilling) to perform diamond drilling on the west side of Angilak Property in 2015. A total of 958 metres of diamond drilling in nine holes was completed from July 5 to July 26, 2015. Major has three Boyles 17 heli-portable drill rigs staged on the Property from drilling undertaken from 2009 to 2013. Only one drill was used for the 2015 program.

All of the nine holes were completed on the Dipole Target. A map showing the locations of the diamond drill holes is shown in Figure 3. Diamond drill collar coordinates are included in **Appendix E**.

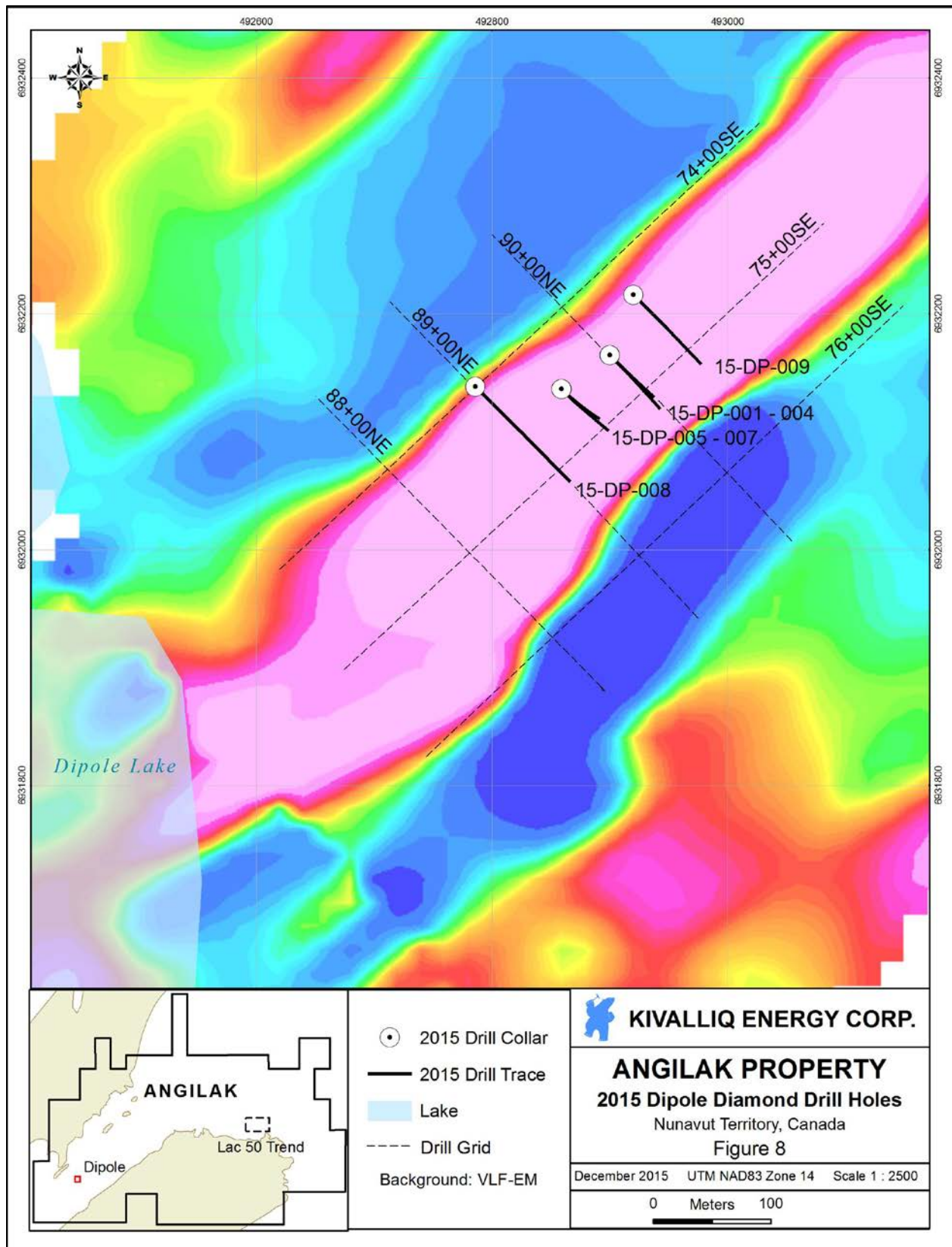
The area known as the Dipole-RIB Trend is located approximately 25 kilometres southwest of the Lac 50 deposits, in a northeast trending belt of Archean metavolcanic rocks that are an excellent analogue to Lac 50. This first drilling (2015) at the specific Dipole Target was designed to test the centre of a prominent two kilometre long very low frequency electromagnetic ("VLF-EM") conductor and a coincident 3.4 kilometre long uranium-in-soil anomaly.

The initial drilling at Dipole has outlined a 25 metre to 48 metre wide zone of multiple, steeply dipping mineralized intervals hosted in a sequence of structurally weak pyroclastic horizons. All nine holes intersected shallow radioactive intercepts at vertical depths ranging from 15 metres to 110 metres and along 150 metres of strike length. Mineralized intercepts had down hole interval widths ranging from 1.0 metre to 8.0 metres.

Drill holes at Dipole were spaced 50 metres apart along 150 metres of strike length, with all holes drilled at an azimuth of 135 degrees. Drill hole inclination angles ranged from -45 degrees to -90 degrees. Drill collars were located and surveyed using a handheld GPS and a compass. Down hole termination depths ranged from 23.5 to 152.8 metres.

Kivalliq utilizes a drill cuttings containment and collection circuit to collect all drill cuttings. A small sump is dug beneath the rig adjacent to the cuttings discharge from the drill casing. The sump is lined with an impervious liner and fitted with a sump pump. Drill effluents are then pumped through a series of four 150 gallon in-line settling tanks that capture precipitated cuttings.

Kivalliq geologists notify drill crews of anticipated uranium mineralization intercept depths. Drilling is stopped temporarily above the predicted intercept depth and the settling tanks are cleaned of non-radioactive cuttings are isolated using the cuttings collection system and contained in sealed in 205 litre steel drums. The sealed drums from drilling at Dipole were flown to and temporarily staged on a flat dry outcropping ridge on the east side of the Lac 50 Main Zone drill area at 519615E 6939955N NAD 83 Zone 14. Non-radioactive cuttings are collected as a thick slurry from the bottom of the settling tanks and contained in one-tonne fibrene bulk bags that dewater through the bag weave.



**Figure 3: 2015 Diamond Drill Hole Locations**



Dipole Drilling 2015 – Boyles 17 Fly Rig and Cuttings Settling Tanks / Collection System

The dewatered bulk bags with cuttings are flown to a centrally located naturally occurring depression/sump where they are deposited.

Drill holes are surveyed down-hole using a Reflex EZ Shot. The down-hole surveys are conducted at the end of each hole and midway during the drill hole advance at times, to check orientation. Down-hole data that shows unrealistic hole orientations is considered suspect and is resurveyed or omitted.

All radioactive down hole intercepts running in excess of 0.05%  $U_3O_8$  are sealed with portland cement for a distance of at least 10 metres above and below the radioactive intercept. Upon completion of drilling, holes are cemented to a depth of 35 metres from the overburden / bedrock interface. All drill rods and drill casings are removed from site upon completion. Drill site clean-up is progressive as the drill rig moves from one site to the next. Once clean up at a drill site is completed, the location of the holes photographed (**Appendix E**), and marked with a wooden stake bearing a metal tag that describes the collar information.

Drill core is logged at Kivalliq's logging facility in the Nutaaq Camp. Upon completion of the geological log, radioactive drill core is marked at 10 centimetre intervals and spectrometer readings, measured in counts per second (cps), are taken at each mark. Readings are collected using a Radiation Solutions™ RS-230 Super Spec Spectrometer. The readings include a buffer of up to one metre above and below the radioactive intersection and create a radiometric record of the gamma radiation levels associated with mineralized intersection.

The drill core from Dipole is generally competent with excellent core recovery rates at or near 100%. Sample intervals were selected based upon mineralization, gamma radiation, lithology and structure. Samples are typically 0.3 to 1.0 metres long. Mineralized zones are photographed, split and sampled along with one or more wall rock overlap samples collected 0.5-1.0 m on either side of any mineralization.

Core samples collected during the 2015 diamond drilling program comprised half split NQ drill core and were collected using a mechanical core splitter. The samples are then placed in plastic bags with identification tags, sealed with secure plastic ties and subsequently packed into plastic pails sealed with tamper proof lids. Sample submittal forms were filled out to include shipment numbers along with sample sequences and total numbers of samples. All core samples, including Quality Assurance / Quality Control (QA/QC) samples inserted at site were shipped to SRC in Saskatoon for multi-element geochemical assay.

## Soil Sampling

During the 2015 summer field season, one Kivalliq Energy prospector conducted a helicopter-supported soil sampling program beginning July 5, 2015 and ending July 21, 2015. A total of 408 enzyme leach soil samples were collected over 12 field days in the RIB Area and YAT Zone.

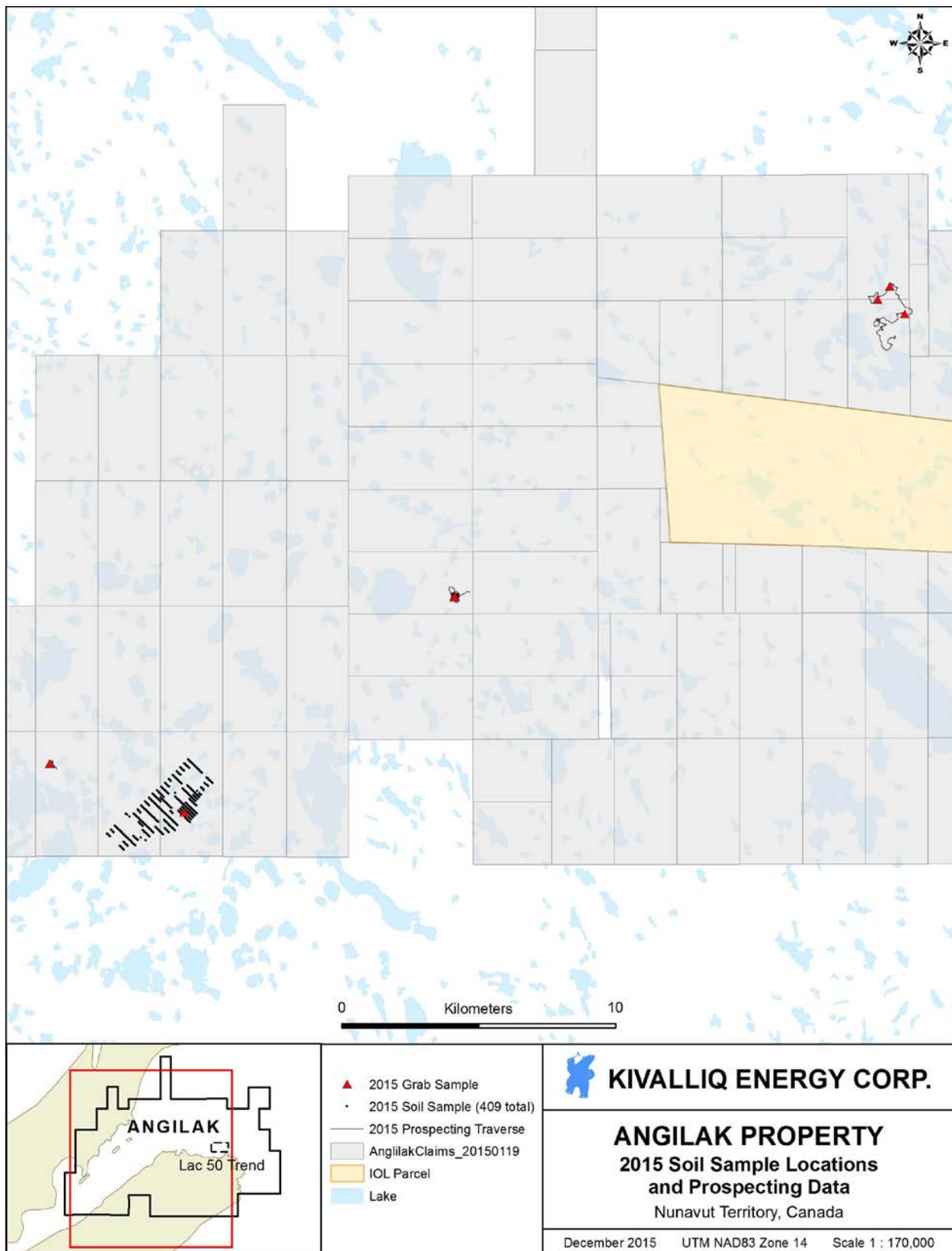
The goal of the geochemical survey was to classify and prioritize bedrock conductors for drilling by identifying those conductors which have associated surface geochemical anomalies. Enzyme Leach Analysis was chosen due to its sensitivity in detecting mineralization beneath deep overburden, which in some areas has been shown to be superior and more cost effective to that of conventional soil assays. Soil sample locations can be seen in Figure 4.

A total of 453 samples were sent for analysis during the course of the program; 408 of which were soil samples and 45 QA/QC samples. All samples were sent to Activation Laboratories Ltd. (ActLabs) in Ancaster, Ontario for Enzyme Leach Analysis.

## Prospecting

A total of eight rock (or “grab”) samples were collected along 17.7 traverse kilometres during the 2015 prospecting program.

During the 2015 summer field season, one Kivalliq prospector conducted prospecting throughout the Angilak Property. The helicopter-supported prospecting ran for six days that were integrated with soil sampling days. The traverses were designed to investigate historical showings, to explore for new occurrences of uranium mineralization, and to follow up on anomalies identified by the geophysical surveys conducted on the Property. The prospecting traverses and sample locations are shown on Figure 5. All of the samples were shipped to SRC in Saskatoon for multi-element geochemical assay.



**Figure 4: 2015 Soil Sample Locations and Prospecting Data**

## Camp Infrastructure

The Nutaaq Camp was constructed in 2010 and expanded in 2011 and 2012 to accommodate larger exploration programs in those years. The camp was downsized in 2013 in response to a smaller exploration program that year and included the removal of six Weatherport sleeper tents. No changes were made to Nutaaq Camp in 2014 or 2015. The camp is located at 527975m E, 6937950m N, NAD 83 Z14 (62° 34' 18" N Lat. And 98° 27' 19" W Long.) and is situated on an elevated flat topped gravel deposit that is part of a large trunk esker traversing the property approximately two kilometres west of the camp. The site is adjacent to Nutaaq Lake, an east west trending 1.5 kilometre wide by 4.1 kilometre long lake that supplies the camp with potable water and accommodates ski equipped and float equipped aircraft. The lake is sufficient in length to establish an ice strip in winter to accommodate larger aircraft such as Boeing 737 and Lockheed C130's. Several adjacent flat topped gravel deposits serve as an airstrip for wheeled light aircraft, helicopter landing sites, core racks and fuel storage.

In 2015 the camp comprised 22 individual structures; 1-14'x32' kitchen, 1-14'x16' kitchen overflow, 1-14'x32' wash tent, 1-14'x16' toilet shack, 1-14'x16' Level II First Aid facility, a 10'x12' generator shed, 1-14'x16' office, 1-14'x 32' core tent, 1-14'x32' core splitting tent, 1-30'x60' Sprung structure and 11-14'x16' vinyl Weatherport sleepers. A solar-operated Bearwise electric bear fence surrounds the Nutaaq Camp and the Sprung Tent. Figure 5 below shows the camp layout.

A two man crew arrived on site on June 11, 2015 to open and inspect the camp facilities and to install canvas covers on the wooden kitchen, dry and core shack tent frames. Exploration crews arrived on site on July 1 and were active to July 29, 2015. The camp was winterized and closed for the season on July 29<sup>th</sup> by a small crew of Discovery Mining Services and Kivalliq Energy employees. All canvas tent covers were removed from wooden tent frames and sent to Yellowknife for storage. All Weatherport vinyl tents were left standing and the bear fence was left operational for the winter months.



Nutaaq Camp – July 2015



**Figure 5: 2015 Nutaaq Camp Layout**

## Environmental Baseline Monitoring Program 2015

Hemmera Envirochem Inc. (Hemmera) was contracted by Kivalliq Energy in 2010 to design and implement a customized early stage baseline monitoring program that corresponds with the stage of current exploration, and allows for rapid expansion or downsizing of monitoring studies as the exploration program changes in scope and/or location from year to year. The program is designed to build an understanding of the local and regional environmental attributes in areas being worked that are of legislative, cultural, economic and/or scientific importance. The attributes selected for study are also those that will benefit from the longest record of data collection.

The monitoring program investigates five biophysical components:

- Water Quality
- Hydrology
- Meteorology
- Air Quality
- Non-invasive, Observational Based Wildlife Monitoring

The Angilak Property baseline environmental monitoring study area is presented in Figure 6.

In 2015, monitoring studies focused on water quality, meteorology and wildlife as described below. Refer to **Appendix B** for Kivalliq Energy's report on the Angilak Project 2015 Water Quality Sampling Program and **Appendix C** for the Angilak 2015 Wildlife Incidental Observation Log.

### Water Quality

In 2010, Hemmera initiated a water quality monitoring program to generate baseline water quality data in areas of active exploration. Sample sites were established on 20 representative water bodies on the Angilak Property, focused on the Lac 50 deposit exploration area and camp infrastructure locations. An additional six sites were added in 2012. Two more site were added on the west side of the Property in 2015: a site at Dipole lake was established prior to commencement of the Dipole drilling program and; a site at RIB lake, a high priority exploration target approximately four kilometres south of Dipole.

In early July 2015 water samples were collected from a total of 15 sample sites (Figure 6). This represents water samples from the two new sites at Dipole and Rib added in 2015 and from 14 existing sites in areas adjacent to the Lac 50 mineral deposits and the Nutaaq camp. Water was analyzed for hardness, metals, pH, total suspended solids, ammonia, nitrate, cyanide and alkalinity.

### Meteorology

On-site meteorological data continued to be collected in 2015 by a fully automated Onset Hobo Weather Station with an OTT Pluvial Rain Gauge that was installed in June 2010. Parameters recorded include; air temperature, relative humidity, total precipitation, barometric pressure, wind speed and direction. Manually recorded and electronic data has been collected since July 2, 2010, with intermittent interruptions caused by technical issues.

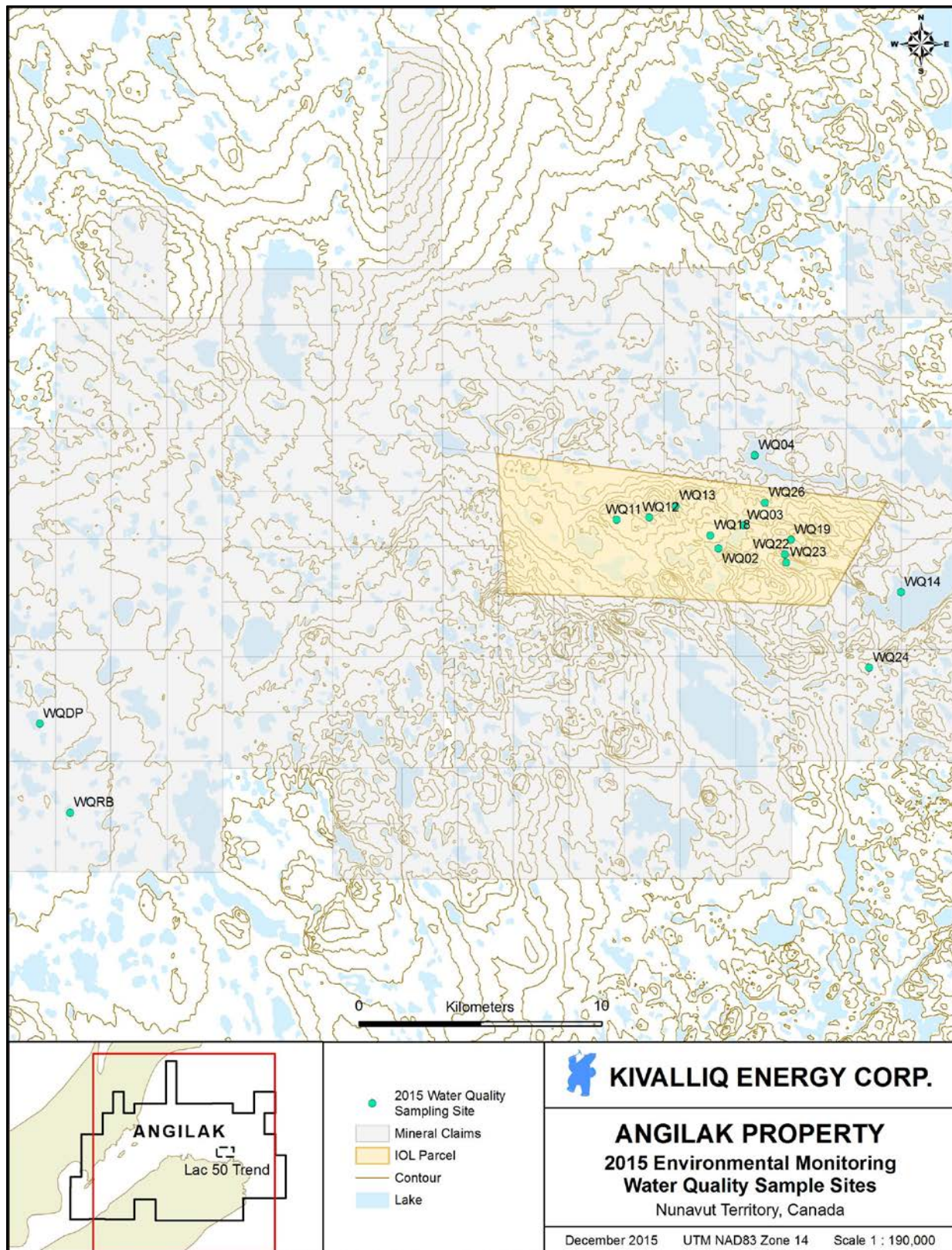
### Wildlife

The overall objective of the wildlife program is to describe wildlife use of the study area and produce coarse-scale population estimates for valued ecosystem components (VECs) occurring in the study area.

The 2015 exploration program consisted of diamond drilling and soil sampling conducted from July 1 to July 29, 2015. The short field season with limited staff on site was not conducive to conducting dedicated wildlife surveys, therefore the 2015 wildlife program consisted of logging incidental observations of all wildlife encountered by field staff and noting any listed species or high priority VEC known to occur in the study area.

A summary of the wildlife incidental observations reported in 2015 is as follows:

- 6 July, 2015: 1 bald eagle; standing on shoreline southeast of the Nutaaq Camp for 20 minutes; observed by a soil sampler.
- 7 July, 2015: 1 grizzly bear; scratching his back on drill shack at ML laydown; observed by drill foreman
- 7 July, 2015: 2 white wolves; walking west on ridge north of camp; observed by helicopter pilot
- 10 July, 2015: 15 (est.) muskox; travelling; east of Yat Lake, between Dipole and Nutaaq Camp; observed by heli pilot
- 12 July, 2015: 1 muskox; travelling; near RIB Area; observed by soil sampler
- 13 July, 2015: 15 (est.) muskox; travelling; north of UG Lake; observed by heli pilot
- 13 July, 2015: 10 (est.) muskox; travelling; south of Yat Lake; observed by heli pilot
- 14 July, 2015: 10 (est.) muskox; being chased by a grizzly bear; south of Yat Lake; observed by heli pilot
- 14 July, 2015: 1 grizzly bear; chasing herd of muskox; south of Yat Lake; observed by heli pilot
- 19 July, 2015: 1 white wolf; chased away from camp by helicopter
- 21 July, 2015: 1 caribou; lying down on snow drift; 12km west of Nutaaq Camp; observed by heli pilot



**Figure 6: 2015 Water Quality Sample Sites**

## ENVIRONMENTAL CONSIDERATIONS

All employees and contractors working for Kivalliq Energy are made aware of the company's internal policies and procedures and are made familiar with the Terms and Conditions of the project's operational licences and permits. Every person arriving at the Angilak Property undergoes an orientation which includes information on health, safety and environmental responsibilities and stewardship. In addition to operational licences and permits, all safety manuals, internal guidelines and plans are on file with the Project Supervisor, posted at the Nutaaq camp and include:

- 2015 Angilak Energy Field Safety Manual
- 2015 Radiation Hazard Control Plan
- 2015 Emergency Response Plan
- 2015 Spill Contingency Plan
- 2015 Fuel Management Plan
- 2015 Wildlife and Environmental Mitigation Plan
- Closure and Reclamation Plan

These documents are updated on an annual basis and are available upon request.

Orientation and training at site includes but is not limited to: radiation safety mitigation, spill response, bear safety, environmental policies (including waste management), wildlife mitigation measures and the caribou protection measures. Employees, contractors and visitors are asked to review printed materials from the orientation and acknowledge that they have received the orientation, reviewed the information materials and that they understand their individual responsibilities.

Wildlife sightings are recorded in the field and at camp (**Appendix C**). All employees and contractors are required to report sightings to a designated employee who records them daily. Information is provided to field staff to recognize high profile VECs and species at risk that could potentially occur within the project area.

Wildlife incidents, when they occur, are reported immediately to the KIA and to the GN Wildlife Biologists. Contact information for emergency situations are hung on the wall of the office and provided in Kivalliq Energy's Wildlife and Environmental Mitigation Measures. There were no wildlife incidents reported in 2015.

Water and aquatic life are protected. Water supply pumps and fuel are stored with secondary containment and all fuel is stored a minimum of 31 metres from any water body, on level ground and/or down gradient whenever possible. Waterlines for drilling and domestic use are properly placed to minimize disturbance to the shoreline and substrate and are fitted with intake screens in accordance with the "Freshwater Intake End-of-Pipe Screen Guideline" prepared by the Department of Fisheries and Oceans. A copy of this guideline document is kept at the Nutaaq Camp field office and at the head office in Vancouver.

No wastes enter water bodies. The Nutaaq Camp grey water is filtered through a grease trap then drained through a weeping tile bed buried in sand behind the camp dry/shower facility. The area of the weeping bed is inspected daily for grey water release on surface.

Visual inspections are conducted around the camp daily while the camp is in operation. Secondary containment and spill kits are established at the main camp fuel cache, all fuelling locations (camp generator, helicopter pad and drill sites) and at heating stove drums located behind tents.

Water use was recorded for the domestic camp water and drill water usage. A summary of the water use by month is shown in Table 2. The complete water use data can be found in **Appendix D**.

**Table 2: 2015 Water Use Summary**

2015 Angilak Property Water Use		
Month	Nutaaq Camp	Diamond Drill
	Volume (m <sup>3</sup> )	Volume (m <sup>3</sup> )
June	5.68	NA
July	43.45	2258.6
Average Daily	1.23	98.2
<b>2015 Total</b>	<b>49.13</b>	<b>2258.6</b>

### ***Regulatory Inspections and Reporting***

Notification of camp and program commencement and closure was provided to INAC, KIA, WSCC and NIRB. No regulatory inspections were conducted in 2015. INAC was notified that the camp was to be operational in July in 2015. Kivalliq Energy was notified by INAC inspectors that, due to the continuous record of excellent inspections since the camp was established in 2010, an inspection in 2015 would not be required.

## **MITIGATION MEASURES**

### **Caribou, Muskoxen and Other Wildlife**

**Migration** - A one kilometre buffer is used as a measure of a safe distance for working in areas where migrating caribou are present. If migrating caribou and/or caribou cows and calves come within one kilometre of any work site, work activities must cease until the caribou have moved safely beyond the 1 kilometre buffer area.

Outside of the migration window, if caribou approach the work site, workers must remain out of sight where possible, must not approach the caribou and must cease activities that incidentally draw the attention of the caribou or cause them to flee.

**Flights** - Helicopter flights maintain a >300 metre altitude whenever possible. In areas where wildlife is observed helicopters are to maintain a minimum of altitude of 610 metres. Absolutely no landings are allowed in areas where there are migrating caribou, caribou cows and/or calves and/or muskox nurse groups present. Helicopter and aircraft pilots are instructed to avoid caribou calving grounds on their way to or from the project area.

**Crossings** – Between May 15 and September 1, no fuel cache is to be established, and no blasting is to occur within 10 kilometres of a “designated caribou crossing”. No drilling is to be conducted within five kilometres of crossings. Absolutely no activities are to act as a block or in any way cause a diversion to migration of caribou. There are no designated caribou crossings on Angilak claims or in areas currently being worked by Kivalliq Energy.

Airborne Geophysical Surveys – Prior to conducting any low-level airborne geophysical surveys the Kivalliq Inuit Association (KIA) must be contacted and the following information must be provided; dates of surveys, location of surveys, how long the surveys will take to complete. If caribou and/or muskox are seen in the area, the geophysical survey are not to be flown until they have moved a safe distance (at least 1 kilometre) from the area to be surveyed.

## Bear and other Carnivores

Known carnivore dens are to be avoided. Any new dens discovered are to be reported to the regional wildlife biologist and the KIA and avoided.

If bears are present in the area, work is to cease until the bears have moved safely out of the area. All human-bear interactions or incidents are to be reported immediately to the KIA and to the GN Wildlife Biologist.

## Breeding and Nesting Birds

No eggs or nests are to be disturbed by any activities. If any employee or contractor comes across any active nests, they are to cease all activities immediately to ensure that the nest is not disturbed. Coordinates are to be recorded on the wildlife incidental observation log and these coordinates are to be reported to Environment Canada. Moving or disturbing the nest of a migratory bird is in contravention of the Migratory Birds Convention Act.

The peregrine falcon has been identified as species of Special Concern by COSEWIC. If any nests are found, a buffer must be maintained. A 1.5 kilometre buffer is recommended for the peregrine falcon. Any nests discovered will be recorded on the wildlife incidental observation log and the GPS coordinates provided to the applicable regulatory authorities and interested parties.

## WASTE MANAGEMENT

The Nutaaq Camp has an A400 Inciner8 incinerator at the south end of the camp compound 25 metres south of the camp generator shed. All permissible combustible waste including food waste was incinerated daily. Incinerator ash was collected in 205 litre steel drums with locked lids. Filled ash drums are staged at the incinerator until removed from site.

All food waste was stored such that it was not accessible to any wildlife prior to incineration. Recyclable plastics and cans were separated as produced and stored in bulk bags for removal from site. Kivalliq Energy has developed a waste management plan for the site which includes incineration guidelines and recording. These guidelines were posted in the generator shed next to the incinerator for operator reference. By not incinerating items which lead to the release of dioxins, furans and mercury, Kivalliq Energy complies with Canada Wide Standards. Non-combustible waste was collected in bulk bags for removal from site for appropriate approved disposal.

During the 2015 field season Nutaaq Camp was equipped with four Pacto units in a latrine building located adjacent to the dry/shower facility. The Pacto units collect waste in durable leak-proof bags which are then burned in the incinerator. Ash from the Pacto units is collected in resealable 205 litre drums staged outside of the building. During the 2015 program, less than 1 barrel of ash was

accumulated from camp operations and is awaiting transportation to Yellowknife or Montreal for disposal at an authorized facility.

As a result of comments by INAC inspectors regarding non-compliant disposal facilities in neighbouring communities, all non-combustible waste generated in 2015 was sorted and backhauled to Baker Lake where it was containerized in preparation for shipping south to an authorized disposal site. This practice will continue until authorized waste disposal in Nunavut communities is approved. Kivalliq Energy Corporation's registered Nunavut Waste Generator Number is NUG100036. All disposals from site are arranged through waste management specialists KBL Environmental. A summary of incinerated waste is provided in Table 3.

**Table 3: 2015 Incinerator Summary**

<i>Month</i>	<i>Kitchen (garbage bags)</i>	<i>Camp (garbage bags)</i>	<i>Pacto (garbage bags)</i>	<i>Drilling (mega bags)</i>
<i>June</i>	<b>8</b>	<b>1</b>	<b>4</b>	<b>0</b>
<i>July</i>	<b>86</b>	<b>4</b>	<b>58</b>	<b>21</b>
<i>Total</i>	94	5	62	21

## FUEL INVENTORY

Kivalliq is permitted to cache 3000 drums of fuel on the Angilak Property. To accommodate this inventory the company has installed six 15' x 60' x 18" fuel containment berms manufactured by Raymac Industries (Raymac) in British Columbia. Each berm is equipped with a RainDrain hydrocarbon filter. All storage, fueling and staging areas are bermed (such as helicopter refueling stations and generator refueling stations) and have readily available emergency spill kits. Spill trays are located under all fuel drums behind tents and at drill sites. The first two Raymac fuel berms were installed at the beginning of the 2010 field season and four additional berms were installed in April of 2012. The fuel cache fuel berms are located on a flat topped gravel deposit directly adjacent to, and northwest of the Nutaaq Camp. The site offers an ideal smooth, sand covered, flat surface with no hazardous rocks or vegetation to perforate the berm membrane. The berms are lined with Spilfyter RailMat, a 3 ply hydrocarbon absorbent fabric from Pygmalion Environmental. Lengths of dimensional lumber were laid down upon the RailMat liner in a manner to support 4 rows of fuel drums stored horizontally. Within the berms, drums are positioned with bungs at 3 o'clock and 9 o'clock in two rows of two, running the full 60' length of the berms so the bungs are visible for inspection at all times.

Empty fuel drums are removed from site regularly as backhaul cargo and are returned to Aviation Fuel Enterprises in Baker Lake (an authorized drum distributor) where they are cached and reused for diesel fuel.

At the beginning of the 2015 program the Nutaaq Camp fuel cache contained contained 285 drums of diesel, 350 drums of jet fuel, 3 drums of gasoline and 4 partially full propane cylinders which were left on site from the 2014 program.

The Ookpik Aviation Ltd. Turbo Otter brought in additional cylinders of propane for 2015 operations. A total of 106 drums of jet fuel, 26 drums of diesel fuel, 3 drums of gasoline and 4 propane cylinders were used over the course of the 2015 program.

At the end of the 2015 program the Nutaaq Camp fuel cache contained 259 drums of diesel, 244 drums of jet fuel, 1 drum of gasoline and 19 propane cylinders. The majority of empty drums from the 2015 season were backhauled to Baker Lake by the end of the program. Approximately 100 empty drums remain on site to be removed by the Turbo Otter flights early in the 2016 season. Refer to Table 4 for an inventory of fuel remaining and consumed over the course of the 2015 program.

**Table 4: Total Fuel Consumed and Remaining in 2015**

Fuel Type	Number of Drums/Cylinders Used During 2015 Program	Number of Drums/Cylinders Remaining – July 2015
Jet	106	244
Diesel	26	259
Gasoline	3	1
Propane	4	19



Nutaaq Fuel Berms

## FLIGHT SUMMARY

Exploration at Angilak relies upon aircraft support. Ookpik Aviation Ltd based out of Baker Lake, Nunavut provided regular fixed wing flights from Baker Lake into the Nutaaq Camp utilizing a wheeled/ski-equipped Turbo Otter during winter and summer operations.

A total of 15 flights ferried employees, food, supplies, equipment and fuel into the Angilak Property between June 11 and July 30, 2015. All Ookpik flights utilized a gravel airstrip located 1.5 kilometres

west of the Nutaaq Camp at 526450m E, 6938130m N, NAD 83 Z14 (62 34' 20" N Lat., 98 29' 10" W Long.)

A Bell L4 Long Ranger helicopter contracted from Great Slave Helicopters out of Yellowknife, Northwest Territories, was used to support Kivalliq Energy's 2015 exploration program. The Great Slave helicopter arrived in camp on June 24 and remained on site until closure on July 30, 2015. The helicopter flew a total of 147.4 hours. The helicopter flew primarily between the Nutaaq Camp, the Dipole drill target and RIB soil sampling grids on the Angilak Property. A tracking system on the helicopter records locational coordinates at 2 minute intervals (A digital record of these is available upon request).

## RECLAMATION AND REMEDIATION

Kivalliq Energy has a policy of progressive reclamation of drill set-ups during drilling. Drill sites are reclaimed as soon as possible upon completion of each hole. When immediate or complete reclamation is not possible, these sites are recorded and re-visited at the earliest possible opportunity. Photographs of the reclaimed drill sites from 2015, including photographs of the 2013 site at VGR where the drill rig was staged and mobilized from, are in **Appendix E**.

A cutting retrieval system is used during drill operations at Angilak. Benign cuttings are captured and stored in a natural depression as permitted. If uranium concentrations are greater than 0.05%, drill cuttings are contained in sealed steel 205 liter drums and cached as short term storage on an elevated outcrop on the east side of the Lac 50 Main Zone drill area. Refer to the above section '2015 Work Completed', subsection 'Diamond Drilling' for a complete description of how drill cuttings are managed at the site.

During a wind storm in the spring of 2014 a diesel fuel drum was knocked over at the Nutaaq Camp while the camp was unoccupied. The spill was reported on June 23, 2014, within 24 hours of its discovery, was inspected by INAC that summer and documented in 2014 Annual Reports to KIA, NIRB and INAC. Refer to **Appendix F** for NU Spill Report 14-234 and 2BE-ANG1318 Water Licence Inspection Form July 22, 2014. Additional remediation was conducted in 2015 as recommended by the Inspector. In total, 14 205-litre drums of contaminated soil have been excavated from the spill site to a depth of 1.4 metres (4.5 feet) where permafrost was encountered and digging suspended. The pit has been open to the air for the last two years to allow for evaporation to occur. Updates have been provided to INAC Water Resource Officer Christine Wilson over the last two years; the most recent during a conference call with Kivalliq Energy president Jeff Ward in August 2015 and a telephone call with Andrew Berry on January 11, 2016. See **Appendix F** for the updated spill remediation report and pictures sent to INAC and Ms. Wilson.

## SOCIO-ECONOMIC IMPACTS AND BENEFITS

Kivalliq Energy is in the early stages of exploration and evaluation. The company and its management have demonstrated a strong commitment to Nunavut with the creation of Kivalliq Energy and its mandate to explore the Angilak Property in partnership with the Inuit. By entering into a uranium exploration agreement with NTI, if a production decision is realized Nunavummiut have the option to participate directly in the project or to collect royalties. Kivalliq Energy's agreement with NTI not only covers Inuit Owned Land, but extends the same benefits to a total 101,110.9 hectares that includes

mineral claims held by Kivalliq Energy on Crown lands. Kivalliq Energy will hire locally whenever possible and have had multiple long term employees who have worked on the project since 2010. The company has employed up to ten Nunavummiut during seasonal programs and hired three staff from Arviat in 2015. Kivalliq Energy utilizes northern businesses and services wherever available. A list of contractors whose services were utilized in 2015 is provided in **Appendix G**.

## COMMUNITY CONSULTATION

Kivalliq Energy is committed to the north and to northerners. Each year representatives from the company travel to communities adjacent to the project to provide updates and to discuss upcoming programs. In 2011 and 2012 the company also organized Angilak site visits for community representatives and leaders from Rankin Inlet, Baker Lake and Arviat. Between June 29 and July 2, 2015, Andrew Berry, Kivalliq Energy Chief Operating Officer and Maria Egerton, Kivalliq Energy Environmental and Permitting met with the communities of Rankin Inlet, Baker Lake and Arviat to present Kivalliq Energy's planned 2015 exploration program on the Angilak Property. Kivalliq Energy's community consultation log is provided in **Appendix H**.

## ARCHAEOLOGICAL, TRADITIONAL KNOWLEDGE

Any archaeological sites identified during the course of exploration activities are handled with the utmost care. The location of any site is recorded using a GPS and designated off limits to all workers. Disturbance is prohibited. Kivalliq Energy contracts Points West Heritage Consultants to document, survey and record, any archaeological sites identified on the Angilak Property. As defined in the Nunavut Archaeological and Paleontological site regulations and Nunavut Archaeologist Permit requirements, final reports from Points West Heritage Consultants are submitted to the Chief Archaeologist at the Department of Culture, Language, Elders and Youth (CLEY) and the KIA.

Site protection measures apply to all archaeological sites. No new archaeological sites were identified in 2015 and no archaeological investigations were undertaken in 2015.

## APPENDIX A

### 2015 LAND TENURE

Record Number	Claim Name	Record Date	Anniversary Date	Hectares	Acres
K16138	DIP 01	8-Nov-12	8-Nov-18	1045.1	2582.5
K16139	DIP 02	8-Nov-12	8-Nov-18	1045.1	2582.5
K16148	KU 01	8-Nov-12	8-Nov-22	599.74	1482.00
K16149	KU 02	8-Nov-12	8-Nov-22	553.21	1367.00
K16150	KU 03	8-Nov-12	8-Nov-21	529.33	1308.00
K16151	KU 04	8-Nov-12	8-Nov-21	503.02	1243.00
K16152	KU 05	8-Nov-12	8-Nov-22	511.12	1263
K16153	KU 06	8-Nov-12	8-Nov-20	1045.1	2582.5
K16154	KU 07	8-Nov-12	8-Nov-20	1045.1	2582.5
K16155	KU 08	8-Nov-12	8-Nov-20	1045.1	2582.5
K16156	KU 09	8-Nov-12	8-Nov-22	1045.1	2582.5
K16157	KU 10	8-Nov-12	8-Nov-22	1045.1	2582.5
K16158	KU 11	8-Nov-12	8-Nov-22	550.78	1361.0
K16159	KU 12	8-Nov-12	8-Nov-15	550.78	1361.0
K16160	KU 13	8-Nov-12	8-Nov-15	648.31	1602.00
K13343	KU 14	8-Nov-12	8-Nov-15	653.97	1616.00
K13344	KU 15	8-Nov-12	8-Nov-15	1045.1	2582.5
K13345	KU 16	8-Nov-12	8-Nov-15	1045.1	2582.5
K13346	KU 17	8-Nov-12	8-Nov-22	1045.1	2582.5
K13347	KU 18	8-Nov-12	8-Nov-20	1045.1	2582.5
K13348	KU 19	8-Nov-12	8-Nov-21	1045.1	2582.5
K13349	KU 20	8-Nov-12	8-Nov-20	1045.1	2582.5
D000294	KU 21	8-Nov-12	8-Nov-21	1045.1	2582.5
K13355	KV 01	26-Oct-09	26-Oct-19	1045.1	2582.5
K13354	KV 02	26-Oct-09	26-Oct-19	1045.1	2582.5
K13394	KV 03	26-Oct-09	26-Oct-19	1045.1	2582.5
K13364	KV 06	26-Oct-09	26-Oct-15	1045.1	2582.5
K13363	KV 07	26-Oct-09	26-Oct-19	1045.1	2582.5
K13356	KV 08	26-Oct-09	26-Oct-19	1045.1	2582.5
K13353	KV 09	26-Oct-09	26-Oct-19	1045.1	2582.5
K13395	KV 10	26-Oct-09	26-Oct-19	1045.1	2582.5
K13365	KV 14	26-Oct-09	26-Oct-19	1045.1	2582.5
K13362	KV 15	26-Oct-09	26-Oct-19	1045.1	2582.5
K13383	KV 16	3-Sep-15	3-Sep-17	1045.1	2582.5
K13352	KV 17	26-Oct-09	26-Oct-19	1045.1	2582.5
K13396	KV 18	26-Oct-09	26-Oct-19	1045.1	2582.5
K13367	KV 22	26-Oct-09	26-Oct-19	1045.1	2582.5
K13366	KV 23	26-Oct-09	26-Oct-19	1045.1	2582.5
K13361	KV 24	26-Oct-09	26-Oct-19	1045.1	2582.5
K13358	KV 25	26-Oct-09	26-Oct-19	1045.1	2582.5
K13351	KV 26	26-Oct-09	26-Oct-18	1045.1	2582.5
K13384	KV 27	3-Sep-15	3-Sep-17	1045.1	2582.5
K13360	KV 28	26-Oct-09	26-Oct-18	1045.1	2582.5
K13359	KV 29	26-Oct-09	26-Oct-19	1045.1	2582.5
K13399	KV 30	26-Oct-09	26-Oct-18	1045.1	2582.5
K13398	KV 31	26-Oct-09	26-Oct-15	1045.1	2582.5
K13410	KV 34	26-Oct-09	26-Oct-15	1045.1	2582.5
K13409	KV 35	26-Oct-09	26-Oct-15	1045.1	2582.5
K13393	KV 36	26-Oct-09	26-Oct-19	244.9	605.15

Record Number	Claim Name	Record Date	Anniversary Date	Hectares	Acres
K13392	KV 37	26-Oct-09	26-Oct-16	233.65	577.35
K13420	KV 38	26-Oct-09	26-Oct-15	1045.1	2582.5
K13417	KV 39	26-Oct-09	26-Oct-16	1045.1	2582.5
K13411	KV 40	26-Oct-09	26-Oct-17	1045.1	2582.5
K13391	KV 43	26-Oct-09	26-Oct-15	671.04	1658.18
K13416	KV 44	26-Oct-09	26-Oct-15	594.16	1468.2
K13412	KV 45	26-Oct-09	26-Oct-19	666.93	1648.07
K13407	KV 46	26-Oct-09	26-Oct-18	1045.1	2582.5
K13413	KV 48	26-Oct-09	26-Oct-19	408.06	1008.35
K13414	KV 49	26-Oct-09	26-Oct-19	776.41	1918.54
K13406	KV 50	26-Oct-09	26-Oct-18	1045.1	2582.5
K13403	KV 51	26-Oct-09	26-Oct-15	1045.1	2582.5
K13415	KV 52	26-Oct-09	26-Oct-19	1045.1	2582.5
K13405	KV 53	26-Oct-09	26-Oct-16	1045.1	2582.5
K13404	KV 54	26-Oct-09	26-Oct-15	1045.1	2582.5
K13323	TAL 2	01-Nov-11	1-Nov-19	1029.52	2544
K13328	TAL 7	01-Nov-11	1-Nov-19	1027.5	2539
K13336	VGR 05	18-May-12	18-May-22	1045.1	2582.5
K13321	VK 01	13-Sep-11	13-Sep-21	1040.85	2572
F84324	YK 01	7-Mar-07	7-Mar-17	1045.1	2582.5
F84325	YK 02	7-Mar-07	7-Mar-16	1045.1	2582.5
F87646	YK 06	7-Mar-07	7-Mar-17	1045.1	2582.5
F87647	YK 07	7-Mar-07	7-Mar-17	1045.1	2582.5
F87648	YK 08	7-Mar-07	7-Mar-17	103.75	256.37
F87651	YK 11	7-Mar-07	7-Mar-17	1045.1	2582.5
F87652	YK 12	7-Mar-07	7-Mar-17	1045.1	2582.5
F87653	YK 13	7-Mar-07	7-Mar-17	623.98	1541.88
F87654	YK 14	7-Mar-07	7-Mar-17	124.66	308.04
F87658	YK 18	7-Mar-07	7-Mar-17	1045.1	2582.5
F87659	YK 19	7-Mar-07	7-Mar-17	1045.1	2582.5
F87660	YK 20	7-Mar-07	7-Mar-17	1045.1	2582.5
F87661	YK 21	7-Mar-07	7-Mar-17	49.5	122.31
F87662	YK 22	7-Mar-07	7-Mar-17	1045.1	2582.5
F87663	YK 23	7-Mar-07	7-Mar-17	1045.1	2582.5
F87664	YK 24	7-Mar-07	7-Mar-17	555.31	1372.19
F87665	YK 25	7-Mar-07	7-Mar-17	1045.1	2582.5
F87666	YK 26	7-Mar-07	7-Mar-17	1045.1	2582.5
F87667	YK 27	7-Mar-07	7-Mar-17	409.49	1011.86
F87668	YK 28	7-Mar-07	7-Mar-17	1045.1	2582.5
F87669	YK 29	7-Mar-07	7-Mar-17	1045.1	2582.5
F87670	YK 30	7-Mar-07	7-Mar-17	629.73	1556.09
F87671	YK 31	7-Mar-07	7-Mar-17	669.8	1655.11
F87672	YK 32	7-Mar-07	7-Mar-17	749.95	1853.16
F87673	YK 33	7-Mar-07	7-Mar-17	824.37	2037.06
F87674	YK 34	7-Mar-07	7-Mar-15	898.79	2220.97
F87675	YK 35	7-Mar-07	7-Mar-17	1045.1	2582.5
F87676	YK 36	7-Mar-07	7-Mar-17	1045.1	2582.5
F87677	YK 37	7-Mar-07	7-Mar-17	1045.1	2582.5
F87678	YK 38	7-Mar-07	7-Mar-17	1045.1	2582.5

Record Number	Claim Name	Record Date	Anniversary Date	Hectares	Acres
F87679	YK 39	7-Mar-07	7-Mar-17	1045.1	2582.5
F87680	YK 40	7-Mar-07	7-Mar-17	1045.1	2582.5
F87681	YK 41	7-Mar-07	7-Mar-16	1045.1	2582.5
F87682	YK 42	7-Mar-07	7-Mar-16	1045.1	2582.5
F87683	YK 43	7-Mar-07	7-Mar-17	1045.1	2582.5
IOL	RI-30	1-Apr-07	1-Apr-19	7386.00	18251.18
<b>TOTAL</b>	<b>103 claims</b>			<b>101,110.90</b>	<b>249,850.60</b>

## APPENDIX B

### 2015 SURFACE WATER QUALITY REPORT

# 2015 Surface Water Quality Report

Angilak Property, Nunavut

Kivalliq Energy Corporation

Prepared by:

Andrew Berry, COO

Kivalliq Energy Corporation

February 4, 2015

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## Appendices

Appendix A: Hemmera's 2014 Surface Water Quality Report

Appendix B: ALS Environmental Analytical Report #L1639521

## 1. Introduction

Hemmera Envirochem Inc. (Hemmera) was contracted by Kivalliq Energy in 2010 to design and implement a customized water quality monitoring program that corresponds with the stage of current exploration, and allows for rapid expansion or downsizing of monitoring studies as the exploration programs change in scope and scale from year to year.

In 2010 sample sites were established on 20 representative water bodies across the Angilak Property. An additional six sites were added in 2012 and two more in 2015. A site at Dipole Lake was added prior to commencement of the 2015 Dipole drilling program. A site at RIB Lake, a high priority exploration target approximately four kilometres south of Dipole, was also selected.

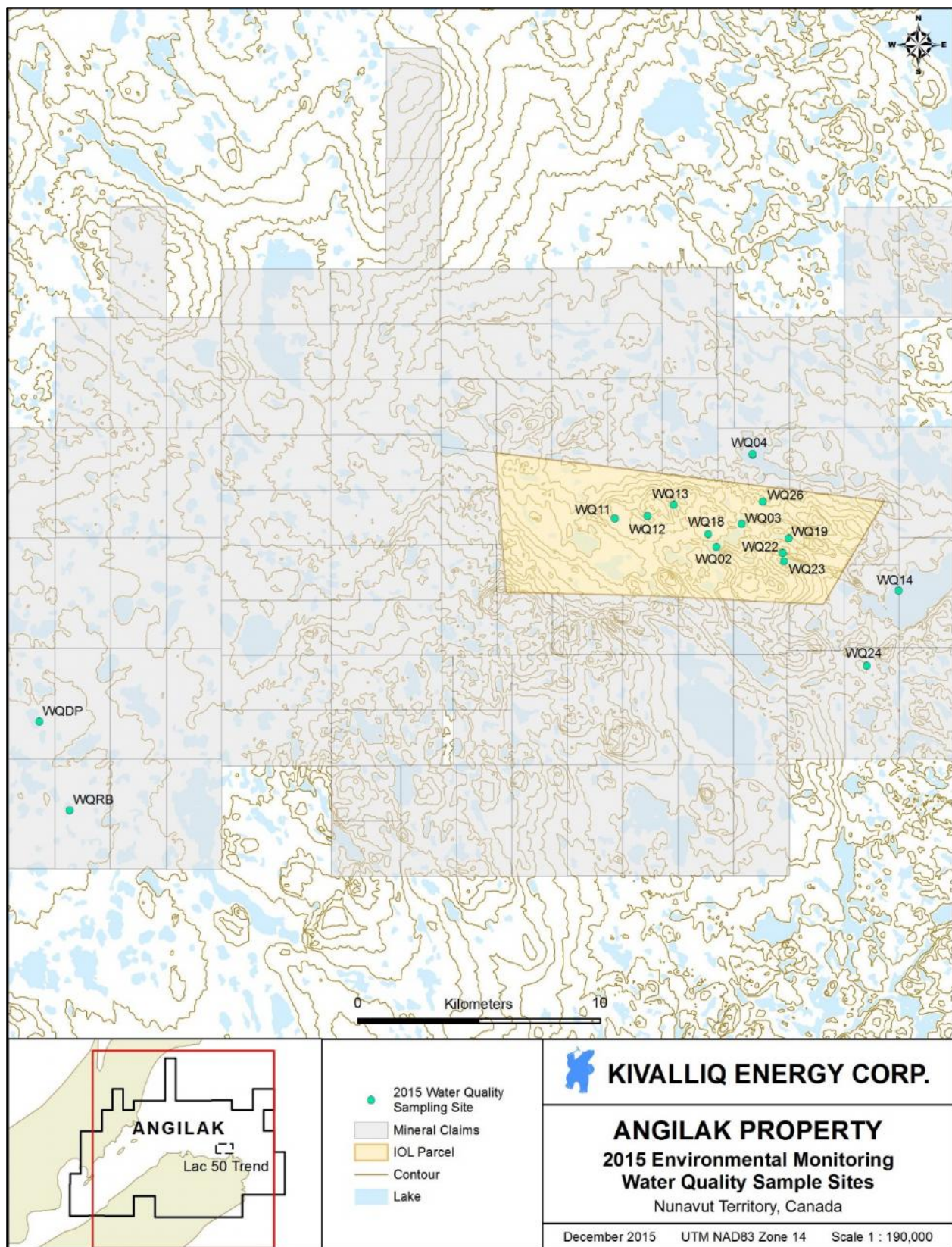
## 2. Work Performed

On July 4, 2015 water samples were collected from a total of 15 sample sites by Maria Egerton of Kivalliq Energy Corp (Figure 1). This represents water samples from the two sites at Dipole and Rib added in 2015, WQDP and WQRB respectively, and from 13 existing sites: WQ2-WQ4, WQ11-WQ14, WQ18-WQ19, WQ22-WQ24 and WQ26 in areas adjacent to the Lac 50 mineral deposits and the Nutaaq Camp and that have been sampled annually since the water quality sampling program commenced in 2010. Coordinates of the sample sites are in Table 1 below.

Water was analyzed for hardness, metals, pH, total suspended solids, ammonia, nitrate, cyanide and alkalinity.

**Table 1: 2015 Water Sample Sites**

Site	Easting	Northing
WQ02	520,454	6,938,954
WQ03	521,488	6,939,906
WQ04	521,944	6,942,786
WQ11	516,261	6,940,131
WQ12	517,603	6,940,229
WQ13	518,693	6,940,705
WQ14	527,975	6,937,146
WQ18	520,119	6,939,491
WQ19	523,434	6,939,305
WQ22	523,202	6,938,705
WQ23	523,250	6,938,369
WQ24	526,672	6,934,031
WQ26	522,368	6,940,833
WQDP	492,477	6,931,732
WQRB	493,735	6,928,057



**Figure 1: 2015 Environmental Monitoring Water Quality Sample Sites**

### 3. Procedures

*Excerpts from Hemmera's 2014 Surface Water Quality Report were used in this section (Appendix A).*

Kivalliq Energy follows the water quality sampling procedures set out by Hemmera in previous years.

#### 3.1. Water Quality Parameters and Sampling Techniques

In situ parameters (pH, temperature, redox, dissolved oxygen, and specific conductivity) were measured using an YSI multi-probe meter with the probe placed directly in the associated water body. Readings were taken when the instrument stabilized.

Water grab samples were collected from the middle of the stream, when possible, perpendicular to the flow and while facing upstream. Lake and stream samples were collected 0.1 metres below surface. Sample bottles arrived clean, negating the need for rinsing. Sampling containers and preservatives were obtained from ALS Vancouver and shipped to Baker Lake in July. If any bottles arrived without lids they were not used. All protocols followed the British Columbia Field Sampling Manual (2003). Dissolved metals and dissolved organic carbon samples were field filtered with a 0.45 µm filter to remove any particles and preserved with nitric acid and hydrochloric acid, respectively. Water samples were packed in ice, placed in coolers, travelled with field staff and were dropped off at ALS Vancouver for chemical analysis. Samples were sent to ALS Laboratories in Burnaby, British Columbia for water chemistry analysis.

#### 3.2. Laboratory Analysis

Water Samples were analysed for the following parameters:

- **Physical Parameters / Dissolved Anions:** conductivity, pH, temperature, total suspended solids (TSS), total dissolved solids (TDS), hardness, total acidity and alkalinity (as CaCO<sub>3</sub>).
- **Nutrients:** ammonia nitrogen, nitrate, nitrite, dissolved organic carbon (DOC), ortho-phosphate, total phosphorous.
- **Total and Dissolved Metals:** Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Mercury, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Uranium, Vanadium, Zinc.

Metals analysis included the highest accuracy available at ALS using HR-ICPMS (High Resolution – Inductively Coupled Plasma Mass Spectrometry).

### 3.3. Quality Assurance/Quality Control (QA/QC)

A comprehensive quality assurance/quality control (QA/QC) program was incorporated into the field program and laboratory components of the water quality program. The certificate of analyses from ALS is presented in **Appendix A**. Duplicate field samples were collected to test the reproducibility of the samples, as well as laboratory precision. Duplicate samples were collected at a rate of 1:10, at WQ14 (duplicate = DS1- 060715) and WQ24 (duplicate = DS2-060715).

## 4. Results

*Excerpts from Hemmera's 2014 Surface Water Quality Report were used in this section (Appendix A).*

Results from the water quality sampling program were compared to Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines for the Protection of Freshwater Aquatic Life (2007).

The Canadian Council of Ministers of the Environment (CCME) maintain that the “guidelines are generic national recommendations that are based on the most current scientific information available at the time of their derivation”; and furthermore note that they “do not directly consider site-specific factors that may influence their implementation”. The CCME document on Site Specific Guidance reports that, “it might be necessary to modify water quality guidelines to account for natural site conditions”. Natural conditions can only be established through the collection of baseline data, over a number of years.

Total metals data were compared to CCME freshwater aquatic guidelines. Site WQ26 returned concentrations of aluminum, copper, lead and uranium above guidelines. WQ26 is a naturally occurring radioactive water source and elevated uranium results were anticipated. Additionally, concentrations above guidelines were encountered at WQ24 in copper and WQ12, WQ13, WQ24 and WQRB in iron.

Field pH tests ranged from 6.39 to 7.81 with an average of 7.03. Two sites (WQ11, WQ22) came in slightly below guidelines ( $6.5 < \text{pH} < 9$ ) while their corresponding physical water test yielded results within accepted limits. Physical water test yielded pH values ranging between 7.2 and 7.82 with an average of 7.44. These values fall within the CCME acceptable range of pH not less than 6.5 and not above 9.

## 5. References

- Canadian Council of Ministers of the Environment (CCME). 2007. A protocol for the derivation of water quality guidelines for the protection of aquatic life 2007. In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, 1999, Winnipeg.
- Canadian Council of Ministers of the Environment. 2003. Canadian water quality guidelines for the protection of aquatic life: Guidance on the Site-Specific Applications of Water Quality Guidelines in Canada: Procedures for Deriving Numerical Water Quality Objectives. In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.
- Canadian Water Quality Guideline for the Protection of Aquatic Life: Summary Table. Updated December 2012. In: Canadian Environmental Quality Guidelines, 1999, Canadian Council of Ministers of the Environment.
- Field Sampling Manual. 2003. Ministry of Water, Land and Air Protection. Province of British Columbia. British Columbia Ministry of the Environment (BC MoE). 2003. Ambient Freshwater and Effluent Sampling Manual. Resources Information Standing Committee, Ministry of the Environment. Victoria, BC.

**Table 2: 2015 Water Quality Sampling Results**

Parameter	Lowest Detection Limit	Units	CCME FAL*	WQ2	WQ3	WQ4	WQ11	WQ12	WQ13	WQ14	DS2-060715	WQ18	WQ19	WQ22	WQ23	WQ24	DS1-060715	WQ26	WQDP	WQRB
Field Tests (Water)																				
pH, Client Supplied	0.10	pH	6.5-9	6.83	7.47	6.47	6.53	6.84	7.44			7.41	7.39	6.39	6.62	7.02	7.44	6.91	7.35	7.81
Sample Info																				
Date				7-Jul-2015	7-Jul-2015	6-Jul-2015	6-Jul-2015	6-Jul-2015	6-Jul-2015	6-Jul-2015	6-Jul-2015	7-Jul-2015	7-Jul-2015	7-Jul-2015	7-Jul-2015	6-Jul-2015	6-Jul-2015	7-Jul-2015	6-Jul-2015	6-Jul-2015
Time				10:05	12:05	17:55	15:40	16:17	17:04	9:32	10:00	11:00	13:05	8:30	9:10	20:26	20:30	13:50	12:27	14:25
Lab Sample ID				L1639521-1	L1639521-2	L1639521-3	L1639521-4	L1639521-5	L1639521-6	L1639521-7	L1639521-17	L1639521-8	L1639521-9	L1639521-10	L1639521-11	L1639521-12	L1639521-16	L1639521-13	L1639521-14	L1639521-15
Duplicate of Filtration Location		-		FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	LAB
Physical Tests (Water)																				
Conductivity	2.0	uS/cm	-	44.7	31.4	33.8	38.0	49.0	82.5	40.5	39.8	60.2	34.4	29.6	34.0	86.1	86.6	164	93.7	55.2
Hardness (as CaCO3)	0.50	mg/L	-	23.3	15.4	15.9	18.6	24.1	39.2	18.5	18.5	31.5	16.4	14.9	16.5	43.5	43.9	78.6	42.1	25.5
Langelier Index Temperature	-50	C	-	12	14	15	17	16	16			13	13	9	11	14	14	7	16	17
Langelier Index	-10	none	-	-1.9	-2.3	-2.2	-2	-1.8	-1.2			-1.5	-2.2	-2.5	-2.4	-0.98	-1	-1.1	-0.93	-1.6
pH	0.10	pH	6.5-9	7.45	7.33	7.33	7.36	7.42	7.61	7.38	7.40	7.56	7.36	7.20	7.24	7.70	7.67	7.33	7.82	7.55
Total Suspended Solids	3.0	mg/L	-	<3.0	<3.0	<3.0	<3.0	3.4	5.1	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	271	3.9	3.7
Total Dissolved Solids	10	mg/L	-	38	29	30	22	42	70	32	30	55	29	22	33	81	81	116	80	52
Anions and Nutrients (Water)																				
Acidity (as CaCO3)	1.0	mg/L	-	1.3	1.2	1.1	1.3	1.3	2.3	1.6	1.3	2.1	2.0	1.5	1.5	1.3	2.2	4.2	1.3	1.2
Alkalinity, Total (as CaCO3)	1.0	mg/L	-	24.8	15.1	16.7	20.9	26.3	41.6	21.1	21.1	31.4	16.4	13.4	14.8	40.6	39.2	50.3	46.8	28.2
Ammonia, Total (as N)	0.0050	mg/L	0.021-231	<0.0050	<0.0050	<0.0050	<0.0050	0.0051	0.0123	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0110	0.0821	0.0188	0.0128	0.0107
Bromide (Br)	0.050	mg/L	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	0.50	mg/L	120	<0.50	<0.50	<0.50	<0.50	<0.50	1.13	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	0.50	<0.50	0.90	0.58
Fluoride (F)	0.020	mg/L	0.12	0.067	0.054	0.061	0.069	0.104	0.134	0.058		0.089	0.066	0.044	0.067	0.084	0.084	0.205	0.272	0.178
Nitrate and Nitrite (as N)	0.0051	mg/L	-	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051		<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
Nitrate (as N)	0.0050	mg/L	13	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N)	0.0010	mg/L	0.06	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Orthophosphate-Dissolved (as P)	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sulfate (SO4)	0.30	mg/L	-	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	0.33		<0.30	<0.30	0.35	0.48	3.10	3.11	27.8	1.26	<0.30
Cyanides (Water)																				
Cyanide, Total	0.0050	mg/L	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic C (Water)																				
Dissolved Organic Carbon	0.50	mg/L	-	4.99	4.71	4.21	4.78	7.42	12.1	4.68	4.89	8.00	4.55	6.00	6.06	15.1	15.3	11.4	11.6	8.39
Total Metals (Water)																				
Aluminum (Al)-Total	0.0030	mg/L	0.005-0.1	0.0083	0.0171	0.0088	0.0052	0.0121	0.0486	0.0130	0.0187	0.0074	0.0101	0.0288	0.0331	0.0419	0.0438	0.159	0.0393	0.0364
Antimony (Sb)-Total	0.000030	mg/L	-	<0.000050	<0.000060	<0.000050	<0.000050	<0.000060	<0.000070	<0.000080	<0.000040	<0.000050	<0.000050	<0.000060	<0.000050	<0.000060	<0.000080	0.000257	<0.000060	<0.000060
Arsenic (As)-Total	0.000050	mg/L	0.005	0.000204	0.000093	0.000070	0.000076	0.000167	0.000258	0.000111	0.000103	0.000112	0.000110	0.000099	0.000104	0.000206	0.000219	0.000425	0.000376	0.000237
Barium (Ba)-Total	0.00010	mg/L		0.0735	0.0569	0.0541	0.0706	0.117	0.149	0.0598	0.0518	0.109	0.0558	0.0417	0.0441	0.0728	0.0726	0.0347	0.135	0.0726
Beryllium (Be)-Total	0.0000050	mg/L	-	0.0000051	0.0000060	<0.0000050	<0.0000050	0.0000096	0.0000178	<0.0000050	<0.0000050	0.0000058	<0.0000050	0.0000082	0.0000079	0.0000138	0.0000155	0.0000337	0.0000131	0.0000123
Bismuth (Bi)-Total	0.000050	mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	0.010	mg/L	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	0.0000050	mg/L	0.00009	0.0000341	0.0000152	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000080	0.0000066	<0.0000050	0.0000054	0.0000051	0.0000059	<0.000070	<0.0000050	<0.0000050
Calcium (Ca)-Total	0.050	mg/L	-	5.01	3.49	3.58	4.62	5.45	8.47	4.13	4.10	7.07	3.92	3.92	3.96	13.0	13.1	28.1	8.97	5.82
Cesium (Cs)-Total	0.0000050	mg/L	-	0.0000072	0.0000054	<0.0000050	0.0000054	<0.0000050	0.0000083	<0.0000050	<0.0000050	0.0000063	<0.0000050	<0.0000050	0.0000053	0.0000082	0.0000084	0.0000541	<0.0000050	0.0000065
Chromium (Cr)-Total	0.00050	mg/L	0.0089	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00071	<0.00050	<0.00050
Cobalt (Co)-Total	0.000050	mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050	0.000101	0.000087	<0.000050	0.000051	0.000055	<0.000050	<0.000050	<0.000050	0.000066	0.000068	0.00236	0.000077	<0.000050
Copper (Cu)-Total	0.00050	mg/L	0.002-0.004	<0.00050	0.00054	<0.00050	0.00056	0.00056	0.00097	0.00051	<0.00050	<0.00050	<0.00050	0.00082	0.00096	0.00345	0.00339	0.0931	0.00115	0.00057
Gallium (Ga)-Total	0.000050	mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron (Fe)-Total	0.030	mg/L	0.3	0.057	0.095	0.082	0.112	0.499	0.460	0.077	0.095	0.166	0.136	0.162	0.065	0.398	0.422	0.294	0.269	0.556
Lead (Pb)-Total	0.000050	mg/L	0.001-0.007	<0.000050	0.000062	<0.000050	<0.000050	<0.000050	0.000203	<0.000050	<0.000050	0.000070	<0.000050	<0.000050	<0.000050	0.000085	0.000091	0.00421	0.000121	0.000085
Lithium (Li)-Total	0.00040	mg/L	-	0.00074	0.00062	0.00052	0.00053	0.00126	0.00197	0.00054	0.00051	0.00096	0.00061	0.00053	0.00071	0.00102	0.00096	0.00172	0.00337	0.00208
Magnesium (Mg)-Total	0.10	mg/L	-	2.33	1.62	1.63	1.67	2.70	4.23	1.98	2.01	2.99	1.57	1.24	1.69	2.54	2.58	2.88	4.82	2.70
Manganese (Mn)-Total	0.00020	mg/L	-	0.0129	0.00786	0.00660	0.00553	0.0290	0.0208	0.00739	0.00829	0.0103	0.0164	0.0110	0.00596	0.0197	0.0215	0.390	0.00933	0.0221
Mercury (Hg)-Total	0.0000050	mg/L	0.026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	0.000050	mg/L	0.073	0.000110	0.000114	0.000072	0.000171	0.000090	0.000351	0.000071	0.000069	0.000174	0.000055	0.000084	0.000058	0.000235	0.000228	0.0677	0.000382	0.000149
Nickel (Ni)-Total	0.00020	mg/L	.025-.150	0.00057	0.00047	0.00035	0.00034	0.00097	0.00120	0.00046	0.00049	0.00075	0.00034	0.00058	0.00067	0.00133	0.00136	0.00338	0.00070	0.00040
Phosphorus (P)-Total	0.30	mg/L	-	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)-Total	2.0	mg/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Rhenium (Re)-Total	0.0000050	mg/L	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050</				

Total Metals (Water)																				
Rubidium (Rb)-Total	0.000020	mg/L	-	0.000732	0.000738	0.000607	0.000580	0.000959	0.00159	0.000914	0.000849	0.000779	0.000764	0.000409	0.000713	0.00140	0.00141	0.00192	0.00163	0.00137
Selenium (Se)-Total	0.00020	mg/L	0.001	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00057	<0.00020	<0.00020
Silicon (Si)-Total	0.050	mg/L	-	0.379	0.190	0.218	0.139	0.256	0.257	0.182	0.229	0.618	0.149	0.222	0.736	0.158	0.162	2.88	0.102	0.146
Silver (Ag)-Total	0.0000050	mg/L	0.0001	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000080	0.0000079	0.0000850	<0.0000050	<0.0000050
Sodium (Na)-Total	2.0	mg/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.9	<2.0
Strontium (Sr)-Total	0.00020	mg/L	-	0.0661	0.0499	0.0444	0.0534	0.0973	0.119	0.0691	0.0658	0.0790	0.0463	0.0336	0.0435	0.0629	0.0628	0.133	0.116	0.0678
Tellurium (Te)-Total	0.000010	mg/L	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000160	<0.000010	<0.000010
Thallium (Tl)-Total	0.0000050	mg/L	0.0008	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000051	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000052	0.0000052	0.000243	0.0000055	<0.0000050
Thorium (Th)-Total	0.0000050	mg/L	-	0.0000059	0.0000120	0.0000086	0.0000063	0.0000157	0.0000310	0.0000149	0.0000152	0.0000125	0.0000089	0.0000228	0.0000308	0.0000360	0.0000365	0.000137	0.0000276	0.0000198
Tin (Sn)-Total	0.00020	mg/L	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	0.00020	mg/L	-	0.00026	0.00056	0.00022	<0.00020	0.00043	0.00130	0.00035	0.00053	<0.00020	0.00026	0.00044	0.00061	0.00035	0.00038	0.00402	0.00072	0.00081
Tungsten (W)-Total	0.000010	mg/L	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000025	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000331	0.000011	<0.000010
Uranium (U)-Total	0.0000020	mg/L	0.015	0.000139	0.0000829	0.0000880	0.000147	0.000108	0.000319	0.0000522	0.0000536	0.000234	0.0000313	0.000165	0.0000726	0.000292	0.000283	0.173	0.00168	0.000183
Vanadium (V)-Total	0.000050	mg/L	-	0.000058	0.000147	0.000072	0.000068	0.000166	0.000363	0.000063	0.000081	0.000098	<0.000050	0.000111	0.000077	0.000132	0.000137	0.000285	0.000418	0.000349
Yttrium (Y)-Total	0.0000050	mg/L	-	0.0000216	0.0000343	0.0000199	0.0000161	0.0000481	0.0000917	0.0000387	0.0000445	0.0000314	0.0000204	0.0000614	0.0000909	0.000149	0.000148	0.00193	0.0000759	0.0000610
Zinc (Zn)-Total	0.0030	mg/L	0.03	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0122	<0.0030	<0.0030
Zirconium (Zr)-Total	0.000050	mg/L	-	<0.000050	0.000058	<0.000050	<0.000050	0.000097	0.000187	0.000064	0.000064	0.000090	<0.000050	0.000112	0.000147	0.000184	0.000173	0.00106	0.000183	0.000106
Dissolved Metals (Water)																				
Aluminum (Al)-Dissolved	0.0010	mg/L	.005-.1	0.0030	0.0072	0.0053	0.0040	0.0055	0.0223	0.0057	0.0078	0.0046	0.0028	0.0257	0.0133	0.0367	0.0361	0.0586	0.0282	0.0163
Antimony (Sb)-Dissolved	0.000010	mg/L	-	0.000014	0.000022	0.000017	0.000015	0.000017	0.000033	0.000017	0.000014	0.000016	<0.000010	0.000013	0.000014	0.000022	0.000024	0.000188	0.000030	0.000021
Arsenic (As)-Dissolved	0.000050	mg/L	0.005	0.000102	0.000106	0.000071	0.000092	0.000144	0.000265	0.000106	0.000095	0.000126	0.000104	0.000089	0.000098	0.000241	0.000213	0.000229	0.000404	0.000258
Barium (Ba)-Dissolved	0.00010	mg/L	-	0.0819	0.0601	0.0557	0.0708	0.100	0.149	0.0597	0.0507	0.123	0.0581	0.0441	0.0463	0.0713	0.0718	0.0248	0.135	0.0665
Beryllium (Be)-Dissolved	0.0000050	mg/L	-	0.0000050	0.0000067	<0.0000050	<0.0000050	0.0000092	0.0000150	<0.0000050	<0.0000050	0.0000082	<0.0000050	0.0000099	0.0000073	0.0000169	0.0000160	0.0000190	0.0000122	0.0000081
Bismuth (Bi)-Dissolved	0.000050	mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	0.0050	mg/L	1.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0069	<0.0050	0.0055
Cadmium (Cd)-Dissolved	0.0000050	mg/L	0.00009	0.0000102	0.0000195	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000083	<0.0000050	0.0000080	0.0000052	0.0000072	0.0000060	<0.000025	<0.0000050	<0.0000050
Calcium (Ca)-Dissolved	0.050	mg/L	-	5.29	3.48	3.62	4.66	5.30	8.58	4.12	4.09	7.38	3.95	3.91	3.78	13.1	13.3	26.8	8.95	5.75
Cesium (Cs)-Dissolved	0.0000050	mg/L	-	<0.0000050	<0.0000050	<0.0000050	0.0000053	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000056	<0.0000050	<0.0000050	<0.0000050	0.0000079	0.0000077	0.0000350	<0.0000050	<0.0000050
Chromium (Cr)-Dissolved	0.00050	mg/L	0.0089	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt (Co)-Dissolved	0.000050	mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050	0.000066	0.000057	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000062	0.000060	0.000147	0.000068	<0.000050
Copper (Cu)-Dissolved	0.00020	mg/L	0.002-0.004	0.00041	0.00049	0.00033	0.00054	0.00040	0.00093	0.00053	0.00044	0.00044	0.00034	0.00091	0.00084	0.00359	0.00349	0.0390	0.00114	0.00049
Gallium (Ga)-Dissolved	0.000050	mg/L	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron (Fe)-Dissolved	0.030	mg/L	0.3	<0.030	0.048	0.056	0.075	0.275	0.306	0.044	0.046	0.123	0.047	0.124	0.032	0.281	0.281	0.035	0.173	0.335
Lead (Pb)-Dissolved	0.000050	mg/L	0.001-0.007	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000150	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000059	0.000055	0.000100	0.000080	<0.000050
Lithium (Li)-Dissolved	0.00020	mg/L	-	0.00086	0.00067	0.00047	0.00049	0.00110	0.00197	0.00054	0.00047	0.00105	0.00066	0.00054	0.00078	0.00101	0.00096	0.00186	0.00332	0.00184
Magnesium (Mg)-Dissolved	0.10	mg/L	-	2.45	1.63	1.65	1.69	2.63	4.32	1.98	2.00	3.17	1.59	1.24	1.72	2.59	2.60	2.87	4.80	2.70
Manganese (Mn)-Dissolved	0.00020	mg/L	-	0.00434	0.00164	0.00374	0.00506	0.0179	0.00955	0.00579	0.00500	0.00714	0.00451	0.00915	0.00290	0.0126	0.0127	0.0235	0.00387	0.00930
Mercury (Hg)-Dissolved	0.0000050	mg/L	0.026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	0.000050	mg/L	0.073	0.000098	0.000100	0.000060	0.000143	0.000075	0.000339	0.000054	0.000056	0.000176	0.000051	0.000074	<0.000050	0.000228	0.000217	0.0231	0.000354	0.000126
Nickel (Ni)-Dissolved	0.00020	mg/L	.025-.150	0.00055	0.00049	0.00037	0.00035	0.00082	0.00124	0.00050	0.00050	0.00081	0.00035	0.00067	0.00074	0.00139	0.00134	0.00152	0.00068	0.00031
Phosphorus (P)-Dissolved	0.30	mg/L	-	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium (K)-Dissolved	2.0	mg/L	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Rhenium (Re)-Dissolved	0.0000050	mg/L	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000119	<0.0000050	<0.0000050
Rubidium (Rb)-Dissolved	0.000020	mg/L	-	0.000816	0.000764	0.000624	0.000573	0.000842	0.00147	0.000896	0.000813	0.000878	0.000805	0.000424	0.000797	0.00140	0.00136	0.00185	0.00158	0.00124
Selenium (Se)-Dissolved	0.00020	mg/L	0.001	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Silicon (Si)-Dissolved	0.050	mg/L	-	0.392	0.162	0.206	0.141	0.228	0.200	0.156	0.195	0.636	0.118	0.206	0.525	0.161	0.154	2.71	0.087	0.113
Silver (Ag)-Dissolved	0.0000050	mg/L	0.0001	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000193	<0.0000050	<0.0000050
Sodium (Na)-Dissolved	2.0	mg/L	-	<2.0	<2.0	<														

## Table 1 Notes

Aluminum varies with pH:

0.005 if pH <6.5,

0.1 if pH ≥ 6.5

Copper varies with Hardness in mg/L:

0.002 if H < 120

0.003 if H ≥ 120 and H < 180

0.004 if H ≥ 180

Lead varies with Hardness in mg/L:

0.001 if H < 60

0.002 if H ≥ 60 and H < 120

0.004 if H ≥ 120 and H < 180

0.007 if H ≥ 180

Nickel varies with Hardness in mg/L:

0.025 if H < 60

0.065 if H ≥ 60 and H < 120

0.11 if H ≥ 120 and H < 180

0.15 if H ≥ 180

Appendix A

Hemmera's 2014 Surface Water Quality Report

# ANGILAK PROJECT

## Surface Water Quality Report

### 2014 Summary

Prepared for:  
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Prepared by:  
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File: 1190-001.06  
February 2015



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## 1.0 SURFACE WATER QUALITY

In 2010, Hemmera initiated a water quality monitoring program to generate baseline water quality data in areas of active exploration in the vicinity of the Angilak Project. Sample sites were established on 20 representative water bodies (WQ1-WQ20). These same sites were re-sampled in the early spring and summer of 2011 and 2012. Over the next four sampling seasons the following sites were added or removed from the base program:

- 2012: an under ice program was initiated at all established sites, summer sampling omitted sites WQ6-WQ10 to focus on areas that were actively being explored.
- 2013: under ice sampling included WQ1-WQ5, WQ11-WQ20, WQ22, WQ23, and WQ25. Three new sites, J7WQ-1, J7WQ-002, and J7WQ-3 were sampled as part of the 2013 ice-based lakebed drilling initiative. Summer sampling included all under ice sites with the exception of the J series.
- In 2014: sampling included sites WQ2-WQ4, WQ11-WQ19, WQ22-WQ24, WQ26.

A database has been established that includes the results from these sampling events. The data obtained will represent background conditions, and data from samples J7WQ-1 to J7WQ-3 in 2013 represents conditions during and following on-ice drilling. The remainder of this report details the collection activities and results for 2014.

### 1.1 METHODS

August 2014 field sampling was completed on watercourses within the Project area to collect background water chemistry. A total of 13 sites were selected in 2014 based on areas of active exploration activity and the associated receiving waters (**Figure 1**). These sites were sampled August 31, 2014.

#### 1.1.1 Water Quality Parameters and Samples

In situ parameters (pH, temperature, redox, dissolved oxygen, and specific conductivity) were measured using a YSI multiprobe meter with the probe placed directly in the associated water body. Readings were taken when the instrument stabilized.

Water grab samples were collected from the middle of the stream, when possible, perpendicular to the flow and while facing upstream. Lake and stream samples were collected 0.1 m below surface. Sample bottles arrived clean, negating the need for rinsing. Sampling containers and preservatives were obtained from ALS Vancouver and shipped to Baker Lake in August. If any bottles arrived without lids they were not used. All protocols followed the British Columbia Field Sampling Manual (2003). Dissolved metals and dissolved organic carbon samples were field filtered with a 0.45 µm filter to remove any particles and preserved with nitric acid and hydrochloric acid, respectively. Water samples were packed in ice, placed in coolers, travelled with field staff and were dropped off at ALS Vancouver for chemical analysis.

### 1.1.2 Laboratory Analysis for Surface Water Quality Monitoring

Water Samples were analysed for the following parameters:

- **Physical Parameters / Dissolved Anions:** conductivity, pH, temperature, total suspended solids (TSS), total dissolved solids (TDS), hardness, total acidity and alkalinity (as  $\text{CaCO}_3$ ).
- **Nutrients:** ammonia nitrogen, nitrate, nitrite, dissolved organic carbon (DOC), ortho phosphate, total phosphorous.
- **Total and Dissolved Metals:** Aluminum, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Mercury, Nickel, Phosphorus, Potassium, Selenium, Silicon, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Uranium, Vanadium, Zinc.

Metals analysis included the highest accuracy available at ALS using HR-ICPMS (High Resolution – Inductively Coupled Plasma Mass Spectrometry).

### 1.1.3 Quality Assurance (QA) and Quality Control (QC) Program

A comprehensive quality assurance/quality control (QA/QC) program was incorporated into the field program and laboratory components of the water quality program. QA/QC data is incorporated into **Table 1** and the certificate of analyses from ALS is presented in **Appendix A**. Duplicate field samples were collected to test the reproducibility of the samples, as well as laboratory precision. Duplicate samples were collected at a rate of 1:10, at WQ3 (duplicate = DS1-210814) and WQ13 (duplicate = DS2-310814).

## 1.2 RESULTS

Water quality data were compared to CCME (Canadian Council of Ministers of the Environment) Water Quality Guidelines for the Protection of Freshwater Aquatic Life (2007) as a general quality indicator. Results are shown in **Table 1**.

The Canadian Council of Ministers of the Environment (CCME) maintain that the “guidelines are generic national recommendations that are based on the most current scientific information available at the time of their derivation”; and furthermore note that they “do not directly consider site-specific factors that may influence their implementation”<sup>1</sup>. The CCME document on Site Specific Guidance<sup>2</sup> reports that, “it might be necessary to modify water quality guidelines to account for natural site conditions”. Natural conditions can only be established through the collection of baseline data, over a number of years.

<sup>1</sup> A Protocol for the Derivation of Water Quality Guidelines for the Protection of Aquatic Life. Part 1: General Overview, 2007.

<sup>2</sup> Canadian Water Quality Guidelines for the Protection of Aquatic Life. Site Specific Guidance. 2003.

### 1.2.1 Annual Monitoring Program

In 2014, field pH values from all sites at Angilak averaged 7.15 (standard deviation=0.37), and ranged between 6.58 to 7.79. This water is neutral (pH values of 7), and is within the ideal range tolerated by aquatic organisms. Dissolved oxygen (DO) concentrations averaged 10 mg/L (standard deviation = 2.0 mg/L) over all sites. DO levels ranged from 3.65 mg/L (WQ26) to 11.58 mg/L (WQ24). A DO level of 3.65 mg/L at a temperature of 4.82 C seems very low and is likely reflecting the abundance of plant life in this small seep area. The average falls within the CCME guidelines (2007) for all life stages of cold-water biota (6.5 mg/L) and is slightly above early life stages guidance in cold water (9.5 mg/L). Conductivity measures the ability of water to conduct a current, and is affected by the presence of ions in the water. The greatest average concentration of TDS (total dissolved solids) was found at WQ26 (269 mg/L) as was conductivity (372  $\mu\text{s/cm}$ ). Overall conductivity ranged between 36.8  $\mu\text{s/cm}$  (WQ3) and 372  $\mu\text{s/cm}$ .

Total metals data were compared to CCME freshwater aquatic life guidelines. Concentrations of aluminum (WQ24), copper (WQ22, WQ24, and WQ26), iron (WQ24), and uranium (WQ26) exceeded the freshwater aquatic life guidelines. It was anticipated that uranium would be elevated at WQ26, a naturally occurring radioactive water source that is being monitored for that purpose. For specific sites and metals that exceeded guidelines please refer to **Table 1**.

We sincerely appreciate the opportunity to have assisted you with this project and if there are any questions, please do not hesitate to contact the undersigned by phone at 604.669.0424.

Report prepared by:  
**Hemmera Envirochem Inc.**

Report peer reviewed by:  
**Hemmera Envirochem Inc.**

Debbie Bryant, M.Sc.  
Environmental Scientist

Michael McLeay, M.A.Sc., R.P.Bio., CSAP  
Senior Environmental Scientist

## 2.0 REFERENCES

Canadian Council of Ministers of the Environment (CCME). 2007. A protocol for the derivation of water quality guidelines for the protection of aquatic life 2007. In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, 1999, Winnipeg.

Canadian Council of Ministers of the Environment. 2003. Canadian water quality guidelines for the protection of aquatic life: Guidance on the Site-Specific Applications of Water Quality Guidelines in Canada: Procedures for Deriving Numerical Water Quality Objectives. In: Canadian environmental quality guidelines, 1999, Canadian Council of Ministers of the Environment, Winnipeg.

Canadian Water Quality Guideline for the Protection of Aquatic Life: Summary Table. Updated December 2012. In: Canadian Environmental Quality Guidelines, 1999, Canadian Council of Ministers of the Environment.

Field Sampling Manual. 2003. Ministry of Water, Land and Air Protection. Province of British Columbia. British Columbia Ministry of the Environment (BC MoE). 2003. Ambient Freshwater and Effluent Sampling Manual. Resources Information Standing Committee, Ministry of the Environment. Victoria, BC.

### **3.0 STATEMENT OF LIMITATIONS**

This report was prepared by Hemmera Envirochem Inc. ("Hemmera"), based on fieldwork conducted by Hemmera, for the sole benefit and exclusive use of Kivalliq Energy Corporation. The material in it reflects Hemmera's best judgment in light of the information available to it at the time of preparing this Report. Any use that a third party makes of this Report, or any reliance on or decision made based on it, is the responsibility of such third parties. Hemmera accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this Report.

Hemmera has performed the work as described above and made the findings and conclusions set out in this Report in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession practicing under similar conditions at the time the work was performed.

This Report represents a reasonable review of the information available to Hemmera within the established Scope, work schedule and budgetary constraints. It is possible that the levels of contamination or hazardous materials may vary across the Site, and hence currently unrecognised contamination or potentially hazardous materials may exist at the Site. No warranty, expressed or implied, is given concerning the presence or level of contamination on the Site, except as specifically noted in this Report. The conclusions and recommendations contained in this Report are based upon applicable legislation existing at the time the Report was drafted. Any changes in the legislation may alter the conclusions and/or recommendations contained in the Report. Regulatory implications discussed in this Report were based on the applicable legislation existing at the time this Report was written.

In preparing this Report, Hemmera has relied in good faith on information provided by others as noted in this Report, and has assumed that the information provided by those individuals is both factual and accurate. Hemmera accepts no responsibility for any deficiency, misstatement or inaccuracy in this Report resulting from the information provided by those individuals.

The liability of Hemmera to Kivalliq Energy Corporation shall be limited to injury or loss caused by the negligent acts of Hemmera. The total aggregate liability of Hemmera related to this agreement shall not exceed the lesser of the actual damages incurred, or the total fee of Hemmera for services rendered on this project.

Appendix B

ALS Environmental Analytical Report #L1639521



Pre-Pay Clients - Vancouver  
ATTN: Maria Egerton  
1020-800 West Pender  
Vancouver BC V6C 1J8

Date Received: 08-JUL-15  
Report Date: 01-SEP-15 14:53 (MT)  
Version: FINAL

Client Phone: 604-790-7397

## Certificate of Analysis

Lab Work Order #: L1639521  
Project P.O. #: NOT SUBMITTED  
Job Reference:  
C of C Numbers: 10-365643, 10-365644  
Legal Site Desc:

[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 A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

01-SEP-15 14:53 (MT)

Version: FINAL

Sample ID Description Sampled Date Sampled Time Client ID		L1639521-1 Water 07-JUL-15 10:05 WQ2	L1639521-2 Water 07-JUL-15 12:05 WQ3	L1639521-3 Water 06-JUL-15 17:55 WQ4	L1639521-4 Water 06-JUL-15 15:40 WQ11	L1639521-5 Water 06-JUL-15 16:17 WQ12
Grouping	Analyte					
<b>WATER</b>						
<b>Field Tests</b>	pH, Client Supplied (pH)	6.83	7.47	6.47	6.53	6.84
<b>Physical Tests</b>	Conductivity (uS/cm)	44.7	31.4	33.8	38.0	49.0
	Hardness (as CaCO3) (mg/L)	23.3	15.4	15.9	18.6	24.1
	Langelier Index Temperature (C)	11.6	13.8	14.7	16.6	16.1
	Langelier Index (none)	-1.9	-2.3	-2.2	-2.0	-1.8
	pH (pH)	7.45	7.33	7.33	7.36	7.42
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	<3.0	3.4
	Total Dissolved Solids (mg/L)	38	29	30	22	42
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	1.3	1.2	1.1	1.3	1.3
	Alkalinity, Total (as CaCO3) (mg/L)	24.8	15.1	16.7	20.9	26.3
	Ammonia, Total (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	0.0051
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.067	0.054	0.061	0.069	0.104
	Nitrate and Nitrite (as N) (mg/L)	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
<b>Cyanides</b>	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
<b>Organic / Inorganic Carbon</b>	Dissolved Organic Carbon (mg/L)	4.99	4.71	4.21	4.78	7.42
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.0083	0.0171	0.0088	0.0052	0.0121
	Antimony (Sb)-Total (mg/L)	<0.000050 <sup>DLB</sup>	<0.000060 <sup>DLB</sup>	<0.000050 <sup>DLB</sup>	<0.000050 <sup>DLB</sup>	<0.000060 <sup>DLB</sup>
	Arsenic (As)-Total (mg/L)	0.000204	0.000093	0.000070	0.000076	0.000167
	Barium (Ba)-Total (mg/L)	0.0735	0.0569	0.0541	0.0706	0.117
	Beryllium (Be)-Total (mg/L)	0.0000051	0.0000060	<0.0000050	<0.0000050	0.0000096
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.0000341	0.0000152	<0.0000050	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	5.01	3.49	3.58	4.62	5.45
	Cesium (Cs)-Total (mg/L)	0.0000072	0.0000054	<0.0000050	0.0000054	<0.0000050
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000101
	Copper (Cu)-Total (mg/L)	<0.00050	0.00054	<0.00050	0.00056	0.00056
	Gallium (Ga)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Iron (Fe)-Total (mg/L)	0.057	0.095	0.082	0.112	0.499

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1639521-6 Water 06-JUL-15 17:04 WQ13	L1639521-7 Water 06-JUL-15 09:32 WQ14	L1639521-8 Water 07-JUL-15 11:00 WQ18	L1639521-9 Water 07-JUL-15 13:05 WQ19	L1639521-10 Water 07-JUL-15 08:30 WQ22
Grouping	Analyte					
<b>WATER</b>						
<b>Field Tests</b>	pH, Client Supplied (pH)	7.44		7.41	7.39	6.39
<b>Physical Tests</b>	Conductivity (uS/cm)	82.5	40.5	60.2	34.4	29.6
	Hardness (as CaCO3) (mg/L)	39.2	18.5	31.5	16.4	14.9
	Langelier Index Temperature (C)	15.9		12.5	13.1	9
	Langelier Index (none)	-1.2		-1.5	-2.2	-2.5
	pH (pH)	7.61	7.38	7.56	7.36	7.20
	Total Suspended Solids (mg/L)	5.1	<3.0	<3.0	<3.0	<3.0
	Total Dissolved Solids (mg/L)	70	32	55	29	22
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	2.3	1.6	2.1	2.0	1.5
	Alkalinity, Total (as CaCO3) (mg/L)	41.6	21.1	31.4	16.4	13.4
	Ammonia, Total (as N) (mg/L)	0.0123	<0.0050	<0.0050	<0.0050	<0.0050
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	1.13	<0.50	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.134	0.058	0.089	0.066	0.044
	Nitrate and Nitrite (as N) (mg/L)	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	<0.30	0.33	<0.30	<0.30	0.35
<b>Cyanides</b>	Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
<b>Organic / Inorganic Carbon</b>	Dissolved Organic Carbon (mg/L)	12.1	4.68	8.00	4.55	6.00
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.0486	0.0130	0.0074	0.0101	0.0288
	Antimony (Sb)-Total (mg/L)	<0.000070 <sup>DLB</sup>	<0.000080 <sup>DLB</sup>	<0.000050 <sup>DLB</sup>	<0.000050 <sup>DLB</sup>	<0.000060 <sup>DLB</sup>
	Arsenic (As)-Total (mg/L)	0.000258	0.000111	0.000112	0.000110	0.000099
	Barium (Ba)-Total (mg/L)	0.149	0.0598	0.109	0.0558	0.0417
	Beryllium (Be)-Total (mg/L)	0.0000178	<0.0000050	0.0000058	<0.0000050	0.0000082
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	<0.0000050	<0.0000050	0.0000080	0.0000066	<0.0000050
	Calcium (Ca)-Total (mg/L)	8.47	4.13	7.07	3.92	3.92
	Cesium (Cs)-Total (mg/L)	0.0000083	<0.0000050	0.0000063	<0.0000050	<0.0000050
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Total (mg/L)	0.000087	<0.000050	0.000055	<0.000050	<0.000050
	Copper (Cu)-Total (mg/L)	0.00097	0.00051	<0.00050	<0.00050	0.00082
	Gallium (Ga)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Iron (Fe)-Total (mg/L)	0.460	0.077	0.166	0.136	0.162

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

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Sample ID Description Sampled Date Sampled Time Client ID		L1639521-11 Water 07-JUL-15 09:10 WQ23	L1639521-12 Water 06-JUL-15 20:26 WQ24	L1639521-13 Water 07-JUL-15 13:50 WQ26	L1639521-14 Water 06-JUL-15 12:27 WQDP	L1639521-15 Water 06-JUL-15 14:25 WQRB
Grouping	Analyte					
<b>WATER</b>						
<b>Field Tests</b>	pH, Client Supplied (pH)	6.62	7.02	6.91	7.35	7.81
<b>Physical Tests</b>	Conductivity (uS/cm)	34.0	86.1	164	93.7	55.2
	Hardness (as CaCO3) (mg/L)	16.5	43.5	78.6	42.1	25.5
	Langelier Index Temperature (C)	10.8	14.1	6.9	16.1	16.7
	Langelier Index (none)	-2.4	-0.98	-1.1	-0.93	-1.6
	pH (pH)	7.24	7.70	7.33	7.82	7.55
	Total Suspended Solids (mg/L)	<3.0	<3.0	271	3.9	3.7
	Total Dissolved Solids (mg/L)	33	81	116	80	52
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)	1.5	1.3	4.2	1.3	1.2
	Alkalinity, Total (as CaCO3) (mg/L)	14.8	40.6	50.3	46.8	28.2
	Ammonia, Total (as N) (mg/L)	<0.0050	0.0110	0.0188	0.0128	0.0107
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Chloride (Cl) (mg/L)	<0.50	0.50	<0.50	0.90	0.58
	Fluoride (F) (mg/L)	0.067	0.084	0.205	0.272	0.178
	Nitrate and Nitrite (as N) (mg/L)	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Orthophosphate-Dissolved (as P) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	0.48	3.10	27.8	1.26	<0.30
<b>Cyanides</b>	Cyanide, Total (mg/L)		<0.0050	<0.0050	<0.0050	<0.0050
<b>Organic / Inorganic Carbon</b>	Dissolved Organic Carbon (mg/L)	6.06	15.1	11.4	11.6	8.39
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)	0.0331	0.0419	0.159	0.0393	0.0364
	Antimony (Sb)-Total (mg/L)	<0.000050 <sup>DLB</sup>	<0.000060 <sup>DLB</sup>	0.000257	<0.000060 <sup>DLB</sup>	<0.000060 <sup>DLB</sup>
	Arsenic (As)-Total (mg/L)	0.000104	0.000206	0.000425	0.000376	0.000237
	Barium (Ba)-Total (mg/L)	0.0441	0.0728	0.0347	0.135	0.0726
	Beryllium (Be)-Total (mg/L)	0.0000079	0.0000138	0.0000337	0.0000131	0.0000123
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.0000054	0.0000051	<0.000070 <sup>DLM</sup>	<0.0000050	<0.0000050
	Calcium (Ca)-Total (mg/L)	3.96	13.0	28.1	8.97	5.82
	Cesium (Cs)-Total (mg/L)	0.0000053	0.0000082	0.0000541	<0.0000050	0.0000065
	Chromium (Cr)-Total (mg/L)	<0.00050	<0.00050	0.00071	<0.00050	<0.00050
	Cobalt (Co)-Total (mg/L)	<0.000050	0.000066	0.00236	0.000077	<0.000050
	Copper (Cu)-Total (mg/L)	0.00096	0.00345	0.0931	0.00115	0.00057
	Gallium (Ga)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Iron (Fe)-Total (mg/L)	0.065	0.398	0.294	0.269	0.556

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L1639521-16 Water 06-JUL-15 20:30 DS1-060715	L1639521-17 Water 06-JUL-15 10:00 DS2-060715		
Grouping	Analyte					
<b>WATER</b>						
<b>Field Tests</b>	pH, Client Supplied (pH)		7.44			
<b>Physical Tests</b>	Conductivity (uS/cm)		86.6	39.8		
	Hardness (as CaCO3) (mg/L)		43.9	18.5		
	Langelier Index Temperature (C)		14.1			
	Langelier Index (none)		-1.0			
	pH (pH)		7.67	7.40		
	Total Suspended Solids (mg/L)		<3.0	<3.0		
	Total Dissolved Solids (mg/L)		81	30		
<b>Anions and Nutrients</b>	Acidity (as CaCO3) (mg/L)		2.2	1.3		
	Alkalinity, Total (as CaCO3) (mg/L)		39.2	21.1		
	Ammonia, Total (as N) (mg/L)		0.0821	<0.0050		
	Bromide (Br) (mg/L)		<0.050			
	Chloride (Cl) (mg/L)		0.50			
	Fluoride (F) (mg/L)		0.084			
	Nitrate and Nitrite (as N) (mg/L)		<0.0051			
	Nitrate (as N) (mg/L)		<0.0050			
	Nitrite (as N) (mg/L)		<0.0010			
	Orthophosphate-Dissolved (as P) (mg/L)		<0.0010	<0.0010		
	Sulfate (SO4) (mg/L)		3.11			
<b>Cyanides</b>	Cyanide, Total (mg/L)		<0.0050	<0.0050		
<b>Organic / Inorganic Carbon</b>	Dissolved Organic Carbon (mg/L)		15.3	4.89		
<b>Total Metals</b>	Aluminum (Al)-Total (mg/L)		0.0438	0.0187		
	Antimony (Sb)-Total (mg/L)		<0.000080 <sup>DLB</sup>	<0.000040 <sup>DLB</sup>		
	Arsenic (As)-Total (mg/L)		0.000219	0.000103		
	Barium (Ba)-Total (mg/L)		0.0726	0.0518		
	Beryllium (Be)-Total (mg/L)		0.0000155	<0.0000050		
	Bismuth (Bi)-Total (mg/L)		<0.000050	<0.000050		
	Boron (B)-Total (mg/L)		<0.010	<0.010		
	Cadmium (Cd)-Total (mg/L)		0.0000059	<0.0000050		
	Calcium (Ca)-Total (mg/L)		13.1	4.10		
	Cesium (Cs)-Total (mg/L)		0.0000084	<0.0000050		
	Chromium (Cr)-Total (mg/L)		<0.00050	<0.00050		
	Cobalt (Co)-Total (mg/L)		0.000068	0.000051		
	Copper (Cu)-Total (mg/L)		0.00339	<0.00050		
	Gallium (Ga)-Total (mg/L)		<0.000050	<0.000050		
	Iron (Fe)-Total (mg/L)		0.422	0.095		

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

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Sample ID Description Sampled Date Sampled Time Client ID		L1639521-1 Water 07-JUL-15 10:05 WQ2	L1639521-2 Water 07-JUL-15 12:05 WQ3	L1639521-3 Water 06-JUL-15 17:55 WQ4	L1639521-4 Water 06-JUL-15 15:40 WQ11	L1639521-5 Water 06-JUL-15 16:17 WQ12
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Lead (Pb)-Total (mg/L)	<0.000050	0.000062	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Total (mg/L)	0.00074	0.00062	0.00052	0.00053	0.00126
	Magnesium (Mg)-Total (mg/L)	2.33	1.62	1.63	1.67	2.70
	Manganese (Mn)-Total (mg/L)	0.0129	0.00786	0.00660	0.00553	0.0290
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	0.000110	0.000114	0.000072	0.000171	0.000090
	Nickel (Ni)-Total (mg/L)	0.00057	0.00047	0.00035	0.00034	0.00097
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Rhenium (Re)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Rubidium (Rb)-Total (mg/L)	0.000732	0.000738	0.000607	0.000580	0.000959
	Selenium (Se)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Silicon (Si)-Total (mg/L)	0.379	0.190	0.218	0.139	0.256
	Silver (Ag)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Strontium (Sr)-Total (mg/L)	0.0661	0.0499	0.0444	0.0534	0.0973
	Tellurium (Te)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Thallium (Tl)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Thorium (Th)-Total (mg/L)	0.0000059	0.0000120	0.0000086	0.0000063	0.0000157
	Tin (Sn)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Titanium (Ti)-Total (mg/L)	0.00026	0.00056	0.00022	<0.00020	0.00043
	Tungsten (W)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Uranium (U)-Total (mg/L)	0.000139	0.0000829	0.0000880	0.000147	0.000108
	Vanadium (V)-Total (mg/L)	0.000058	0.000147	0.000072	0.000068	0.000166
	Yttrium (Y)-Total (mg/L)	0.0000216	0.0000343	0.0000199	0.0000161	0.0000481
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
	Zirconium (Zr)-Total (mg/L)	<0.000050	0.000058	<0.000050	<0.000050	0.000097
<b>Dissolved Metals</b>	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0030	0.0072	0.0053	0.0040	0.0055
	Antimony (Sb)-Dissolved (mg/L)	0.000014	0.000022	0.000017	0.000015	0.000017
	Arsenic (As)-Dissolved (mg/L)	0.000102	0.000106	0.000071	0.000092	0.000144
	Barium (Ba)-Dissolved (mg/L)	0.0819	0.0601	0.0557	0.0708	0.100
	Beryllium (Be)-Dissolved (mg/L)	0.0000050	0.0000067	<0.0000050	<0.0000050	0.0000092
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cadmium (Cd)-Dissolved (mg/L)	0.0000102	0.0000195	<0.0000050	<0.0000050	<0.0000050

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1639521-6 Water 06-JUL-15 17:04 WQ13	L1639521-7 Water 06-JUL-15 09:32 WQ14	L1639521-8 Water 07-JUL-15 11:00 WQ18	L1639521-9 Water 07-JUL-15 13:05 WQ19	L1639521-10 Water 07-JUL-15 08:30 WQ22
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Lead (Pb)-Total (mg/L)	0.000203	<0.000050	0.000070	<0.000050	<0.000050
	Lithium (Li)-Total (mg/L)	0.00197	0.00054	0.00096	0.00061	0.00053
	Magnesium (Mg)-Total (mg/L)	4.23	1.98	2.99	1.57	1.24
	Manganese (Mn)-Total (mg/L)	0.0208	0.00739	0.0103	0.0164	0.0110
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	0.000351	0.000071	0.000174	0.000055	0.000084
	Nickel (Ni)-Total (mg/L)	0.00120	0.00046	0.00075	0.00034	0.00058
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Rhenium (Re)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Rubidium (Rb)-Total (mg/L)	0.00159	0.000914	0.000779	0.000764	0.000409
	Selenium (Se)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Silicon (Si)-Total (mg/L)	0.257	0.182	0.618	0.149	0.222
	Silver (Ag)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Strontium (Sr)-Total (mg/L)	0.119	0.0691	0.0790	0.0463	0.0336
	Tellurium (Te)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Thallium (Tl)-Total (mg/L)	0.0000051	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Thorium (Th)-Total (mg/L)	0.0000310	0.0000149	0.0000125	0.0000089	0.0000228
	Tin (Sn)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Titanium (Ti)-Total (mg/L)	0.00130	0.00035	<0.00020	0.00026	0.00044
	Tungsten (W)-Total (mg/L)	0.000025	<0.000010	<0.000010	<0.000010	<0.000010
	Uranium (U)-Total (mg/L)	0.000319	0.0000522	0.000234	0.0000313	0.000165
	Vanadium (V)-Total (mg/L)	0.000363	0.000063	0.000098	<0.000050	0.000111
	Yttrium (Y)-Total (mg/L)	0.0000917	0.0000387	0.0000314	0.0000204	0.0000614
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
	Zirconium (Zr)-Total (mg/L)	0.000187	0.000064	0.000090	<0.000050	0.000112
<b>Dissolved Metals</b>	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0223	0.0057	0.0046	0.0028	0.0257
	Antimony (Sb)-Dissolved (mg/L)	0.000033	0.000017	0.000016	<0.000010	0.000013
	Arsenic (As)-Dissolved (mg/L)	0.000265	0.000106	0.000126	0.000104	0.000089
	Barium (Ba)-Dissolved (mg/L)	0.149	0.0597	0.123	0.0581	0.0441
	Beryllium (Be)-Dissolved (mg/L)	0.0000150	<0.0000050	0.0000082	<0.0000050	0.0000099
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	<0.0000050	0.0000083	<0.0000050	0.0000080

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

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		Sample ID	L1639521-11	L1639521-12	L1639521-13	L1639521-14	L1639521-15
		Description	Water	Water	Water	Water	Water
		Sampled Date	07-JUL-15	06-JUL-15	07-JUL-15	06-JUL-15	06-JUL-15
		Sampled Time	09:10	20:26	13:50	12:27	14:25
		Client ID	WQ23	WQ24	WQ26	WQDP	WQRB
Grouping	Analyte						
WATER							
Total Metals	Lead (Pb)-Total (mg/L)	<0.000050	0.000085	0.00421	0.000121	0.000085	
	Lithium (Li)-Total (mg/L)	0.00071	0.00102	0.00172	0.00337	0.00208	
	Magnesium (Mg)-Total (mg/L)	1.69	2.54	2.88	4.82	2.70	
	Manganese (Mn)-Total (mg/L)	0.00596	0.0197	0.390	0.00933	0.0221	
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
	Molybdenum (Mo)-Total (mg/L)	0.000058	0.000235	0.0677	0.000382	0.000149	
	Nickel (Ni)-Total (mg/L)	0.00067	0.00133	0.00338	0.00070	0.00040	
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30	
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0	
	Rhenium (Re)-Total (mg/L)	<0.0000050	<0.0000050	0.000125	<0.0000050	<0.0000050	
	Rubidium (Rb)-Total (mg/L)	0.000713	0.00140	0.00192	0.00163	0.00137	
	Selenium (Se)-Total (mg/L)	<0.00020	<0.00020	0.00057	<0.00020	<0.00020	
	Silicon (Si)-Total (mg/L)	0.736	0.158	2.88	0.102	0.146	
	Silver (Ag)-Total (mg/L)	<0.0000050	0.0000080	0.0000850	<0.0000050	<0.0000050	
	Sodium (Na)-Total (mg/L)	<2.0	<2.0	<2.0	2.9	<2.0	
	Strontium (Sr)-Total (mg/L)	0.0435	0.0629	0.133	0.116	0.0678	
	Tellurium (Te)-Total (mg/L)	<0.000010	<0.000010	0.000160	<0.000010	<0.000010	
	Thallium (Tl)-Total (mg/L)	<0.0000050	0.0000052	0.000243	0.0000055	<0.0000050	
	Thorium (Th)-Total (mg/L)	0.0000308	0.0000360	0.000137	0.0000276	0.0000198	
	Tin (Sn)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
	Titanium (Ti)-Total (mg/L)	0.00061	0.00035	0.00402	0.00072	0.00081	
	Tungsten (W)-Total (mg/L)	<0.000010	<0.000010	0.000331	0.000011	<0.000010	
	Uranium (U)-Total (mg/L)	0.0000726	0.000292	0.173	0.00168	0.000183	
	Vanadium (V)-Total (mg/L)	0.000077	0.000132	0.000285	0.000418	0.000349	
	Yttrium (Y)-Total (mg/L)	0.0000909	0.000149	0.00193	0.0000759	0.0000610	
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030	0.0122	<0.0030	<0.0030	
	Zirconium (Zr)-Total (mg/L)	0.000147	0.000184	0.00106	0.000183	0.000106	
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	LAB	
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD	
	Aluminum (Al)-Dissolved (mg/L)	0.0133	0.0367	0.0586	0.0282	0.0163	
	Antimony (Sb)-Dissolved (mg/L)	0.000014	0.000022	0.000188	0.000030	0.000021	
	Arsenic (As)-Dissolved (mg/L)	0.000098	0.000241	0.000229	0.000404	0.000258	
	Barium (Ba)-Dissolved (mg/L)	0.0463	0.0713	0.0248	0.135	0.0665	
	Beryllium (Be)-Dissolved (mg/L)	0.0000073	0.0000169	0.0000190	0.0000122	0.0000081	
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
	Boron (B)-Dissolved (mg/L)	<0.0050	<0.0050	0.0069	<0.0050	0.0055	
	Cadmium (Cd)-Dissolved (mg/L)	0.0000052	0.0000072	<0.000025 <sup>DLM</sup>	<0.0000050	<0.0000050	

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

		Sample ID Description Sampled Date Sampled Time Client ID	L1639521-16 Water 06-JUL-15 20:30 DS1-060715	L1639521-17 Water 06-JUL-15 10:00 DS2-060715		
Grouping	Analyte					
<b>WATER</b>						
<b>Total Metals</b>	Lead (Pb)-Total (mg/L)	0.000091	<0.000050			
	Lithium (Li)-Total (mg/L)	0.00096	0.00051			
	Magnesium (Mg)-Total (mg/L)	2.58	2.01			
	Manganese (Mn)-Total (mg/L)	0.0215	0.00829			
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Total (mg/L)	0.000228	0.000069			
	Nickel (Ni)-Total (mg/L)	0.00136	0.00049			
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30			
	Potassium (K)-Total (mg/L)	<2.0	<2.0			
	Rhenium (Re)-Total (mg/L)	<0.0000050	<0.0000050			
	Rubidium (Rb)-Total (mg/L)	0.00141	0.000849			
	Selenium (Se)-Total (mg/L)	<0.00020	<0.00020			
	Silicon (Si)-Total (mg/L)	0.162	0.229			
	Silver (Ag)-Total (mg/L)	0.0000079	<0.0000050			
	Sodium (Na)-Total (mg/L)	<2.0	<2.0			
	Strontium (Sr)-Total (mg/L)	0.0628	0.0658			
	Tellurium (Te)-Total (mg/L)	<0.000010	<0.000010			
	Thallium (Tl)-Total (mg/L)	0.0000052	<0.0000050			
	Thorium (Th)-Total (mg/L)	0.0000365	0.0000152			
	Tin (Sn)-Total (mg/L)	<0.00020	<0.00020			
	Titanium (Ti)-Total (mg/L)	0.00038	0.00053			
	Tungsten (W)-Total (mg/L)	<0.000010	<0.000010			
	Uranium (U)-Total (mg/L)	0.000283	0.0000536			
	Vanadium (V)-Total (mg/L)	0.000137	0.000081			
	Yttrium (Y)-Total (mg/L)	0.000148	0.0000445			
	Zinc (Zn)-Total (mg/L)	<0.0030	<0.0030			
	Zirconium (Zr)-Total (mg/L)	0.000173	0.000064			
<b>Dissolved Metals</b>	Dissolved Mercury Filtration Location	FIELD	FIELD			
	Dissolved Metals Filtration Location	FIELD	FIELD			
	Aluminum (Al)-Dissolved (mg/L)	0.0361	0.0078			
	Antimony (Sb)-Dissolved (mg/L)	0.000024	0.000014			
	Arsenic (As)-Dissolved (mg/L)	0.000213	0.000095			
	Barium (Ba)-Dissolved (mg/L)	0.0718	0.0507			
	Beryllium (Be)-Dissolved (mg/L)	0.0000160	<0.0000050			
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050			
	Boron (B)-Dissolved (mg/L)	<0.0050	<0.0050			
	Cadmium (Cd)-Dissolved (mg/L)	0.0000060	<0.0000050			

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

01-SEP-15 14:53 (MT)

Version: FINAL

Sample ID Description Sampled Date Sampled Time Client ID		L1639521-1 Water 07-JUL-15 10:05 WQ2	L1639521-2 Water 07-JUL-15 12:05 WQ3	L1639521-3 Water 06-JUL-15 17:55 WQ4	L1639521-4 Water 06-JUL-15 15:40 WQ11	L1639521-5 Water 06-JUL-15 16:17 WQ12
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Calcium (Ca)-Dissolved (mg/L)	5.29	3.48	3.62	4.66	5.30
	Cesium (Cs)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	0.0000053	<0.0000050
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	0.000066
	Copper (Cu)-Dissolved (mg/L)	0.00041	0.00049	0.00033	0.00054	0.00040
	Gallium (Ga)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Iron (Fe)-Dissolved (mg/L)	<0.030	0.048	0.056	0.075	0.275
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.00086	0.00067	0.00047	0.00049	0.00110
	Magnesium (Mg)-Dissolved (mg/L)	2.45	1.63	1.65	1.69	2.63
	Manganese (Mn)-Dissolved (mg/L)	0.00434	0.00164	0.00374	0.00506	0.0179
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.000098	0.000100	0.000060	0.000143	0.000075
	Nickel (Ni)-Dissolved (mg/L)	0.00055	0.00049	0.00037	0.00035	0.00082
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Rhenium (Re)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Rubidium (Rb)-Dissolved (mg/L)	0.000816	0.000764	0.000624	0.000573	0.000842
	Selenium (Se)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Silicon (Si)-Dissolved (mg/L)	0.392	0.162	0.206	0.141	0.228
	Silver (Ag)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Strontium (Sr)-Dissolved (mg/L)	0.0672	0.0525	0.0455	0.0532	0.0796
	Tellurium (Te)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Thallium (Tl)-Dissolved (mg/L)	<0.0000020	<0.0000020	<0.0000020	0.0000021	0.0000032
	Thorium (Th)-Dissolved (mg/L)	<0.0000050	0.0000077	0.0000061	<0.0000050	0.0000102
	Tin (Sn)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Titanium (Ti)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Tungsten (W)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Uranium (U)-Dissolved (mg/L)	0.000137	0.0000773	0.0000827	0.000134	0.0000829
	Vanadium (V)-Dissolved (mg/L)	<0.000050	0.000127	0.000065	0.000066	0.000114
	Yttrium (Y)-Dissolved (mg/L)	0.0000179	0.0000260	0.0000181	0.0000145	0.0000345
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	0.0014	<0.0010	0.0015	0.0012
	Zirconium (Zr)-Dissolved (mg/L)	<0.000050	0.000051	<0.000050	<0.000050	0.000101

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1639521-6 Water 06-JUL-15 17:04 WQ13	L1639521-7 Water 06-JUL-15 09:32 WQ14	L1639521-8 Water 07-JUL-15 11:00 WQ18	L1639521-9 Water 07-JUL-15 13:05 WQ19	L1639521-10 Water 07-JUL-15 08:30 WQ22
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Calcium (Ca)-Dissolved (mg/L)	8.58	4.12	7.38	3.95	3.91
	Cesium (Cs)-Dissolved (mg/L)	<0.0000050	<0.0000050	0.0000056	<0.0000050	<0.0000050
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Dissolved (mg/L)	0.000057	<0.000050	<0.000050	<0.000050	<0.000050
	Copper (Cu)-Dissolved (mg/L)	0.00093	0.00053	0.00044	0.00034	0.00091
	Gallium (Ga)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Iron (Fe)-Dissolved (mg/L)	0.306	0.044	0.123	0.047	0.124
	Lead (Pb)-Dissolved (mg/L)	0.000150	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.00197	0.00054	0.00105	0.00066	0.00054
	Magnesium (Mg)-Dissolved (mg/L)	4.32	1.98	3.17	1.59	1.24
	Manganese (Mn)-Dissolved (mg/L)	0.00955	0.00579	0.00714	0.00451	0.00915
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.000339	0.000054	0.000176	0.000051	0.000074
	Nickel (Ni)-Dissolved (mg/L)	0.00124	0.00050	0.00081	0.00035	0.00067
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Rhenium (Re)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Rubidium (Rb)-Dissolved (mg/L)	0.00147	0.000896	0.000878	0.000805	0.000424
	Selenium (Se)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Silicon (Si)-Dissolved (mg/L)	0.200	0.156	0.636	0.118	0.206
	Silver (Ag)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Strontium (Sr)-Dissolved (mg/L)	0.120	0.0660	0.0818	0.0487	0.0322
	Tellurium (Te)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Thallium (Tl)-Dissolved (mg/L)	0.0000044	<0.0000020	0.0000023	<0.0000020	0.0000022
	Thorium (Th)-Dissolved (mg/L)	0.0000238	0.0000090	0.0000107	<0.0000050	0.0000240
	Tin (Sn)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Titanium (Ti)-Dissolved (mg/L)	0.00043	<0.00020	<0.00020	<0.00020	0.00031
	Tungsten (W)-Dissolved (mg/L)	0.000022	<0.000010	<0.000010	<0.000010	<0.000010
	Uranium (U)-Dissolved (mg/L)	0.000298	0.0000467	0.000235	0.0000262	0.000159
	Vanadium (V)-Dissolved (mg/L)	0.000288	<0.000050	0.000095	<0.000050	0.000108
	Yttrium (Y)-Dissolved (mg/L)	0.0000662	0.0000333	0.0000309	0.0000112	0.0000616
	Zinc (Zn)-Dissolved (mg/L)	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Zirconium (Zr)-Dissolved (mg/L)	0.000223	0.000061	0.000113	<0.000050	0.000150

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1639521-11 Water 07-JUL-15 09:10 WQ23	L1639521-12 Water 06-JUL-15 20:26 WQ24	L1639521-13 Water 07-JUL-15 13:50 WQ26	L1639521-14 Water 06-JUL-15 12:27 WQDP	L1639521-15 Water 06-JUL-15 14:25 WQRB
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Calcium (Ca)-Dissolved (mg/L)	3.78	13.1	26.8	8.95	5.75
	Cesium (Cs)-Dissolved (mg/L)	<0.0000050	0.0000079	0.0000350	<0.0000050	<0.0000050
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Cobalt (Co)-Dissolved (mg/L)	<0.000050	0.000062	0.000147	0.000068	<0.000050
	Copper (Cu)-Dissolved (mg/L)	0.00084	0.00359	0.0390	0.00114	0.00049
	Gallium (Ga)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Iron (Fe)-Dissolved (mg/L)	0.032	0.281	0.035	0.173	0.335
	Lead (Pb)-Dissolved (mg/L)	<0.000050	0.000059	0.000100	0.000080	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.00078	0.00101	0.00186	0.00332	0.00184
	Magnesium (Mg)-Dissolved (mg/L)	1.72	2.59	2.87	4.80	2.70
	Manganese (Mn)-Dissolved (mg/L)	0.00290	0.0126	0.0235	0.00387	0.00930
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	0.000228	0.0231	0.000354	0.000126
	Nickel (Ni)-Dissolved (mg/L)	0.00074	0.00139	0.00152	0.00068	0.00031
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Rhenium (Re)-Dissolved (mg/L)	<0.0000050	<0.0000050	0.000119	<0.0000050	<0.0000050
	Rubidium (Rb)-Dissolved (mg/L)	0.000797	0.00140	0.00185	0.00158	0.00124
	Selenium (Se)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Silicon (Si)-Dissolved (mg/L)	0.525	0.161	2.71	0.087	0.113
	Silver (Ag)-Dissolved (mg/L)	<0.0000050	<0.0000050	0.0000193	<0.0000050	<0.0000050
	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0	<2.0	2.9	<2.0
	Strontium (Sr)-Dissolved (mg/L)	0.0446	0.0607	0.125	0.112	0.0621
	Tellurium (Te)-Dissolved (mg/L)	<0.000010	<0.000010	0.000094	<0.000010	<0.000010
	Thallium (Tl)-Dissolved (mg/L)	<0.0000020	0.0000051	0.0000666	0.0000050	0.0000028
	Thorium (Th)-Dissolved (mg/L)	0.0000176	0.0000323	0.0000942	0.0000202	0.0000092
	Tin (Sn)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Titanium (Ti)-Dissolved (mg/L)	<0.00020	0.00023	0.00075	0.00034	<0.00020
	Tungsten (W)-Dissolved (mg/L)	<0.000010	<0.000010	0.000018	<0.000010	<0.000010
	Uranium (U)-Dissolved (mg/L)	0.0000512	0.000289	0.0464	0.00163	0.000156
	Vanadium (V)-Dissolved (mg/L)	0.000055	0.000124	0.000088	0.000338	0.000247
	Yttrium (Y)-Dissolved (mg/L)	0.0000629	0.000123	0.000547	0.0000556	0.0000356
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	0.0011	0.0046	<0.0010	0.0055
	Zirconium (Zr)-Dissolved (mg/L)	0.000127	0.000209	0.000738	0.000191	0.000095

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID Description Sampled Date Sampled Time Client ID		L1639521-16 Water 06-JUL-15 20:30 DS1-060715	L1639521-17 Water 06-JUL-15 10:00 DS2-060715			
Grouping	Analyte					
<b>WATER</b>						
<b>Dissolved Metals</b>	Calcium (Ca)-Dissolved (mg/L)	13.3	4.09			
	Cesium (Cs)-Dissolved (mg/L)	0.0000077	<0.0000050			
	Chromium (Cr)-Dissolved (mg/L)	<0.00050	<0.00050			
	Cobalt (Co)-Dissolved (mg/L)	0.000060	<0.000050			
	Copper (Cu)-Dissolved (mg/L)	0.00349	0.00044			
	Gallium (Ga)-Dissolved (mg/L)	<0.000050	<0.000050			
	Iron (Fe)-Dissolved (mg/L)	0.281	0.046			
	Lead (Pb)-Dissolved (mg/L)	0.000055	<0.000050			
	Lithium (Li)-Dissolved (mg/L)	0.00096	0.00047			
	Magnesium (Mg)-Dissolved (mg/L)	2.60	2.00			
	Manganese (Mn)-Dissolved (mg/L)	0.0127	0.00500			
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050			
	Molybdenum (Mo)-Dissolved (mg/L)	0.000217	0.000056			
	Nickel (Ni)-Dissolved (mg/L)	0.00134	0.00050			
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30			
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0			
	Rhenium (Re)-Dissolved (mg/L)	<0.0000050	<0.0000050			
	Rubidium (Rb)-Dissolved (mg/L)	0.00136	0.000813			
	Selenium (Se)-Dissolved (mg/L)	<0.00020	<0.00020			
	Silicon (Si)-Dissolved (mg/L)	0.154	0.195			
	Silver (Ag)-Dissolved (mg/L)	<0.0000050	<0.0000050			
	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0			
	Strontium (Sr)-Dissolved (mg/L)	0.0618	0.0635			
	Tellurium (Te)-Dissolved (mg/L)	<0.000010	<0.000010			
	Thallium (Tl)-Dissolved (mg/L)	0.0000049	<0.0000020			
	Thorium (Th)-Dissolved (mg/L)	0.0000304	0.0000094			
	Tin (Sn)-Dissolved (mg/L)	<0.00020	<0.00020			
	Titanium (Ti)-Dissolved (mg/L)	0.00024	<0.00020			
	Tungsten (W)-Dissolved (mg/L)	<0.000010	<0.000010			
	Uranium (U)-Dissolved (mg/L)	0.000281	0.0000489			
	Vanadium (V)-Dissolved (mg/L)	0.000120	<0.000050			
	Yttrium (Y)-Dissolved (mg/L)	0.000119	0.0000349			
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010			
	Zirconium (Zr)-Dissolved (mg/L)	0.000202	0.000064			

\* Please refer to the Reference Information section for an explanation of any qualifiers detected.

## Reference Information

## QC Samples with Qualifiers &amp; Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Alkalinity, Total (as CaCO <sub>3</sub> )	B	L1639521-12, -14, -15, -17, -3, -4, -5, -6, -7
Method Blank	Alkalinity, Total (as CaCO <sub>3</sub> )	B	L1639521-1, -10, -11, -13, -16, -2, -8, -9
Duplicate	Fluoride (F)	DLM	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nitrite (as N)	DLM	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nitrite (as N)	DLM	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nitrate (as N)	DLM	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Antimony (Sb)-Total	MB-LOR	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Nitrate (as N)	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO <sub>4</sub> )	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sulfate (SO <sub>4</sub> )	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Uranium (U)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Iron (Fe)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Total	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Total	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Total	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L1639521-1, -10, -11, -12, -13, -14, -15, -16, -17, -2, -3, -4, -5, -6, -7, -8, -9

## Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
DLB	Detection Limit was raised due to detection of analyte at comparable level in Method Blank.
DLM	Detection Limit Adjusted due to sample matrix effects.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

## Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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## Reference Information

**ACY-PCT-VA**      Water      Acidity by Automatic Titration      APHA 2310 "Acidity"

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO<sub>3</sub>)' have not been peroxide treated.

**ACY-PCT-VA**      Water      Acidity by Automatic Titration      APHA 2310 Acidity

This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint.

Samples of industrial wastes, acid mine drainage, or other solutions that contain appreciable amounts of hydrolyzable metal ions such as aluminum, iron, and manganese may require hot peroxide treatment to ensure oxidation and hydrolysis of reduced forms of polyvalent cations. Acidity results may be highly variable if this procedure is not followed. Results in this report for 'Acidity (as CaCO<sub>3</sub>)' have not been peroxide treated.

**ALK-TITR-VA**      Water      Alkalinity Species by Titration      APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

**ANIONS-N+N-CALC-VA**      Water      Nitrite & Nitrate in Water (Calculation)      EPA 300.0

Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

**BR-L-IC-N-VA**      Water      Bromide in Water by IC (Low Level)      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**CARBONS-DOC-VA**      Water      Dissolved organic carbon by combustion      APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis.

**CL-IC-N-VA**      Water      Chloride in Water by IC      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**CN-T-CFA-VA**      Water      Total Cyanide in water by CFA      ISO 14403:2002

This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

**EC-PCT-VA**      Water      Conductivity (Automated)      APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

**F-IC-N-VA**      Water      Fluoride in Water by IC      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**HARDNESS-CALC-VA**      Water      Hardness      APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO<sub>3</sub> equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

**HG-D-CVAA-VA**      Water      Diss. Mercury in Water by CVAAS or CVAFS      APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

**HG-T-CVAA-VA**      Water      Total Mercury in Water by CVAAS or CVAFS      EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

**LANGELIER-CALC-VA**      Water      Langelier Index      APHA 2330B

Langelier Index provides an indication of scale formation potential at a given pH and temperature. Field pH is used where provided. Positive values indicate oversaturation with respect to CaCO<sub>3</sub>. Negative values indicate undersaturation of CaCO<sub>3</sub>. Langelier Index is calculated as per APHA 2330B Saturation Index.

**LANGELIER-TEMP-VA**      Water      Langelier Index Temperature      Temperature

**MET-D-L-HRMS-VA**      Water      Diss. Metals in Water by HR-ICPMS      EPA 200.8

Trace metals in water are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The procedures may involve laboratory sample filtration modified from APHA Method 3030B.

**MET-DIS-ICP-VA**      Water      Dissolved Metals in Water by ICPOES      EPA SW-846 3005A/6010B

## Reference Information

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**MET-T-L-HRMS-VA**      Water      Total Metals in Water by HR-ICPMS      EPA 200.8

Trace metals in water are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The procedures may involve preliminary sample treatment by acid digestion modified from APHA Method 3030E.

**MET-TOT-ICP-VA**      Water      Total Metals in Water by ICPOES      EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**NH3-F-VA**      Water      Ammonia in Water by Fluorescence      APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NH3-F-VA**      Water      Ammonia in Water by Fluorescence      J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NO2-L-IC-N-VA**      Water      Nitrite in Water by IC (Low Level)      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**NO3-L-IC-N-VA**      Water      Nitrate in Water by IC (Low Level)      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**PH-PCT-VA**      Water      pH by Meter (Automated)      APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**PH-PCT-VA**      Water      pH by Meter (Automated)      APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**PO4-DO-COL-VA**      Water      Diss. Orthophosphate in Water by Colour      APHA 4500-P Phosphorus

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

**SO4-IC-N-VA**      Water      Sulfate in Water by IC      EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**TDS-VA**      Water      Total Dissolved Solids by Gravimetric      APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

**TSS-VA**      Water      Total Suspended Solids by Gravimetric      APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

**\*\* 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
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VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA
----	---------------------------------------------------------

### Chain of Custody Numbers:

10-365643	10-365644
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## Reference Information

### 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 ww* - 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.*

<b>Report To</b>	<b>Report Format / Distribution</b>	<b>Service Request:</b> (Rush subject to availability - Contact ALS to confirm TAT)
Company: <u>KIVALLIQ ENERGY CORP.</u>	Standard: <input checked="" type="checkbox"/> Other (specify):	<input checked="" type="checkbox"/> Regular (Standard Turnaround Times - Business Days)
Contact: <u>Maria Egerton</u>	Select: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> Excel <input type="checkbox"/> Digital <input type="checkbox"/> Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: <u>1020-800 West Pender</u>	Email 1: <u>mariae@kivalligenergy.com</u>	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
<u>Vancouver, BC, V6C 2V6</u>	Email 2: <u>andrewb@kivalligenergy.com</u>	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: <u>604 790 7397</u> Fax: <u>604 646 4526</u>		

<b>Invoice To</b> Same as Report ? (circle) <u>Yes</u> or No (if No, provide details) Copy of Invoice with Report? (circle) Yes or No	<b>Client / Project Information</b>	<b>Analysis Request</b>
Company:	Job #:	(Indicate Filtered or Preserved, F/P)
Contact:	PO / AFE:	
Address:	LSD:	
Phone:	Quote #:	

<b>Lab Work Order</b>  L1639521-COFC	<b>ALS Contact:</b> <b>Sampler:</b>	<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <th>Acidity, Alk, Sp (Pot)</th> <th>Anion Scan, NO<sub>2</sub>/NO<sub>3</sub></th> <th>Total Cyanide</th> <th>EC, pH, TDS, TSS</th> <th>Ammonia</th> <th>Total Metals (ICP)</th> <th>Dissolved Metals (ICP)</th> <th>Total Mercury (low)</th> <th>Dissolved Mercury (low)</th> <th>Long Term + 1 day calc</th> <th>DOC</th> <th>Number of Containers</th> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>8</td> </tr> </table>	Acidity, Alk, Sp (Pot)	Anion Scan, NO <sub>2</sub> /NO <sub>3</sub>	Total Cyanide	EC, pH, TDS, TSS	Ammonia	Total Metals (ICP)	Dissolved Metals (ICP)	Total Mercury (low)	Dissolved Mercury (low)	Long Term + 1 day calc	DOC	Number of Containers	X	X	X	X	X	X	X	X	X	X	8	X	X	X	X	X	X	X	X	X	X	8	X	X	X	X	X	X	X	X	X	X	8	X	X	X	X	X	X	X	X	X	X	8	X	X	X	X	X	X	X	X	X	X	8	X	X	X	X	X	X	X	X	X	X	8	X	X	X	X	X	X	X	X	X	X	8	X	X	X	X	X	X	X	X	X	X	8	X	X	X	X	X	X	X	X	X	X	8	X	X	X	X	X	X	X	X	X	X	8	X	X	X	X	X	X	X	X	X	X	8
Acidity, Alk, Sp (Pot)	Anion Scan, NO <sub>2</sub> /NO <sub>3</sub>	Total Cyanide	EC, pH, TDS, TSS	Ammonia	Total Metals (ICP)	Dissolved Metals (ICP)	Total Mercury (low)	Dissolved Mercury (low)	Long Term + 1 day calc	DOC	Number of Containers																																																																																																																												
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Sample #	(This description will be on report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	Acidity, Alk, Sp (Pot)	Anion Scan, NO <sub>2</sub> /NO <sub>3</sub>	Total Cyanide	EC, pH, TDS, TSS	Ammonia	Total Metals (ICP)	Dissolved Metals (ICP)	Total Mercury (low)	Dissolved Mercury (low)	Long Term + 1 day calc	DOC	Number of Containers
WQ 2		07-JUL-15	10:05	WATER	X	X	X	X	X	X	X	X	X	X	X	8
WQ 3		07-JUL-15	12:05		X	X	X	X	X	X	X	X	X	X	X	8
WQ 4		06-JUL-15	17:55		X	X	X	X	X	X	X	X	X	X	X	8
WQ 11		06-JUL-15	15:40		X	X	X	X	X	X	X	X	X	X	X	8
WQ 12		06-JUL-15	16:17		X	X	X	X	X	X	X	X	X	X	X	8
WQ 13		06-JUL-15	17:04		X	X	X	X	X	X	X	X	X	X	X	8
WQ 14		06-JUL-15	09:32		X	X	X	X	X	X	X	X	X	X	X	8
WQ 18		07-JUL-15	11:00		X	X	X	X	X	X	X	X	X	X	X	8
WQ 19		07-JUL-15	13:05		X	X	X	X	X	X	X	X	X	X	X	8
WQ 22		07-JUL-15	08:30		X	X	X	X	X	X	X	X	X	X	X	8
WQ 23		07-JUL-15	09:10		X	X	X	X	X	X	X	X	X	X	X	8
WQ 24		06-JUL-15	20:26		X	X	X	X	X	X	X	X	X	X	X	8

**Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details**

CCME WQ 22 NO cyanide

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

<b>SHIPMENT RELEASE (client use)</b>			<b>SHIPMENT RECEPTION (lab use only)</b>				<b>SHIPMENT VERIFICATION (lab use only)</b>			
Released by: <u>[Signature]</u>	Date:	Time:	Received by: <u>Shayan</u>	Date: <u>July 8</u>	Time: <u>19:30</u>	Temperature: <u>-1 °C</u>	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF



<b>Report To</b>		<b>Report Format / Distribution</b>		<b>Service Request:</b> (Rush subject to availability - Contact ALS to confirm TAT)												
Company: KIVALLIQ ENERGY CORP.		Standard: <input checked="" type="checkbox"/> Other (specify):		Regular (Standard Turnaround Times - Business Days)												
Contact: Maria Egerton		Select: PDF <input checked="" type="checkbox"/> Excel <input checked="" type="checkbox"/> Digital <input type="checkbox"/> Fax		Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT												
Address: 1080-808 West Pender		Email 1: mariage@kivalligenergy.com		Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT												
Vancouver BC, V6C 2V6		Email 2: andrewb@kivalligenergy.com		Same Day or Weekend Emergency - Contact ALS to confirm TAT												
Phone: 604.790.7397 Fax: 604.646.4526				<b>Analysis Request</b>												
Invoice To Same as Report? (circle) Yes or No (if No, provide details)		<b>Client / Project Information</b>		(Indicate Filtered or Preserved, F/P)												
Copy of Invoice with Report? (circle) Yes or No		Job #:														
Company:		PO / AFE:														
Contact:		LSD:														
Address:		Quote #:														
Phone:		ALS Contact:														
Lab Work Order #		Sampler:														
L1639521-COFC																
Sample #	(This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Acidity, Alk, Sp (pH)	Anion Scan Na <sub>2</sub> CO <sub>3</sub> calc	Total Cyanide	EC, pH, TDS, TSS, ortho phos	Ammonia	Total Metals	Dissolved Metals	Total Mercury	Dissolved Mercury	Long term + long calc	DOC	Number of Containers
	WQ 26	07-JUL-15	13:50	WATER	X	X	X	X	X	X	X	X	X	X	X	8
	WQ DP	06-JUL-15	12:27		X	X	X	X	X	X	X	X	X	X	X	8
	WQ RB	06-JUL-15	12:25		X	X	X	X	X	X	X	X	X	X	X	8
	DS1-060715	06-JUL-15	20:30		X	X	X	X	X	X	X	X	X	X	X	8
	DS2-060715	06-JUL-15	10:00		X	X	X	X	X	X	X	X	X	X	X	8
Special Instructions / Regulations																
Lab use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details																
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.																
By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.																
SHIPMENT RELEASE (client use)				SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)								
Released by:	Date:	Time:		Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF					
				Shayan	July. 8	19:30	-1 °C									

## APPENDIX C

### 2015 ANGILAK PROPERTY WILDLIFE OBSERVATION LOG

## ANGILAK PROPERTY - WILDLIFE LOG

Date	Time	Species	Observations / Description	Location
6-Jul-15	7:30pm	Bald Eagle	Standing on shoreline southeast of camp for 20mins	Nutaaq Camp
7-Jul-15	8:30am	Grizzly	Scratching his back on drill shack at ML laydown	ML Zone
7-Jul-15	10:45am	Wolf	2 white wolves walking west on ridge north of camp	Nutaaq Camp
10-Jul-15	2:45pm	Muskox	Herd of 15 (est.) Muskox East of Yat Lake between Dipole and Camp	East of Yat Lake
12-Jul-15	1:00pm	Muskox	Lone Muskox at RIB	RIB
13-Jul-15	7:00am/pm	Muskox	Estimated 15 Muskox North of UG Lake, est. 10 Muskox South of Yat Lake	UG Lake and Yat Lake
14-Jul-15	9:00am	Muskox	est. 10 Muskox South of Yat Lake being chased by Grizzly	Yat Lake
14-Jul-15	9:00am	Grizzly	Light Brown Grizzly chasing herd of 10 Muskox South of Yat	Yat Lake
19-Jul-15	2:00pm	Wolf	Small white wolf, chased away from camp by helicopter	Nutaaq Camp
21-Jul-15	11:00am	Caribou	One caribou lying on snow drift, didn't move when heli passed it	12km W of Nutaaq Camp

APPENDIX D  
2015 WATER USE RECORDS

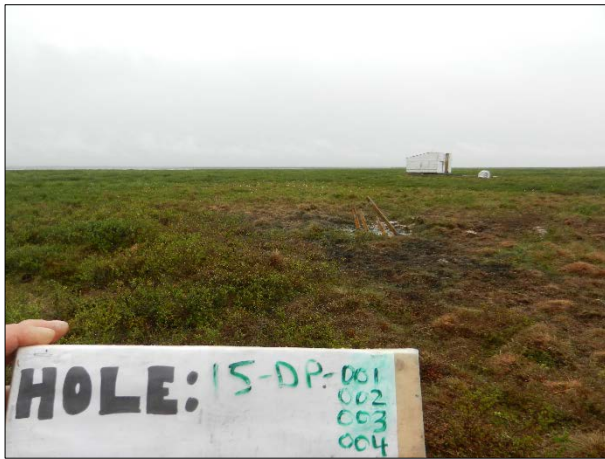
2015 Nutaaq Camp & Angilak Drill Program Water Use				
Date	Nutaaq Camp		Diamond Drill	
	Gallons/day	m3/day	Gallons/day	m3/day
June-11-15	250	0.95		
June-12-15	0	0		
June-13-15	0	0		
June-14-15	0	0		
June-15-15	0	0		
June-16-15	0	0		
June-17-15	0	0		
June-18-15	1500	5.68		
June-19-15	0	0		
June-20-15	0	0		
June-21-15	0	0		
June-22-15	0	0		
June-23-15	0	0		
June-24-15	0	0		
June-25-15	0	0		
June-26-15	0	0		
June-27-15	0	0		
June-28-15	0	0		
June-29-15	0	0		
June-30-15	0	0		
July-01-15	0	0		
July-02-15	800	3.03		
July-03-15	0	0		
July-04-15	1000	3.79	25941.7	98.2
July-05-15	625	2.37	25941.7	98.2
July-06-15	0	0	25941.7	98.2
July-07-15	1100	4.16	25941.7	98.2
July-08-15	600	2.27	25941.7	98.2
July-09-15	300	1.14	25941.7	98.2
July-10-15	625	2.37	25941.7	98.2
July-11-15	0	0	25941.7	98.2
July-12-15	700	2.65	25941.7	98.2
July-13-15	0	0	25941.7	98.2
July-14-15	750	2.84	25941.7	98.2
July-15-15	600	2.27	25941.7	98.2
July-16-15	0	0	25941.7	98.2
July-17-15	700	2.65	25941.7	98.2
July-18-15	600	2.27	25941.7	98.2
July-19-15	400	1.51	25941.7	98.2
July-20-15	0	0	25941.7	98.2
July-21-15	0	0	25941.7	98.2
July-22-15	600	2.27	25941.7	98.2

2015 Nutaaq Camp & Angilak Drill Program Water Use				
Date	Nutaaq Camp		Diamond Drill	
	Gallons/day	m3/day	Gallons/day	m3/day
July-23-15	0	0	25941.7	98.2
July-24-15	500	1.89	25941.7	98.2
July-25-15	625	2.37	25941.7	98.2
July-26-15	0	0	25941.7	98.2
July-27-15	950	3.6		
<b>Total</b>	<b>12975.00</b>	<b>49.13</b>	<b>596659.1</b>	<b>2258.6</b>
<b>Daily Average</b>	<b>324.38</b>	<b>1.23</b>	<b>25941.7</b>	<b>98.2</b>

APPENDIX E  
2015 DIAMOND DRILL HOLE COORDINATES  
& SITE RECLAMATION PHOTOS

### 2015 Diamond Drill Hole Coordinates & Site Reclamation Photos

Drill Hole ID	Trend Area	Collar Easting (NAD83 Z14)	Collar Northing (NAD83 Z14)	Azimuth (°)	Dip (°)	Hole Length (m)
15-DP-001	Dipole	492900	6932165	135	-45	23.5
15-DP-002	Dipole	492900	6932165	135	-60	119
15-DP-003	Dipole	492900	6932165	135	-50	80
15-DP-004	Dipole	492900	6932165	135	-70	116
15-DP-005	Dipole	492859	6932136	135	-65	107
15-DP-006	Dipole	492859	6932136	135	-75	122
15-DP-007	Dipole	492859	6932136	135	-90	127.6
15-DP-008	Dipole	492786	6932138	135	-45	152.8
15-DP-009	Dipole	492920	6932216	135	-45	110



**15-DP-001, 15-DP-002, 15-DP-003, 15-DP-004**  
**492900 E 6932165 N UTM NAD 83 Z14**  
**July 5, 2015 to July 14, 2015**



**15-DP-005, 15-DP-006, 15-DP-007**  
**492859 E 6932136 N UTM NAD 83 Z14**  
**July 15 2015 to July 20, 2015**



**15-DP-008**  
**4927876 E 6932138 N UTM NAD 83 Z14**  
**July 25 2015 to July 24 2015**



**13-VGR-001 and 13-VGR-001a**  
**495658 E 6943912 N UTM NAD 83 Z14**  
**May 03 2013 to July 03 2015**

APPENDIX F  
NU SPILL REPORT 14-234  
2015 REMEDIATION UPDATE



February 4, 2016

Christine Wilson  
Indigenous and Northern Affairs Canada  
Ikingutigiit Center Suite 1  
PO Box 129  
Rankin Inlet, NU  
X0C 0G0

Ms. Wilson,

**RE: 2015 Remediation Update – NU Spill Report #14-234, Angilak Property, Kivalliq Energy Corp.**

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During a wind storm in the spring of 2014 a diesel fuel drum was knocked over at the Nutaaq Camp while the camp was unoccupied. The spill was reported on June 23, 2014, within 24 hours of its discovery (NU Spill Report 14-234).

The Nutaaq Camp is situated on a flat top sand esker approximately 8 metres above the surrounding tundra. Two workers sent to inspect the camp in June 2014 noted that tent W5 was lifted off its foundations by wind and moved 4 metres south. An adjacent fuel drum (containing P50 diesel) was knocked over. The impact cracked a fuel valve connection causing a portion of the fuel in the drum to leak. A surface stain of approximately one square metre was noted. The spill did not enter any water body or drainage. The nearest water body, Nutaaq Lake, is approximately 200 metres west of the spill site.

As mentioned on the 2BE-ANG1318 Water Licence Inspection Form July 22, 2014, Kivalliq Energy has followed a Remedial Action Plan that has addressed the monitoring of the spill until remediation is complete. Remediation in 2014 included excavation of contaminated soils to a depth of approximately one metre by workers using shovels. Contaminated soil was contained in ten 205-litre drums.

Nutaaq Camp was open from June 10 to July 27, 2015 and further remediation was conducted in 2015. Four additional 205-litre drums of contaminated soil were excavated to a depth of 1.4 metres (4.5 feet) using a Can-Dig mini excavator at which point permafrost was encountered (Figures 1-6). Sand from the upper permafrost horizon was scrapped off using a shovel and no fuel odours were detected (Figure 4). The pit has been left open to the air for the last two years to allow for evaporation to occur. Upon closure and winterization of camp, the excavated spill site was covered for safety and to prevent a cave in due to snow (Figure 6). The resulting 14 drums of contaminated soil will be removed from camp and disposed of at an authorized facility.

Informal updates on remediation have been given over the last two years; the most recent during conference calls with Kivalliq Energy President Jeff Ward and CEO Jim Paterson in August 2015 and a telephone call with Andrew Berry on January 11, 2016.

To prevent future spills from occurring, tents were re-secured and fuel drums behind the tents were taken off their stands and placed upright in the tents for winterization as per regular seasonal closure

procedures. All fuel berms were inspected, fitted with new rain drains and prepared for winter and found in good shape. No further issues or spills were noted during 2015.

Regards,



Andrew Berry  
Chief Operating Office  
Kivalliq Energy Corporation

Attached:

6 figures

2BE-ANG1318 Water Licence Inspection Form July 22, 2014

NU Spill Report #14-234 June 23, 2014



**Figure 1: Can-Dig Excavator Removal of 4 Drums of Contaminated Soil to Permafrost - 2015**



**Figure 2: Excavating the Spill Site - Looking South – 2015**



**Figure 3: Excavated Pit – 1.4 metres to Frozen Permafrost Layer**



**Figure 4: Scrapping Non-Contaminated Sands from Upper Permafrost Horizon**



**Figure 5: Arial View: The Excavated Spill Site behind Tent**



**Figure 6: The Excavated Spill Site Covered for Winter**



Canada

## NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924

EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

<b>A</b>	REPORT DATE: MONTH – DAY – YEAR <b>June 23 2014</b>	REPORT TIME <b>3:00 pm</b>	<input checked="" type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT		REPORT NUMBER <b>14 -234</b>
<b>B</b>	OCCURRENCE DATE: MONTH – DAY – YEAR <b>Spring 2014</b>	OCCURRENCE TIME <b>Undetermined</b>			
<b>C</b>	LAND USE PERMIT NUMBER (IF APPLICABLE) <b>N2012C0030</b>	WATER LICENCE NUMBER (IF APPLICABLE) <b>2BE-ANG1318</b>			
<b>D</b>	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION <b>Nutaaq Camp, Angilak Property, NU</b>		REGION <input type="checkbox"/> NWT <input checked="" type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN		
<b>E</b>	LATITUDE DEGREES <b>62</b> MINUTES <b>34</b> SECONDS <b>17</b>		LONGITUDE DEGREES <b>98</b> MINUTES <b>27</b> SECONDS <b>21</b>		
<b>F</b>	RESPONSIBLE PARTY OR VESSEL NAME <b>Kivalliq Energy Corporation</b>	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION <b>1020 800 West Pender Street</b>			
<b>G</b>	ANY CONTRACTOR INVOLVED <b>None</b>	CONTRACTOR ADDRESS OR OFFICE LOCATION			
<b>H</b>	PRODUCT SPILLED <b>P50</b>	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES <b>1/2 drum (100 litres estimate)</b>	U.N. NUMBER <b>1202</b>		
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER		
<b>I</b>	SPILL SOURCE <b>205 litre Drum</b>	SPILL CAUSE <b>Broken Valve from Tipped Drum</b>	AREA OF CONTAMINATION IN SQUARE METRES <b>1 square metre</b>		
<b>J</b>	FACTORS AFFECTING SPILL OR RECOVERY <b>Remote Location</b>	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT <b>None</b>		
<b>K</b>	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS <b>The Nutaaq camp at the Angilak property is a remote tent camp, 225 km southwest of Baker Lake, NU. The camp comprises temporary plywood buildings and twelve 14x16 vinyl WeatherPort tents on plywood floors situated on a flat top sand esker approx 8 metres above the surrounding tundra. The nearest water body Nutaaq Lake is approx. 200 metres west of the spill site. 2 workers sent to inspect the site on the weekend noted that tent W5 was lifted off its foundations by wind and moved 4 metres south. An adjacent fuel drum was knocked over. The impact cracked a fuel valve connection at the drum causing a fuel leak. A surface stain of approximately 1 sq. metre is noted. The spill did not enter any water body or drainage. Contaminated soils were excavated to a depth of approx. 1 metre by the workers using shovels. The contaminated soil has been contained in four 205 litre drums. The drums will be removed from site and disposed of at an authorized facility. Photo's are attached.</b>				
<b>L</b>	REPORTED TO SPILL LINE BY <b>Bill Cronk</b>	POSITION <b>Exploration Manager</b>	EMPLOYER <b>Kivalliq Energy Corp</b>	LOCATION CALLING FROM <b>Nutaaq Camp</b>	TELEPHONE <b>604-759-4750</b>
<b>M</b>	ANY ALTERNATE CONTACT <b>Maria Egerton</b>	POSITION <b>Permitting</b>	EMPLOYER <b>Kivalliq Energy Corp</b>	ALTERNATE CONTACT <b>Vancouver</b>	ALTERNATE TELEPHONE <b>604-646-4527</b>
REPORT LINE USE ONLY					
<b>N</b>	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130
LEAD AGENCY <input type="checkbox"/> EC <input type="checkbox"/> CCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC			SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN		FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS	
LEAD AGENCY					
FIRST SUPPORT AGENCY					
SECOND SUPPORT AGENCY					
THIRD SUPPORT AGENCY					



WATER LICENCE INSPECTION FORM

☒ Original  
☐ Follow-Up Report

Licensee	Licensee Representative
Kivalliq Energy Corporation	Bill Cronk
Licence No. / Expiry	Representative's Title
2BE-ANG1318	Exploration Manager
Land / Other Authorizations	Land / Other Authorizations
N2012C0030	KVL308C09
Date of Inspection	Inspector
22/07/14	WRO Wilson
Activities Inspected	
<input checked="" type="checkbox"/> Camp	<input checked="" type="checkbox"/> Drilling
<input type="checkbox"/> Roads/Hauling	<input type="checkbox"/> Mining
<input type="checkbox"/> Other: Water Discharge	<input type="checkbox"/> Construction
	<input checked="" type="checkbox"/> Reclamation
	<input checked="" type="checkbox"/> Fuel Storage
	<input type="checkbox"/> Other:

Conditions:		A - Acceptable	C - Concern	U - Unacceptable	NA – Not Applicable	NI – Not Inspected		
Water Use	Condition	Comment	Site Conditions	Condition	Comment	Haz/Mat Management	Condition	Comment
Intake/Screen	NA		Water Management Structures	A	10	Storage	A	10
Flow Measure. Device	A	2	Culverts / Bridges	NA		Spills	A	13
Source: Nutaaq	A	1	Drainage	A	12	Spill Plan	A	10,13
Water Use: .07m <sup>3</sup>	A	2	Erosion / Sediment	A	12			
Recirculation ( y /n)	A	3	Mitigation Measures	NA		Administrative		
			Reclamation Activities	A	9	Records	A	2
			Materials Storage	A	11	Reports	A	15
Waste Disposal			Signage	NA		Plans	NI	9,14
Waste Water	A	4,7				Notifications	A	13
Solid Waste	A	5	Monitoring			Other		
Hazardous Waste	A	6	Sample Collection / Analysis	NA				
*The number in the comments field will correspond with specific comments provided below.								
Samples taken by Inspector:			Location(s):					
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								

SECTION 1	<input checked="" type="checkbox"/> Comments (s. __)	<input type="checkbox"/> Non-Compliance with Act or Licence (s. __)	<input type="checkbox"/> Action Required (s. __)
At the time of the inspection the Nutaaq camp was inactive. The Inspector was accompanied by Bill Cronk and David Taylor of Kivalliq Energy Corporation during the inspection of the Angilak Lake Project’s associated sites.			
WATER USE			
1) Raw water is drawn from Nutaaq Lake to the camp daily, using 5 gallon buckets. With the short annual maintenance program being conducted at the time of the inspection, the camp only requires a small amount of water.			
2) The proponent is recording the volume of water used daily during the short program as required under PART B item 4. At the request of the Inspector the water usage records were provided for the date of July 22 <sup>nd</sup> , 2014 as per PART J item 1 of the current water licence.			
3) The proponent has applied for an amendment to the total daily water allotment. This amendment was anticipator of the clarification on the definition of water use. Currently the licence daily waster use is 100 m <sup>3</sup> .The amendment requests for a total of 300m <sup>3</sup> per day.			
WASTE			
4) Grey water is directed to a constructed sump box located within the esker where the camp is situated.			
5) Domestic waste and toilet waste is incinerated in a dual fired incinerator with the ash containerized and backhauled as required under PART item 3, 4 and 6.			
6) Hazardous waste is sorted and backhauled offsite to an approved waste disposal facility.			
DRILL WASTE			
7) Drill waste is collected and secured into a central sump. The location appears to be ideal for securing the cuttings as required under PART F item 3 and in this terrain appears to be best practice with regards to remediation of drills sites.			
8) The proponent has 4 drills in total on the project.			
9) The Abandonment and Reclamation Plans for drill site remediation was observed to be implemented though one of the locations had some issues with damage caused by wildlife. The proponent had initiated a plan to address the required maintenance and complete additional progressive reclamation activities for 2014.			
SITE CONDITONS			
10) The fuel storage areas have secondary containment, water treatment systems and spill kits.			
11) The Nutaaq camp is well kept and tidy. Materials are stored appropriately and are secured from weather and wildlife.			
12) The camp is located on durable ground.			



SPILL

13) In the spring of 2014 a spill occurred behind weather haven W5. Upon discovery the spill was reported to the NWT/NU spills line and the Inspector. At the time of the inspection efforts were underway to remediate the affected area. The proponent, in discussion with the Inspector, has commit to a Remedial Action Plan that will address the monitoring of the spill this year until the remediation is completed in 2015. The Inspector notes the care Kivalliq Energy Corporation takes when handling hazardous materials and fuel storage. The Inspector encourages the use of over pack drum stands for fuel storage behind the tents in camp.

ADMINISTRATIVE

14) The Proponent will provide the Inspector with a copy of the updated version of the Uranium Exploration Plan as required under PART F item 1, sixty (60) calendar days from the date of inspection.

15) The 2013 annual report was submitted and is available for review on the Nunavut Water Board ftp site.

SECTION 2

☐ Comments (s.\_\_)

☒ Non-Compliance with Act or Licence (s.2)

☐ Action Required (s.\_\_)

The Nutaaq camp is a fine example of exploration best practice in Nunavut. No non-compliance was noted.

SECTION 3

☐ Comments (s.\_\_)

☐ Non-Compliance with Act or Licence, (s.\_\_)

☒ Action Required (s.3)

- Remedial Action Plan for the spill behind weather haven W5 which will include a date of completion for the remedial measures.
- Copy of the Uranium Exploration Plan or a document similar by September 2nd, 2014.

Licensee or Representative	Inspector's Name
	WRO C. Wilson
Signature	Signature
Date	Date

Office Use Only:

Follow-up report to be issued by Inspector

☐ Yes

☒ No

**Kivalliq Energy Corp.**  
**Photo Document to accompany June 23, 2014 NU Spill Report**



**Photo 1: Tent W5 Shifted 4m South From Tent Footings (note: Nutaaq Lake 200m West)**



**Photo 2: Spill Location and Excavated Pit**



**Photo 3: Excavated Pit behind Tent W5 & Toppled Tent Footings**



**Photo 4: Broken Valve on Fuel Drum**

APPENDIX G  
2015 CONTRACTOR SERVICES

## **2015 Contractor Services**

### **Baker Lake NU**

Ookpik Aviation Ltd.  
Aviation Fuel Enterprises  
Nunamuit Lodge  
Northwest Company Inc.  
SK Construction Ltd  
Sanavik Co-op Association Inc.  
Baker Lake Lodge  
Baker Lake Contracting & Supplies Ltd.

### **Arviat NU**

Padlei Inn

### **Rankin Inlet NU**

Kivallingmiut Aviation Inc.  
Kissarvik Co-op Inns  
M&T

### **British Columbia**

Raymac Environmental Services Inc.  
Hemmera Envirochem Inc.  
Western Industrial Distributors  
Corporate Travel  
Gebauer & Associates Environmental Consultants  
Ooleepeeka Consulting Ltd.  
ALS Global Laboratories

### **Alberta**

Apex Geoscience Ltd.  
Taiga Consultants Ltd.  
InfoSat Communications  
Globetrotter Travel and Cruise Centre

### **Saskatchewan**

SRC Geoanalytical Laboratories

### **Manitoba**

Four Points Sheraton Hotels  
Major Drilling  
Calm Air

### **Ontario**

SGS Canada Inc. Mineral Services  
Manitoulin Transport  
ActLabs  
NDS - Health Canada

### **Yellowknife NT**

Discovery/Nunavut Mining Services  
Great Slave Helicopters  
Medic North  
Northern Communications  
KBL Environmental  
Force One  
Ron's Auto Service and Equipment Rentals  
Superior Propane  
Weaver and Devore Trading Ltd  
True Value Hardware  
Crother's Home Building Centre  
Canadian Tire  
Staples Business Depot Ltd.

APPENDIX H  
COMMUNITY CONSULTATION LOG  
SEPTEMBER 2014 TO FEBRUARY 2016

**Community Communication/Consultation Log  
September 2014 to February 2016  
Kivalliq Energy  
Angilak Project**

Last update: February 1, 2016 2:00PM

(Acronyms :) KIA = Kivalliq Inuit Association, CLO = Community Liaison Officer, SAO = Settlement Administrative Officer, GN = Government of Nunavut, HTO = Hunters and Trappers Association, MLA = Member of the Legislative Assembly, CEDO = Community Economic Development Officer, Community Tours/Visits

Date	Time	Contact	Details
September 24, 2014		NIRB, AANDC, KIA, NWB, WSCC	Letter of closure from Maria Egerton
January 26, 2015	2 – 3 pm	KIA - Jeff Tulugak, Craig Beardsaw KIV – Maria Egerton, Andrew Berry, Emily McNie	Informal meeting with KIA – discussed summer inspections, program and gave permission to use camp on snow mobile excursion to Ennadai Lake
January 28	6 – 10 pm	NTI - Keith Morrison, Jorgan Aitaok, Miguel Chenier, Chris Arko, Chris Kalluk, Carson Gillis, Ryan Gillis, Kate Chenier NIRB – Joe Ohokannoak KIA - Jeff Tulugak, Craig Beardsaw KIV - Jim Paterson, Jeff Ward, Andrew Berry, John Robins, Maria Egerton, Emily McNie, Reesa Meltzer	Annual Roundup dinner discussing Angilak property and Areva hearings and FEIS.
January 27, 2015	2:35 – 2:55 pm	KIA - Jeff Tulugak, Craig Beardsaw in attendance	CSR session – Maria Egerton (De-Risking EA studies by Conducting Early-Stage Baseline Monitoring)
March 5, 2015	3pm	Areva Final Hearing. Kiv – Maria Egerton, Jessie Oonark Gallery – Sheryl, Martha	Maria spoke to Sheryl (co-operator Jessie Oonark Art Gallery Baker Lake and Martha (artist and Baker community member) about the hearing that was taking place. Why it was taking place, where, and when and that they could attend any part and could speak during the community round table. Sheryl expressed here concerns about how mining changed the community in Manitoba where she grew up. The felt the

			introduction of strange men was a danger to young girls in the community. Martha expressed her desire for the children to have work, but was also concerned about how the Areva mine might change the community negatively with the introduction of income and use of drugs and lack of home care for children when parents were away working.
March 7, 2015	1pm	Maria met a woman (Baker community member) selling caribou fur clothing at the community center during the hearing.	Maria explained that she worked for Kivalliq Energy, a uranium exploration company in permitting and environmental, and discussed some to the observations she collects on caribou as part of baseline studies and why (to assess caribou land use in the area and predict and mitigate potential impacts to caribou). Woman introduced her mother and explained that her mother had made the clothing and was born on the land around Baker. Woman and Maria sat together during 2 and a half days of the hearing. The woman occasionally interpreted comments from community members and elders for Maria when they weren't captured by interpreters.
June 6, 2015	2:30 pm	Robert Janes (Mayor Rankin Inlet), Joseph Aupaluktuq (Mayor Baker Lake), Paul Kanayok (Chairperson HTC), Peter Alareak (KIA Director), Norman Attungala (KIA Director), Alex Ishalook (Chairperson HTC)	Letter to, from JW re: request for community meeting letter and community factsheet in English and Inuktituk
June 29, 2015	7 to 9:15 pm	Rankin Inlet Hamlet community visit and presentation. Andy Berry presented, Maria Egerton assisted. In attendance: Robert Janes (Mayor Rankin Inlet), Craig Beardsall (KIA), David Kanayok, Sam Twyee, Roger Subqut, Jerome Tattuinee, Willie Alogut, Jack Kabuitok, John Ayaruaq, Levi Curley, Alex Sammurtok, 2 women who chose not to provide their names	Q - Woman 1 - How can you ensure that the Uranium you sell won't end up being used for weapons? Do you have any buyers? Will you be flying yellowcake out? It's my understanding that if a plane carrying yellowcake crashed it would be an environmental disaster. A - Andy explained how Canadian Uranium is regulated by the CNSC A - Andy and Maria explained that we are an exploration company, that we are still a long way from selling or transporting yellowcake. Maria explained if and when the project ever became a mine, all aspects of it including whatever the proposed method of transportation of yellowcake would be, would have to go through a complete environmental review and related public hearings. Q – Jack - Does drilling release any radioactive particles to the air or soil?

			<p>A - Andy explained that Kivalliq separates the hot drill cuttings from other drill muds and stores them in sealed drums.</p> <p>Q – Alex requested a paper copy of the entire presentation. Commented that the agreement with NTI was not favorable to the Inuit. He found the \$50,000 advance royalty payments and the \$1mil payment upon reaching stated resource level insufficient.</p> <p>A - Andy responded that Kiv has invested \$55 million within the IOL to date. That there are significant costs related to exploration that are not reflected in the presentation and that he could email him a digital copy of the presentation.</p> <p>Comments: Jerome commented that he had seen the camp the year before and it was very clean. Also that when the helicopter landed, they saw caribou grazing on the rocks and he was concerned about stepping on uranium rock. He recalled that Andy used the scintillometer to measure radioactivity.</p>
June 30, 2015	8:30 to 10 pm	<p>Arviat Hamlet community visit and presentation. Andy Berry presenter, Maria Egerton assisted. In attendance: Emil Arnalak (interpreter), Phillip Kigusiutnak, Lucien Kabuitok, Roxanne Konek, Susan Konek, Sophie Kuksuk, Alysia Kuksuk, Martha Nutarasungnik, Laurent Pameolik, Jason Irksuk, Jason Irksuk Sr., Sandra Irksuk, Racheal Okotak, Matthew Okotak, David Illungiyok, Silis Illungiyok, John Akammak, Linda Sheetoga, Malena Sheetoga, Shanelle Sheetoga, Sarah Iblauk, Paul Iblauk, Stacey Kritaqliluk, Travis Kritaqliluk, Doyle Mukyungnik, Leo Mukyungnik, John Nungnilk, Janet Nungnilk, Charlie Alareak, Celina Iootna, Bobby Iootna, Lydia Mukyungnik, Cecelia Shamee, Ernie Sreetak, Peter Kritaqliluk, Peter Adjuk, Jonah Sewoee.</p>	<p>Emil Arnalak worked as interpreter and will be employed as a helper for the upcoming program. Our flight was delayed, Emil communicated our delay to community and set up hall in our absence.</p> <p>Former employees Martha Nutarasungnik, Ernie Sreetak, and Eugene Shamee came to greet us. Martha introduced us to her bother and sister-in –law Paul and Sandra Iblauk, both looking for work. Sandra Iblauk provided a resume – interested in work as a kitchen helper.</p> <p>Paul Iblauk provided a resume – has experience as a core splitter and is interested in work as a core splitter or drilling assistant. He expressed his interest in geology in general.</p> <p>David Illungiyok provided a resume - has experience as a core splitter and is interested in work as a core splitter or drilling assistant.</p> <p>Jason Irksuk Sr. commented to Andy that he was hungry.</p> <p>Peter Adjuk helped us carry bags back to hotel and commented that he too was hungry.</p>
July 2, 2015	7 to pm	<p>Baker Lake Hamlet community visit and presentation. Andy Berry presenter, Maria Egerton assisted. In attendance: Alexander Alooq (interpreter),</p>	<p>Q – Victoria asked if there are jobs</p> <p>A – Andy explained that for now we have only a few jobs and we have taken them back first. If we do well on our first few drill holes, we might have the opportunity to hire more</p>

		Valerie Niego, Victoria Amarook (867) 793-4892	Victoria is trained as a cook, or cook helper, and interested in working with us.
January 25, 2016	11am	Mike Beauregard, Resident Geologist, Government of Nunavut	Talked with Andrew Berry at Roundup. Company and technical update
January 27, 2016	12-2pm	Jim Paterson, Jeff Ward, Andrew Berry, Cam Barker, Chris Arko, Chris Kalluk, Jorgan Aitaok	NTI/Kivalliq Lunch at Rogue. Company and technical update

\*Community consultation logs from May 2009 to September 2014 available upon request.