



# **AGNICO EAGLE**

**MELIADINE MINE**

## **Ocean Discharge Monitoring Plan**

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**JULY 2019  
VERSION 2**

**EXECUTIVE SUMMARY**

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Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Project (the Project or Mine), located approximately 25 kilometres (km) north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut. The mine plan includes open pit and underground mining methods for the development of the Tiriganiaq gold deposit, with two open pits (Tiriganiaq Pit 1 and Tiriganiaq Pit 2) and one underground mine.

The underground mine will operate below the base of the continuous permafrost and will act as a sink for groundwater flow during operation, with water induced to flow through the bedrock to the underground mine workings.

Groundwater from the underground mine workings will be collected and pumped for storage on the surface in the water containment ponds to manage surface and groundwater, as described in the Mine Water Management Plan (WMP; Agnico Eagle 2019c). The management of groundwater is further described in the Mine Groundwater Management Plan (GWMP; Agnico Eagle 2019f), which entails the discharge of saline groundwater to Meliadine Lake after treatment, in compliance with Agnico Eagle's Type A Water Licence 2AM-MEL1631, Part E, Item 14 (Nunavut Water Board; NWB 2016). As part of long-term water management, excess groundwater will be treated to meet, as applicable, Metal and Diamond Mining Effluent Regulations (MDMER), Canadian Council of Ministers of the Environment water quality guidelines for the protection of aquatic life (Marine; CCME) and/or background conditions at the edge of the mixing zone for discharge into Melvin Bay via an engineered diffuser.

This document presents the Mine's Ocean Discharge Monitoring Plan (ODMP) for discharge of treated groundwater effluent into the marine environment. It summarizes the field sampling study design strategy, methods, laboratory requirements, quality assurance and quality control (QA/QC), and reporting.

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## **APPENDICES**

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### **APPENDIX A**

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Modelling Assessment of Groundwater Discharge into Melvin Bay 2019



**DOCUMENT CONTROL**

| Version | Date      | Section | Page | Revision                                                                                                                                                                                                                                                               | Author                 |
|---------|-----------|---------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 1       | June 2018 | All     | All  | Conceptual Plan developed for the Treated Groundwater Effluent Discharge into Melvin Bay                                                                                                                                                                               | Golder Associates Ltd. |
| 2       | July 2019 | All     | All  | Updated Plan to comply with applicable commitments and/or approval conditions for the Mine, including incorporation of the 2018 Marine Reconnaissance results, 2018 Modelling Assessment for groundwater discharge and per requirements under MDMER for water quality. | Golder Associates Ltd. |

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**ACRONYMS**

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|                 |                                                   |
|-----------------|---------------------------------------------------|
| Agnico Eagle    | Agnico Eagle Mines Limited                        |
| ANOVA           | analysis of variance                              |
| CALA            | Canadian Association for Laboratory Accreditation |
| CCME            | Canadian Council of Ministers of the Environment  |
| DDH             | Diamond Drill Hole                                |
| CTD             | Conductivity, Temperature, Depth                  |
| ECCC            | Environment and Climate Change Canada             |
| EEM             | Environmental Effects Monitoring                  |
| FEIS            | Final Environmental Impact Statements             |
| FDP             | final discharge point                             |
| Golder          | Golder Associates Ltd.                            |
| GWMP            | Groundwater Management Plan                       |
| MDMER           | Metal and Diamond Mining Effluent Regulations     |
| Mine or Project | Meliadine Gold Mine                               |
| MMER            | Metal Mining Effluent Regulations (to 2017)       |
| NIRB            | Nunavut Impact Review Board                       |
| NWB             | Nunavut Water Board                               |
| ODMP            | Ocean Discharge Monitoring Plan                   |
| QA/QC           | Quality Assurance and Quality Control             |
| TDS             | total dissolved solids                            |
| TSS             | total suspended solids                            |
| WMP             | Water Management Plan                             |
| WQG             | water quality guideline                           |

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**SECTION 1 • INTRODUCTION**

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Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Project (the Project or Mine), located approximately 25 kilometres (km) north of Rankin Inlet, and 80 km southwest of Chesterfield Inlet in the Kivalliq Region of Nunavut, on Inuit Owned Lands. The Mine is located within the Meliadine Lake watershed of the Wilson Water Management Area (Nunavut Water Regulations Schedule 4). The projected life of the Mine consists of an estimated 3 years of construction, 13 years of operations, and 3 years of decommissioning.

The mine plan includes underground mining methods for the development of the Tiriganiaq gold deposit. The underground mine will extend to approximately 625 m below the ground surface; therefore, part of the underground mine will operate below the base of the continuous permafrost. The underground excavations will act as a sink for groundwater flow during operation, with water induced to flow through the bedrock to the underground mine workings once the Mine has advanced below the base of the permafrost. Inflow of groundwater is expected from 2018 until the end of mine life in 2032.

The overall water management for the life of the Mine and post-closure is described in the Agnico Eagle Meliadine Gold Mine Water Management Plan (WMP; Agnico Eagle 2019c) and the Groundwater Management Plan (GWMP; Agnico Eagle 2019f). The WMP provides descriptions of the Mine water control structures and associated design criteria, while the GWMP describes management of groundwater for discharge to Meliadine Lake after treatment, in compliance with Agnico Eagle's Type A Water Licence 2AM-MEL1631, Part E, Item 14 (Nunavut Water Board; NWB 2016).

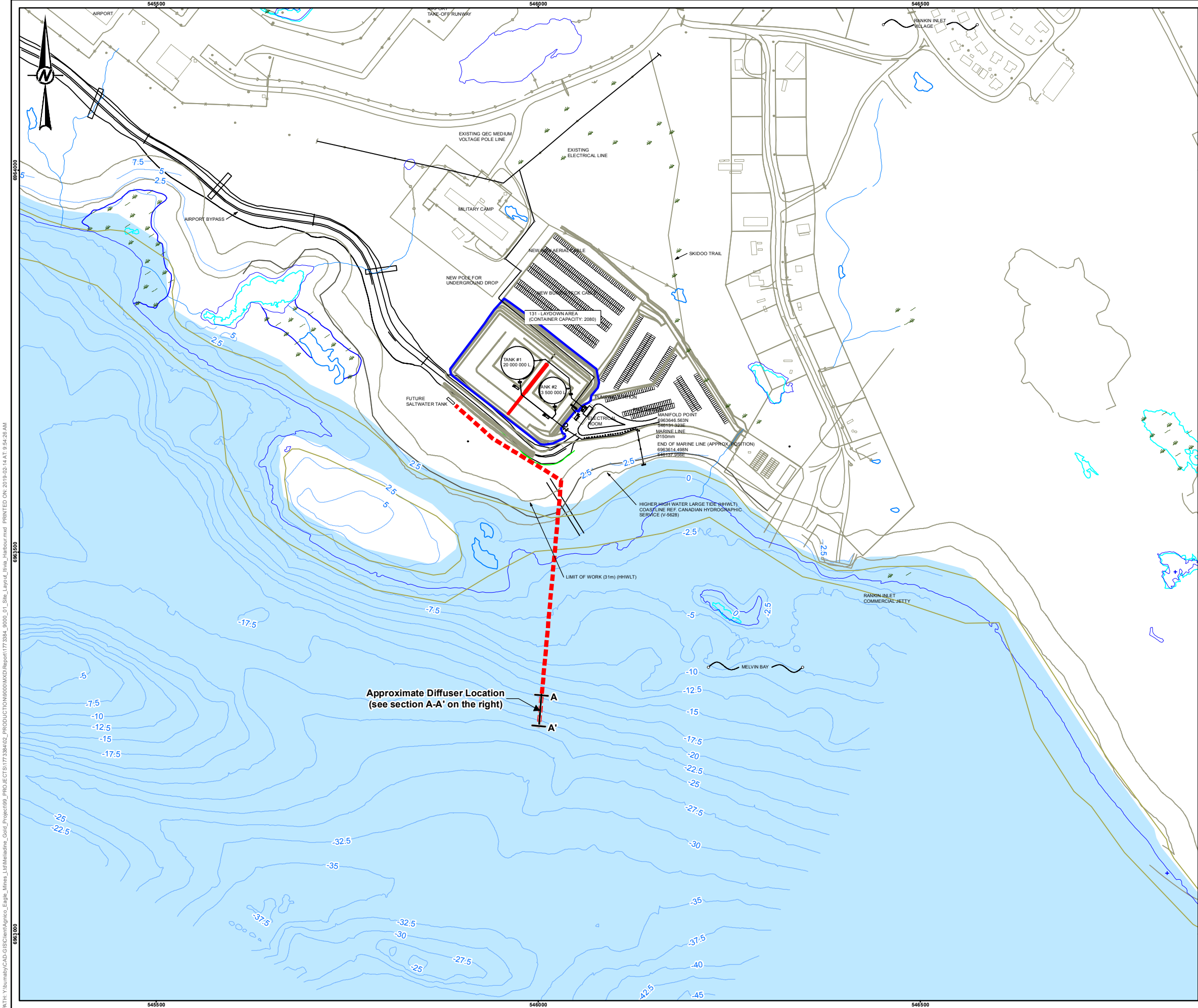
This document presents the Ocean Discharge Monitoring Plan (ODMP) for the discharge of excess treated groundwater into the marine environment at Itivia Harbour in Melvin Bay, to support long-term groundwater management for the Mine after treatment of the saline underground inflows to meet discharge water quality criteria for Melvin Bay and/or background conditions. This ODMP has been prepared in accordance with the Nunavut Impact Review Board (NIRB) Project Certificate No. 006 (Amendment 001) issued on February 26, 2018, and applicable legislation. As per the MDMER (GC 2018), the regulation applies to effluent discharge from a mine exceeding a flow rate of 50 cubic metres (m<sup>3</sup>) per day.

The ODMP describes the following:

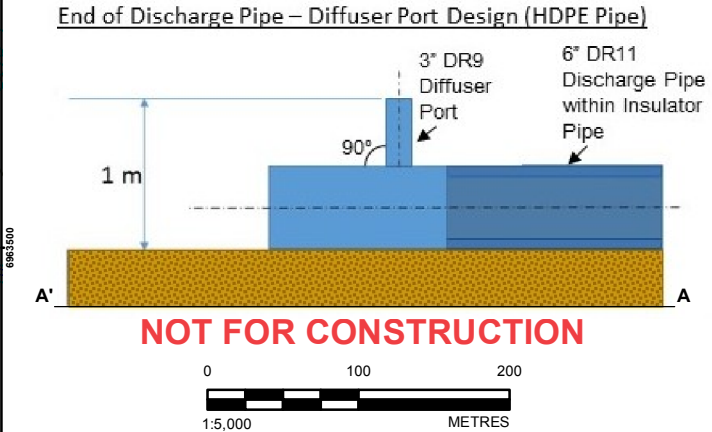
- Compliance with the federal Metal and Diamond Mining Effluent Regulations (MDMER).
- Adherence to relevant Canadian Council of Ministers of the Environment (CCME) Guidelines for the Protection of Aquatic Life and British Columbia Ministry of the Environment Guidelines in the regulatory mixing zone.
- Measures to detect short- and long-term effects of the discharge on the receiving environment.

- Identification of unforeseen adverse effects and provide early warnings of undesirable changes in the water quality.
- Inform potential mitigation measures based on results reported.

The ODMP will be updated as the Mine development advances, to include changes and/or regulatory conditions as applicable through construction, operations and closure.



- LEGEND**
- GENERAL AREA FOR THE DIFFUSER LOCATION
  - CROSS SECTION LOCATION
  - WATERCOURSE
  - WATERBODY
  - REEF



**REFERENCE(S)**  
BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED.  
DATUM: NAD 83 PROJECTION: UTM ZONE 15

**CLIENT**  
 **AGNICO EAGLE MINES LIMITED**

**PROJECT**  
**MELIADINE GOLD MINE**  
**NUNAVUT**

**TITLE**  
**SITE LAYOUT**  
**ITIVIA HARBOUR SITE**

|            |            |            |
|------------|------------|------------|
| CONSULTANT | YYYY-MM-DD | 2019-02-14 |
|            | DESIGNED   | CLT        |
|            | PREPARED   | CDB/MH     |
|            | REVIEWED   | BD         |
|            | APPROVED   | MT         |



PROJECT NO. 1773384 CONTROL 9000 REV. 0 FIGURE 1

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## SECTION 2 • RATIONALE FOR MONITORING APPROACH

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The ODMP outlines management of the discharge of excess groundwater from the underground mine to the marine environment after treatment, during the life of the Project to support long-term water management.

The ODMP focuses on water quality because no adverse effects are predicted from the marine discharge, based on the environmental conditions recorded, hydrogeological investigations and modelling assessments completed, adherence to existing project management plans in addition to this ODMP, and the effects assessed in the FEIS Addendum (Agnico Eagle 2018b). This is based on the following rationale:

- Only excess groundwater from development of the underground mine will be discharged to Melvin Bay.
- Groundwater will be treated prior to discharge to comply with MDMER.
- Modelling assessment results indicate that compliance with the applicable discharge criteria will be met well within the mixing zone (i.e., discharge will meet relevant CCME and BCMOE guidelines, as well as background concentrations, in Melvin Bay as a result of diffusion well within the 100 m regulatory mixing zone).

Summaries of relevant information and studies identified above are presented in the following subsections.

### 2.1 Discharge Overview

Treated groundwater effluent will be trucked to the discharge facility at the Itivia Fuel Storage Facility in Itivia Harbour, Rankin Inlet, for discharge during the open water season (May to October), for a maximum discharge of 800 m<sup>3</sup>/day. Four trucks, each with a 38 m<sup>3</sup> tank capacity, will travel daily to transport the treated groundwater effluent between the Mine site and the discharge facility.

The Itivia Fuel Storage Facility layout and outflow/diffuser placement are shown in Figure 1, and proposed construction drawings are included in Appendix A. The discharge facility will include a storage tank of approximately 50,000 L volume and a pipeline outflow extending to an engineered diffuser located in Melvin Bay. The storage tank will be installed in a containment area, built on geomembrane with underlying and overlaying granular materials, surrounded by berms. A pump station including two pumps will be installed in the containment area. The truck discharge pump will be used to transfer the effluent from the trucks directly into the sea (or to the storage tank), including a back-up truck discharge pump. The truck discharge pump will be connected to a 778 m long HDPE pipeline outflow. Ballast weights will be attached to the pipe to sink and hold it onto the seabed. A diffuser is connected at the end of the pipe to ensure effective diffusion of the treated groundwater effluent into the marine environment. The storage tank will contain treated groundwater until the next day if the 800 m<sup>3</sup>/day discharge limit is attained upon the truck's arrival (Agnico Eagle 2019b).

The treated groundwater effluent will be discharged seasonally in a controlled manner, through a diffuser to allow for maximum dilution and minimum impact on the marine environment. The receiving environment discharge location is estimated at a distance of approximately 230 m from the shoreline and a depth of approximately 20 m. Treated groundwater effluent quality is required to meet the Canadian federal end-of-pipe discharge criteria (per the amended MDMER; GC 2018) and to be non-acutely lethal. Treated groundwater will be discharged into Melvin Bay via an engineered diffuser (refer to Section 3.5 of the FEIS Addendum; Agnico Eagle 2018b) to meet Canadian Water Quality Guidelines (WQG; CCME 2003), or background concentrations for parameters without guidelines, at the edge of the mixing zone (as described in Sections 3 and 4).

## 2.2 Environmental Conditions

The receiving environment for the effluent discharge is located in Melvin Bay, northwest Hudson Bay at Rankin Inlet. Hudson Bay, and particularly the area including Melvin Bay, is usually ice-covered from November to June and ice-free from July to October (Stewart and Lockhart 2005; Cohen et al. 1994).

- At Rankin Inlet, the tidal range varies between 2.0 and 4.6 m and mean currents flow southward at around 0.22 m/s. Isobath lines are nearly parallel to coastline and depth rapidly increases reaching more than 20 m within 230 m off the coast.
- Marine environmental baseline studies in the Melvin Bay area were conducted in August 2011 by Nunami Stantec (2012; see Appendix B of the FEIS Addendum, Agnico Eagle 2018b).
- Surveys were conducted at three areas in Melvin Bay: near the effluent discharge location (Impact Area 1 [I1]) and two reference areas, one (Reference Area 1 [R1]) located approximately 0.9 km northeast of Itivia Harbour, and the other (Reference Area 2 [R2]) on the southern shore of Melvin Bay, 1.5 m south from Itivia Harbour.
- Water quality measurements conducted by Nunami Stantec (2012) showed no water column stratification with the mean temperature ranging from 8.9°C at the surface to 8.5°C at the bottom (up to approximately 13 m depth), and the mean salinity ranging from 29.32 ppt at the surface to 29.33 ppt at the bottom. Water was well oxygenated with dissolved oxygen saturation ranging from 113.6 to 115.6% (10.8 to 11.2 mg/L). Nutrients and metals were mostly below detection limits and lower than the WQG for the Protection of Aquatic Life (Marine; CCME 2003).
- Sediments in the areas with water depths of up to 6.6 m were dominated by coarse material (cobble and gravel) in most samples (Nunami Stantec 2012).
- Sediment chemistry analysis of the fine substrate fraction revealed concentrations below CCME Interim Sediment Quality Guidelines (ISQG; CCME 2001) for all parameters except chromium. Chromium concentrations slightly exceeded the ISQG of 52.3 mg/kg for this element at all sample stations, with mean concentrations (plus/minus standard deviation) ranging from  $55.8 \pm 5.89$  mg/kg at I1 to  $60.2 \pm 6.12$  mg/kg at R2.



- In general, benthic invertebrate abundance and diversity in the area is low; in the intertidal zone, benthic communities occur seasonally when the habitat is not influenced by ice (Stewart and Lockhart 2005). Abundance in the subtidal habitat was also low in late summer (August), with most of the organisms observed less than 1 cm in length, suggesting a low biomass (Nunami Stantec 2012).
- Only six species of fish were identified during the baseline study in 2011 (Nunami Stantec 2012). Greenland cod (*Gadus ogac*) represented over 50% of fish captured, followed by slender eelblenny (27%) and minor contributions of different species of sculpins. Arctic char was not observed during the baseline field study, but was reported to be in the area at the time of the field study (west of Melvin Bay near the Barrier Islands).
- The baseline study conducted in 2011 indicated that most marine birds that occur in the vicinity of Rankin Inlet are summer residents and no SARA listed marine bird species occur near Rankin Inlet (Nunami Stantec 2012).
- Marine mammals potentially present in the north and northwest Hudson Bay for variable periods of time include 4 species of cetaceans (3 toothed whales and one baleen whale), 6 species of pinnipeds (seals and walrus), and polar bear. (see Table B-3 of Appendix B in the Shipping Management Plan; Agnico Eagle 2019g). Polar bears (*Ursus maritimus* – Special Concern under SARA) are uncommon to the area. A summary of listed marine mammal species with potential to occur in marine RSA is provided in Table B-5 of Appendix B in the Shipping Management Plan (Agnico Eagle 2019g).

### 2.2.1 Marine Reconnaissance Survey Summary

A marine reconnaissance survey was carried out in September 2018 to establish appropriate reference areas and collect baseline data on physical properties of the water column, water and sediment quality, benthic substrate, benthic communities and marine mammal occurrence (Golder 2019a).

For the purpose of the ODMP, this section will focus on water quality results; however, sediment quality, benthic substrate and benthic community data are available in Appendix B. The program collected data from the exposure area and three reference areas (A, B and R1).

In situ profiles were taken using a conductivity, temperature and depth (CTD) probe. Uniform physical properties were observed in the water column, indicating well-mixed conditions with no vertical stratification. Water temperature was slightly lower near the bottom and ranged from 5.1 to 6.2°C, whilst salinity results ranged from 30.7 to 30.9 ppt. Water was clear, with turbidity usually between 1.2 and 2.4 NTU, and the exposure area and reference area R1 were slightly more turbid than reference areas A and B. A maximum turbidity was 6.1 NTU was observed at surface in reference area B, which could possibly be related to dust deposition. Chlorophyll *a* concentrations were typical for Arctic waters, being classified as oligotrophic to mesotrophic marine systems (0.4 to 1.5 µg/L), consistent with total phosphorus results.



Total suspended solids concentration varied between non-detect (<2 mg/L) to 3.8 mg/L, while total organic carbon concentrations were between 1.01 and 1.79 mg/L, with large fraction of dissolved organic carbon. As observed in previous programs, results for several nutrients and most metals were below detection limits and did not exceed CCME guidelines. Variability in concentrations of detected metals was small, with greater variability recorded between sampling days. This observation emphasizes the well-mixed characteristic of the waters in Melvin Bay and adjacent areas, as well as similarity among areas. Similar oceanographic conditions were observed for reference areas A, B and R1 and the exposure area, and with the exception of R1, which is shallower, similar depth contours were also observed.

### 2.3 Hydrogeological Investigations

Supplemental hydrogeological investigations were undertaken in 2015 and 2016 to provide additional information on potential volumes and quality of saline groundwater inflows to the underground mine to be managed. The total volume of the groundwater inflow in the Mine is expected to be up to 420 m<sup>3</sup>/day (Golder 2016). Adding to the maximum anticipated groundwater volume to be stored at the Mine, this will result in a need to discharge up to 800 m<sup>3</sup>/day (Agnico Eagle 2019f).

Total dissolved solid (TDS) concentrations in groundwater are naturally high, expected to range from 50,000 to 64,000 mg/L, according to groundwater data collected by Agnico Eagle in 2017 (a summary of groundwater quality is presented in Table 3, Section 3.4.2 of the FEIS Addendum; Agnico Eagle 2018b). Since mining operations include drill-and-blast excavation, certain parameters are expected to be influenced by explosives (particularly ammonia and nitrate due to ammonium nitrate, fuel oil [ANFO] and emulsion explosives). Chloride, sodium and calcium are also naturally high in concentration in the untreated groundwater, averaging higher concentrations than those recorded in Melvin Bay (Tables 1 and 2). Therefore, to minimize effects on the environment, and to comply with the effluent discharge criteria and objectives (as described in Section 3), groundwater will be treated prior to discharge.

**Table 1: Summary of Average Water Temperature and Salinity in Melvin Bay under Background Conditions and in Untreated Groundwater**

| Parameter                     | Averages         |                             |
|-------------------------------|------------------|-----------------------------|
|                               | Melvin Bay       | Untreated Groundwater       |
| Temperature (°C)              | 5.92 to 8.75     | -3.4 to +3.8 <sup>(a)</sup> |
| Salinity                      | 30.7 to 30.9 psu | 55 to 56 ppt <sup>(b)</sup> |
| Total Dissolved Solids (mg/L) | 34,727           | 55,700                      |

Source: Melvin Bay – 2018 Marine Reconnaissance data (Golder 2019a) and Nunami Stantec (2012). Mine Groundwater – Agnico Eagle 2017 data.

- (a) Average temperatures per observations of Diamond Drill Hole (DDH) samples, as provided by Agnico Eagle. This does not account for the influence of ambient temperature for groundwater stored in containment ponds at the Mine.
- (b) Estimated average groundwater salinity based on average TDS concentrations in groundwater presented in FEIS Addendum, Section 3.4.2, Table 3 (55,700 mg/L average TDS; Agnico Eagle 2018b). Salinity in groundwater has not been measured. TDS values are comparable to salinity as TDS represents an estimate of the total concentration of ions, typically salt ions, that are present in the water. This may, however, overestimate the salinity of the untreated groundwater, as TDS also includes organic solutes (for example, hydrocarbons and urea) in addition to salt ions. Note on units for salinity – in practice the units of psu and ppt are considered the same (nearly equivalent by design).

**Table 2: Summary of Average Concentrations of Selected Ions in Melvin Bay under Background Conditions and in Untreated Groundwater**

| Ion                         | Averages         |                                      |
|-----------------------------|------------------|--------------------------------------|
|                             | Melvin Bay       | Untreated Groundwater <sup>(a)</sup> |
| Chloride (Cl) - (mg/L)      | 16,655 to 20,000 | 32,315                               |
| Sodium (Na) - Total (mg/L)  | 9,344 to 11,000  | 14,365                               |
| Calcium (Ca) - Total (mg/L) | 360              | 2,032                                |

Source: Melvin Bay - 2018 Marine Reconnaissance data (Golder 2019a) and Nunami Stantec (2012). Mine Groundwater– Agnico Eagle 2017 data (Agnico Eagle 2018b).

- (a) Averages per untreated groundwater concentrations presented in FEIS Addendum, Section 3.4.2, Table 3 (Agnico Eagle 2018b).

## 2.4 Modelling Assessments

The assessment of effects in the FEIS Addendum (Agnico Eagle 2018b) used a numeric simulation to model behaviour of the effluent plume in the marine environment (refer to Appendix E of the FEIS Addendum, Agnico Eagle 2018b). Modelling has shown that a discharge of 420 m<sup>3</sup>/day effluent through the diffuser will reach the required dilution factor within a short distance from the diffuser port (within 1 to 3 m). The plume is characterized by negative buoyancy and the maximum plume height expected is about 14 m above the seabed.

The assessment concluded that the treated groundwater discharge through the diffuser would result in a minor environmental change, but would have a negligible residual effect on fish and fish habitat and marine birds and marine mammals relative to baseline or guideline values provided that mitigation measures are in place. Mitigation measures include treatment of groundwater to meet regulatory discharge criteria (particularly the MDMER), discharge through a diffuser that aids in mixing, and implementation of the water quality monitoring per MDMER Schedule 5 Section 7(1).

A modelling assessment was conducted in February 2019 (Golder 2019b), consisting of nearshore oceanographic modelling of the discharge and is presented in Appendix C. The study had the objective of modelling the near-field dispersion of the treated groundwater effluent plume and assessing the plume dilution behavior for additional discharge scenarios from those evaluated for the FEIS Addendum, and did not include geotechnical, structural or hydraulic engineering assessments of the outfall. The scenarios modelled assumed the discharge at the quantities and qualities per the estimated underground inflow volumes (Golder 2016) and estimated groundwater inputs to surface storage for management after treatment and transport to the Itivia Fuel Storage Facility.

Discharge conditions for modelling took into account marine environment temperatures during open water conditions (assumed at 0°C conservatively to account for the early and late stages of the open water season), outfall lengths and water depth at discharge location, single diffuser nozzle elevated above the seabed, direction of discharge (upward port), and treated groundwater effluent temperature.

Modelling for weak and mean current conditions was completed, including a temperature sensitivity analysis simulation for a treated groundwater effluent temperature of 20°C and marine environment temperature of 8.5°C. Temperature sensitivity was analyzed to account for changing ambient conditions in the ocean water and to account for the highest possible (though not likely) possible effluent temperature.

Results from the modelling assessment indicated that, under all scenarios, the plume centerline dilution factor reaches the desired dilution factor of 11 within a short distance from the diffuser port (Golder 2019b). In summary, the results show that:

- The required dilution is met within 1 m horizontal and 6 m vertical distance from the diffuser, under the assumed conditions (including sensitivity analysis for temperature variation).
- The plumes rise higher in the water column as discharge temperatures increase due to slight reductions in density (reduced negative buoyancy).
- At a flow rate of 800 m<sup>3</sup>/day, the dilution factors at 100 m from the diffuser are increased due to accelerated plume mixing due to higher discharge velocities.
- After initial mixing, the plume migrates along the seabed under gravity and achieves further dilution and mixing with ambient water; concentrations within the 100 m regulatory mixing zone will thus meet discharge criteria per regulatory requirements and/or background concentrations for non-regulated parameters, per the modelled conditions.
- The modelling results are considered to be valid for placement of the diffuser in Melvin Bay in water depths of at least 20 m.

## 2.5 Project Management Plans

Agnico Eagle has developed Management Plans that are applicable to the Mine site, the All-Weather Access Road (AWAR), and the Itivia Fuel Storage Facility.

Updates to the plans have been developed, as required, and submitted to the NIRB and NWB throughout development of the Mine. Table 3 lists the management plans for the Mine as they apply for the ocean discharge, with indications on any potential changes that may be required in future updates. Agnico Eagle is committed to adhering to existing plans that have been developed for the Mine as part of NIRB Project Certificate No. 006 and NWB Type A Water Licence 2AM-MEL1631 conditions. This includes reporting requirements required to measure the achievement of objectives as set out by approval conditions or to demonstrate compliance, such as annual reporting on Project monitoring programs.

**Table 3: Project Management Plans Applicable to the Ocean Discharge Activities**

| Management Plan                                                                                | Reference                                    |
|------------------------------------------------------------------------------------------------|----------------------------------------------|
| Risk Management and Emergency Response Plan                                                    | Updated and resubmitted (Agnico Eagle 2015)  |
| Hazardous Materials Management Plan                                                            | Updated and resubmitted (Agnico Eagle 2018a) |
| Spill Contingency Plan                                                                         | Updated and resubmitted (Agnico Eagle 2019a) |
| Water Management Plan                                                                          | Updated and resubmitted (Agnico Eagle 2019c) |
| Mine Waste Management Plan                                                                     | Updated and resubmitted (Agnico Eagle 2019d) |
| Roads Management Plan                                                                          | Updated and resubmitted (Agnico Eagle 2019e) |
| Groundwater Management Plan                                                                    | Submitted (Agnico Eagle 2019f)               |
| Shipping Management Plan<br>(including the Marine Environmental Management Plan as Appendix D) | Updated and resubmitted (Agnico Eagle 2019g) |
| Ocean Discharge Monitoring Plan                                                                | This document                                |

**Notes:**

Updated management plans are resubmitted to the NIRB and the NWB as appropriate, in compliance with respective NIRB Project Certificate No. 006 or NWB Type A Water Licence (No. 2AM-MEL1631, 2016) terms and conditions, as adaptive management measures or changes are applied as the Project develops.

## 2.6 Potential Effects

The potential effects from the discharge of treated groundwater effluent to the marine environment were assessed in the FEIS Addendum (Agnico Eagle 2018b). Effect pathways specific to the treated groundwater effluent discharge activity assessed included the following:

- Change in fish and benthic invertebrate habitat quality due to discharge of groundwater effluent.
- Change in health and survivorship of fish (including benthic invertebrates) due to the quality of the groundwater effluent discharge.
- Change in marine bird and mammal habitat quality due to the quality of the groundwater effluent discharge.

- Change in health and survivorship of marine birds and mammals due to the quality of the groundwater effluent discharge.
- Change in water quality of the marine environment due to the quality of the groundwater effluent discharge.
- Accidental release of groundwater effluent from an unknown location along the discharge pipe can have adverse effects on marine water quality and associated indirect effects on marine wildlife (fish, benthic invertebrates, marine birds, marine mammals).

Groundwater will be treated prior to discharge to comply with the effluent discharge criteria (refer to Section 3). These criteria are set to be protective of marine aquatic life. For parameters with no regulated guidelines for discharge, the discharge concentration objectives conservatively considered for the assessment were 95% of the Upper Confidence Level of the Mean (UCLM) for groundwater. For most parameters, these are below baseline concentrations at Melvin Bay, whereas 11 parameters are expected to exceed baseline concentrations.

### SECTION 3 • MONITORING DESIGN

The following are the main components of the ODMP:

- Effluent monitoring at the Final Discharge Point (FDP; end-of-pipe monitoring) to verify compliance of saline groundwater properties with the discharge criteria and to characterize effluent quality under MDMER.
- Environmental effects monitoring to assess short- and long-term effects to water quality from the discharge of treated groundwater effluent on marine environment (Receiving Environment, Exposure Area and Reference Area A), in relation to CCME and BCMOE guidelines as well as background concentrations.

The objectives of the ODMP are to:

- Comply with applicable regulatory requirements.
- Detect short- and long-term effects of the discharge on the receiving environment based on the results obtained, and identify unforeseen adverse effects and provide early warnings of undesirable changes in the water quality.
- Inform mitigation through adaptive management measures, as appropriate, based on the results and trends observed.

**Table 4: Ocean Discharge Monitoring Program – Monitoring Locations**

| Description                                         | Location                                                | Centroid Location Coordinates (NAD 83) |
|-----------------------------------------------------|---------------------------------------------------------|----------------------------------------|
| Final Discharge Point (FDP; end-of-pipe monitoring) | MEL-26, Sampling Valve (downstream of the storage tank) | 62°48'01.99" N 92°06'00.05" W          |
| Receiving Environment                               | MWE-1, Diffuser Location                                | 62°47'48.43" N 92°05'53.10" W          |
| Exposure Area                                       | Melvin Bay                                              | 62°47'49.24" N 92°05'52.97" W          |
| Reference Area A                                    | Melvin Bay                                              | 62°46'55.38" N 92°07'01.43" W          |

A summary of monitoring components, sampling frequency and design is provided in Table 4.

**Table 5: Ocean Discharge Monitoring Program – Sampling Summary**

| Monitoring Component                      | Sampling Frequency                                            | Monitoring Location                                              | Sample Replication and Number of Samples                                                                                                                                                      |
|-------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Deleterious Substances (MDMER Schedule 4) | Once per week                                                 | ▪ FDP                                                            | One grab sample.                                                                                                                                                                              |
| Effluent Characterization                 | Four times a year, at least one month apart, during discharge | ▪ FDP                                                            | One grab sample.                                                                                                                                                                              |
| In situ Water Column Measurements         | Four times a year, once a month during discharge              | ▪ Receiving Environment<br>▪ Exposure Area<br>▪ Reference Area A | 7 stations in the Receiving Environment and Exposure Area, 3 stations in Reference Area A.<br><br>One vertical profile per station.                                                           |
| Water Quality                             | Four times a year, once a month during discharge              | ▪ Receiving Environment<br>▪ Exposure Area<br>▪ Reference Area A | 7 stations in the Receiving Environment and Exposure Area, 3 stations in Reference Area A.<br><br>One sample at 1 m below the surface and one sample at 5 m above the bottom at each station. |

Notes:

Sampling requirements per Metal and Diamond Mining Effluent Regulations (MDMER; GC 2018).

FDP = Final Discharge Point (end of pipe).

Receiving Environment = Diffuser Location.

### 3.1 Effluent Monitoring

#### 3.1.1 Deleterious Substances

Effluent water at the FDP (end-of-pipe) will be measured for pH and analyzed for concentrations of deleterious substances listed in MDMER Schedule 4 (GC 2018) once per week during discharge.

#### 3.1.3 Effluent Characterization

Effluent characterization will be conducted at least one month apart, four times a year. Effluent will be sampled and analyzed for the following parameters:

- General parameters, including pH, TDS, total suspended solids, hardness, alkalinity, electrical conductivity, salinity and temperature.
- Anions including sulphate and chloride.
- Nutrients, including ammonia and nitrate.
- Total metals, including those listed in MDMER Schedule 4 and Schedule 5, paragraph 4 (1).

### 3.2 Water Quality Monitoring

Agnico Eagle will adhere to MDMER EEM requirements for water quality assessments outlined in Table 4. Overall, samples will be collected four times a year, at least one month apart during discharge, at seven stations in the exposure area and three stations in reference area A. Further details on sampling and analytical requirements are provided below.

### 3.2.1 Sampling Locations and Depths

Current sampling locations are based on the diffuser location provided to ECCC on April 29, 2019 in compliance with the MDMER for a new discharge point, and may change slightly based on construction. The central coordinates for the monitoring locations are presented in Table 5 for the FDP, Receiving Environment, and the Exposure Area. Locations will be sampled based on the following rationale:

- One station at the FDP (sampling valve downstream of the storage tank).
- One station at the Receiving Environment location to characterize water quality at the point of the discharge.
- Four stations at 100 m in the Exposure Area – these stations are at the edge of the mixing zone and can be downstream of the Receiving Environment discharge point depending on current direction (i.e., tidal and wind-driven).
- Two stations at 250 m in the Exposure Area – as per MDMER Schedule 5, these are additional stations to estimate concentration of effluent in the Exposure Area at 250 m from the discharge point.
- Two water depths will be sampled at each station to account for horizontal and vertical dispersion of the discharge plume due to oceanographic conditions of water column structure, e.g., horizontal and vertical currents, mixing/stratification. These will be 1 m below the water surface and 5 m above the bottom.

At Reference Area A, three sampling stations will be visited to comply with the recommended minimum requirement to account for variability, as per the Metal Mining Technical Guidance Document (TGD; GC 2012). As in the exposure area, samples will be collected from two depths at each sampling station.

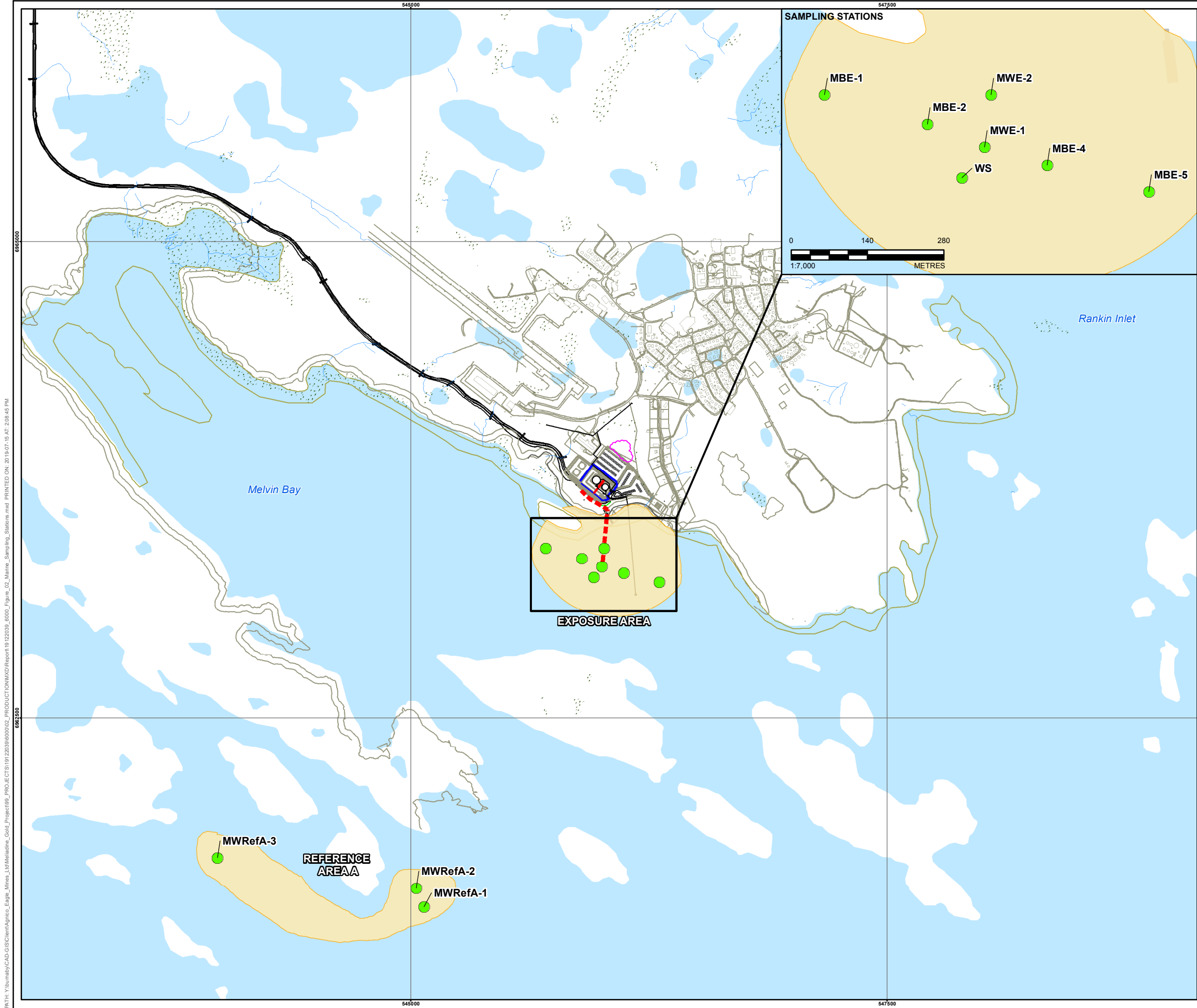
Coordinates for the Exposure Area and the Reference Area A are provided below in Table 6 and Figure 2.



**Table 6: List of Sampling Stations and Coordinates in Melvin Bay**

| Sampling Area                              | Station Name | UTM Coordinates<br>NAD 83 Zone 15 |                 | Geographical Coordinates System<br>NAD 83 |                 |
|--------------------------------------------|--------------|-----------------------------------|-----------------|-------------------------------------------|-----------------|
|                                            |              | Easting<br>(m)                    | Northing<br>(m) | Longitude<br>(°)                          | Latitude<br>(°) |
| Receiving Environment<br>(Discharge Point) | MWE-1        | 546002                            | 6963295         | -92.0980                                  | 62.7970         |
| Exposure Area                              | WS           | 545960                            | 6963239         | -92.0989                                  | 62.7965         |
|                                            | MWE-2        | 546014                            | 6963391         | -92.0978                                  | 62.7979         |
|                                            | MBE-1        | 545708                            | 6963391         | -92.1038                                  | 62.7979         |
|                                            | MBE-2        | 545897                            | 6963337         | -92.1001                                  | 62.7974         |
|                                            | MBE-4        | 546117                            | 6963262         | -92.0958                                  | 62.7967         |
|                                            | MBE-5        | 546304                            | 6963213         | -92.0922                                  | 62.7962         |
| Reference Area A                           | MWRefA-1     | 545070                            | 6961511         | -92.1168                                  | 62.7811         |
|                                            | MWRefA-2     | 545025                            | 6961609         | -92.1176                                  | 62.7820         |
|                                            | MWRefA-3     | 543985                            | 6961768         | -92.1380                                  | 62.7836         |

Notes: UTM = Universal Transverse Mercator coordinate system; NAD 83 = North American Datum 83.



**LEGEND**

- MARINE SAMPLING STATION - CTD/WATER QUALITY
- GENERAL AREA FOR THE DIFFUSER LOCATION
- STUDY AREA
- WATERBODY
- WATERCOURSE

**REFERENCE(S)**

- BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED.
- DATUM: NAD83 PROJECTION UTM ZONE 15

CLIENT

**AGNICO EAGLE**

AGNICO EAGLE MINES LIMITED

PROJECT

MELIADINE GOLD MINE

OCEAN DISCHARGE MONITORING PROGRAM

TITLE

**MARINE SAMPLING STATIONS**

|            |            |            |
|------------|------------|------------|
| CONSULTANT | YYYY-MM-DD | 2019-07-15 |
|            | DESIGNED   | ER         |
|            | PREPARED   | CN         |
|            | REVIEWED   | ER         |
|            | APPROVED   | ZK         |

|             |         |      |        |
|-------------|---------|------|--------|
| PROJECT NO. | CONTROL | REV. | FIGURE |
| 19122039    | 6000    | 0    | 2      |

**GOLDER**

### 3.2.2 Field and Laboratory Requirements

To be compliant with all requirements from the MDMER and provide sufficient information for the interpretation of the results, *in situ* profile measurements will be taken with a CTD at every water quality sampling station to assess water column physical properties (i.e., temperature, salinity, and turbidity). Dissolved oxygen point measurements will be taken to adhere to MDMER requirements.

Samples will be stored in clean laboratory-provided containers, preserved accordingly and will be sent to accredited commercial laboratories for analysis as quickly as feasible. For parameters with short hold-time requirements (i.e., 72 h or less: pH, turbidity, ammonia, nitrate, nitrite), hold-time exceedances are expected to occur.

Laboratory analysis will follow the MDMER detection limit requirements as per Schedule 3 and will include deleterious substances listed in Schedule 4 and Schedule 5 paragraph 4(1), as well as other metals and additional parameters recommended by TGD (GC 2012).

Table 7 provides a list of parameters to be analyzed, minimum recommended detection limits and recommended hold-time for analysis.

**Table 7: List of Sampling Parameters for Water Quality Monitoring**

| Parameter Group         | Parameter                | Units                   | Method Detection Limit Required | Recommended Hold-Time for analysis <sup>(a)</sup> |
|-------------------------|--------------------------|-------------------------|---------------------------------|---------------------------------------------------|
| Conventional Parameters | pH                       | -                       | -                               | 0.25 h                                            |
|                         | Total Dissolved Solids   | mg/L                    | -                               | 7 days                                            |
|                         | Total Suspended Solids   | mg/L                    | 2                               | 7 days                                            |
|                         | Specific Conductivity    | µS/cm                   | 1                               | 28 days                                           |
|                         | Hardness                 | mg CaCO <sub>3</sub> /L | 1                               | 180 days                                          |
|                         | Alkalinity               | mg CaCO <sub>3</sub> /L | 2                               | 14 days                                           |
|                         | Salinity                 | -                       | -                               | 28 days                                           |
| Major Ions              | Calcium                  | mg/L                    | -                               | 180 days                                          |
|                         | Chloride                 | mg/L                    | 60                              | 28 days                                           |
|                         | Fluoride                 | mg/L                    | -                               | 28 days                                           |
|                         | Magnesium                | mg/L                    | -                               | 180 days                                          |
|                         | Potassium                | mg/L                    | -                               | 180 days                                          |
|                         | Sodium                   | mg/L                    | -                               | 180 days                                          |
|                         | Sulphate                 | mg/L                    | 0.6                             | 28 days                                           |
| Nutrients               | Ammonia                  | mg-N/L                  | 0.05                            | 3 days                                            |
|                         | Nitrate                  | mg-N/L                  | 1.47                            | 3 days                                            |
|                         | Nitrite                  | mg-N/L                  | -                               | 3 days                                            |
|                         | Total Kjeldahl Nitrogen  | mg-N/L                  | -                               | 28 days                                           |
|                         | Orthophosphate           | mg-P/L                  | -                               | 3 days                                            |
|                         | Total Phosphorus         | mg-P/L                  | 0.05                            | 3 days                                            |
|                         | Silicate                 | mg/L                    | -                               | 28 days                                           |
|                         | Total Organic Carbon     | mg/L                    | -                               | 28 days                                           |
|                         | Dissolved Organic Carbon | mg/L                    | -                               | 28 days                                           |

| Parameter Group | Parameter  | Units | Method Detection Limit Required | Recommended Hold-Time for analysis <sup>(a)</sup> |
|-----------------|------------|-------|---------------------------------|---------------------------------------------------|
| Total Metals    | Aluminium  | mg/L  | 0.005                           | 180 days                                          |
|                 | Antimony   | mg/L  | -                               | 180 days                                          |
|                 | Arsenic    | mg/L  | 0.0025                          | 180 days                                          |
|                 | Barium     | mg/L  | -                               | 180 days                                          |
|                 | Beryllium  | mg/L  | -                               | 180 days                                          |
|                 | Bismuth    | mg/L  | -                               | 180 days                                          |
|                 | Boron      | mg/L  | -                               | 180 days                                          |
|                 | Cadmium    | mg/L  | 0.000045                        | 180 days                                          |
|                 | Chromium   | mg/L  | 0.00445                         | 180 days                                          |
|                 | Cobalt     | mg/L  | 0.00125                         | 180 days                                          |
|                 | Copper     | mg/L  | 0.001                           | 180 days                                          |
|                 | Iron       | mg/L  | 0.15                            | 180 days                                          |
|                 | Lead       | mg/L  | 0.0005                          | 180 days                                          |
|                 | Manganese  | mg/L  | 0.005                           | 180 days                                          |
|                 | Mercury    | mg/L  | 0.00001                         | 28 days                                           |
|                 | Molybdenum | mg/L  | 0.0365                          | 180 days                                          |
|                 | Nickel     | mg/L  | 0.0125                          | 180 days                                          |
|                 | Selenium   | mg/L  | 0.0005                          | 180 days                                          |
|                 | Silver     | mg/L  | -                               | 180 days                                          |
|                 | Strontium  | mg/L  | -                               | 180 days                                          |
|                 | Thallium   | mg/L  | 0.0004                          | 180 days                                          |
|                 | Tin        | mg/L  | -                               | 180 days                                          |
|                 | Titanium   | mg/L  | -                               | 180 days                                          |
|                 | Uranium    | mg/L  | 0.0075                          | 180 days                                          |
|                 | Vanadium   | mg/L  | -                               | 180 days                                          |
|                 | Zinc       | mg/L  | 0.010                           | 180 days                                          |
| Radionuclides   | Radium 226 | Bq/L  | 0.01                            | 180 days                                          |
| Other           | Cyanide    | mg/L  | 0.005                           | 14 days                                           |

(a) Provided by ALS and may vary depending on the laboratory responsible for analysis.

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

Quality assurance (QA) refers to plans or programs that encompass a wide range of internal and external management and technical practices designed to ensure the collection of data of known quality that matches the intended use of the data. Quality control (QC) is a specific aspect of QA that refers to the internal techniques used to measure and assess data quality.

Quality assurance protocols will be followed so data are of known, acceptable, and defensible quality. To make certain that field data collected are of known, acceptable, and defensible quality, field staff will be trained to be proficient in standardized sampling procedures, data recording using standardized forms, and equipment operations applicable to the monitoring program. Field work will be completed according to specified instructions and established technical procedures for sample collection, preservation, handling, storage, and shipping. Canadian Association for Laboratory Accreditation (CALA) accredited laboratories will be selected for sample analysis. Accreditation programs are utilised by the laboratories so that performance evaluation assessments are conducted routinely for laboratory procedures, methods, and internal quality control. A data management system will be utilized so that an organized consistent system of data control, data analysis, and filing will be applied to the program.

The QC component consists of applicable field and sample handling procedures, and the preparation and submission of two types of QC samples for laboratory analysis: blanks (e.g., travel, field, equipment) and duplicate/split samples. Quality control procedures implemented for this program will consist of the preparation and submission of field blanks, trip blanks, and duplicate water samples. QC samples will be collected with a frequency of approximately 5 to 10% of the total number of samples as duplicates, per current Mine site practices.

## SECTION 4 • BENCHMARKS AND DIFFERENCE CRITERIA

This section sets quality benchmarks and difference criteria against which the effluent and/or the marine environment will be monitored, and whose exceedance will be considered to indicate effects of the treated effluent discharge. The following criteria are discussed:

- A benchmark is a set concentration of a substance in water that is expected to be protective of aquatic life, e.g., CCME WQGs for the protection of aquatic life.
- A difference criterion is a magnitude of environmental change, which, if reached, indicates a change outside of background variability. As per the TGD (GC 2012), a factor of two will be used as difference criteria for water quality parameters when comparing exposure data to reference or baseline.

### 4.1 Effluent Monitoring

The benchmarks applicable for effluent monitoring (i.e., end-of-pipe) for deleterious substances are the authorized limits outlined in Schedule 4 of the MDMER. The maximum authorized concentrations for monthly mean, composite and grab samples are presented in Table 8. The values provided below are in force to May 31, 2021. In anticipation of the revised limits coming into force on June 1, 2021, the plan will be updated accordingly.

**Table 8: Authorized Limits of Deleterious Substances in Effluent**

| Deleterious Substance <sup>(a)</sup> | Unit | Maximum Authorized Monthly Mean Concentration | Maximum Authorized Concentration in a Composite Sample | Maximum Authorized Concentration in a Grab Sample |
|--------------------------------------|------|-----------------------------------------------|--------------------------------------------------------|---------------------------------------------------|
| Arsenic                              | mg/L | 0.50                                          | 0.75                                                   | 1.00                                              |
| Copper                               | mg/L | 0.30                                          | 0.45                                                   | 0.60                                              |
| Cyanide                              | mg/L | 1.00                                          | 1.50                                                   | 2.00                                              |
| Lead                                 | mg/L | 0.20                                          | 0.30                                                   | 0.40                                              |
| Nickel                               | mg/L | 0.50                                          | 0.75                                                   | 1.00                                              |
| Zinc                                 | mg/L | 0.50                                          | 0.75                                                   | 1.00                                              |
| Total Suspended Solids               | mg/L | 15.00                                         | 22.50                                                  | 30.00                                             |
| Radium 226                           | Bq/L | 0.37                                          | 0.74                                                   | 1.11                                              |

Note: All concentrations are total values.

(a) Per Metal and Diamond Mining Effluent Regulations (MDMER; GC 2018) Schedule 4 Authorized Limits of Deleterious Substances - Maximum Authorized Monthly Mean Concentration (in force as of June 1, 2018). This will be complied with at the FDP or end-of-pipe (i.e., after treatment).

In compliance with MDMER Section 14.2 groundwater effluent is not expected to be acutely lethal to threespine stickleback. As previously indicated, the groundwater effluent will be treated prior to discharge in compliance with MDMER requirements, and the modelling assessment (Section 2.4) shows that the required dilution is met well within the regulatory mixing zone from the diffuser, under the assumed conditions. If the salinity value of the effluent is equal to or greater than ten parts per thousand, the mine will evaluate whether the effluent is acutely lethal by conducting an acute lethality test in accordance with the procedures set out in section 5 or 6 of Reference Method EPS 1/RM/10.

## 4.2 Water Quality

The benchmarks used for water quality variables in the receiving environment are water quality guidelines currently in effect, consisting of the CCME WQG for the Protection of Marine Aquatic Life, British Columbia Ministry of Environment (BC MOE 2017a) Approved WQG for Marine Aquatic Life (Short-Term) and BC MOE Working WQG for Marine Aquatic Life (BC MOE 2017b) at the edge of the mixing zone, located 100 m from the diffuser (Table 9).

For parameters for which no WQGs exist, concentrations from the exposure area will be compared to baseline concentrations and concentrations in the reference area.

Concentration of a parameter will be considered elevated in the exposure area in comparison to baseline or reference area data based on a difference of more than a factor of two. A factor of two is recommended to ensure that differences observed are real differences, rather than a result of background or analytical variation (GC 2012).

**Table 9: Summary of Water Quality Guidelines**

| Parameter                  | Unit      | CCME <sup>(a)</sup> |                                           | BC MOE <sup>(b)</sup>     |                                       |
|----------------------------|-----------|---------------------|-------------------------------------------|---------------------------|---------------------------------------|
|                            |           | Short-term          | Long-term                                 | Short-term                | Long-term                             |
| Ammonia (total)            | mg/L as N | -                   | -                                         | 0.71 – 312 <sup>(c)</sup> | 0.11 – 47 <sup>(c)</sup>              |
| Arsenic (total)            | µg/L      | -                   | 12.5                                      | 12.5                      | -                                     |
| Boron (total)              | mg/L      | -                   | -                                         | -                         | 1.2                                   |
| Beryllium (total)          | µg/L      | -                   | -                                         | -                         | 100                                   |
| Cadmium (total)            | µg/L      | -                   | 0.12                                      | -                         | 0.12                                  |
| Chloride                   | mg/L      | -                   | -                                         | Narrative <sup>(d)</sup>  | -                                     |
| Chlorine-produced oxidants | µg/L      | -                   | 0.5                                       | 40                        | 3                                     |
| Chromium (III)             | µg/L      | -                   | 56                                        | -                         | 56                                    |
| Chromium (VI)              | µg/L      | -                   | 1.5                                       | -                         | 1.5                                   |
| Colour (apparent)          | Pt-Co     | -                   | Narrative <sup>(e)</sup>                  | -                         | Narrative <sup>(f)</sup>              |
| Colour (real)              | Pt-Co     | -                   | Narrative <sup>(g)</sup>                  | -                         | Narrative <sup>(h)</sup>              |
| Copper (total)             | µg/L      | -                   | -                                         | 3                         | ≤2                                    |
| Cyanide                    | µg/L      | -                   | -                                         | 1 <sup>(i)</sup>          | -                                     |
| Dissolved Oxygen           | mg/L      | -                   | >8 and Narrative <sup>(j)</sup>           | -                         | -                                     |
| Fluoride                   | µg/L      | -                   | -                                         | 1.5                       | -                                     |
| Lead (total)               | µg/L      | -                   | -                                         | 140                       | ≤2                                    |
| Manganese (total)          | µg/L      | -                   | -                                         | -                         | 100                                   |
| Mercury (total)            | µg/L      | -                   | 0.016                                     | -                         | 0.0001 /<br>(MeHg/total Hg)           |
| Nickel                     | µg/L      | -                   | -                                         | -                         | 8.3                                   |
| Nitrate                    | mg/L as N | 1500                | 200                                       | -                         | 3.7                                   |
| pH                         | -         | -                   | 7.0 - 8.7 and<br>Narrative <sup>(k)</sup> | 7.0 - 8.7                 | -                                     |
| Salinity                   | -         | -                   | Narrative <sup>(l)</sup>                  | -                         | -                                     |
| Selenium (total)           | µg/L      | -                   | -                                         | 1 or 2 <sup>(m)</sup>     | -                                     |
| Silver (total)             | µg/L      | 7.5                 | -                                         | 3                         | 1.5                                   |
| Temperature                | °C        | -                   | ± 1 change from<br>ambient background     | -                         | ± 1 change from<br>ambient background |
| Turbidity                  | NTU       | -                   | Narrative <sup>(n)</sup>                  | Narrative <sup>(o)</sup>  | -                                     |
| Total Suspended Solids     | mg/L      | -                   | Narrative <sup>(p)</sup>                  | Narrative <sup>(q)</sup>  | -                                     |
| Vanadium (total)           | µg/L      | -                   | -                                         | -                         | 50                                    |
| Zinc                       | µg/L      | -                   | -                                         | 55                        | 10                                    |

Notes:

- (a) Canadian Council of Ministers of the Environment (CCME 2003) Water Quality Guidelines (WQG) for the Protection of Aquatic Life - Marine.

- (b) British Columbia Ministry of Environment (BC MOE 2017a) Approved Water Quality Guidelines for Marine Aquatic Life and BC MOE Working Water Quality Guidelines for Marine Aquatic Life (BC MOE 2017b).
- (c) Guideline is salinity, pH and temperature dependent, minimum and maximum values are presented for a salinity of 30.
- (d) Human activities should not cause the  $Cl^-$  of marine and estuarine waters to fluctuate by more than 10% of the natural  $Cl^-$  expected at that time and depth.
- (e) The mean absorbance of filtered water samples at 456 nm shall not be significantly higher than the seasonally adjusted expected value for the system under consideration.
- (f) 30-day average transmission of white light  $\geq 80\%$  of background.
- (g) The mean percent transmission of white light per metre shall not be significantly less than the seasonally adjusted expected value for the system under consideration.
- (h) 30-day average true colour of filtered water samples shall not exceed background levels by more than 5 mg/L Pt in clear water systems or 20% in coloured systems.
- (i) BC MOE Guideline is applicable for weak acid dissociable cyanide.
- (j) The CCME guidelines for dissolved oxygen (DO) are as follows:
  - Depression of DO below the recommended value should only occur as a result of natural processes. When the natural DO level is less than the recommended interim guideline, the natural concentration should become the interim guideline at that site.
  - When ambient DO concentrations are  $>8.0$  mg/L, human activities should not cause DO levels to decrease by more than 10% of the natural concentration expected in the receiving environment at that time.
- (k) The pH of marine and estuarine waters should fall within the range of 7.0 - 8.7 units unless it can be demonstrated that such a pH is a result of natural processes (CCME guidelines). Within this range, pH should not vary by more than 0.2 pH units from the natural pH expected at that time. Where pH is naturally outside this range, human activities should not cause pH to change by more than 0.2 pH units from the natural pH expected at that time, and any change should tend towards the recommended range.
- (l) Human activities should not cause the salinity (expressed as parts per thousand [‰]) of marine and estuarine waters to fluctuate by more than 10% of the natural level expected at that time and depth (CCME guidelines and BC MOE Environment Guidelines).
- (m) BC MOE selenium guideline is defined as alert concentration: 1  $\mu\text{g/L}$  and WQG: 2  $\mu\text{g/L}$ .
- (n) The CCME WQG for Turbidity are as follows:
  - clear flow: Maximum increase of 8 Nephelometric Turbidity Units (NTU) from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30-d period).
  - high flow or turbid waters: Maximum increase of 8 NTUs from background levels at any one time when background levels are between 8 and 80 NTUs. Should not increase more than 10% of background levels when background is  $> 80$  NTUs.
- (o) The BC MOE WQG for Turbidity are as follows:
  - Change from background of 8 NTU at any one time for a duration of 24 h in all waters during clear flows or in clear waters.
  - Change from background of 2 NTU at any one time for a duration of 30 d in all waters during clear flows or in clear waters.
  - Change from background of 5 NTU at any time when background is 8 - 50 NTU during high flows or in turbid waters.
  - Change from background of 10% when background is  $> 50$  NTU at any time during high flows or in turbid waters.
- (p) The CCME WQG for total suspended solids (TSS) are as follows:
  - clear flow: Maximum increase of 25 mg/L from background levels for any short-term exposure (e.g., 24-h period). Maximum average increase of 5 mg/L from background levels for longer term exposures (e.g., inputs lasting between 24 h and 30 d).
  - high flow: Maximum increase of 25 mg/L from background levels at any time when background levels are between 25 and 250 mg/L. Should not increase more than 10% of background levels when background is  $\geq 250$  mg/L.
- (q) The BC MOE WQG for total suspended solids (TSS) are as follows:
  - Change from background of 25 mg/L at any one time for a duration of 24 h in all waters during clear flows or in clear waters.
  - Change from background of 5 mg/L at any one time for a duration of 30 d in all waters during clear flows or in clear waters.
  - Change from background of 10 mg/L at any time when background is 25 - 100 mg/L during high flows or in turbid waters.
  - Change from background of 10% when background is  $> 100$  mg/L at any time during high flows or in turbid waters.



**SECTION 5 • REPORTING**

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Reporting will include the raw data obtained during sampling programs, as well as data interpretation, graphical presentation and comparison to applicable guidelines, baseline data and literature data, where applicable. Monitoring results will be integrated to evaluate the presence and overall direction of change to marine water quality. Report structure will be in compliance with applicable MDMER reporting requirements.

Reports will be prepared and delivered to Environment and Climate Change Canada (ECCC, as per the MDMER requirements), and to NIRB and NWB annually following the discharge of treated groundwater effluent to the marine environment. Reports will be available on the respective public registries for regulator and stakeholder review and input.

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**SECTION 6 • REFERENCES**

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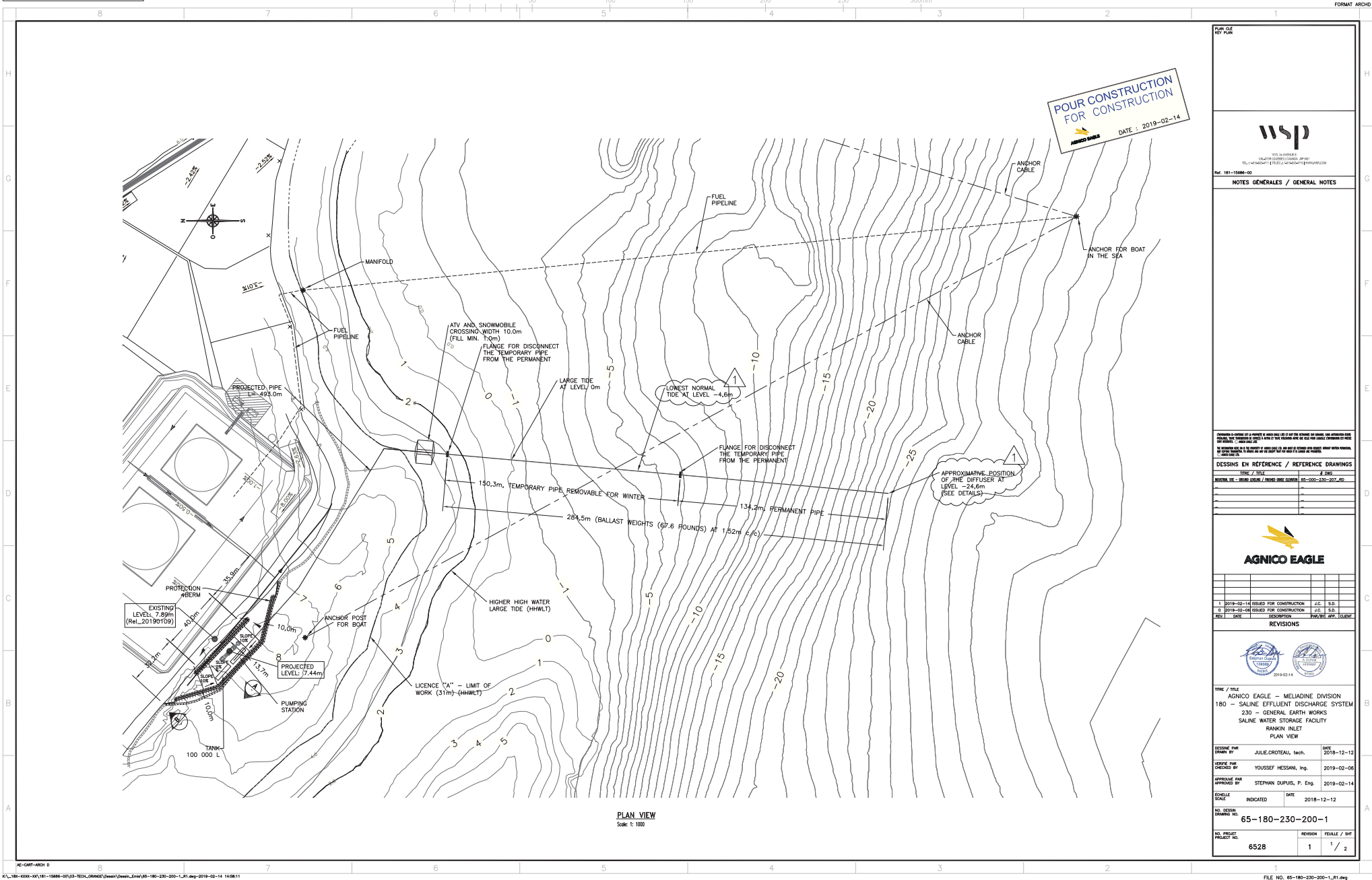
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**APPENDIX A – SALINE EFFLUENT DISCHARGE SYSTEM CONSTRUCTION DRAWINGS**



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| NO. | TITLE                              | DATE      |
|-----|------------------------------------|-----------|
| 1   | 2019-02-14 ISSUED FOR CONSTRUCTION | J.C. S.D. |
| 2   | 2019-02-06 ISSUED FOR CONSTRUCTION | J.C. S.D. |

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| NO. | DATE       | DESCRIPTION             | PREP. | APP. | DATE |
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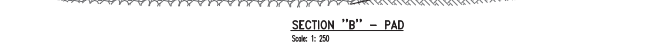
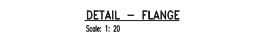
AGNICO EAGLE - MELADINE DIVISION  
180 - SALINE EFFLUENT DISCHARGE SYSTEM  
230 - GENERAL EARTH WORKS  
SALINE WATER STORAGE FACILITY  
RANKIN INLET  
PLAN VIEW

DESIGNED BY: JULIE CROTEAU, tech. DATE: 2018-12-12  
CHECKED BY: YOUSSEF HESSAN, Ing. DATE: 2019-02-06  
APPROVED BY: STEPHAN DUPUIS, P. Eng. DATE: 2019-02-14

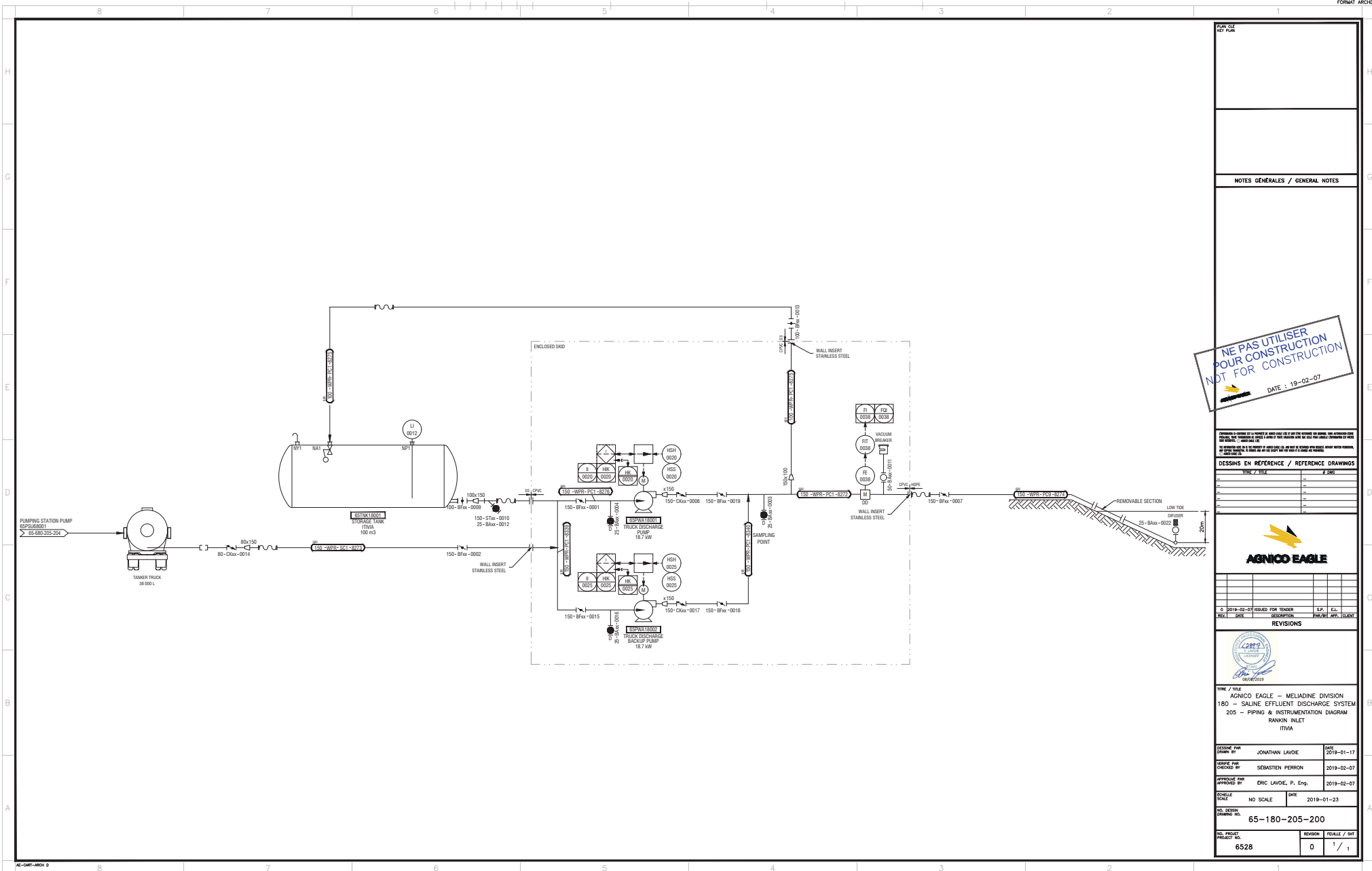
SCALE: INDICATED DATE: 2018-12-12

NO. 65-180-230-200-1  
6528

REVISION: 1 FEUILLE: 1/2



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|-----|-----------------------------------------------------------|------------|
| 1   | 180 - SALINE EFFLUENT DISCHARGE SYSTEM                    | 2019-01-17 |
| 2   | 205 - PIPING & INSTRUMENTATION DIAGRAM RANKIN INLET ITIVA | 2019-02-07 |

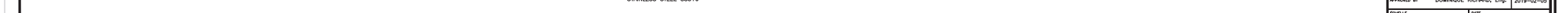
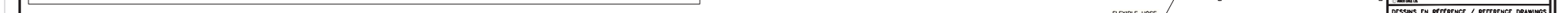
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AGNICO EAGLE - MELIADINE DIVISION  
180 - SALINE EFFLUENT DISCHARGE SYSTEM  
205 - PIPING & INSTRUMENTATION DIAGRAM RANKIN INLET ITIVA

|                           |                      |                  |            |
|---------------------------|----------------------|------------------|------------|
| DESIGNED BY               | JONATHAN LAVOIE      | DATE             | 2019-01-17 |
| CHECKED BY                | SEBASTIEN PERRON     | DATE             | 2019-02-07 |
| APPROVED BY               | ERIC LAVOIE, P. Eng. | DATE             | 2019-02-07 |
| SCALE                     | NO SCALE             | DATE             | 2019-01-23 |
| 65-180-205-200            |                      |                  |            |
| NO. DESIGN<br>DRAWING NO. | 6528                 | REVISION         | 0          |
| NO. PROJECT               | 6528                 | REVISION / SHEET | 1 / 1      |



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**APPENDIX B – MARINE RECONNAISSANCE PROGRAM 2018**



## REPORT

# Meliadine Gold Mine Ocean Discharge Monitoring Plan - Marine Reconnaissance and Baseline Programs

## *2018 Marine Reconnaissance Survey Data Report*

Submitted to:

**Martin Theriault**

Agnico Eagle Mines Limited  
Meliadine Division, Nunavut, Canada  
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Submitted by:

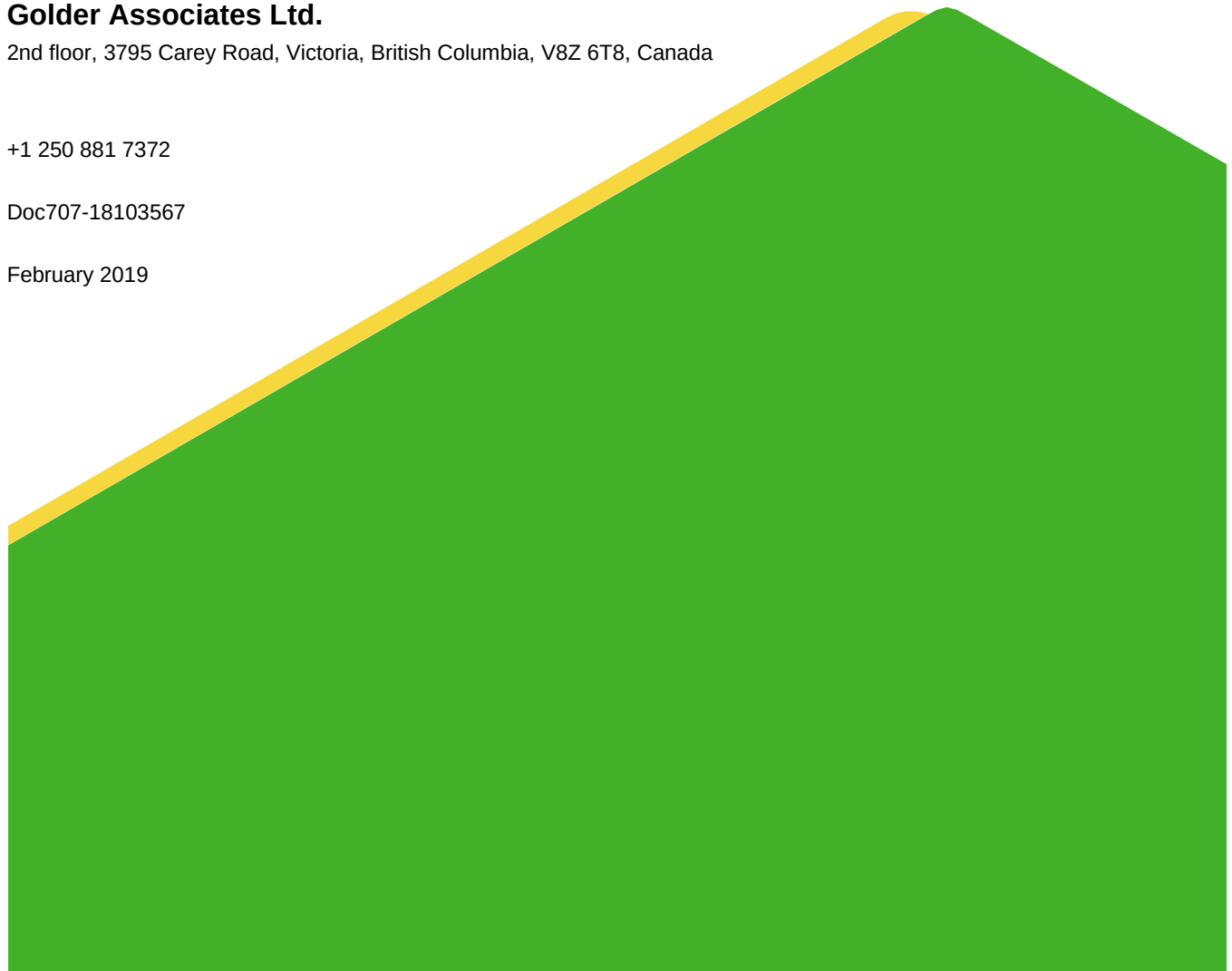
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February 2019



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Figures and Photos

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Water Quality Sampling Field Logs

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Benthic Infauna Laboratory Analysis Data

## 1.0 INTRODUCTION

As described in the Final Environmental Impact Statement Addendum (FEIS Addendum; Agnico Eagle 2018), to support long-term groundwater management for the Mine, Agnico Eagle has proposed to directly discharge excess groundwater effluent into Melvin Bay, after treatment to meet discharge water quality criteria for Melvin Bay and/or background conditions.

The conceptual Ocean Discharge Monitoring Plan (ODMP), included in the FEIS Addendum (as Appendix E; Agnico Eagle 2018), outlines objectives, rationale, and details for protection of water/sediment quality and biological components on the marine environment in Melvin Bay. The ODMP will align with Environmental Effects Monitoring (EEM) study design requirements per Metal and Diamond Mine Effluent Regulations (MDMER; SOR/2002/222). The proposed EEM design for treated groundwater discharge to Melvin Bay is based on a before/after, control/impact (BACI) approach with monitoring studies conducted in the exposure (impact) and reference (control) areas. As per of the EEM design, potential changes to water and sediment quality caused by the effluent discharge and the effect of these changes to aquatic life, fish habitat, and fish health are identified by comparing data collected from the exposure area during monitoring studies to data from reference areas and to baseline (pre-discharge) conditions.

Golder was retained by Agnico Eagle to conduct marine environmental reconnaissance surveys in Melvin Bay to establish appropriate reference areas and collect preliminary baseline data on physical properties of the water column, water and sediment quality, benthic substrate, benthic communities (infauna<sup>1</sup>, epifauna<sup>2</sup> and epiflora<sup>3</sup>), and marine mammal occurrence.

### 1.1 The Purpose and Scope of Work

The purpose of the reconnaissance survey was to:

- Establish reference area(s) that have similar physical and ecological characteristics as the exposure area (i.e., similar water depth and substrate), but located outside of the influence of the treated effluent discharge or other confounding factors.
- Update previously collected baseline data on the marine and coastal environment.

Marine baseline studies were previously conducted for the Mine in Itivia Harbour and involved gathering of environmental data in an exposure and two reference areas (Nunami Stantec 2012). However, the surveys targeted shallower depths (up to 9 m shallower) than that of the discharge location, therefore, the survey locations and data gathered were considered not suitable as reference areas for the purpose of future environmental effects monitoring for treated groundwater effluent discharge.

The 2018 reconnaissance survey consisted of collection of data on physical properties of water column and limited sampling of water, sediments and benthic infauna in the exposure and candidate reference areas selected during a desktop review, as well as bio-physical surveys of the intertidal zone and observations of marine mammal occurrence.

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<sup>1</sup> Infauna - organisms living in the substrate of the seafloor (e.g., polychaete worms, clams).

<sup>2</sup> Epifauna – organisms living on the seafloor (e.g., sea stars, crabs).

<sup>3</sup> Epiflora – vegetation living on the sea floor.



## 2.0 MATERIALS AND METHODS

### 2.1 Desktop Review

A preliminary desktop review was completed prior to undertaking fieldwork and consisted of a review of the existing baseline report (Nunami Stantec 2012) and the satellite, topographic and navigation maps of Melvin Bay and adjacent areas of western Hudson Bay. The purpose of the review was to identify candidate reference area(s) based on the following criteria:

- similar topographic and bathymetric features to the location of the proposed diffuser in Melvin Bay (the exposure area);
- safe and unhindered access by a boat;
- relatively short distance from the exposure area, so the reference area(s) would have similar environmental characteristics and would be exposed to similar natural influences; and
- located outside of the potential zone of influence from the engineered diffuser and other anthropogenic factors.

Four candidate reference areas as well as a reference area previously surveyed by Nunami Stantec were selected based on the above criteria and are shown on Figure 1.

### 2.2 Field Program

The 2018 marine reconnaissance survey was conducted from 10 to 20 September 2018 by two Golder scientists using an 18-foot aluminium boat (Figure 3). The main purpose of the survey was to collect preliminary physical and ecological data and investigate whether the candidate reference areas were suitable for future marine EEM.

#### 2.2.1 Study Areas

The reconnaissance surveys were conducted in the Exposure Area and three reference areas (A, B and R1) (Figure 2). Reference areas C and D (Figure 1) were not surveyed; Reference Area C was located at a distance that could not be safely accessed compared to Areas A and B, and Reference Area D was located in an area with high wind and wave exposure.

Exposure Area surveys were focused primarily at the future location of the proposed discharge pipe and diffuser near the existing Itivia Harbour fuel storage facility at a depth of 20 m in Melvin Bay. Surveys included water column profiling, water and sediment quality sampling, benthic infauna sampling, intertidal surveys and marine mammal observations (Table 1).

Reference areas A and B included water column profiling, water and sediment quality sampling, and benthic infauna sampling. A depth of 20 m (the depth of the proposed discharge diffuser) was selected for monitoring of sediment quality and benthic infauna community composition to avoid influence of depth as a potential factor affecting the monitoring endpoints.

Reference Area R1 had previously been surveyed in 2012 (Nunami Stantec 2012). Therefore, only water column profiling, water quality sampling, and intertidal surveys were conducted in 2018. R1 is at a shallower depth than the Exposure Area (the maximum depth is 15 m) and was not selected as a reference location for sediment quality and benthic infauna sampling.

Marine mammal observations were conducted in all study areas.

A list of sampling and measurements collected during the Reconnaissance Survey by stations is presented in Table 1.

**Table 1: Surveys Conducted at Exposure and Reference Areas in 2018; 'X' indicates survey was conducted, '-' indicates survey was not conducted.**

| Surveys                        | Exposure Area | Reference Areas |   |    |
|--------------------------------|---------------|-----------------|---|----|
|                                |               | A               | B | R1 |
| water column profiling         | X             | X               | X | X  |
| water quality sampling         | X             | X               | X | X  |
| sediment quality sampling      | X             | X               | X | -  |
| benthic invertebrates sampling | X             | X               | X | -  |
| intertidal transect survey     | X             | X               | X | X  |
| marine mammal observations     | X             | X               | X | X  |

<sup>1</sup> previously surveyed by Nunami Stantec (2012)**Table 2: Summary of survey stations and collected data**

| Station  | Area        | Coordinates<br>(15 V) | Samples collected and replicates |                                |                          |                         |                             |
|----------|-------------|-----------------------|----------------------------------|--------------------------------|--------------------------|-------------------------|-----------------------------|
|          |             |                       | Water column profiles (In situ)  | Discrete water quality samples | Sediment quality samples | Benthic infauna samples | Intertidal transect surveys |
| WN       | Exposure    | 546022 E<br>6963370 N | 1                                | -                              | -                        | -                       | -                           |
| WC       | Exposure    | 546002 E<br>6963295 N | 1                                | -                              | -                        | -                       | -                           |
| WS       | Exposure    | 545960 E<br>6963238 N | 1                                | -                              | -                        | -                       | -                           |
| MWE-1    | Exposure    | 546002 E<br>6963295 N | -                                | 1 at 1 m; 1 at 18 m            | -                        | -                       | -                           |
| MWE-2    | Exposure    | 546021 E<br>6963373 N | -                                | 1 at 1 m; 2a at 5 m            | -                        | -                       | -                           |
| MBE-1    | Exposure    | 545710 E<br>6963402 N | -                                | -                              | 4b                       | 3                       | -                           |
| MBE-2    | Exposure    | 545894 E<br>6963340 N | -                                | -                              | 3                        | 3                       | -                           |
| MBE-3    | Exposure    | 545991 E<br>6963294 N | -                                | -                              | 3                        | 3                       | -                           |
| MBE-4    | Exposure    | 546123 E<br>6963268 N | -                                | -                              | 3                        | 3                       | -                           |
| MBE-5    | Exposure    | 546304 E<br>6963213 N | -                                | -                              | 3                        | 3                       | -                           |
| MWRefA-1 | Reference A | 545070 E<br>6961511 N | 1                                | 1 at 1 m; 1 at 15 m            | -                        | -                       | -                           |
| MWRefA-2 | Reference A | 545055 E<br>6961615 N | 1                                | 1 at 1 m; 1 at 15 m            | -                        | -                       | -                           |
| MBRefA-1 | Reference A | 545070 E<br>6961511 N | -                                | -                              | 3                        | 3                       | -                           |
| MBRefA-2 | Reference A | 545028 E<br>6961609 N | -                                | -                              | 3                        | 3                       | -                           |
| MWRefA-3 | Reference A | 543992 E<br>6961780 N | 1                                | 1 at 1 m and 1 at 15 m         | -                        | -                       | -                           |

**Table 2: Summary of survey stations and collected data**

| Station         | Area         | Coordinates<br>(15 V)                                    | Samples collected and replicates |                                |                          |                         |                             |
|-----------------|--------------|----------------------------------------------------------|----------------------------------|--------------------------------|--------------------------|-------------------------|-----------------------------|
|                 |              |                                                          | Water column profiles (In situ)  | Discrete water quality samples | Sediment quality samples | Benthic infauna samples | Intertidal transect surveys |
| MBRefA-3        | Reference A  | 543984 E<br>6961768 N                                    | -                                | -                              | 3                        | 3                       | -                           |
| CTD-1           | Reference B  | 542232 E<br>6961875 N                                    | 1                                | -                              | -                        | -                       | -                           |
| CTD-2           | Reference B  | 540426 E<br>6962686 N                                    | 1                                | -                              | -                        | -                       | -                           |
| CTD-3           | Reference B  | 541626 E<br>6962080 N                                    | 1                                | -                              | -                        | -                       | -                           |
| MWRefB-1        | Reference B  | 541626 E<br>6962080 N                                    | -                                | 1 at 1 m and<br>1 at 15 m      | -                        | -                       | -                           |
| MBRefB-1        | Reference B  | 541650 E<br>6962064 N                                    | -                                | -                              | 1                        | -                       | -                           |
| WW-1            | Reference R1 | 545249 E<br>6963763 N                                    | 1                                | 1 at 1 m and<br>1 at 10 m      | -                        | -                       | -                           |
| WW-2            | Reference R1 | 545249 E<br>6963857 N                                    | 1                                | -                              | -                        | -                       | -                           |
| Transect EXP-T1 | Exposure     | 546085 E<br>6963605 N to<br>546131 E<br><b>6963519 N</b> | -                                | -                              | -                        | -                       | 1                           |
| Transect EXP-T2 | Exposure     | 546037 E<br>6963557 N<br>to 546054 E<br>6963507 N        | -                                | -                              | -                        | -                       | 1                           |
| Transect REF-T1 | Reference R1 | 545395 E<br>6963954 N to<br>545392 E<br>6963923 N        | -                                | -                              | -                        | -                       | 1                           |
| Transect REF-T2 | Reference R1 | 545335 E<br>6963972 N to<br>545326 E<br>6963947 N        | -                                | -                              | -                        | -                       | 1                           |
| <b>Total</b>    |              |                                                          | <b>11</b>                        | <b>15</b>                      | <b>26</b>                | <b>24</b>               | <b>4</b>                    |

(a) includes blind water quality duplicate (Dup A)

(b) includes blind sediment quality duplicate (Dup A)

## 2.2.2 Water Quality

### 2.2.2.1 *In situ Profiling*

In situ parameters measured at each location included water depth, temperature, conductivity (salinity), dissolved oxygen, turbidity, chlorophyll concentration and transparency (Secchi depth). Vertical profiles were collected using an RBR XR-620 CTD (conductivity, temperature, depth) probe equipped with dissolved oxygen, turbidity and fluorometer sensors at stations in the Exposure and Reference areas (Figure 2 and Table 2). Measurements were taken throughout the water column by lowering the probe from the surface to the bottom at a vertical speed of approximately 0.5 m/sec while the probe was recording measurements at a frequency of 6 Hz (6 measurements per second).

Secchi depth was measured with a 30-cm white disk, which was lowered over the shaded side of the boat until no longer visible, raised back into view again and re-lowered. The second disappearance depth was recorded as the Secchi depth, from which photic zone depth can be calculated.

### 2.2.2.2 *Discrete Water Quality Sampling*

Discrete water quality samples were collected from stations in the Exposure and Reference areas shown on Figure 2 and in Table 2. Samples were collected at two depth intervals: 1 m below the surface, and at a depth approximately 5 m above the seafloor.

A water quality sampler (Kemmerer sampler) was lowered to target depth and a messenger was released along a tag line to trigger closure of the bottle sampler. After retrieval of the sampler, water samples were transferred to pre-labelled sample bottles and preservatives were added as required. Water samples were refrigerated until they were shipped to the analytical laboratory. Additionally, a blind duplicate sample was collected for quality assurance / quality control (QA/QC) purposes (refer to Section 2.3 for additional QA/QC details) at MWE-2D (deep sample).

Samples were sent to ALS analytical laboratories (ALS) for analysis of the following parameters:

- Conventional parameters, including pH, total dissolved solids (TDS), total suspended solids (TSS), hardness, electrical conductivity, and salinity.
- Major ions including sulphate and chloride.
- Nutrients, including ammonia, nitrate and phosphate, organic carbon.
- Total metals and dissolved metals including those listed in MDMER Schedule 4 and Schedule 5 paragraphs 4.

Water sampling effort was recorded in field log sheets presented in APPENDIX B.

## 2.2.3 Sediment Quality

Sediment quality samples were collected from stations in the Exposure Area and Reference areas A and B where water depth was approximately 20 m (Figure 2; Table 2). Three sediment samples were collected at each station.

Sediment samples were collected using a Petite Ponar grab sampler with an area of 0.0225 m<sup>2</sup> (Figure 4). Sediment samples were collected with three replicates from each station and each replicate sample consisted of approximately one to three grab samples, depending on grab penetration, to collect sufficient volume of substrate for analysis. Each grab sample was examined for acceptability based on the following criteria:

- sediment did not contain large foreign objects;

- grab showed adequate penetration depth and sufficient sediment volume (at least 25% full);
- grab was not overfilled (i.e., sediments did not touch the top of the grab);
- grab was not leaking (i.e., overlying water was present); and
- sample was not disturbed or winnowed (i.e., sediment surface was relatively flat).

Upon acceptance, the top 5 cm of sediment was removed from the grab using a clean stainless-steel spoon and transferred to a clean stainless-steel bowl. Sediments from all composite grabs were homogenized together until the colour and texture were consistent throughout the sample (Figure 5). Aliquots of the homogenized sediment were transferred to clean, labelled glass jars. Sediment samples were stored on ice packs in a cooler prior to shipment to the analytical laboratory.

Additional information, including the number of unsuccessful grabs, sediment appearance and odour (if any), presence of debris in sample, presence of live organisms in sample, and deviations from the planned sampling program, were recorded on field data sheets (APPENDIX C). The date, time, transect name, station number, and GPS coordinates of each sample were recorded. All sampling gear was rinsed and scrubbed with brushes with a biodegradable laboratory-grade detergent between sampling collections. Samples were kept in coolers in the field and in refrigeration until sent to ALS laboratories where they were analysed for the following parameters:

- particle size distribution (Wentworth scale);
- total organic carbon;
- nutrients; and
- total metal concentrations.

#### 2.2.4 Benthic Infauna

Benthic infauna samples were collected from five stations in the Exposure Area and three stations in Reference Area A from a depth of 20 m. In general, benthic infauna samples were collected using the same device (Petite Ponar) and from the same locations as sediment quality samples with the exception of station MBRefB-1, where no benthic infauna samples were collected due to weather and safety constraints.

Benthic infauna samples were collected in triplicate from each station, with each replicate sample consisting of three to six grab samples, depending on grab penetration. Each benthic sample was examined for acceptability using criteria similar to that for sediment sampling.

Upon acceptance, contents of the grab sampler were transferred to an aluminum sieving tray (Figure 6). The contents were gently rinsed through a 1-mm mesh sieve with filtered seawater (Figure 7) and preserved in a 10% buffered formalin solution in pre-labeled 1 L wide-mouth HDPE sample jars. Larger organisms were removed during the rinsing process using forceps and preserved in separate jars to avoid crushing with hard substrate material. The containers were then sealed and inverted several times to promote homogenization with the formalin. Containers were labeled internally (water-resistant labels) and externally. Field observations (e.g., sediment characteristics) were recorded on field data sheets (APPENDIX D). Samples were sent to Biologica for species identification to the lowest practical taxonomic level and abundance determination.

### 2.2.5 Intertidal Habitat Surveys

Surveys in the intertidal zone were conducted along two transects in the Exposure Area and two transects in Reference Area R1 to characterize the epifloral and epifaunal communities and substrate type. Transect locations were selected with consideration for accessibility and safety for steep rocky shorelines and randomly within shallower sloped intertidal zones. Surveys were carried out on foot during low tide periods to maximize observations of the exposed intertidal zone.

Transect lines were positioned perpendicular to the shoreline starting from the ordinary high water (OHW) level and ending at the water line and start and end points were geo-referenced. A 0.25-m<sup>2</sup> quadrat (Figure 8) was positioned at 7 m intervals along each transect and the following key physical and biological information was collected for each quadrat:

- substrate types were identified on the surface using the size class categories, i.e., bedrock, boulder (>25 cm), cobble (6.5 to 25 cm), gravel, (0.2 to 6.5 cm) sand (0.06 to 0.2 mm) and silt/mud/clay (<0.06 mm), and recorded as percent cover (e.g., boulder 5%; cobble 15%; gravel 60%, sand 20%).
- presence and cover of macrophyte<sup>4</sup> epiflora (e.g., periphyton, filamentous algae, kelp) in each quadrat.
- presence and abundance of invertebrate epifauna in each quadrat (when present, bivalve siphon holes and/or crab burrows were also recorded, but not counted).
- other notable biophysical components such as presence of wood debris, shells or detrital vegetation.
- photographs taken showing representative features.

Notes on general and other features of the shoreline (e.g., shore type, wave exposure, presence of biobands and anthropogenic debris) were recorded at each transect. All observational data was recorded on Project-specific field data forms presented in APPENDIX E.

### 2.2.6 Marine Mammal Observations

Every hour marine areas around the boat were observed for a duration of up to 5 minutes for the presence of marine mammals. Observations were to be recorded on survey log sheets and included the following information:

- date and time of observation;
- location;
- species observed;
- number of animals observed;
- behaviour; and
- any other observations.

In addition, incidental marine mammal observations occurring during the fieldwork were recorded. Marine mammal observation data collected during the 2018 Reconnaissance Program would be used as a basis for recommendations for any potential 2019 marine mammal studies.

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<sup>4</sup> Macrophyte – aquatic vegetation visible to the naked eye.

## 2.3 Quality Management

The overall goal of the Project was to collect quality data, which was achieved through consistent and thorough data collection, consultation amongst data recorders, and attention to detail during data entry.

Field staff was trained to be proficient in standardized sampling procedures, data recording using standardized forms, and equipment operations applicable to the monitoring program. All field work was completed according to specified instructions and established technical procedures for standard sample collection, preservation, handling, storage, and shipping protocols. Preliminary interpretation of the records and data QA/QC was carried out in the field to ensure the data collected met client specifications for quality and documentation of liability controls. At the end of the field survey, data was entered and organized in a database for subsequent analysis and interpretation. Field data recorded in notebooks was transferred to an electronic database.

A thorough QA/QC check of the data during the data analysis stage was conducted. The QA/QC measures set in place include a multi-tiered technical review team that review all data for consistency of methods and results and independently test random data samples for quality.

General QA/QC tasks completed during the survey include, but not limited to, the following:

- Preparing geo-referenced field maps for use during the surveys to accurately document the location of any observations.
- Preparing Project-specific data collection forms to ensure a comprehensive and accurate field data collection process.
- Collecting geo-referenced coordinates in the field for comparison with field maps to confirm the location of documented observations.
- Maintaining adequate photo documentation to illustrate the various features and species observed during field surveys, and to be kept for subsequent review and reporting.
- Collating and reviewing field data collected among observers to ensure consistent methods and calibrate observer estimates (e.g., estimation of substrate and vegetation cover in quadrat sampling).
- Reviewing all data and reports to review accuracy (e.g., species identification) and consistency (e.g., measurement units).
- Allowing regular communications between the Project Manager and field staff.
- Quality Control (duplicate) samples were collected in the field.
- Accredited laboratories will be selected for sample analysis. Performance quality of selected laboratories were verified through Golder's internal vendor approval and assessment procedures.
- Field data sheets were reviewed by the field supervisor at the end of each day for completeness and accuracy.
- Chain-of-custody documentation were used to track sample shipments to the individual subcontractor laboratories
- Samples were packaged and shipped to the laboratory in accordance with holding times and storage conditions in an effort for analyses to be met.

- Laboratory QA/QC for sediment samples included recommended sample holding times and the analysis of laboratory control samples, laboratory duplicates, and spiked samples to assess precision and accuracy of analytical methods. Laboratory QA/QC reports were reviewed upon receipt to confirm that the laboratory data quality objectives (DQOs) had been met and that the appropriate QA/QC information had been reported.

## 2.3.1 Water Quality

### 2.3.1.1 In Situ Profiling

Maintenance and calibration of the RBR XR-620 CTD profiler and associated sensors are performed by the instrument provider ASL Environmental (completed immediately prior to the reconnaissance program). No field quality checks of any of the parameters were required beyond the cast acceptability check and range checks. DO, pH, pressure offset, and transmissivity performance were carefully monitored and calibrated prior to and immediately following the reconnaissance program.

Immediately following data collection, all data were checked for erroneous values, outliers and to be certain that all data and configuration files were present and properly named. All data were reviewed graphically for outliers as well as trends, and to confirm that all sensors were functioning properly during the deployment. All profile data, datasheets and field notes were saved to a laptop computer and backed up on an external hard drive.

### 2.3.1.2 Discrete Water Quality Sampling

QA/QC measures were implemented to minimize possible contamination of the collected water samples. Industry standard sampling protocols were followed including collection, handling and shipping procedures. Samples were collected in laboratory-sterilized water bottles and included collection and analysis of a duplicate sample.

A blind duplicate water sample was taken from MWE-2D (Dup A). A number of duplicate analyses were also run by the ALS laboratory for QA/QC. For each pair of QA/QC duplicate water samples, the relative percent differences (RPD) can be calculated, using the following formula:

$$RPD = \left( \frac{\text{sample} - \text{duplicate}}{(\text{sample} + \text{duplicate})/2} \right) \times 100$$

The RPD between the duplicates is a measure of the variability inherent in field sampling (environmental heterogeneity, sampler handling leading to contamination). It is suggested that any field duplicates with RPD values exceeding 20% should be noted and the data should be interpreted accordingly (BCMOE 2013). Where concentrations are within five times the method detection limit (MDL), no RPD calculation is required as long as the difference between replicates is within a value equal to two times the MDL. This is due to the RPD being more sensitive to variation as values approach the analytical detection limit.

## 2.3.2 Sediment Quality

To confirm sediment sample integrity, the following QA/QC measures were undertaken:

- Samples were collected and processed by qualified experienced personnel.
- Samples were collected in such a way that no foreign material was introduced to the sample.
- Sample handling or contact with contaminated materials/surfaces was minimized.
- Samples were placed in appropriate clean containers in such a way that no material of interest was lost due to adsorption, degradation, or volatilization.



- Sufficient sediment volumes were collected so that required detection limits can be met, and quality control samples can be analyzed.
- Equipment including the grab sampler, stainless steel bowls and spoons were washed with laboratory-grade biodegradable detergent between each station to prevent cross-contamination. Equipment was rinsed between grab samples.
- A duplicate sample (Dup A) was collected from MBE-1 Replicate 3 (APPENDIX C). The duplicate was a discrete homogenized sample from a separately collected grab (as opposed to a split sample). In accordance with the BC Field Sampling Manual (BC MOE 2013), an RPD value of  $\pm 50\%$  can be used to identify differences between original and duplicate samples. Values less than five times the MDL should not be included in the RPD calculations because analytical variability near the MDL is higher and does not provide a good measure of variability associated with the collection of field samples.

### 2.3.3 Benthic Infauna

Field QA/QC procedures are discussed in Section 2.2.4. Biological laboratory QA/QC measures included an assessment of sorting recovery, identification error, and precision/accuracy of sub-sampling. The taxonomic laboratory identified organisms to the lowest practical taxonomic level. Laboratory procedures included sample sorting measures, spot-checks, preliminary counting of major groups, and collaborative identification to accurately identify species to their lowest taxonomic level. Results of QA/QC measures implemented by the taxonomic laboratory are reported in APPENDIX H.

Benthic data was checked and no obvious signs of error in sample analysis were found. Incidental organisms, including meiofauna and zooplankton species, were removed from benthic analysis.

### 2.3.4 Intertidal Habitat Surveys

The following measures were undertaken to achieve the QA/QC objectives of the surveys:

- assessment was conducted by qualified and competent personnel;
- photo documentation of each transect line and quadrat was collected and maintained;
- species identification and quantitative assessment was verified by two field personnel;
- geo-referenced location coordinates collected in the field were plotted on electronic maps (e.g., Google earth) to confirm the location of documented observations; and
- field data sheets were reviewed by the project supervisor to confirm completeness and accuracy.

## 3.0 RESULTS

### 3.1 Study Areas

Reference areas A and B were determined suitable for future monitoring reference sites for the Exposure Area since both have similar bathymetric (within 20-m) and topographic profiles, easily accessible by boat and at a relatively short distance from Rankin Inlet, and located outside of the potential zone of influence from the discharge and other anthropogenic factors. These features make Reference areas A and B more suitable than Reference areas C and D, which are located in areas less safely accessible.

## 3.2 Water Quality

### 3.2.1 In Situ Profiling

Vertical profiles of the water column measured during the surveys are presented in Figure 9 to Figure 15. Graphs were smoothed by using running averages.

Oceanographic conditions measured during the survey were similar among the study areas. Physical properties of water were uniform throughout the entire column and displayed a well mixed pelagic environment with no vertical stratification indicating strong oceanic influence with no or little freshwater influence. Water temperature was slightly lower at the bottom and higher at the surface at some locations, however, horizontal variations in water temperature between different sites were, in general, greater than vertical differences at each station. Water temperature ranged from 5.1 to 6.2°C. Salinity was uniform throughout the water column and ranged between 30.7 and 30.9 PSU for all survey areas and depths. An exception was a cast at station CTD-1 where salinity was slightly lower (30.5 PSU) at the surface (top 10 cm).

Water was, in general, clear throughout all study areas. Turbidity was slightly higher in Melvin Bay (Exposure Area and Reference Area R1) than in Reference areas A and B and ranged between 1.2 and 2.4 NTU. An exception was the CTD-1 (Reference Area B) cast where turbidity at the surface was 6.1 NTU, which may have been caused by wind-generated dust deposition at the moment of measurement.

Chlorophyll concentrations ranged from 0.4 to 1.5 µg/L corresponding to typical for Arctic waters oligotrophic (nutrient poor) to mesotrophic (with moderate level of nutrients) marine systems (CCME 2007 adopted from Vollenweider et al 1998). Chlorophyll maximums occurred at depths below 5 to 10 m. Dissolved oxygen concentrations were also vertically uniform at all survey locations and ranged from 6.5 ml/L to 8 ml/L.

### 3.2.2 Discrete Water Samples

Analytical results of discrete water quality samples are presented in APPENDIX F and APPENDIX G. Recommended hold times were exceeded for several components, i.e., TDS, TSS, pH, dissolved orthophosphate, nitrate, nitrite and total phosphorus, due to delivery delays caused by the remote location.

Results of the QA/QC assessment procedures conducted by the laboratory are also presented in APPENDIX F and APPENDIX G. RPDs were calculated between sample MWE-2D and its blind field duplicate (DUP A), and no RPD value was found exceeding 20% (APPENDIX F-2).

Laboratory derived results for salinity were similar to those measured in situ, albeit having a slightly wider range (29.7 – 31.3 PSU). Concentrations of TSS were low ranging from below the detection limit of 2 mg/L to 3.8 mg/L. Water quality results were screened against the Canadian Council of Ministers of Environment (CCME) guidelines for the protection of aquatic life for marine environments (CCME 2014). None of the parameters exceeded CCME guidelines.

## 3.3 Sediment Quality

Field observations recorded in sediment sampling logs (APPENDIX C) show that benthic substrate was similar throughout the surveyed areas and predominantly consisted of silt and clay. The only exception was station MBRefB1 (Reference Area B) where sediment consisted of a coarser substrate, mixture of sand, gravel and silt.

Analytical results of sediment quality samples including the internal QA/QC assessment procedures conducted by the laboratory are presented in APPENDIX G. RPDs were calculated between sample MBE-1 Replicate 3 and its blind duplicate (DUP A) (APPENDIX G-2). RPDs for molybdenum and nickel exceeded 50% and were 111% and 54%, respectively. Differences in metal concentrations between the two samples can be attributed to spatial variability in sediment composition in the study area, since these samples were collected from two different grabs.

Analysis showed that sediment at stations, except MBRefB1, consisted predominantly of fine particles (silt) and was classified as silty loam or silt. Sediment at MBRefB1 had a higher percentage of sand and was classified as sandy loam. A preliminary screening against CCME guidelines showed that concentration of chromium in one sample (MBE-1 replicate 3 [57 mg/kg]) exceeded the Interim Sediment Quality Guideline (ISQG) for the protection of aquatic life in the marine environment for chromium of 52 mg/kg (CCME 2014). Concentrations of all other analyzed parameters were below sediment quality guidelines.

### 3.4 Benthic Infauna

Information on the analysis of benthic infauna samples, including taxonomic and abundance data, laboratory analytical methods, and QA/QC results are presented in APPENDIX H. A total of 24 samples (eight stations with three samples collected at each) were analysed. A total of 1,400 benthic infauna (benthos) organisms were observed, representing 52 unique taxa (species or genus level). Unique taxa for 83 organisms could not be determined and were identified to a higher taxonomic level (genus or family). Incidental organisms, including meiofauna (e.g. nematodes), plankton (*Brachyura* larvae) and fragments of indeterminate species, removed from benthos were reported separately; a total of 13 incidental organisms were found in benthic infauna samples.

Abundance per sample ranged from 15 organisms (MBE-1-3) to 120 organisms (MBE-5-2); the average abundance ranged from 36 (MBE Ref A-1) to 97 organisms (MBE-5) per station. Taxonomic richness (number of taxa per sample) ranged from 8 (MBE Ref A-1-3) to 19 (MBE Ref A-3-2); the average taxonomic richness ranged from 10 (MBE Ref A-1) to 17 taxa (MBE Ref A-3) per station (APPENDIX H).

Benthic communities in the study areas were dominated by polychaete worms, which represented 63% of all organisms and 40% of identified unique taxa. Crustaceans were the second largest group of benthic invertebrates representing 31% of all organisms and 29% of identified unique taxa. The single most abundant taxon (338 organisms) across all stations was amphipod crustacean *Protomedea* sp., which constituted 24% of all organisms. Taxonomic composition of benthic infauna communities between the Exposure and Reference A Areas was, in general, similar with few notable exceptions. Polychaete worm (*Ophelina acuminata*) was found in high abundance (40 organisms) in samples from the Reference A area but was not found in any samples from the Exposure Area. Smooth nutclam (*Ennucula tenuis*) and amphipod (*Bathymedon obtusifrons*) were found in relatively high abundance (17 and 10 organisms, respectively) in several samples from the Exposure Area, but none were found in the Reference Area A.

All samples were analysed in whole due to relatively low volumes of sediments and debris in sample containers (APPENDIX H). All analysed samples were re-sorted for QA/QC purposes to assess sorting efficiency; 100% sorting efficiency was achieved for all analysed samples (APPENDIX H).

All benthic infauna specimens were archived in air-tight glass vials with glycerin and 70% ethanol for long-term storage.

### 3.5 Intertidal Habitat

Data collected during the intertidal habitat surveys is presented in the form of field-filled data sheets in APPENDIX E. The intertidal zone in the Exposure Area was characterized as a gently-sloped flat topography (Figure 16). The length of intertidal transect EXP-T1 in the Exposure Area was approximately 100 m. The substrate was predominantly hard and composed of boulders, cobble and gravel, intermittent, at places, with sandy patches in the lower areas. Epiflora and epifauna were sparse, particularly in the upper and middle parts of the intertidal zone. Epiflora was more abundant in the lower intertidal zone in the Exposure Area where approximately 30-m-wide band of vegetation (up to 55% cover) was observed represented mainly by rockweed (*Fucus* sp.; Figure 17). Epifauna was mostly represented by molluscs, such as snails *Littorina* spp. and mussels.

The intertidal zone in Reference Area R1 had a steeper slope than the Exposure Area, particularly in the upper areas (Figure 18). The length of intertidal transects in Reference Area R1 ranged between 27 and 31 m. The substrate in this area was similar to that of the Exposure Area, however, abundance and diversity of epiflora and epifauna were considerably lower in Reference Area R1.

### 3.6 Marine Mammals

No marine mammals were observed during the surveys at any of the surveyed sites.

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

Reference areas A, B and R1 had similar oceanographic conditions as the Exposure Area. Reference areas A and B have the same depth contours as the Exposure Area, but Reference Area R1 is located at a shallower water depth than the Exposure Area and was not selected as a reference area for sediment and benthic infauna monitoring. Reference Area A had similar substrate types as the Exposure Area, while Reference Area B had a slightly coarser substrate. Although a limited number of sediment samples (1 sample only) and no benthic infauna samples were collected at Reference Area B due to weather issues, there is a potential to still use this site as a future reference area.

Based on the 2018 Marine Reconnaissance Surveys and the requirements for EEM, the following are recommended to improve future surveys:

- Conduct Baseline Study Program during the summer of 2019 prior to treated groundwater effluent discharge as outlined in Golder's Proposal No P18103567. The studies will consist of complete baseline data collection for water and sediment quality, benthic invertebrates, fish population and fish tissue studies per EEM study requirements under MDMER. Sampling at reference areas (A and B) be conducted in concurrence with sampling at the Exposure Area for the environmental effects monitoring purposes.
- Commence field surveys earlier in the season, July or August of 2019, at a period with reduced wind conditions in the marine environment. This will allow for safer marine vessel operations and sampling activities and potentially fewer delays due to unfavourable weather.

## Signature Page

### Golder Associates Ltd.

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Lasha Young, MSc  
*Associate, Project Manager*

AO/DN/LY/rd

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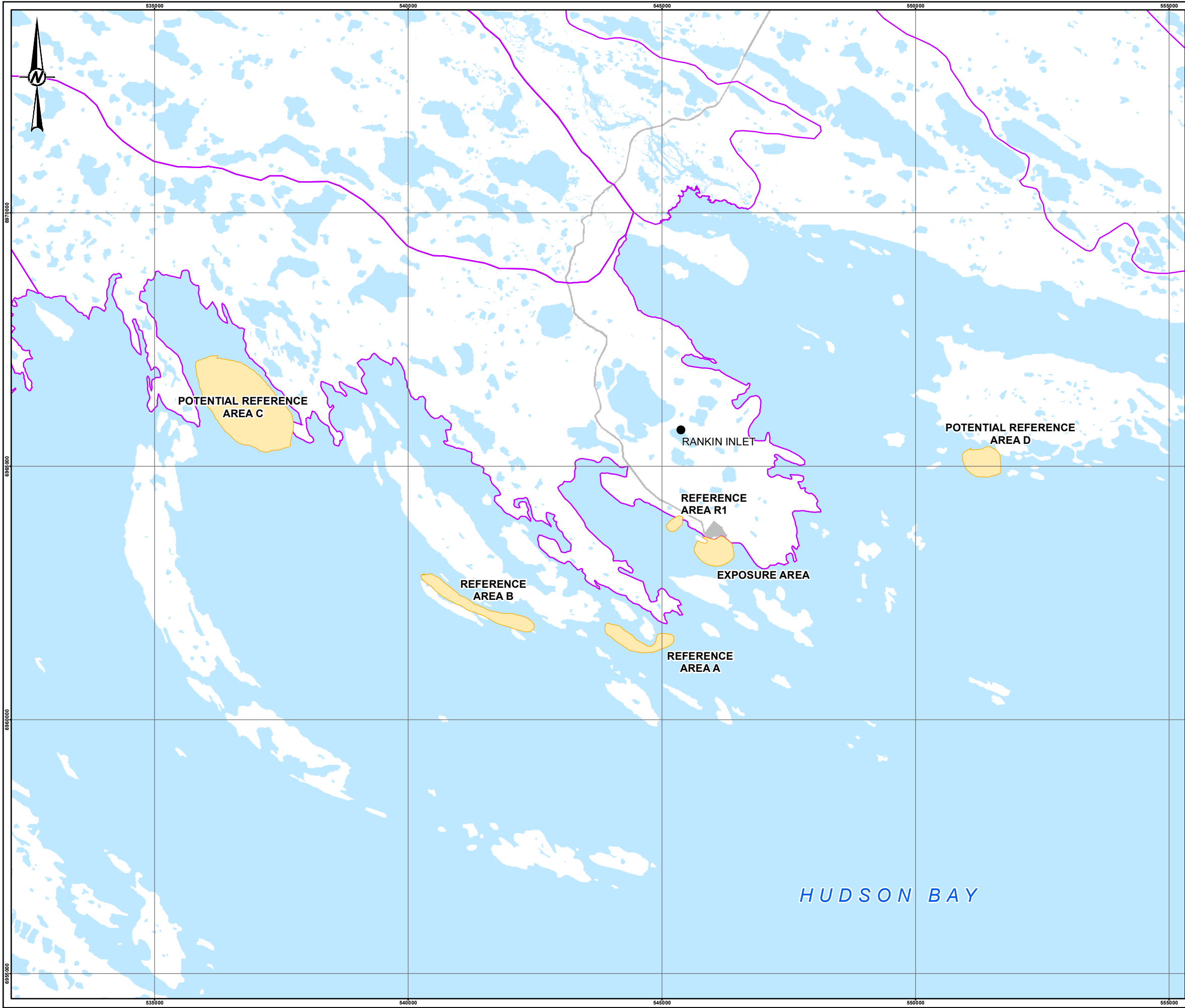
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**APPENDIX A**

# Figures and Photos

R:\TH\Yibunab\CAD-GIS\Client\Agnico\_Eagle\_Mines\_Ltd\Meliadine\_Gold\_Project\03\_Production\03000\MXD\Report\18103567\_5000\_5000\_L\_Figure\_01\_Reconnaissance\_Study\_Area\_Overview\_Map.mxd PRINTED ON: 2019-02-22 AT: 10:47:14 AM



- LEGEND**
- STUDY AREA
  - MINE FOOTPRINT
  - WATERSHED BOUNDARY
  - WATERCOURSE
  - WATERBODY



- REFERENCE(S)**
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  2. DATUM: NAD83 PROJECTION UTM ZONE 15

CLIENT  **AGNICO EAGLE MINES LIMITED**

**AGNICO EAGLE**  
PROJECT  
MELIADINE GOLD MINE  
OCEAN DISCHARGE MONITORING PLAN – MARINE  
RECONNAISSANCE AND BASELINE PROGRAMS

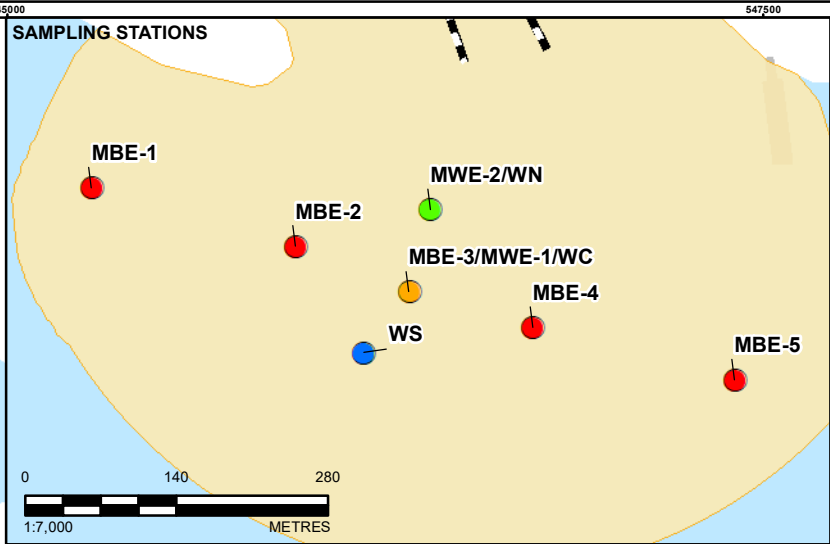
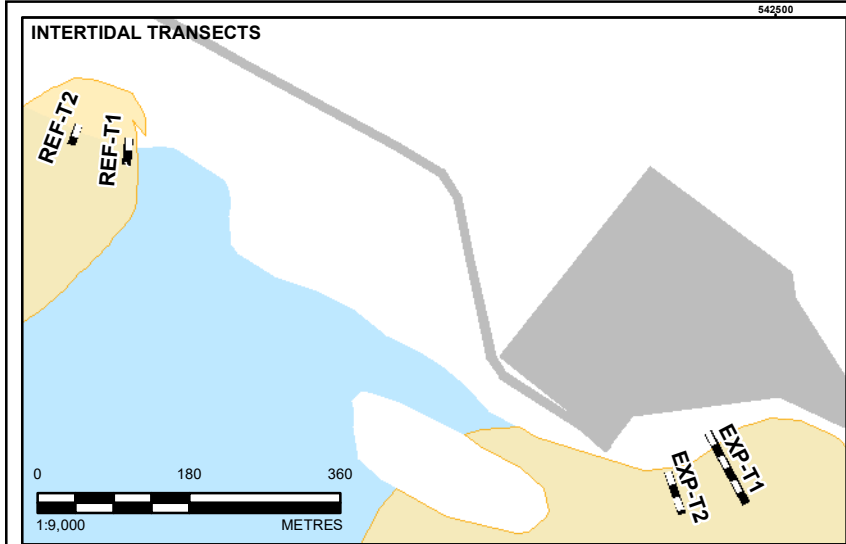
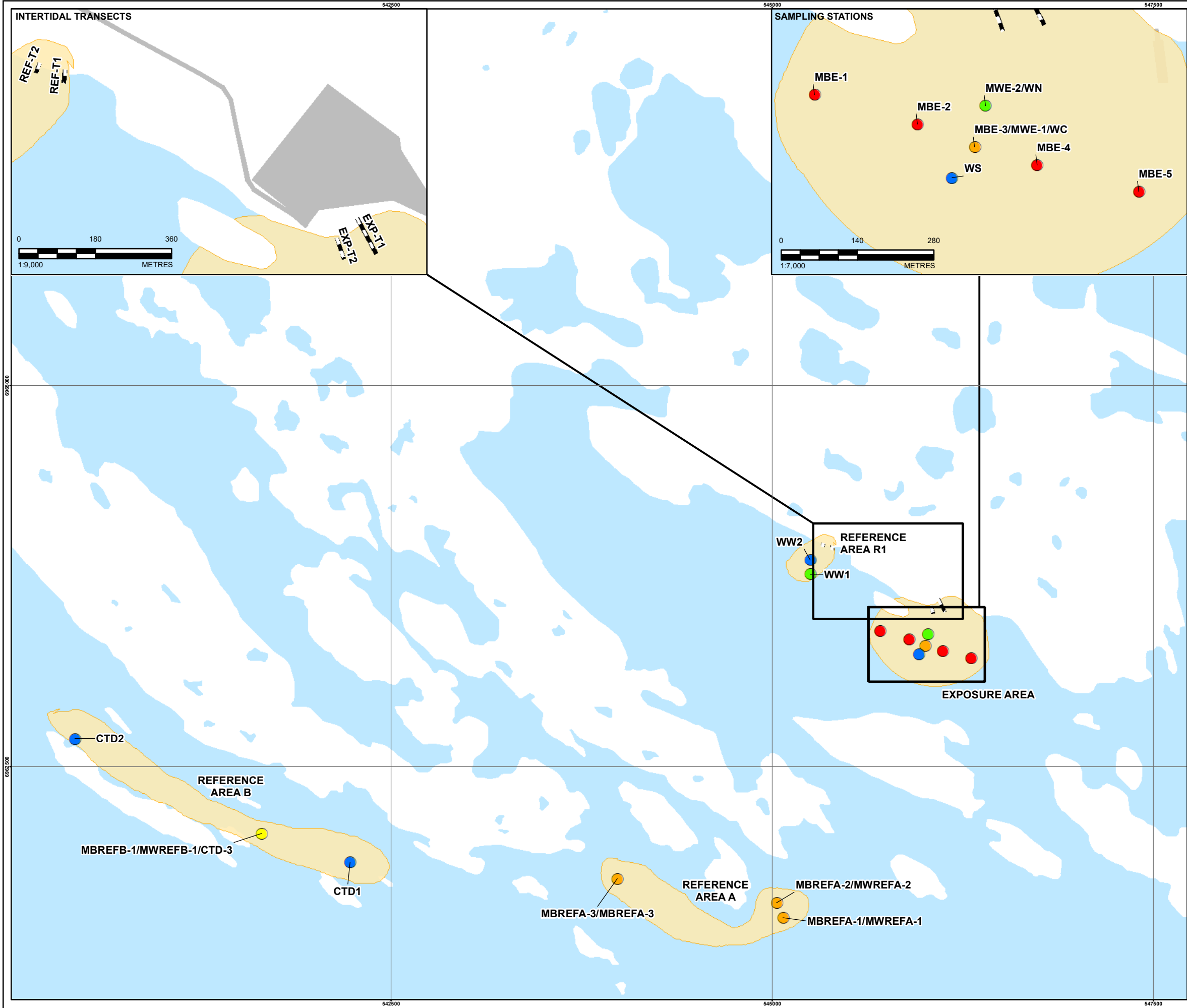
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|                                                                                                     | DESIGNED   | AO         |            |
|                                                                                                     | PREPARED   | CN         |            |
|                                                                                                     | REVIEWED   | AO         |            |
|                                                                                                     | APPROVED   | MT         |            |

|             |           |      |        |
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| PROJECT NO. | CONTROL   | REV. | FIGURE |
| 18103567    | 5000/5001 | 0    | 1      |

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B  
25mm





**LEGEND**

- SEDIMENT, BENTHIC INFAUNA
- CTD, WATER QUALITY, SEDIMENT, BENTHIC INFAUNA
- CTD, WATER QUALITY, SEDIMENT CHEMISTRY
- CTD, WATER QUALITY
- CTD
- TRANSECT
- STUDY AREA
- WATERCOURSE
- WATERBODY

**REFERENCE(S)**

- BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED.
- DATUM: NAD83 PROJECTION UTM ZONE 15

**CLIENT**

AGNICO EAGLE MINES LIMITED

**AGNICO EAGLE**

PROJECT

MELIADINE GOLD MINE

OCEAN DISCHARGE MONITORING PLAN – MARINE

RECONNAISSANCE AND BASELINE PROGRAMS

**TITLE**

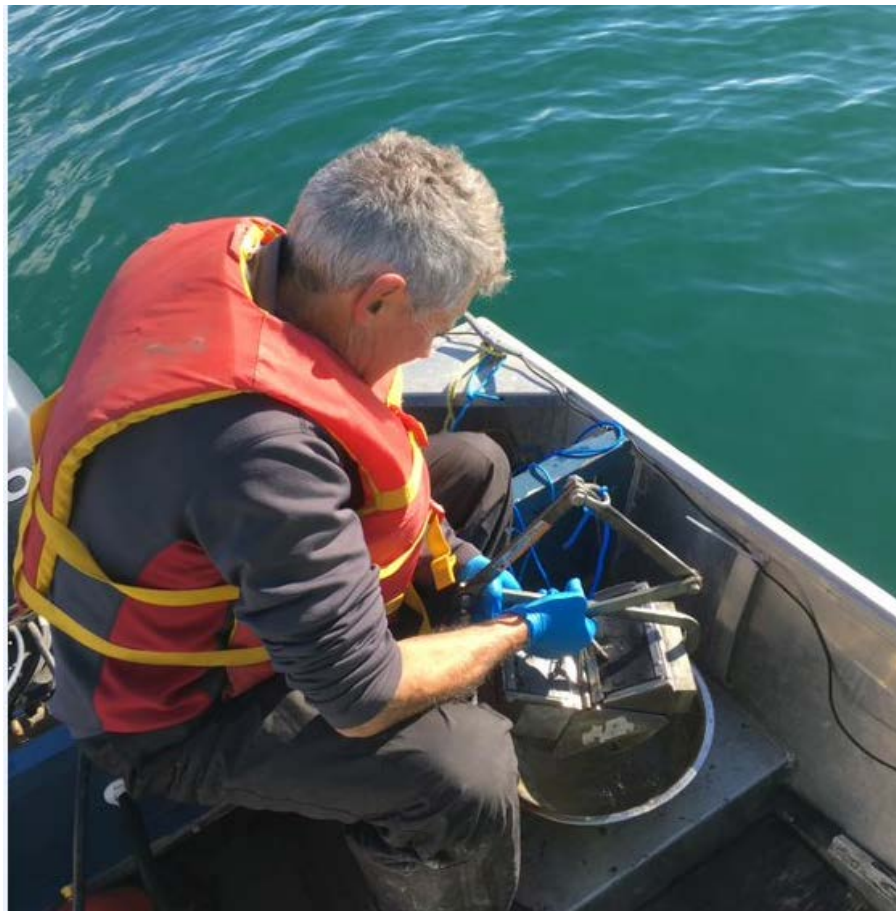
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|------------|------------|------------|
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| PREPARED   | CN         |            |
| REVIEWED   | AO         |            |
| APPROVED   | MT         |            |

|             |           |      |        |
|-------------|-----------|------|--------|
| PROJECT NO. | CONTROL   | REV. | FIGURE |
| 18103567    | 5000/5001 | 0    | 2      |



**Figure 3: Survey boat at the Exposure Area.**



**Figure 4: Sediment sampling using Petite Ponar grab**



Figure 5: Homogenized sediment sample



Figure 6: Benthic infauna 1-mm sieving tray





Figure 7: Washed benthic infauna sample



Figure 8: Intertidal survey quadrat (0.5 m x 0.5 m)

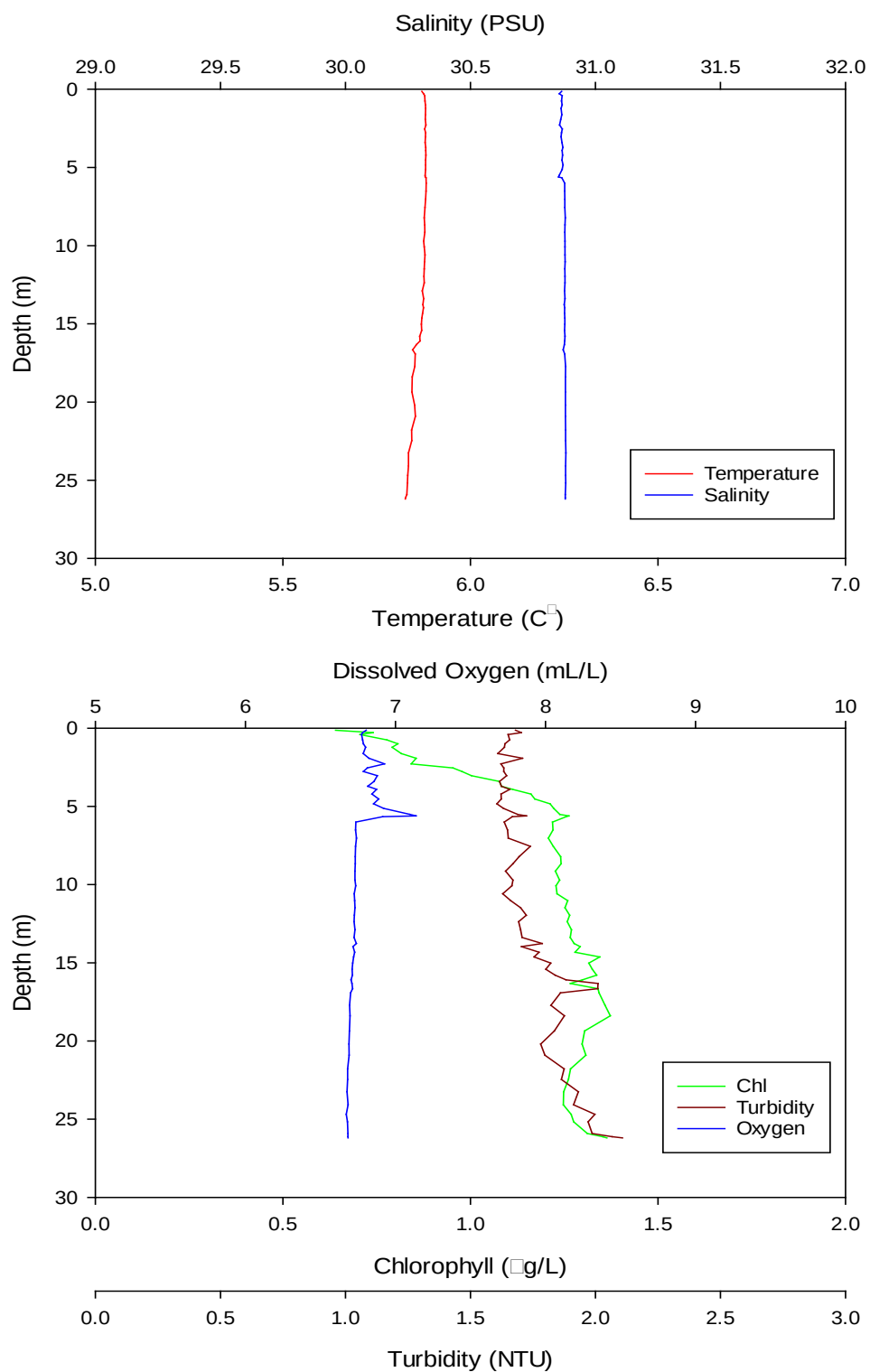


Figure 9: Exposure Area vertical water column profiles: temperature and salinity (top), and turbidity, chlorophyll and oxygen concentrations (bottom)

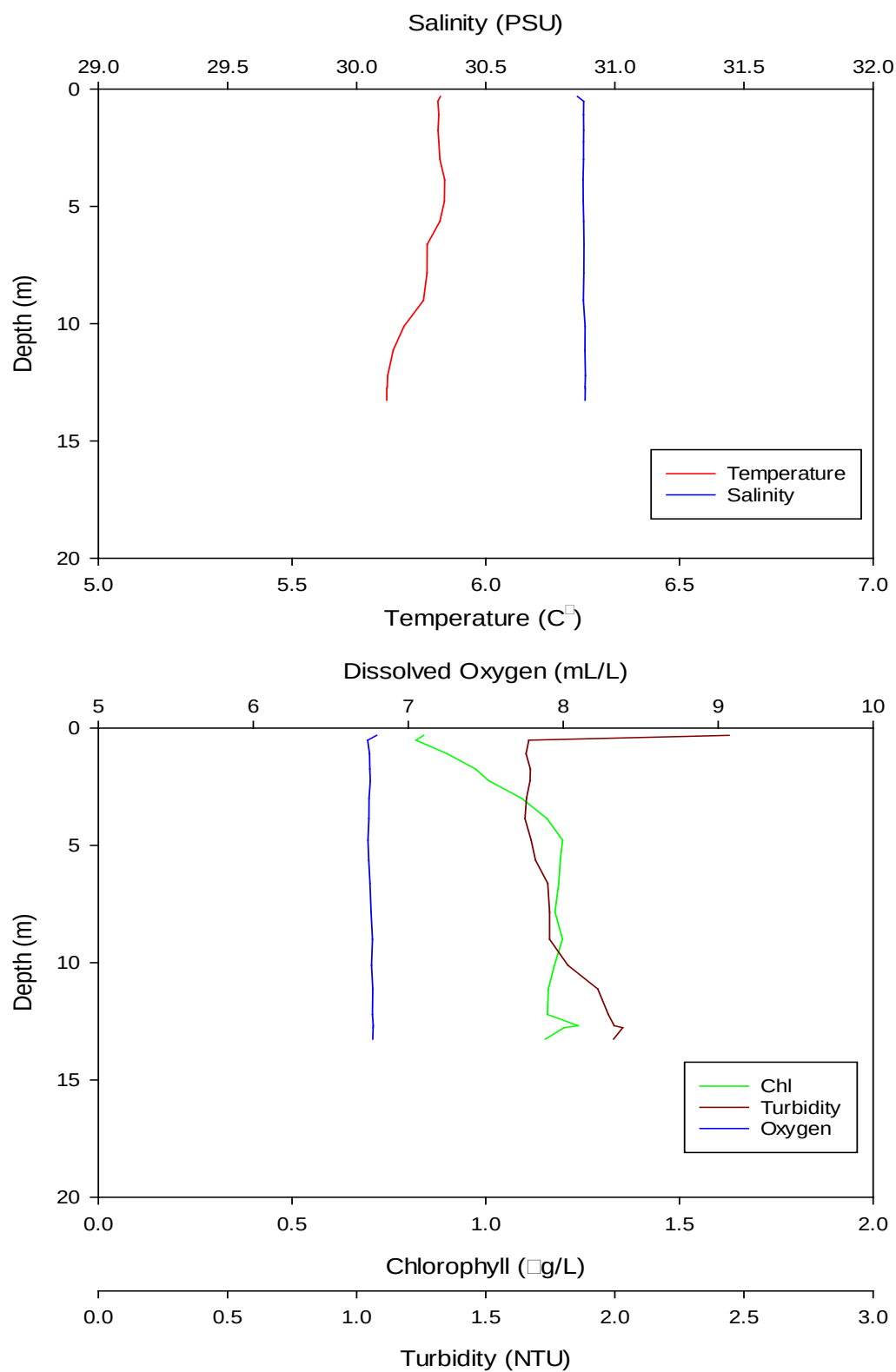


Figure 10: Reference Area R1 vertical water column profiles: temperature and salinity (top), and turbidity, chlorophyll and oxygen concentrations (bottom)

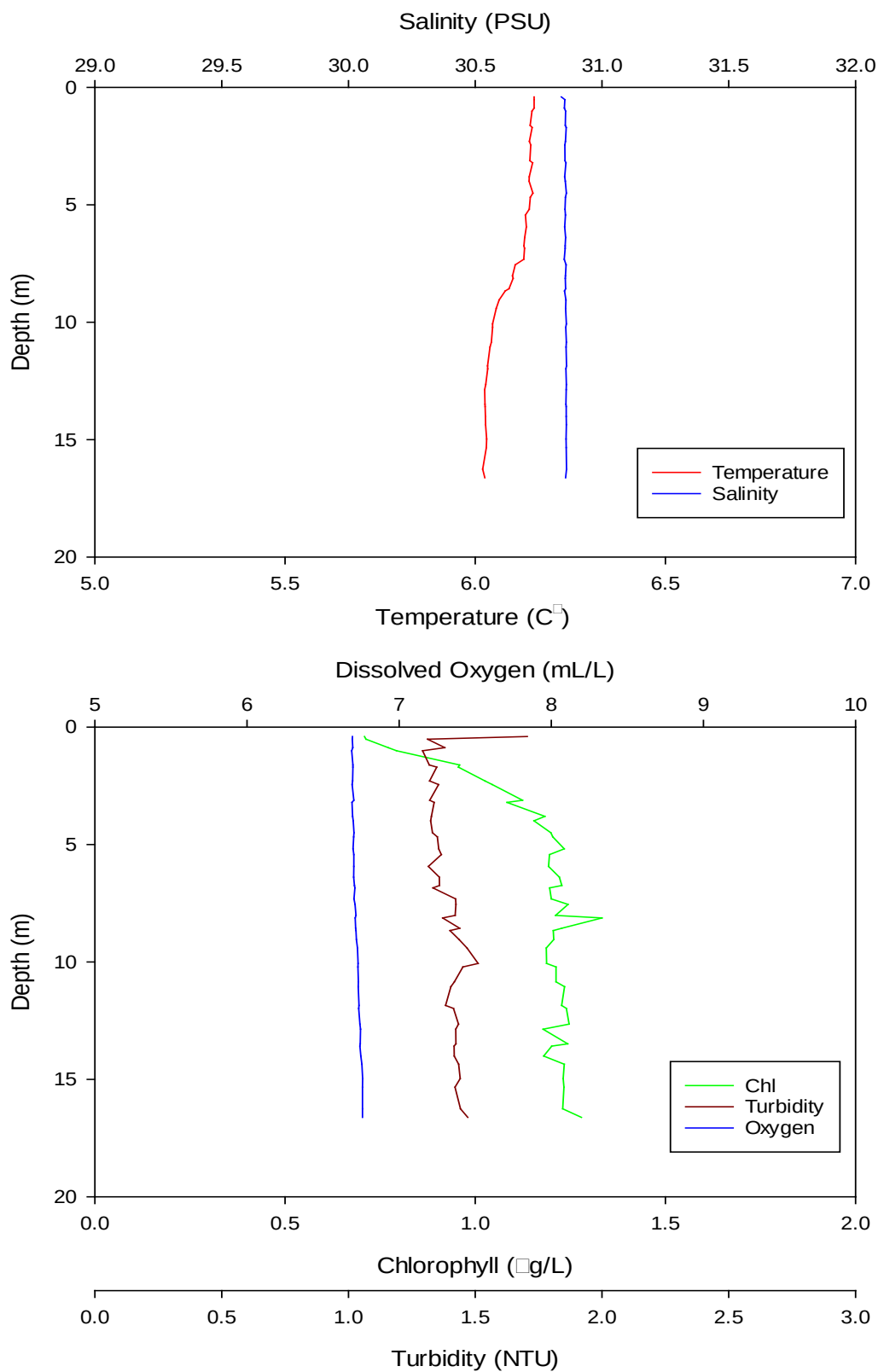


Figure 11: NWRefA-2 (Reference Area A) vertical water column profiles: temperature and salinity (top), and turbidity, chlorophyll and oxygen concentrations (bottom)

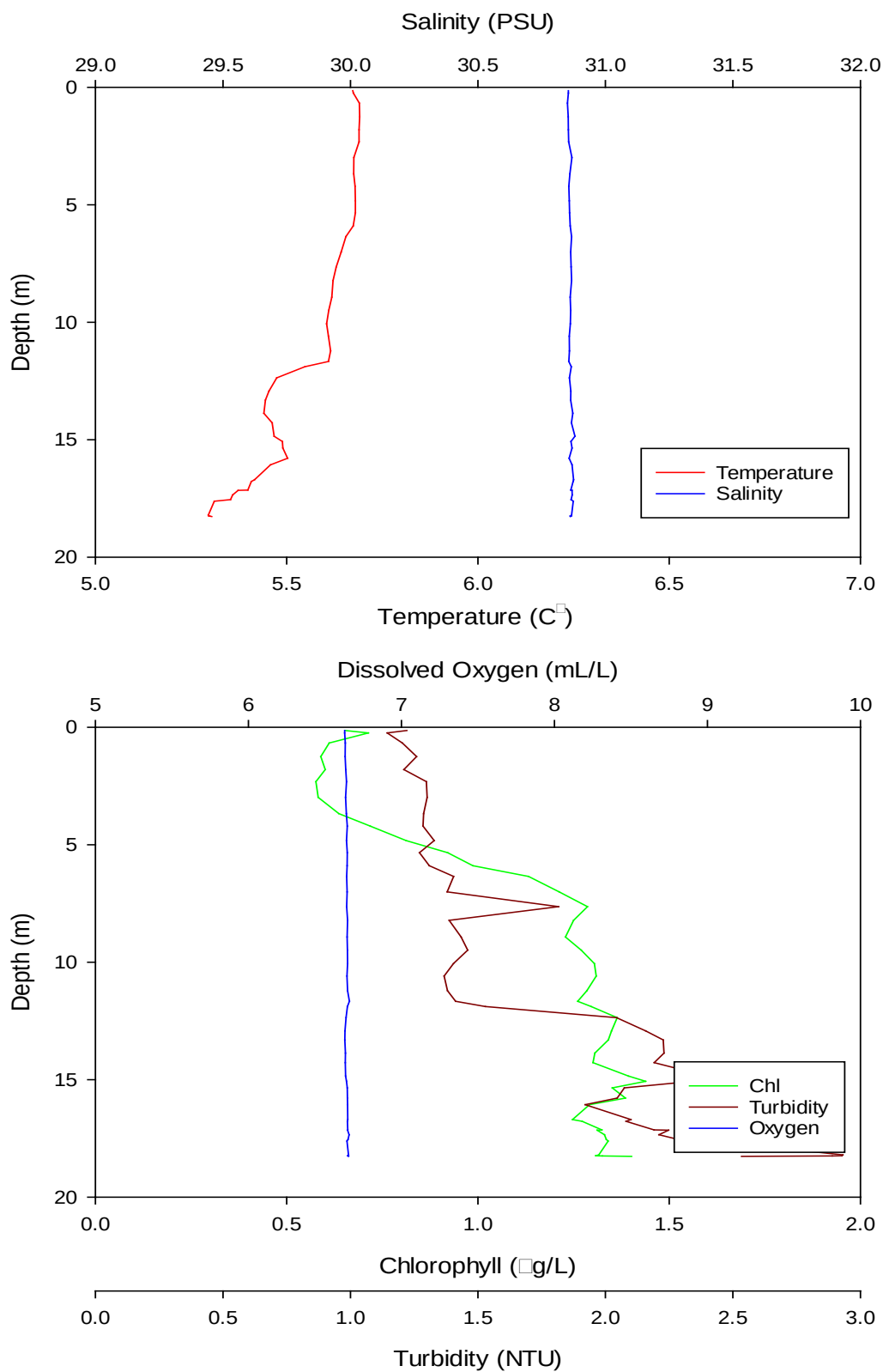


Figure 12: NWRefA-3 (Reference Area A) vertical water column profiles: temperature and salinity (top), and turbidity, chlorophyll and oxygen concentrations (bottom)



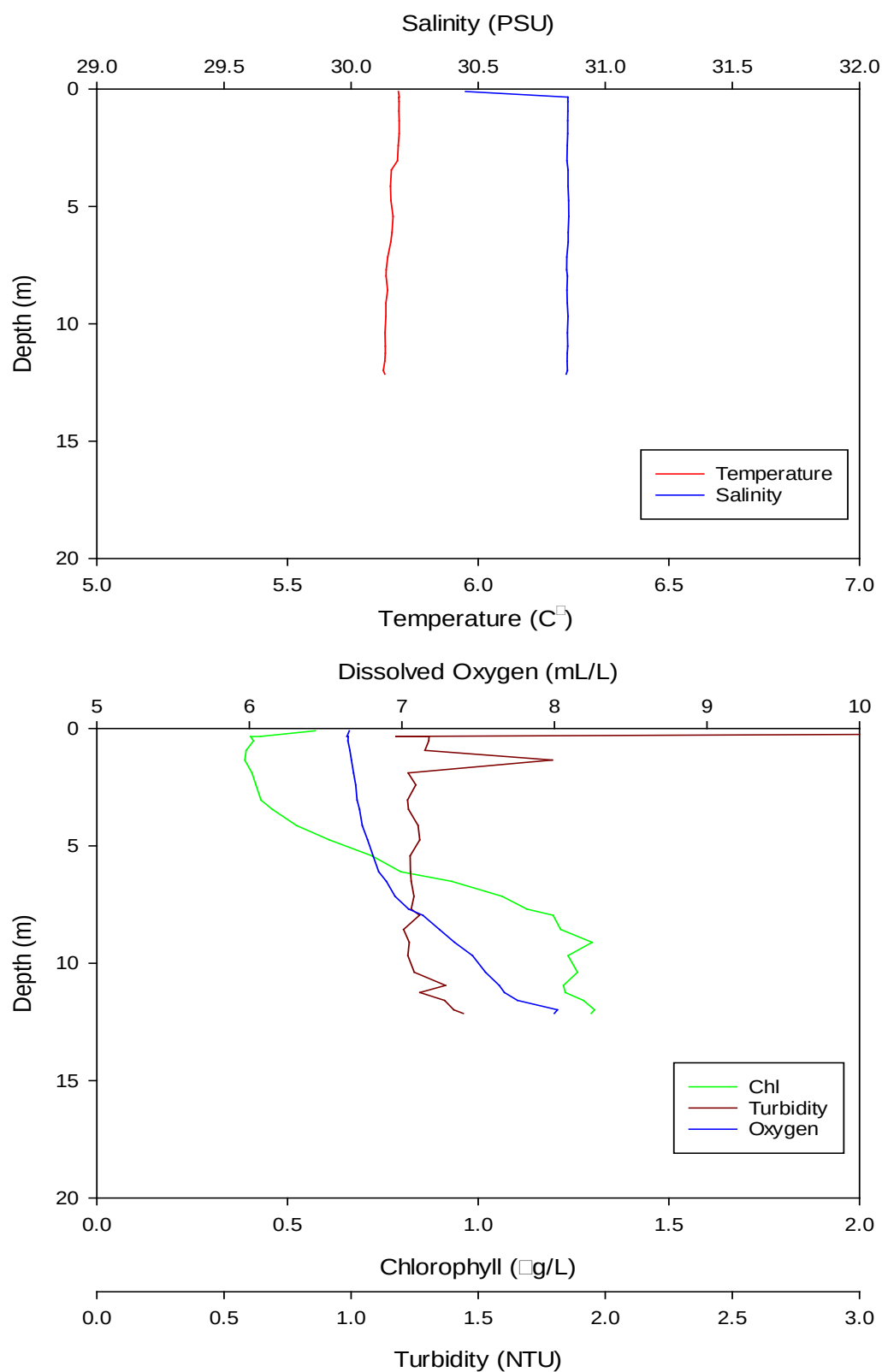


Figure 13: CTD-1 (Reference Area B) vertical water column profiles: temperature and salinity (top), and turbidity, chlorophyll and oxygen concentrations (bottom)

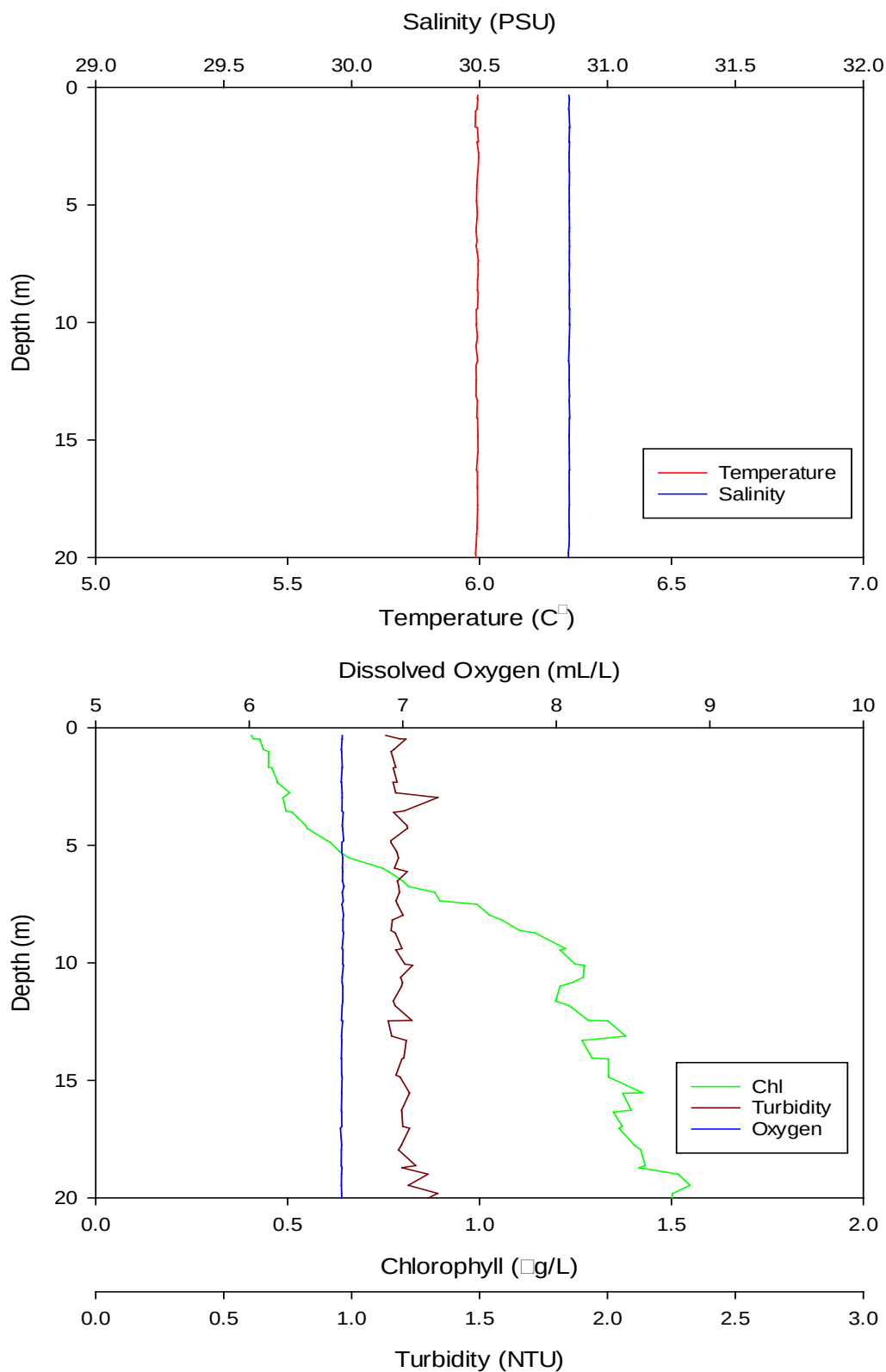


Figure 14: CTD-2 (Reference Area B) vertical water column profiles: temperature and salinity (top), and turbidity, chlorophyll and oxygen concentrations (bottom)

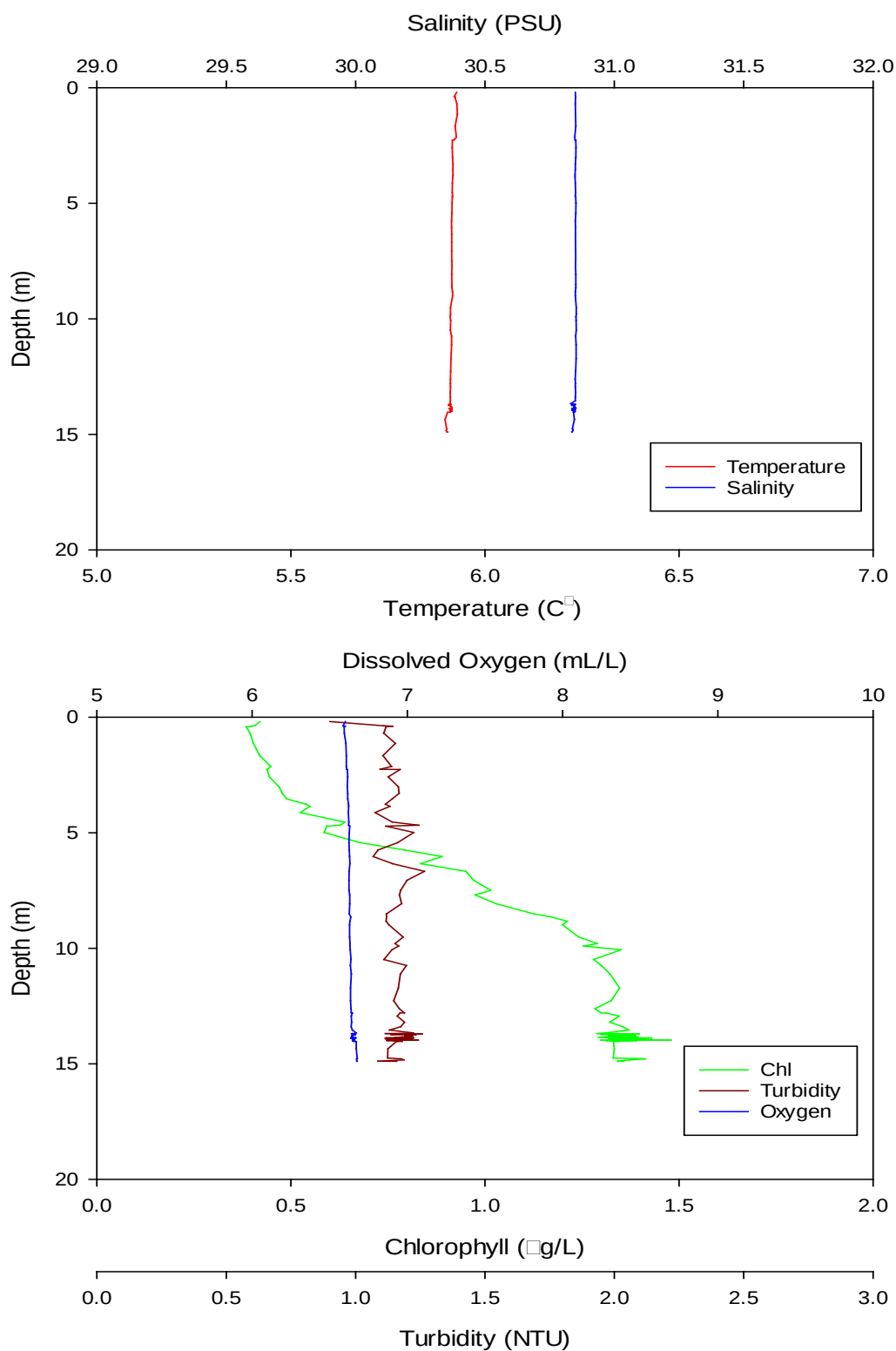


Figure 15: CTD-3 (Reference Area B) vertical water column profiles: temperature and salinity (top), and turbidity, chlorophyll and oxygen concentrations (bottom)



Figure 16: Intertidal Transect EXP-T1 (Exposure Area), September 14, 2018



Figure 17: An epifloral band in the lower intertidal zone in the Exposure Area represented mostly by rockweed (*Fucus* sp.), September 14, 2018





**Figure 18: Intertidal transect REF-T1 in the Reference Area R1, September 15, 2018**

**APPENDIX B**

# Water Quality Sampling Field Logs

18103562

Meladine Marine Recon

## CTD and Water Quality Sampling

Project #:

Project title:

Station name:

WW1

# of Casts/Bottles:

1/7

Date:

Sep 17

Sampled By:

AR &amp; SG

Coordinates:

Easting:

0545241

Northing:

6963763

Time:

18<sup>15</sup>

Water

Depth (m):

15

Weather:

rainy &amp; snowy

Wind Spd/Dir:

20 SW

Tide:

low @ 1745

| Sample Name | Sample Depth (m) | Duplicate Name | # of Bottles Filled | Comments             |
|-------------|------------------|----------------|---------------------|----------------------|
| WW1S        | 1                | /              | 7                   | S.4. S.2 = 5.3 Sechi |
| WW1D        | 10               | /              | 7                   |                      |

Station name:

MWE-1

# of Casts/Bottles:

1

Date:

Sep 17

Sampled By:

AR SG

Coordinates:

Easting:

15V 0546002

Northing:

6963295

Time:

18:46

Depth (m):

24

Weather:

cloudy, light rain

Wind Spd/Dir:

15 S kt

Tide:

rising

| Sample Name | Sample Depth (m) | Duplicate Name | # of Bottles Filled | Comments                |
|-------------|------------------|----------------|---------------------|-------------------------|
| MWE-1D      | 18               | /              | 7                   | Sechi: S.4 & S.2 = 5.3m |
| MWE-1S      | 1                | /              | 7                   |                         |

Station name:

# of Casts/Bottles:

Date:

Sampled By:

Coordinates:

Easting:

Northing:

Time:

Depth (m):

Weather:

Wind Spd/Dir:

Tide:

| Sample Name | Sample Depth (m) | Duplicate Name | All Bottles Checked (Y/N)? | Comments |
|-------------|------------------|----------------|----------------------------|----------|
|             |                  |                |                            |          |
|             |                  |                |                            |          |



18103567

Melodiine Marine Recon

## CTD and Water Quality Sampling

Project #:

Project title:

Station name:

MW12A 3

# of Casts/Bottles:

1/7

Date:

Sept 20

Sampled By:

AR 56

Coordinates:

Easting:

15V 0543992

Northing:

6961780

Time:

0930

Water

Depth (m):

21

Weather:

sun + cloud

Wind Spd/Dir:

SSW 15kt

Tide:

low slack

| Sample Name | Sample Depth (m) | Duplicate Name | # of Bottles Filled | Comments |
|-------------|------------------|----------------|---------------------|----------|
| MW12A 3-S   | 1                | N/A            | 7                   | CTD      |
| MW12A 3-D   | 15               | N/A            | 7                   |          |

Station name:

MW12B 1

# of Casts/Bottles:

1/7

Date:

Sept 20

Sampled By:

AR

Coordinates:

Easting:

15V 0541626

Northing:

6962080

Time:

1120

Depth (m):

34

Weather:

cloudy 1°C

Wind Spd/Dir:

18kt south

Tide:

flood

| Sample Name | Sample Depth (m) | Duplicate Name | # of Bottles Filled | Comments                                        |
|-------------|------------------|----------------|---------------------|-------------------------------------------------|
| MW12B 1S    | 1                | /              | 7                   | secchi = lost = 5.7 resight = 5.5 actual = 5.6m |
| B1D         | 15               | /              | 7                   | wavelets make sighting difficult                |

Station name:

# of Casts/Bottles:

Date:

Sampled By:

Coordinates:

Easting:

Northing:

Time:

Depth (m):

Weather:

Wind Spd/Dir:

Tide:

| Sample Name | Sample Depth (m) | Duplicate Name | All Bottles Checked (Y/N)? | Comments |
|-------------|------------------|----------------|----------------------------|----------|
|             |                  |                |                            |          |
|             |                  |                |                            |          |



18103567

Melodiome Marine Recorder

## CTD and Water Quality Sampling

Project #:

Project title:

Station name: MWE-2

# of Casts/Bottles:

Date:

Sampled By:

Coordinates:

Easting:

Northing:

Time:

Water

Depth (m):

Weather:

Wind Spd/Dir:

Tide:

| Sample Name | Sample Depth (m) | Duplicate Name | # of Bottles Filled | Comments                                 |
|-------------|------------------|----------------|---------------------|------------------------------------------|
| MWE-2       | 1m               | N/A            | 7                   | secchi lost 4.5 re-sight 4.2 actual 4.35 |
| MWE-2D      | 5m               | DUPA           | 7                   |                                          |

Station name: MW Ref A-1

# of Casts/Bottles:

Date:

Sampled By:

Coordinates:

Easting:

Northing:

Time:

Depth (m):

Weather:

Wind Spd/Dir:

Tide:

| Sample Name | Sample Depth (m) | Duplicate Name | # of Bottles Filled | Comments                     |
|-------------|------------------|----------------|---------------------|------------------------------|
| MW Ref A-1S | 1m               | /              | 7                   | actual (5.7)                 |
| 1D          | 15m              | /              | 7                   | secchi lost 5.8 re-sight 5.6 |

Station name: MW Ref A-2

# of Casts/Bottles:

Date:

Sampled By:

Coordinates:

Easting:

Northing:

Time:

Depth (m):

Weather:

Wind Spd/Dir:

Tide:

| Sample Name | Sample Depth (m) | Duplicate Name | All Bottles Checked (Y/N)? | Comments                  |
|-------------|------------------|----------------|----------------------------|---------------------------|
| MW Ref A-2S | 1                | /              | Y                          | secchi 5.1 5.2 = 5.3      |
| 2D          | 15               | /              | Y                          | difficult w/ chop & waves |

**APPENDIX C**

# Sediment Sampling Field Logs

## SEDIMENT SAMPLING LOG - GRAB

Project No: 18103567 - 4000

Date: Sept 13 2018

Station Number (ID): MBE-1 Reps

Project Title: Meliadine - diffuser

Sampled by: AR, SG

Sampling Method: P. ponar

Weather: sunny; wind E Skt

Lat/Longitude: 18 V 0548710  
6963402

Sampling Depth: 22m

# of Attempts to Obtain Sample: see below

Time of Collection: 17:15

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
 Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
 Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- silt & clay; thin light brown veneer (unconsolidated) over dense, stiff
- soft veneer
- worms, clam
- v. small trace organics (dark brown)
- no odour, sheen, or stain

Approx % collected in grab sample Rep 1 25% + 15%, Rep 2 - 25+25, Rep 3 40-50%

Photograph Reference Number(s): AR phone

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

- polychaetes (lg + small)
  - lg clam (Sp = Mya(?))
- > most fauna out of MBE's

## Sample Control Number (SCN):

- Analysis for:
- |                                      |                                     |                                             |
|--------------------------------------|-------------------------------------|---------------------------------------------|
| <input type="checkbox"/> Full Metals | <input type="checkbox"/> PAH        | <input type="checkbox"/> PAH Fingerprinting |
| <input type="checkbox"/> Grain Size  | <input type="checkbox"/> Total PCBs | <input type="checkbox"/> AVS SEM            |
| <input type="checkbox"/> TOC         | <input type="checkbox"/> Toxicity   | <input type="checkbox"/> LEPA/HEPA          |
| <input type="checkbox"/> Other       |                                     |                                             |

Other Notes:

# of Grabs for Analysis:

Rep 1 = 2 grab; 45 attempts  
 2 = 2 " ; 4 attempts  
 3 = 4 grabs & 5 attempts

1 lg clam (~18 yrs old)

Rep 3 = DUP (A)

Reviewed By: AR



## SEDIMENT SAMPLING LOG - GRAB

Project No: 18103567 - 4000

Date: Sept 13 2018

Station Number (ID): MBE-2 Reps

Project Title: Meliadine diffuser

Sampled by: AR, JG

Sampling Method: Petit Ponar

Weather: sunny; wind S 5 kt

Lat/Longitude: 15 V 0545894  
6963340

Sampling Depth: 21m

# of Attempts to Obtain Sample: see below

Time of Collection: 16:05

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
 Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
 Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- + silt + clay; trace shell
- v dense, stiff
- light brown veneer over light to med grey; overall light brown when mixed
- no odour, stain or sheen
- traces of minute organic debris; 2x small polychaete

Approx % collected in grab sample 5% - 20%; Rep 3 = 45% %

Photograph Reference Number(s): AR phone

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

## Sample Control Number (SCN):

|               |                                      |                                     |                                             |
|---------------|--------------------------------------|-------------------------------------|---------------------------------------------|
| Analysis for: | <input type="checkbox"/> Full Metals | <input type="checkbox"/> PAH        | <input type="checkbox"/> PAH Fingerprinting |
|               | <input type="checkbox"/> Grain Size  | <input type="checkbox"/> Total PCBs | <input type="checkbox"/> AVS SEM            |
|               | <input type="checkbox"/> TOC         | <input type="checkbox"/> Toxicity   | <input type="checkbox"/> LEPH/HEPH          |
|               | <input type="checkbox"/> Other       |                                     |                                             |

Other Notes: # of Grabs for Analysis:

Ex Rep 1 = 2 grabs; 6 attempts  
 Rep 2 = 3 " ; 15 "  
 Rep 3 = 1 ; 4 "

Reviewed By: AR

## SEDIMENT SAMPLING LOG - GRAB

Project No: 18103567 / 4000

Date: Sept 13 2018

Station Number (ID): MBE-3 Reps

Project Title: Meliadine Diffuser

Sampled by: AR, JG

Sampling Method: Petit Ponar

Weather: wind SE 5kt

Lat/Longitude: 15 V 0545991  
6963294

Sampling Depth: 21 m

# of Attempts to Obtain Sample: see below

Time of Collection: 15:00 → 16:00

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- silt + clay, v. thin <sup>light brown</sup> veneer over med / dark veined clay
- v. dense, stiff
- no odour, sheen, or stain
- no organic debris, or shell

Approx % collected in grab sample

15-30%

%

Photograph Reference Number(s):

AR phone

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for:

☐ Full Metals☐ PAH☐ PAH Fingerprinting☐ Grain Size☐ Total PCBs☐ AVS SEM☐ TOC☐ Toxicity☐ LEPA/HEPA☐ Other

Other Notes:

low tide 14:45

# of Grabs for Analysis:

Rep 1 = 3 grabs, 10 attempts

Rep 2 = 2 " ; 2 "

Rep 3 = 3 " ; 8 attempts

Reviewed By: \_\_\_\_\_



## SEDIMENT SAMPLING LOG - GRAB

Project No: 18103567 - 4000

Project Title: Meliadine Digger

Date: Sep 13 2018

Sampled by: AR, SL

Station Number (ID): MBE-4

Sampling Method: Ret. Power

Weather: mostly sunny; wind Skt W Lat/Longitude: 15V 0546123  
6963268

Sampling Depth: 19m (low tide)

# of Attempts to Obtain Sample: 1 Time of Collection: 1400

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- unconsolidated veneer over firm/compact silt
- light brown over light grey silt; Rep 3 darker/med grey under layer
- trace organic debris (minute brown stringy pieces to 3mm)
- no odour, sheen, staining
- 1 polychaete; 1 piece clam shell

Approx % collected in grab sample 25% - 40% %

Photograph Reference Number(s): andrew's phone

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

## Sample Control Number (SCN):

|               |                                      |                                     |                                             |
|---------------|--------------------------------------|-------------------------------------|---------------------------------------------|
| Analysis for: | <input type="checkbox"/> Full Metals | <input type="checkbox"/> PAH        | <input type="checkbox"/> PAH Fingerprinting |
|               | <input type="checkbox"/> Grain Size  | <input type="checkbox"/> Total PCBs | <input type="checkbox"/> AVS SEM            |
|               | <input type="checkbox"/> TOC         | <input type="checkbox"/> Toxicity   | <input type="checkbox"/> LEPH/HEPH          |
|               | <input type="checkbox"/> Other       |                                     |                                             |

Other Notes: # of Grabs for Analysis:

Rep 1 = 2 grabs (2 attempts)  
Rep 2 = 3 grab (4 attempts)  
Rep 3 = 2 grab (3 attempts)

Reviewed By: AR

## SEDIMENT SAMPLING LOG - GRAB

Project No:

13/03567

Date:

Sept 13 2018

Project Title:

Meliadine

Station Number  
(ID):

MBE-5

Sampled by:

A. Rippington ; J. Goodyear

Sampling Method:

Pilot Power

Weather:

wind SW 7kt  
mostly sunny

Lat/Longitude:

15V 0546299 , 6963211

Sampling Depth:

21 m

# of Attempts to  
Obtain Sample:

1

Time of  
Collection:

12:20

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

silt w/ few gravel ; no shell or worms greyish light brown  
compact & dense beneath unconsolidated 2cm veneer  
no odour, sheen or staining (staining Rep 2)  
no ~~trace~~ organic debris

Approx % collected in grab sample

15  
20% - 30%

%

Photograph Reference Number(s) :

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for:

☐ Full Metals☐ PAH☐ PAH Fingerprinting☐ Grain Size☐ Total PCBs☐ AVS SEM☐ TOC☐ Toxicity☐ LEPH/HEPH☐ Other

Other Notes:

# of Grabs for Analysis:

3 Rep 1 2 for Rep 2 &amp; Rep 3

sandhill crane x 56

Rep 1, 2, 3

Reviewed By: \_\_\_\_\_



## SEDIMENT SAMPLING LOG - GRAB

Meliadine

Project No: 13-1447-0183/2000 18/03567/4000 Project Title: Shell-SQT Marine Sediment Investigation

Date: October Sept 19 2018

Sampled by: AR, JS, DS JG

Station Number (ID): MB Ref A 1 Rep 1 2 3

Sampling Method: Van Veen (Chemistry + Toxicity Samples) Standard Ponar (Benthic Samples) Petit

Weather: mostly sun; wind 10 kt SW

Lat/Longitude: 15 N 0545070 6961511

Water Depth: 21 m

Sieve Mesh Size: 500-micron

Time of Collection: 08<sup>30</sup>

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)

Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);

Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- loose light brown 1cm veneer over med. density compact light gray
- no odour or sheen, trace orangy brown streak in Rep 2
- dark gray streak in Rep 3
- polychaetes

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

Chemistry Grab 1 45+25 Grab 2 30+30 Grab 3 20+35

2 grabs for each sample

Benthic Grab 1 attempts 4 (4) Grab 2 6 Grab 3 3

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for:

☒ Chemistry☐ Toxicity☐ Benthic Invertebrate Taxonomy

# Grabs for Analysis (Chemistry and Toxicology):

2 each

# of Jars Per Benthic Replicate Sample:

Rep 1 1 Rep 2 1 Rep 3 1

Notes:

Reviewed By: \_\_\_\_\_

## SEDIMENT SAMPLING LOG - GRAB

Melradine

Project No: 13-1447-0183-2000 18103567-4000 Project Title: Shell-SQT Marine Sediment Investigation  
Date: October 19 2013 2018 Sampled by: AR, JS, DS JG  
Station Number (ID): Sept MBRg A-2 Sampling Method: Van Veen (Chemistry + Toxicity Samples) Standard Ponar (Benthic Samples) Petit  
Weather: mostly sun, SW 10kt Lat/Longitude: 15V 0545028 6961609  
Water Depth: 21m  
Sieve Mesh Size: 500 micron Time of Collection: 945

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

same as MBRg A-1  
light brown over med gray  
penetration to 6 cm / 7 cm  
no odour, sheen, trace darker gray stain/streak below 2cm

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

Chemistry Grab 1 45+25 Grab 2 20+45 Grab 3 55  
Benthic Grab 1 attempts 4 Grab 2 3 Grab 3 1

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for: ☒ Chemistry YES ☒ Toxicity ☒ Benthic Invertebrate Taxonomy  
# Grabs for Analysis (Chemistry and Toxicology): see above ↑ # of Jars Per benthic Replicate Sample: Rep 1 1 Rep 2 1 Rep 3 1

Notes:

Reviewed By: \_\_\_\_\_



18103567-400 **SEDIMENT SAMPLING LOG - GRAB** *Meliadine*

Project No: 13-1447-0183/2000

Project Title: Shell SGT Marine Sediment Investigation

Date: *Sept.* October 19 2013 ~~2018~~Sampled by: AR, JS, DS *JG*Station Number (ID): *MB Ref A-3*Sampling Method: *Van Veen (Chemistry + Toxicity Samples)*  
Standard Ponar (Benthic Samples) *Petit*Weather: *Seas ~~3~~ 3 m wind 11 knots from WNW*  
*Mostly Sunny*Lat/Longitude: *15V 0543984*  
*6961763*Water Depth: *21 m*Sieve Mesh Size: *500 micron*Time of Collection: *12<sup>00</sup>*

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- light brown over med grey w/ dark grey to black pockets
- silt + clay unconsolidated over med firm/to firm beneath
- mild <sup>sulfur</sup> organic odour, no stain, or sheen
- amphipods (lots); polychaete

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample :

Chemistry Grab 1 *20+45* Grab 2 *20+55* Grab 3 *20+25*Benthic Grab 1 *3* Grab 2 *3* Grab 3 *3**Attempts 3*

Photograph Reference Number(s) :

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

*Rep 1 - pre mix*

Sample Control Number (SCN):

Analysis for:

☒ Chemistry☐ Toxicity☐ Benthic Invertebrate Taxonomy

# Grabs for Analysis (Chemistry and Toxicology):

# of Jars Per benthic Replicate Sample:

Rep 1 \_\_\_\_\_ Rep 2 \_\_\_\_\_ Rep 3 \_\_\_\_\_

Notes:

Reviewed By: \_\_\_\_\_

18103567-4000 **SEDIMENT SAMPLING LOG - GRAB** Meliadine

Project No: 13-1447-0183/2000

Project Title: ~~Shoal SC~~ Marine Sediment InvestigationDate: October ~~Sept~~ 19 2015Sampled by: AR, JS, DS ~~SC~~

Station Number (ID): MBReg B.1

Sampling Method: Van Veen (Chemistry + Toxicity Samples)  
Standard Ponar (Benthic Samples)

Weather: sunny wind 17 kt

Lat/Longitude: 15V 541650  
6962064

Water Depth: 19 m

Sieve Mesh Size: 500 micron 1mm

Time of Collection: 15:30

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- gravel, sand, some silt
- fine branched brown algae; small red blades
- mixed color gray + black fines sediment
- no odor, stain, or sheen

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

Chemistry Grab 1 10%, 15%, 20% Grab 2 ~~/~~ Grab 3 ~~/~~Benthic Grab 1 ~~/~~ Grab 2 ~~/~~ Grab 3 ~~/~~

attempts (10)

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for:

☒ Chemistry☒ Toxicity☒ Benthic Invertebrate Taxonomy

# Grabs for Analysis (Chemistry and Toxicology):

# of Jars Per benthic Replicate Sample:

Rep 1 \_\_\_\_\_ Rep 2 \_\_\_\_\_ Rep 3 \_\_\_\_\_

Notes:

+ several rejections due to ↑ gravel

Reviewed By: \_\_\_\_\_

**APPENDIX D**

# Benthic Infauna Sampling Field Logs



Benthic

Page 1 of 1

## SEDIMENT SAMPLING LOG - GRAB

Meliadine

Project No: 18103567 13-1447-0183/2000Project Title: Marine Sediment InvestigationDate: October Sept 15 2010Sampled by: AR, JS, DS, JGStation Number (ID): MBE 1Sampling Method: Van Veen (Chemistry + Toxicity Samples)  
Standard Ponar (Benthic Samples) RetitWeather: Wind 14 Gusts to 20 knots 15V 0545719  
SNOW squalls then SUNLat/Longitude: 6963378Water Depth: 21Sieve Mesh Size: 500 micron 1mmTime of Collection: 13:36 → 15<sup>00</sup>

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
Colour; Structure; Contaminants (staining/odor/shreen); Other (wood, debris, organisms).

- silt clay; brown layer over gray; <sup>unconsolidated</sup> veneer = 0.5 to 1 cm to 0.5 cm
- dense; compact, stiffer with depth
- enhanced, polychaete

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample :

| Chemistry Grab 1                           | Grab 2                          | Grab 3                         |
|--------------------------------------------|---------------------------------|--------------------------------|
| Benthic Grab 1 <u>20+23+15</u><br><u>4</u> | Grab 2 <u>25+40</u><br><u>8</u> | Grab 3 <u>56+0</u><br><u>4</u> |

Photograph Reference Number(s) :

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

photos lost; memory card issue

Sample Control Number (SCN):

Analysis for:

☒ Chemistry☒ Toxicity☒ Benthic Invertebrate Taxonomy

# Grabs for Analysis (Chemistry and Toxicology):

# of Jars Per benthic Replicate Sample:

Rep 1 1Rep 2 1Rep 3 1

Notes:

very windy 17 → 20 kt

low tide ~ 16:00 0.77m

Reviewed By: AR



18103567/4000

## SEDIMENT SAMPLING LOG - GRAB

Meliadine

Project No:

~~181447-0132/2000~~

Project Title:

~~Shell S.H.~~ Marine Sediment Investigation

Date:

~~October~~ Sept 16 2013

Sampled by:

AR, JS DS JG

Station Number  
(ID):

MBE-2

Sampling Method:

~~Van Veen (Chemistry + Toxicity Samples)~~  
~~Standard Ponar (Benthic Samples)~~ Petit

Weather:

part sun; wind 15+ kt West

Lat/Longitude:

15°V 0545897  
6963337

Water Depth:

22m

Sieve Mesh Size:

~~500 micron~~ 1mmTime of  
Collection:

12:15

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
 Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
 Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- unconsolidated light brown silt veneers over light gray dense, firm silt & clay
- some black inclusions - no odour
- Rep<sup>3</sup> clam
- polychaete burrowing hole; lots of worms

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

Chemistry Grab 1

Grab 2

Grab 3

Benthic Grab 1

Grab 2

Grab 3

45% + 35

40 + 30

20 + 60

Attempts 2

4

4

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

⊗ see photo in ponar mouth for colour &amp; texture

Sample Control Number (SCN):

Analysis for:

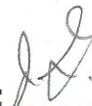
☒ Chemistry☒ Toxicity☒ Benthic Invertebrate Taxonomy# Grabs for Analysis  
(Chemistry and  
Toxicology):# of Jars Per benthic  
Replicate Sample:

Rep 1

Rep 2

Rep 3

Notes:

Reviewed By: 

18103567 SEDIMENT SAMPLING LOG - GRAB *Melodine*

Project No: 15-1447-0183/2000

Project Title: ~~Shallow~~ Marine Sediment InvestigationDate: ~~October~~ Sept 14 2013

Sampled by: AR, JS, DS, JG

Station Number (ID):

MBE-3

Sampling Method: Van Veen (Chemistry + Toxicity Samples)  
~~Standard Ponar~~ (Benthic Samples)

Petit

Weather:

Mostly Sunny 6 knots WNW

Lat/Longitude:

15V 0546002  
6963295

Water Depth:

22-24

Sieve Mesh Size:

500 micron 1 mm

Time of Collection:

17:30

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- silt + clay; dull light brown
- no odor, sheen or stain
- compact; dense
- ~~no orgs. seen~~ polychaete

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

Chemistry Grab 1 ~~35~~ Grab 2 ~~45~~ Grab 3 ~~30~~  
Benthic Grab 1 35+45 Grab 2 45+50 Grab 3 30%+30 +10  
Attempts 2 2 3

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

photos taken @ beach / sieve

sieved for Rep 3 &amp; 2, Rep 1 = silty/clay mass before + after

Sample Control Number (SCN):

Analysis for:

☐ Chemistry☐ Toxicity☒ Benthic Invertebrate Taxonomy

# Grabs for Analysis (Chemistry and Toxicology):

NA

# of Jars Per benthic Replicate Sample:

Rep 1 1

Rep 2 1

Rep 3 1

Notes:

Reviewed By: \_\_\_\_\_



## SEDIMENT SAMPLING LOG - GRAB

Project No:

13103567 / 4000  
13-1447-0183 / 2000

Date:

October 14 2018

Station Number  
(ID):

MBE-4

Project Title:

Shell SCT Marine Sediment Investigation

Sampled by:

AR, JS, DS JG Goodyear

Sampling Method:

Van Veen (Chemistry - Toxicity Samples)  
Standard Ponar (Benthic Samples) Petit

Weather:

cloudy, wind NE 7kt

Lat/Longitude:

15V 0546113  
6963260

Water Depth:

20 m

Sieve Mesh Size:

500 micron 1 mm

Time of  
Collection:

1330

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)

Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);

Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- silt + clay, light brown over light grey
- compact dense
- poor penetration to 4cm max
- polychaets - lots, amphipods

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

Chemistry Grab 1

Grab 2

Grab 3

Benthic Grab 1

30% x 2

Grab 2

30 + 35%

Grab 3

35% + 35

# Attempt: 3

2

2

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for:

☐ Chemistry☐ Toxicity☐ Benthic Invertebrate Taxonomy# Grabs for Analysis  
(Chemistry and  
Toxicology):# of Jars Per benthic  
Replicate Sample:

Rep 1

Rep 2

Rep 3

Notes:

Reviewed By: \_\_\_\_\_

Benthic

Page 1 of 1

## SEDIMENT SAMPLING LOG - GRAB

Meliadise

Project No: 18103567  
 Date: October 14 2018  
 Station Number (ID): MBE-5

Project Title: Shell SQT Marine Sediment Investigation  
 Sampled by: AR, JS, SG  
 Sampling Method: Van Veen (Chemistry + Toxicity Samples)  
Standard Ponar (Benthic Samples) *Atit*

Weather: cloudy wind 10kt N Lat/Longitude: 1

Water Depth: 2/m

Sieve Mesh Size: 500 micron 1mm

Time of Collection: 1030

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
 Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
 Colour; Structure; Contaminants (staining/odour/shell); Other (wood, debris, organisms).

- silt + clay, dull light brown
- no odour, green or stain; compact dense
- clam, polychaete, caprellid

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

|                             |                     |                     |
|-----------------------------|---------------------|---------------------|
| Chemistry Grab 1            | Grab 2              | Grab 3              |
| Benthic Grab 1 <u>40+30</u> | Grab 2 <u>35+35</u> | Grab 3 <u>50+40</u> |
| Attempts: <u>3</u>          | <u>2</u>            | <u>2</u>            |

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for: ☐ Chemistry ☐ Toxicity ☒ Benthic Invertebrate Taxonomy

# Grabs for Analysis (Chemistry and Toxicology): N/A

# of Jars Per benthic Replicate Sample: 1

Rep 1 1 Rep 2 1 Rep 3 1

Notes:

Reviewed By: *[Signature]*



18103567-4000

## SEDIMENT SAMPLING LOG - GRAB

Project No: 13-1447-0183/2000

Project Title: Shell SQT Marine Sediment Investigation

Date: ~~October~~ Sept 16 2018

Sampled by: AR, JS, JS

Station Number (ID): MB Ref A site 1

Sampling Method: Van Veen (Chemistry + Toxicity Samples)  
Standard Ponar (Benthic Samples) *Net it*

Weather: Full overcast; Wind 16 kts

Lat/Longitude: 0545068/6961511

Water Depth: 21M

Sieve Mesh Size: 500 micron / 1mm

Time of Collection: 15:04

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)  
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

- silt & clay light brown unconsolidated 1cm over  
increasing density light grey. few darker inclusions  
- penetration to 7cm firm, not dense like Itivia samples  
- polychaete no odour, stain or sheen

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample: white crystalline unknown 1cm x 2mm cylinder

|                      |              |              |
|----------------------|--------------|--------------|
| Chemistry Grab 1     | Grab 2       | Grab 3       |
| Benthic Grab 1 65+65 | Grab 2 25+20 | Grab 3 20+20 |
| Attempts 5           | 10           | 11           |

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for: ☒ Chemistry ☒ Toxicity ☒ Benthic Invertebrate Taxonomy# Grabs for Analysis  
(Chemistry and  
Toxicology):# of Jars Per benthic  
Replicate Sample:

Rep 1 1 Rep 2 1 Rep 3 1

Notes:

Reviewed By: AR

Infurna

13103567/400

# SEDIMENT SAMPLING LOG - GRAB

Project No: 13-1447-0183 / 2000  
Date: October 18 2013  
Station Number (ID): MBReg A-2  
Weather: Cloudy wind 20ktW  
Water Depth: 20m  
Sieve Mesh Size: 500 micron 1mm

Project Title: Shell SQT Marine Sediment Investigation  
Sampled by: AR, JS, DS 34  
Sampling Method: Van Veen (Chemistry + Toxicity Samples)  
Standard Ponar (Benthic Samples)  
15V 0545028  
Lat/Longitude: 6961609  
Time of Collection: 1715 - 1810

Sediment Description  
Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -, y, and); Inclusions (shells, organisms, other non-soil components)  
Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated);  
Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

Same as RepA Site  
less dense than MBE sites

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample :

|                      |              |              |
|----------------------|--------------|--------------|
| Chemistry Grab 1     | Grab 2       | Grab 3       |
| Benthic Grab 1 30+55 | Grab 2 45+55 | Grab 3 30+50 |
| 5                    | 2            | 7            |

Photograph Reference Number(s) :

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for: ☒ Chemistry ☒ Toxicity ☒ Benthic Invertebrate Taxonomy  
# Grabs for Analysis (Chemistry and Toxicology):   
# of Jars Per benthic Replicate Sample: Rep 1 Rep 2 Rep 3

Notes:

Reviewed By: AR



18103567-4000

## SEDIMENT SAMPLING LOG - GRAB

Project No: 13-1447-0183 / 2000

Project Title: Shell SQT Marine Sediment Investigation

Date: Sept. October 19 2013

Sampled by: AR, JS, DS

Station Number (ID): MB Ref A 3

Sampling Method: Van Veen (Chemistry + Toxicity Samples)  
Standard Ponar (Benthic Samples)Weather: Mostly sunny seas: 4m Wind 15 kts W-  
Lat/Longitude: 43R

Water Depth: 21

Sieve Mesh Size: 500 micron 1mm

Time of Collection: 13:01

## Sediment Description

Grain Size (boulder, cobble, gravel, sand, silt, clay; trace, some, -y, and); Inclusions (shells, organisms, other non-soil components)

Consistency/Compactness (v loose, loose, compact, dense, v dense; v soft, soft, firm, stiff, v stiff, hard); Moisture Content (dry, moist, wet, saturated); Colour; Structure; Contaminants (staining/odour/sheen); Other (wood, debris, organisms).

silt & clay - brown over gray  
penetration to 6cm  
trace small gravel  
Rep 3 algae + mussel  
green bladed & laminaria

Approx % Collected in Grab Sample/ Number of Attempts to Obtain Sample:

Chemistry Grab 1

Grab 2

Grab 3

Benthic Grab 1

Grab 2

Grab 3

Photograph Reference Number(s):

Photograph Notes (grab, sampling location, field sampling methods, public use, etc):

Sample Control Number (SCN):

Analysis for:

☐ Chemistry☐ Toxicity☒ Benthic Invertebrate Taxonomy# Grabs for Analysis  
(Chemistry and  
Toxicology):# of Jars Per benthic  
Replicate Sample:

Rep 1

Rep 2

Rep 3

Notes:

Reviewed By: \_\_\_\_\_

**APPENDIX E**

# Intertidal Survey Data Sheets

Location:

Date: Sept 14 2013

Start 15V 0546036  
6963605

T1TOP

Meliadine - Diffuse  
Subtidal Benthic Survey

Transect 1

Data Recorded

A. Ripp

|                                                             | Bedrock<br>Boulder | Cobble<br>Gravel | Sand<br>Silt<br>+ clay | Detritus<br>(Y/N) | Fucus<br>Grass | Filament<br>Green<br>string<br>brown | green<br>encrusting<br>string<br>WNA | Mussel<br>Clam<br>siphon | 1. Horns<br>limpet | Brown<br>Filament |  |  |  |
|-------------------------------------------------------------|--------------------|------------------|------------------------|-------------------|----------------|--------------------------------------|--------------------------------------|--------------------------|--------------------|-------------------|--|--|--|
| Distance: 1440<br>Depth: 0HW<br>Time: 1440<br>Øm            |                    |                  |                        | Y (55%)           | 100            |                                      |                                      |                          |                    |                   |  |  |  |
| Notes: Photo E, N, W, S detrital fucus @ 0HW                |                    |                  |                        |                   |                |                                      |                                      |                          |                    |                   |  |  |  |
| Distance: 1445<br>Depth:<br>Time: 7m                        | 80                 | 2<br>18          | 1                      |                   | 6              |                                      |                                      |                          |                    |                   |  |  |  |
| Notes:                                                      |                    |                  |                        |                   |                |                                      |                                      |                          |                    |                   |  |  |  |
| Distance: 14m<br>Depth:<br>Time: 1448                       | 4                  | 36<br>59         | 1                      |                   |                | 1                                    |                                      |                          |                    |                   |  |  |  |
| Notes: end of grass @ ~ 13m                                 |                    |                  |                        |                   |                |                                      |                                      |                          |                    |                   |  |  |  |
| Distance: 21<br>Depth:<br>Time: 1450                        | 78                 | 10<br>12         |                        |                   |                |                                      |                                      |                          |                    |                   |  |  |  |
| Notes:                                                      |                    |                  |                        |                   |                |                                      |                                      |                          |                    |                   |  |  |  |
| Distance: 28<br>Depth:<br>Time: 1455                        |                    | 12<br>87         | 1                      |                   | 3              |                                      | 30                                   |                          | 4                  |                   |  |  |  |
| Notes:                                                      |                    |                  |                        |                   |                |                                      |                                      |                          |                    |                   |  |  |  |
| Distance: 35<br>Depth:<br>Time: 1508                        | 16                 | 16<br>62         | 3<br>3                 | Y (21)            |                |                                      |                                      |                          |                    |                   |  |  |  |
| Notes: anthropogenic - metal cable, bike, laminate sheeting |                    |                  |                        |                   |                |                                      |                                      |                          |                    |                   |  |  |  |

Location:  
Date:

Melakia

P32

Trans 1

Subtidal Bioal Survey

Data Recorded

ARipp

|                                                                   | Bull | Cob | Gr | sand | silt | shell | detritus | Fucus | littorin | brown | cladophora |   |   |   |  |  |  |
|-------------------------------------------------------------------|------|-----|----|------|------|-------|----------|-------|----------|-------|------------|---|---|---|--|--|--|
| Distance:<br>Depth:<br>Time: 42m<br>15 <sup>10</sup>              |      |     | 5  | 48   | 10   | 2     | Y        |       |          |       |            |   |   |   |  |  |  |
| Notes: gravel/boulder ends c. 40m; fucus nearby                   |      |     |    |      |      |       |          |       |          |       |            |   |   |   |  |  |  |
| Distance:<br>Depth:<br>Time: 49m<br>15 <sup>15</sup>              |      |     | 16 | 70   | 14   | 41    |          |       |          |       |            |   |   |   |  |  |  |
| Notes: snail trail                                                |      |     |    |      |      |       |          |       |          |       |            |   |   |   |  |  |  |
| Distance:<br>Depth:<br>Time: 56m<br>15 <sup>20</sup>              |      |     | 2  | 64   | 11   | 2     |          |       |          |       |            |   |   |   |  |  |  |
| Notes: standing H <sub>2</sub> O; tide change c. 15 <sup>00</sup> |      |     |    |      |      |       |          |       |          |       |            |   |   |   |  |  |  |
| Distance:<br>Depth:<br>Time: 63<br>15 <sup>28</sup>               |      |     | 7  | 70   | 15   | 4     |          | 3     | 80       | 2     |            |   |   |   |  |  |  |
| Notes: littorin size range 2mm → 7mm Littorina sitkana?           |      |     |    |      |      |       |          |       |          |       |            |   |   |   |  |  |  |
| Distance:<br>Depth:<br>Time: 70<br>15 <sup>32</sup>               |      |     | 2  | 70   | 13   | 5     |          |       | 38       | 2     |            |   |   |   |  |  |  |
| Notes: fucus 1% nearby; 2mm → 5mm                                 |      |     |    |      |      |       |          |       |          |       |            |   |   |   |  |  |  |
| Distance:<br>Depth:<br>Time: 77                                   |      |     | 6  | 12   | 6    | 65    | 9        |       | 55       | 33    |            | 5 | 7 | 1 |  |  |  |
| Notes: snail 2mm → 6mm, mussel = 3.3cm                            |      |     |    |      |      |       |          |       |          |       |            |   |   |   |  |  |  |



Location:

Date:

Sept 11 2018 18103567

(Pg 3)

T1

3 of 3

Subtidal Biop

END

15V

0546131

6963519

Data Recorded E

AR

|                                                                                                          | Boulder | Cob | Gravel | Sand | silt | Shel | detritus | Fucus | straggly | cladophora | filament | green | filament | brown | littorine | mussel | unil | worm    | basidium | grass | succubus | small | gr. alg |
|----------------------------------------------------------------------------------------------------------|---------|-----|--------|------|------|------|----------|-------|----------|------------|----------|-------|----------|-------|-----------|--------|------|---------|----------|-------|----------|-------|---------|
| Distance:<br>Depth:<br>Time:                                                                             |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| 89m<br>1540                                                                                              |         | 8   | 7      | 65   | 20   | <1   |          | 8     |          | 1          | <1       |       | 8        | 3     |           |        |      |         |          |       |          |       |         |
| Notes: water mound, snail 2mm-6mm, mussel 3cm → 5cm                                                      |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| Distance:<br>Depth:<br>Time:                                                                             |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| 91<br>1547                                                                                               | 85      | 13  | 2      | <1   | <1   |      |          | 55    |          |            |          |       | 3        |       |           |        |      |         |          |       |          |       |         |
| Notes: waterline 16.9 + 84 = 100.9 @ 1547, difficult to determine substrate, cut. 96 for littorina = 2mm |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| Distance:<br>Depth:<br>Time:                                                                             |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| 93<br>1555                                                                                               |         | 20  | 76     | 3    | 2    | <1   |          | 16    | <1       |            |          |       | <1       | 12    | 2-6mm     | mussel | 9    | 3cm-4cm |          |       |          |       |         |
| Notes: interstitial silt & sand abundant fauna @ 91m, mild organic decay odour when turning rocks        |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| Distance:<br>Depth:<br>Time:                                                                             |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| T2<br>0m<br>16:17                                                                                        | 25      | 35  | 15     | 10   |      |      |          | 45%   | 40       |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| Notes: start 15V 0546037" 6963558 T2 TOP" substrate % incl. grass                                        |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| Distance:<br>Depth:<br>Time:                                                                             |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| 7m                                                                                                       | 45      | 45  | 10     |      |      |      |          |       |          |            |          |       |          |       |           |        | 4    |         | 3        |       |          |       |         |
| Notes:                                                                                                   |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| Distance:<br>Depth:<br>Time:                                                                             |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |
| 14<br>16:27                                                                                              | 40      | 35  | 25     |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          | 2     |          |       |         |
| Notes:                                                                                                   |         |     |        |      |      |      |          |       |          |            |          |       |          |       |           |        |      |         |          |       |          |       |         |

Increased mussel @ waterline

T2



Location:

Date:

Sept 14 2013

Meliadine

18103567/4000

Subtidal Biop

al Survey

Diffuser

T2

Data Recorded

ARIP

|                                                                                    | Boulder | gravel | silt | shell | small | filament |  |  |  |    |  |  |  |  |  |  |  |
|------------------------------------------------------------------------------------|---------|--------|------|-------|-------|----------|--|--|--|----|--|--|--|--|--|--|--|
|                                                                                    | cobble  | sand   |      |       | ever  | grn      |  |  |  |    |  |  |  |  |  |  |  |
| Distance:<br>Depth:<br>Time: 21m<br>1632                                           | 32      | 40     | 2    | 26    | 12    | 2        |  |  |  |    |  |  |  |  |  |  |  |
| Notes:                                                                             |         |        |      |       |       |          |  |  |  |    |  |  |  |  |  |  |  |
| Distance:<br>Depth:<br>Time: 28<br>1636                                            | 26      | 60     | 14   |       |       |          |  |  |  |    |  |  |  |  |  |  |  |
| Notes: silt veneer or substrate                                                    |         |        |      |       |       |          |  |  |  |    |  |  |  |  |  |  |  |
| Distance:<br>Depth:<br>Time: 35<br>1638                                            | 90      | 5      | 3    | 1     | 1     | <1       |  |  |  |    |  |  |  |  |  |  |  |
| Notes:                                                                             |         |        |      |       |       |          |  |  |  |    |  |  |  |  |  |  |  |
| Distance:<br>Depth:<br>Time: 42m<br>1640                                           | 3       | 10     | 88   | 1     | <1    |          |  |  |  | 6  |  |  |  |  |  |  |  |
| Notes:                                                                             |         |        |      |       |       |          |  |  |  |    |  |  |  |  |  |  |  |
| Distance:<br>Depth:<br>Time: 49m<br>1642                                           | 8       | 5      | 57   | 10    | 20    |          |  |  |  | 22 |  |  |  |  |  |  |  |
| Notes: small 2mm → 4mm; mostly small                                               |         |        |      |       |       |          |  |  |  |    |  |  |  |  |  |  |  |
| Distance:<br>Depth:<br>Time:                                                       |         |        |      |       |       |          |  |  |  |    |  |  |  |  |  |  |  |
| Notes: waterline 52.7m @ 1645 ; abundant (5-10%) stringy brown in shallow subtidal |         |        |      |       |       |          |  |  |  |    |  |  |  |  |  |  |  |

@ Diffuser

T2 END

ISV 0546054  
6963507

Page 2 of 2 for T2

Data Reviewed By:

"TOP"  
 T1 - Ref Start  
 15V 0545395  
 6963954  
 "T1 Ref END"  
 0545392  
 69639223

Ref T1

Location: Moliadine 18/03/67 - 4900  
 Date: Ref 1 - west Itiva  
 Sep 15 2018

Subtidal Bio, al Survey

A.R

|                                                                            | Bo<br>co    | Gr<br>sand | SH<br>shell | Moss<br>grass<br>soil<br>complex | ENC.<br>Algae | Grass<br>veg. | Detritus                  |  |  |  |
|----------------------------------------------------------------------------|-------------|------------|-------------|----------------------------------|---------------|---------------|---------------------------|--|--|--|
| Distance: 0                                                                |             |            |             |                                  |               |               |                           |  |  |  |
| Depth: 0                                                                   |             |            |             |                                  |               |               |                           |  |  |  |
| Time:                                                                      | 55          | 35         | 2           | 8                                |               | (10)          | Y - focus<br>+ kelp stipe |  |  |  |
| Notes: soil moss overlies (most likely) cobble/gravel mix                  |             |            |             |                                  |               |               |                           |  |  |  |
| Distance: 7                                                                |             |            |             |                                  |               |               |                           |  |  |  |
| Depth: 7                                                                   |             |            |             |                                  |               |               |                           |  |  |  |
| Time:                                                                      | 50<br>35    | 15         |             |                                  | 2             |               |                           |  |  |  |
| Notes: no algae or veg nearby                                              |             |            |             |                                  |               |               |                           |  |  |  |
| Distance: 14                                                               |             |            |             |                                  |               |               |                           |  |  |  |
| Depth: 14                                                                  |             |            |             |                                  |               |               |                           |  |  |  |
| Time:                                                                      | 70          | 30         |             |                                  | 6             |               |                           |  |  |  |
| Notes: Large Gravel ENC. Algae in black, almost tar spot/lichenesque       |             |            |             |                                  |               |               |                           |  |  |  |
| Distance: 21                                                               |             |            |             |                                  |               |               |                           |  |  |  |
| Depth: 21                                                                  |             |            |             |                                  |               |               |                           |  |  |  |
| Time:                                                                      | 77          | 86         | 4           |                                  |               |               |                           |  |  |  |
| Notes:                                                                     |             |            |             |                                  |               |               |                           |  |  |  |
| Distance: 28                                                               |             |            |             |                                  |               |               |                           |  |  |  |
| Depth: 28                                                                  |             |            |             |                                  |               |               |                           |  |  |  |
| Time: 16:10                                                                | Bo<br>Cd 30 | Gr 20      | Sand 20     | SH 20                            |               |               |                           |  |  |  |
| Notes: near waterline ~5% Fucus cover on large substrate (up to ~5m above) |             |            |             |                                  |               |               |                           |  |  |  |
| Distance:                                                                  |             |            |             |                                  |               |               |                           |  |  |  |
| Depth:                                                                     |             |            |             |                                  |               |               |                           |  |  |  |
| Time:                                                                      |             |            |             |                                  |               |               |                           |  |  |  |
| Notes: some fucus (<5%) subtidal                                           |             |            |             |                                  |               |               |                           |  |  |  |
| Notes: Waterline 16:10 @ 31.0m ; low tide @ ~15:55                         |             |            |             |                                  |               |               |                           |  |  |  |

B03567-4000

Location:

T2 RET

Start 15V 0545 335

END

15V

0545326

Date:

Sept 15 2018

6963972

Subtidal Bic

al Survey

6963947

Data Recorded

ARI PP

|                        |           |                |               |                   |                          |                                 |  |  |  |  |  |  |  |  |
|------------------------|-----------|----------------|---------------|-------------------|--------------------------|---------------------------------|--|--|--|--|--|--|--|--|
|                        | Bo<br>cob | GRAVEL<br>Sand | silt<br>shell | detritus<br>grass | soil<br>grass<br>complex | fucus<br>blue<br>encrust<br>alg |  |  |  |  |  |  |  |  |
| Distance: 0            | 30        | 25             | 5             | Y(12%)            | 10                       |                                 |  |  |  |  |  |  |  |  |
| Depth:                 | 25        |                |               | 5                 |                          |                                 |  |  |  |  |  |  |  |  |
| Time: 16 <sup>50</sup> |           |                |               |                   |                          |                                 |  |  |  |  |  |  |  |  |

Notes: moss in complex soil grass ; fucus ~2% within 10% waterline E+W

|             |          |    |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------|----------|----|--|--|--|--|--|--|--|--|--|--|--|--|
|             | 30<br>15 | 55 |  |  |  |  |  |  |  |  |  |  |  |  |
| Distance: 7 |          |    |  |  |  |  |  |  |  |  |  |  |  |  |
| Depth:      |          |    |  |  |  |  |  |  |  |  |  |  |  |  |
| Time:       |          |    |  |  |  |  |  |  |  |  |  |  |  |  |

Notes: boulder cobble zone from 0m → 7m

|              |         |         |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------|---------|---------|--|--|--|--|--|--|--|--|--|--|--|--|
|              | 2<br>70 | 26<br>2 |  |  |  |  |  |  |  |  |  |  |  |  |
| Distance: 14 |         |         |  |  |  |  |  |  |  |  |  |  |  |  |
| Depth:       |         |         |  |  |  |  |  |  |  |  |  |  |  |  |
| Time:        |         |         |  |  |  |  |  |  |  |  |  |  |  |  |

Notes: large cobble ~4m

|              |          |         |        |   |  |  |  |  |  |  |  |  |  |  |
|--------------|----------|---------|--------|---|--|--|--|--|--|--|--|--|--|--|
|              | 35<br>10 | 5<br>45 | 3<br>2 | Y |  |  |  |  |  |  |  |  |  |  |
| Distance: 21 |          |         |        |   |  |  |  |  |  |  |  |  |  |  |
| Depth:       |          |         |        |   |  |  |  |  |  |  |  |  |  |  |
| Time:        |          |         |        |   |  |  |  |  |  |  |  |  |  |  |

Notes:

|                        |    |    |  |  |  |  |  |        |  |  |  |  |  |  |
|------------------------|----|----|--|--|--|--|--|--------|--|--|--|--|--|--|
|                        | 70 | 30 |  |  |  |  |  | 2<br>3 |  |  |  |  |  |  |
| Distance: 28           |    |    |  |  |  |  |  |        |  |  |  |  |  |  |
| Depth:                 |    |    |  |  |  |  |  |        |  |  |  |  |  |  |
| Time: 17 <sup>00</sup> |    |    |  |  |  |  |  |        |  |  |  |  |  |  |

Notes: waterline 27.5m @ 17<sup>00</sup> ; low tide @ ~15<sup>55</sup>

|              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Distance: 35 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Depth:       |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Time:        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Notes: fairly consistent grade overall w/ nearby flat sandy patches @ ~15m → 28m  
steeper than exposed site

REF-72

**APPENDIX F**

# Marine Water Quality Analytical Results



Agnico-Eagle - Meliadine Gold Project  
ATTN: JENNIFER BROWN  
PO Box 99  
Rankin Inlet NU X0C 0G0

Date Received: 21-SEP-18  
Report Date: 19-OCT-18 14:03 (MT)  
Version: FINAL

Client Phone: 819-759-7555

## Certificate of Analysis

Lab Work Order #: L2168530  
Project P.O. #: NOT SUBMITTED  
Job Reference:  
C of C Numbers: 14-452765  
Legal Site Desc:



Hua Wo  
Chemistry Laboratory Manager

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ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721  
ALS CANADA LTD Part of the ALS Group An ALS Limited Company



## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                          | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-1 WW1S                                    |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:15            |           |            |          |       |           |           |          |
| Matrix: marine H2O                                 |           |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>             |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b>     |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)                 | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)                   | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)                   | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Total (as CaCO3)                       | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| <b>Anions by Ion Chromatography (seawater)</b>     |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Bromide (Br)                                       | 55.5      |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Chloride by IC (seawater)</b>                   |           |            |          |       |           |           |          |
| Chloride (Cl)                                      | 16000     |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Fluoride by IC (seawater)</b>                   |           |            |          |       |           |           |          |
| Fluoride (F)                                       | <1.0      |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrate in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrate (as N)                                     | <0.50     |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrite in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrite (as N)                                     | <0.10     |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Sulfate by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Sulfate (SO4)                                      | 2280      |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               | LAB       |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Arsenic (As)-Dissolved                             | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                              | 0.0094    |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Boron (B)-Dissolved                                | 3.76      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                             | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                             | 349       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                              | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Copper (Cu)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                                | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                                | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                             | 0.193     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Dissolved                           | 1000      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                           | 0.00073   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                          | 0.0117    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                           | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                            | 332       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Dissolved                            | 0.103     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                            | 0.0021    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                             | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                              | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                              | 9190      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                           | 5.41      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                               | 740       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-1 WW1S                                |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:15        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Tellurium (Te)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                        | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                          | 0.00295   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                         | 0.00117   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 4990      |            | 4.8      | mg/L  |           | 18-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0321    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                              | 0.0092    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                                | 3.81      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Total                             | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                             | 368       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Total                              | 0.000058  |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                                | 0.042     |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                                | <0.00030  |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                             | 0.201     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Total                           | 1030      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                           | 0.00140   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                          | 0.0114    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                              | 0.00059   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                           | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |
| Potassium (K)-Total                            | 347       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                            | 0.108     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Selenium (Se)-Total                            | 0.0021    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                             | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                              | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                              | 9400      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Total                           | 5.53      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                               | 769       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                            | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                                 | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                            | 0.0053    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

| Sample Details/Parameters               |      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|-----------------------------------------|------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-1                              | WW1S |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:15 |      |           |            |          |       |           |           |          |
| Matrix: marine H2O                      |      |           |            |          |       |           |           |          |
| Tot. Metals in Seawater by HR-ICPMS     |      |           |            |          |       |           |           |          |
| Tungsten (W)-Total                      |      | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                       |      | 0.00308   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                      |      | 0.00130   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                       |      | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Total                         |      | <0.0030   |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                    |      | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Miscellaneous Parameters                |      |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                   |      | <0.0050   |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                            |      | 46500     |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |
| Orthophosphate-Dissolved (as P)         |      | 0.0175    |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                |      | 1.43      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245104 |
| Silicate (as SiO2)                      |      | 0.363     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                 |      | 0.135     |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |
| Total Organic Carbon                    |      | 1.46      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                  |      | 35400     |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                      |      | <0.000010 |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |
| Phosphorus (P)-Total                    |      | 0.0248    |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                  |      | 2.0       |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                      |      | 7.96      |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                |      | 30.5      |            | 1.0      | psu   |           | 29-SEP-18 |          |
| Diss. Mercury in Seawater by CVAFS      |      |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location   |      | LAB       |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                  |      | <0.000010 |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
| L2168530-2                              | WW1D |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:15 |      |           |            |          |       |           |           |          |
| Matrix: marine H2O                      |      |           |            |          |       |           |           |          |
| Alkalinity Species by Titration         |      |           |            |          |       |           |           |          |
| Alkalinity Spec by Titration (Seawater) |      |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)      |      | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)        |      | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)        |      | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Total (as CaCO3)            |      | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Anions by Ion Chromatography (seawater) |      |           |            |          |       |           |           |          |
| Bromide by IC (seawater)                |      |           |            |          |       |           |           |          |
| Bromide (Br)                            |      | 57.5      |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| Chloride by IC (seawater)               |      |           |            |          |       |           |           |          |
| Chloride (Cl)                           |      | 16800     |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| Fluoride by IC (seawater)               |      |           |            |          |       |           |           |          |
| Fluoride (F)                            |      | <1.0      |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| Nitrate in Seawater by IC               |      |           |            |          |       |           |           |          |
| Nitrate (as N)                          |      | <0.50     |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| Nitrite in Seawater by IC               |      |           |            |          |       |           |           |          |
| Nitrite (as N)                          |      | <0.10     |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |
| Sulfate by IC (seawater)                |      |           |            |          |       |           |           |          |
| Sulfate (SO4)                           |      | 2390      |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| Dissolved ICPOES & HR-ICPMS in Seawater |      |           |            |          |       |           |           |          |
| Diss. Metals in Seawater by HR-ICPMS    |      |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location    |      | LAB       |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                 |      | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                 |      | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-2 WW1D                                |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:15        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Arsenic (As)-Dissolved                         | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                          | 0.0099    |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Boron (B)-Dissolved                            | 4.11      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                         | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                         | 358       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                        | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                          | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Copper (Cu)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                            | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                            | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                         | 0.206     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Dissolved                       | 1040      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                       | 0.00078   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                      | 0.0120    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Dissolved                          | 0.00054   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                       | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                        | 343       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Dissolved                        | 0.111     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                        | 0.0033    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                         | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                          | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                          | 9380      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                       | 5.43      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                           | 770       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                        | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                          | 0.00310   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                         | 0.00129   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 5180      |            | 4.8      | mg/L  |           | 18-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0242    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                              | 0.0093    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                                | 3.85      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                  | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|--------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-2 WW1D                            |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:15    |           |            |          |       |           |           |          |
| Matrix: marine H2O                         |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b> |           |            |          |       |           |           |          |
| Cadmium (Cd)-Total                         | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                         | 357       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                        | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Total                          | 0.000087  |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                            | 0.035     |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                            | <0.00030  |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                         | 0.197     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Total                       | 1040      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                       | 0.00128   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                      | 0.0115    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                          | 0.00066   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                       | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |
| Potassium (K)-Total                        | 333       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                        | 0.106     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Selenium (Se)-Total                        | 0.0028    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                         | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                          | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                          | 9210      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Total                       | 5.55      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                           | 775       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                        | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                        | 0.0053    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Tungsten (W)-Total                         | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                          | 0.00298   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                         | 0.00139   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Total                            | <0.0030   |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| <b>Miscellaneous Parameters</b>            |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                      | <0.0050   |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                               | 46000     |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |
| Orthophosphate-Dissolved (as P)            | 0.0177    |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                   | 1.38      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245104 |
| Silicate (as SiO2)                         | 0.346     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                    | 0.132     |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |
| Total Organic Carbon                       | 1.45      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                     | 34300     |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                         | <0.000010 |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |
| Phosphorus (P)-Total                       | 0.0267    |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                     | 2.7       |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                         | 7.97      |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                   | 30.2      |            | 1.0      | psu   |           | 29-SEP-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>  |           |            |          |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



| Sample Details/Parameters                          |        | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|--------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-2                                         | WW1D   |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:15            |        |           |            |          |       |           |           |          |
| Matrix: marine H2O                                 |        |           |            |          |       |           |           |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>          |        |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location              |        | LAB       |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                             |        | <0.000010 |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
| L2168530-3                                         | MWE-1S |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:45            |        |           |            |          |       |           |           |          |
| Matrix: marine H2O                                 |        |           |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>             |        |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b>     |        |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)                 |        | 114       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)                   |        | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)                   |        | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Total (as CaCO3)                       |        | 114       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| <b>Anions by Ion Chromatography (seawater)</b>     |        |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                    |        |           |            |          |       |           |           |          |
| Bromide (Br)                                       |        | 58.2      |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Chloride by IC (seawater)</b>                   |        |           |            |          |       |           |           |          |
| Chloride (Cl)                                      |        | 16800     |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Fluoride by IC (seawater)</b>                   |        |           |            |          |       |           |           |          |
| Fluoride (F)                                       |        | <1.0      |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrate in Seawater by IC</b>                   |        |           |            |          |       |           |           |          |
| Nitrate (as N)                                     |        | <0.50     |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrite in Seawater by IC</b>                   |        |           |            |          |       |           |           |          |
| Nitrite (as N)                                     |        | 0.29      |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Sulfate by IC (seawater)</b>                    |        |           |            |          |       |           |           |          |
| Sulfate (SO4)                                      |        | 2380      |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |        |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |        |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               |        | LAB       |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                            |        | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                            |        | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Arsenic (As)-Dissolved                             |        | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                              |        | 0.0085    |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                           |        | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                             |        | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Boron (B)-Dissolved                                |        | 3.96      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                             |        | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                             |        | 358       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                              |        | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                            |        | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                              |        | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Copper (Cu)-Dissolved                              |        | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                             |        | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                                |        | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                                |        | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                             |        | 0.203     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Dissolved                           |        | 997       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                           |        | 0.00071   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                          |        | 0.0114    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Dissolved                              |        | 0.00063   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                           |        | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                            |        | 343       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R42      |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-3 MWE-1S                              |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:45        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Rubidium (Rb)-Dissolved                        | 0.106     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                        | 0.0024    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                         | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                          | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                          | 9360      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                       | 5.40      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                           | 732       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                        | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                          | 0.00304   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                         | 0.00120   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 5000      |            | 4.8      | mg/L  |           | 18-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0309    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                              | 0.0090    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                                | 3.95      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Total                             | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                             | 359       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Total                              | 0.000064  |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                              | 0.00055   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                                | 0.043     |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                                | 0.00048   |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                             | 0.205     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Total                           | 1030      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                           | 0.00137   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                          | 0.0114    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                              | 0.00066   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                           | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |
| Potassium (K)-Total                            | 346       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                            | 0.106     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Selenium (Se)-Total                            | 0.0024    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                             | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                              | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                              | 9420      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

| Sample Details/Parameters                      |  | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|--|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-3      MWE-1S                         |  |           |            |          |       |           |           |          |
| Sampled By:    CLIENT on 17-SEP-18 @ 18:45     |  |           |            |          |       |           |           |          |
| Matrix:            marine H2O                  |  |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |  |           |            |          |       |           |           |          |
| Strontium (Sr)-Total                           |  | 5.34      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                               |  | 746       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                           |  | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                            |  | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                             |  | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                                 |  | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                            |  | <0.0050   |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Tungsten (W)-Total                             |  | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                              |  | 0.00298   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                             |  | 0.00133   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                              |  | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Total                                |  | <0.0030   |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                           |  | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| <b>Miscellaneous Parameters</b>                |  |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                          |  | <0.0050   |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                                   |  | 45900     |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |
| Orthophosphate-Dissolved (as P)                |  | 0.0177    |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                       |  | 1.36      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245104 |
| Silicate (as SiO2)                             |  | 0.347     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                        |  | 0.123     |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |
| Total Organic Carbon                           |  | 1.43      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                         |  | 34000     |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                             |  | <0.000010 |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |
| Phosphorus (P)-Total                           |  | 0.0234    |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                         |  | <2.0      |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                             |  | 7.97      |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                       |  | 30.1      |            | 1.0      | psu   |           | 29-SEP-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>      |  |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location          |  | LAB       |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                         |  | <0.000010 |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
| L2168530-4      MWE-1D                         |  |           |            |          |       |           |           |          |
| Sampled By:    CLIENT on 17-SEP-18 @ 18:45     |  |           |            |          |       |           |           |          |
| Matrix:            marine H2O                  |  |           |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>         |  |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b> |  |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)             |  | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)               |  | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)               |  | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Total (as CaCO3)                   |  | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| <b>Anions by Ion Chromatography (seawater)</b> |  |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                |  |           |            |          |       |           |           |          |
| Bromide (Br)                                   |  | 58.0      |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Chloride by IC (seawater)</b>               |  |           |            |          |       |           |           |          |
| Chloride (Cl)                                  |  | 16800     |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Fluoride by IC (seawater)</b>               |  |           |            |          |       |           |           |          |
| Fluoride (F)                                   |  | <1.0      |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrate in Seawater by IC</b>               |  |           |            |          |       |           |           |          |
| Nitrate (as N)                                 |  | <0.50     |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrite in Seawater by IC</b>               |  |           |            |          |       |           |           |          |
| Nitrite (as N)                                 |  | <0.10     |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                          | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-4 MWE-1D                                  |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:45            |           |            |          |       |           |           |          |
| Matrix: marine H2O                                 |           |            |          |       |           |           |          |
| <b>Sulfate by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Sulfate (SO4)                                      | 2400      |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               | LAB       |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Arsenic (As)-Dissolved                             | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                              | 0.0088    |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Boron (B)-Dissolved                                | 4.09      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                             | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                             | 363       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                              | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Copper (Cu)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                                | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                                | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                             | 0.205     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Dissolved                           | 981       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                           | 0.00068   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                          | 0.0119    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Dissolved                              | 0.00055   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                           | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                            | 334       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Dissolved                            | 0.108     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                            | 0.0024    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                             | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                              | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                              | 9130      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                           | 5.30      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                               | 723       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                            | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                                 | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                              | 0.00302   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                             | 0.00132   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Dissolved                                | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b>     |           |            |          |       |           |           |          |
| <b>Hardness</b>                                    |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                                | 4950      |            | 4.8      | mg/L  |           | 19-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>         |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                                | 0.0255    |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Antimony (Sb)-Total                                | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                  | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|--------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-4 MWE-1D                          |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 18:45    |           |            |          |       |           |           |          |
| Matrix: marine H2O                         |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b> |           |            |          |       |           |           |          |
| Arsenic (As)-Total                         | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                          | 0.0098    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                            | 4.29      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Total                         | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                         | 364       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                        | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Total                          | 0.000058  |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                            | 0.041     |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                            | <0.00030  |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                         | 0.215     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Total                       | 1040      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                       | 0.00138   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                      | 0.0123    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                          | 0.00056   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                       | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |
| Potassium (K)-Total                        | 346       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                        | 0.112     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Selenium (Se)-Total                        | 0.0024    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                         | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                          | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                          | 9340      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Total                       | 5.38      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                           | 750       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                        | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                        | <0.0050   |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Tungsten (W)-Total                         | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                          | 0.00309   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                         | 0.00126   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Total                            | <0.0030   |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| <b>Miscellaneous Parameters</b>            |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                      | <0.0050   |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                               | 45900     |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |
| Orthophosphate-Dissolved (as P)            | 0.0175    |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                   | 1.38      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245104 |
| Silicate (as SiO2)                         | 0.343     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                    | 0.145     |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |
| Total Organic Carbon                       | 1.50      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                     | 34100     |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                         | <0.000010 |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



| Sample Details/Parameters                          |                             | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|-----------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-4                                         | MWE-1D                      |           |            |          |       |           |           |          |
| Sampled By:                                        | CLIENT on 17-SEP-18 @ 18:45 |           |            |          |       |           |           |          |
| Matrix:                                            | marine H2O                  |           |            |          |       |           |           |          |
| Phosphorus (P)-Total                               |                             | 0.0246    |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                             |                             | 2.2       |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                                 |                             | 7.98      |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                           |                             | 30.1      |            | 1.0      | psu   |           | 29-SEP-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>          |                             |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location              |                             | LAB       |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                             |                             | <0.000010 |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
| L2168530-5                                         | MWE-2S                      |           |            |          |       |           |           |          |
| Sampled By:                                        | CLIENT on 17-SEP-18 @ 16:30 |           |            |          |       |           |           |          |
| Matrix:                                            | marine H2O                  |           |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>             |                             |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b>     |                             |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)                 |                             | 112       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)                   |                             | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)                   |                             | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Total (as CaCO3)                       |                             | 112       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| <b>Anions by Ion Chromatography (seawater)</b>     |                             |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                    |                             |           |            |          |       |           |           |          |
| Bromide (Br)                                       |                             | 59.8      |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Chloride by IC (seawater)</b>                   |                             |           |            |          |       |           |           |          |
| Chloride (Cl)                                      |                             | 17400     |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Fluoride by IC (seawater)</b>                   |                             |           |            |          |       |           |           |          |
| Fluoride (F)                                       |                             | <1.0      |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrate in Seawater by IC</b>                   |                             |           |            |          |       |           |           |          |
| Nitrate (as N)                                     |                             | <0.50     |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrite in Seawater by IC</b>                   |                             |           |            |          |       |           |           |          |
| Nitrite (as N)                                     |                             | <0.10     |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Sulfate by IC (seawater)</b>                    |                             |           |            |          |       |           |           |          |
| Sulfate (SO4)                                      |                             | 2470      |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |                             |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               |                             | LAB       |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                            |                             | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                            |                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Arsenic (As)-Dissolved                             |                             | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                              |                             | 0.0098    |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                           |                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                             |                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Boron (B)-Dissolved                                |                             | 4.07      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                             |                             | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                             |                             | 361       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                              |                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                            |                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                              |                             | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Copper (Cu)-Dissolved                              |                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                             |                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                                |                             | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                                |                             | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                             |                             | 0.202     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Dissolved                           |                             | 1020      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                           |                             | 0.00076   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                          |                             | 0.0114    |            |          |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-5 MWE-2S                              |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 16:30        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Nickel (Ni)-Dissolved                          | 0.00057   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                       | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                        | 340       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Dissolved                        | 0.105     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                        | 0.0024    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                         | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                          | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                          | 9350      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                       | 5.39      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                           | 744       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                        | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                          | 0.00302   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                         | 0.00113   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 5110      |            | 4.8      | mg/L  |           | 18-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0235    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                              | 0.0093    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                                | 4.11      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Total                             | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                             | 370       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                            | 0.00058   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Total                              | 0.000051  |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                                | 0.037     |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                                | <0.00030  |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                             | 0.203     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Total                           | 1020      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                           | 0.00132   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                          | 0.0115    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                              | 0.00055   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                           | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |
| Potassium (K)-Total                            | 351       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                            | 0.106     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

| Sample Details/Parameters               |        | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|-----------------------------------------|--------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-5                              | MWE-2S |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 16:30 |        |           |            |          |       |           |           |          |
| Matrix: marine H2O                      |        |           |            |          |       |           |           |          |
| Tot. Metals in Seawater by HR-ICPMS     |        |           |            |          |       |           |           |          |
| Selenium (Se)-Total                     |        | 0.0024    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                      |        | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                       |        | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                       |        | 9740      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Total                    |        | 5.65      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                        |        | 739       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                    |        | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                     |        | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                      |        | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                          |        | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                     |        | 0.0058    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Tungsten (W)-Total                      |        | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                       |        | 0.00300   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                      |        | 0.00131   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                       |        | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Total                         |        | <0.0030   |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                    |        | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Miscellaneous Parameters                |        |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                   |        | <0.0050   |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                            |        | 46200     |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |
| Orthophosphate-Dissolved (as P)         |        | 0.0174    |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                |        | 1.36      |            | 0.50     | mg/L  |           | 02-OCT-18 | R4257979 |
| Silicate (as SiO2)                      |        | 0.345     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                 |        | 0.149     |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |
| Total Organic Carbon                    |        | 1.79      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                  |        | 35700     |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                      |        | <0.000010 |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |
| Phosphorus (P)-Total                    |        | 0.0255    |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                  |        | 2.6       |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                      |        | 7.98      |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                |        | 30.3      |            | 1.0      | psu   |           | 29-SEP-18 |          |
| Diss. Mercury in Seawater by CVAFS      |        |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location   |        | LAB       |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                  |        | <0.000010 |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
| L2168530-6                              | MWE-2D |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 16:30 |        |           |            |          |       |           |           |          |
| Matrix: marine H2O                      |        |           |            |          |       |           |           |          |
| Alkalinity Species by Titration         |        |           |            |          |       |           |           |          |
| Alkalinity Spec by Titration (Seawater) |        |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)      |        | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)        |        | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)        |        | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Total (as CaCO3)            |        | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Anions by Ion Chromatography (seawater) |        |           |            |          |       |           |           |          |
| Bromide by IC (seawater)                |        |           |            |          |       |           |           |          |
| Bromide (Br)                            |        | 58.9      |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| Chloride by IC (seawater)               |        |           |            |          |       |           |           |          |
| Chloride (Cl)                           |        | 17000     |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| Fluoride by IC (seawater)               |        |           |            |          |       |           |           |          |
| Fluoride (F)                            |        | <1.0      |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                          | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-6 MWE-2D                                  |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 16:30            |           |            |          |       |           |           |          |
| Matrix: marine H2O                                 |           |            |          |       |           |           |          |
| <b>Nitrate in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrate (as N)                                     | <0.50     |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrite in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrite (as N)                                     | <0.10     |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Sulfate by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Sulfate (SO4)                                      | 2430      |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               | LAB       |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Arsenic (As)-Dissolved                             | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                              | 0.0088    |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Boron (B)-Dissolved                                | 3.95      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                             | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                             | 354       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                              | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Copper (Cu)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                                | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                                | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                             | 0.195     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Dissolved                           | 993       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                           | 0.00068   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                          | 0.0113    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                           | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                            | 344       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Dissolved                            | 0.104     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                            | 0.0023    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                             | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                              | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                              | 9420      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                           | 5.27      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                               | 720       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                            | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                                 | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                              | 0.00296   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                             | 0.00122   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Dissolved                                | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b>     |           |            |          |       |           |           |          |
| <b>Hardness</b>                                    |           |            |          |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                  | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|--------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-6 MWE-2D                          |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 16:30    |           |            |          |       |           |           |          |
| Matrix: marine H2O                         |           |            |          |       |           |           |          |
| <b>Hardness</b>                            |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                        | 4970      |            | 4.8      | mg/L  |           | 18-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b> |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                        | 0.0232    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Total                        | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Arsenic (As)-Total                         | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                          | 0.0090    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                            | 4.10      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Total                         | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                         | 348       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                        | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Total                          | 0.000050  |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                            | 0.029     |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                            | <0.00030  |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                         | 0.206     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Total                       | 1030      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                       | 0.00119   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                      | 0.0118    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                          | 0.00063   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                       | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |
| Potassium (K)-Total                        | 334       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                        | 0.109     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Selenium (Se)-Total                        | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                         | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                          | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                          | 9240      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Total                       | 5.38      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                           | 757       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                        | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                        | <0.0050   |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Tungsten (W)-Total                         | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                          | 0.00302   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                         | 0.00146   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Total                            | <0.0030   |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| <b>Miscellaneous Parameters</b>            |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                      | <0.0050   |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                               | 45500     |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |
| Orthophosphate-Dissolved (as P)            | 0.0174    |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                   | 1.43      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245104 |
| Silicate (as SiO2)                         | 0.344     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                    | 0.139     |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                                                             | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-6 MWE-2D<br>Sampled By: CLIENT on 17-SEP-18 @ 16:30<br>Matrix: marine H2O    |           |            |          |       |           |           |          |
| Total Organic Carbon                                                                  | 1.54      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                                                                | 36000     |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                                                                    | <0.000010 |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |
| Phosphorus (P)-Total                                                                  | 0.0247    |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                                                                | <2.0      |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                                                                    | 7.98      |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                                                              | 29.8      |            | 1.0      | psu   |           | 29-SEP-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>                                             |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location                                                 | LAB       |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                                                                | <0.000010 |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
| L2168530-7 MWREFA-2S<br>Sampled By: CLIENT on 17-SEP-18 @ 17:45<br>Matrix: marine H2O |           |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>                                                |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b>                                        |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)                                                    | 114       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)                                                      | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)                                                      | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Total (as CaCO3)                                                          | 114       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| <b>Anions by Ion Chromatography (seawater)</b>                                        |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                                                       |           |            |          |       |           |           |          |
| Bromide (Br)                                                                          | 54.5      |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Chloride by IC (seawater)</b>                                                      |           |            |          |       |           |           |          |
| Chloride (Cl)                                                                         | 16000     |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Fluoride by IC (seawater)</b>                                                      |           |            |          |       |           |           |          |
| Fluoride (F)                                                                          | <1.0      |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrate in Seawater by IC</b>                                                      |           |            |          |       |           |           |          |
| Nitrate (as N)                                                                        | <0.50     |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrite in Seawater by IC</b>                                                      |           |            |          |       |           |           |          |
| Nitrite (as N)                                                                        | 0.11      |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Sulfate by IC (seawater)</b>                                                       |           |            |          |       |           |           |          |
| Sulfate (SO4)                                                                         | 2260      |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b>                                    |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>                                           |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location                                                  | LAB       |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                                                               | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                                                               | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Arsenic (As)-Dissolved                                                                | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                                                                 | 0.0088    |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                                                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                                                                | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Boron (B)-Dissolved                                                                   | 3.99      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                                                                | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                                                                | 341       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                                                                 | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                                                               | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                                                                 | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Copper (Cu)-Dissolved                                                                 | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                                                                | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                                                                   | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                                                                   | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                                                                | 0.201     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-7 MWREFA-2S                           |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:45        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Magnesium (Mg)-Dissolved                       | 1020      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                       | 0.00062   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                      | 0.0117    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Dissolved                          | 0.00051   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                       | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                        | 331       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Dissolved                        | 0.106     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                        | 0.0021    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                         | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                          | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                          | 9060      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                       | 5.20      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                           | 747       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                        | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                          | 0.00291   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                         | 0.00140   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 5030      |            | 4.8      | mg/L  |           | 18-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0069    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                              | 0.0090    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                                | 4.26      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Total                             | 0.000058  |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                             | 355       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Total                              | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                                | <0.010    |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                                | <0.00030  |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                             | 0.212     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Total                           | 994       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                           | 0.00079   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                          | 0.0121    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                              | 0.00050   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                           | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-7 MWREFA-2S                           |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:45        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Potassium (K)-Total                            | 335       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                            | 0.111     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Selenium (Se)-Total                            | 0.0029    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                             | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                              | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                              | 9370      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Total                           | 5.43      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                               | 727       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                            | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                                 | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                            | <0.0050   |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Tungsten (W)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                              | 0.00309   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                             | 0.00128   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Total                                | <0.0030   |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| <b>Miscellaneous Parameters</b>                |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                          | <0.0050   |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                                   | 45700     |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |
| Orthophosphate-Dissolved (as P)                | 0.0178    |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                       | 1.40      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245104 |
| Silicate (as SiO2)                             | 0.317     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                        | 0.127     |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |
| Total Organic Carbon                           | 1.32      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                         | 33300     |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                             | <0.000010 |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |
| Phosphorus (P)-Total                           | 0.0248    |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                         | <2.0      |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                             | 7.97      |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                       | 30.0      |            | 1.0      | psu   |           | 29-SEP-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>      |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location          | LAB       |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                         | <0.000010 |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
| L2168530-8 MWREFA-2D                           |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:45        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>         |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b> |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)             | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)               | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)               | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Total (as CaCO3)                   | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| <b>Anions by Ion Chromatography (seawater)</b> |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                |           |            |          |       |           |           |          |
| Bromide (Br)                                   | 57.4      |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Chloride by IC (seawater)</b>               |           |            |          |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                          | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-8 MWREFA-2D                               |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:45            |           |            |          |       |           |           |          |
| Matrix: marine H2O                                 |           |            |          |       |           |           |          |
| <b>Chloride by IC (seawater)</b>                   |           |            |          |       |           |           |          |
| Chloride (Cl)                                      | 16900     |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Fluoride by IC (seawater)</b>                   |           |            |          |       |           |           |          |
| Fluoride (F)                                       | <1.0      |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrate in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrate (as N)                                     | <0.50     |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrite in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrite (as N)                                     | <0.10     |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Sulfate by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Sulfate (SO4)                                      | 2400      |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               | LAB       |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Arsenic (As)-Dissolved                             | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                              | 0.0091    |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Boron (B)-Dissolved                                | 4.29      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                             | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                             | 350       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                              | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Copper (Cu)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                                | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                                | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                             | 0.212     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Dissolved                           | 993       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                           | 0.00065   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                          | 0.0122    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Dissolved                              | 0.00053   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                           | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                            | 326       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Dissolved                            | 0.111     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                            | 0.0024    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                             | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                              | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                              | 9140      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                           | 5.27      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                               | 730       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                            | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                                 | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                              | 0.00303   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                             | 0.00122   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-8 MWREFA-2D                           |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:45        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 4960      |            | 4.8      | mg/L  |           | 18-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0245    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                              | 0.0091    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                                | 4.06      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Total                             | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                             | 351       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                            | 0.00068   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Total                              | 0.000060  |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                              | 0.00070   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                                | 0.035     |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                                | <0.00030  |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                             | 0.201     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Total                           | 1010      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                           | 0.00120   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                          | 0.0115    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                              | 0.00061   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                           | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |
| Potassium (K)-Total                            | 328       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                            | 0.107     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Selenium (Se)-Total                            | 0.0022    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                             | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                              | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                              | 9080      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Total                           | 5.34      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                               | 734       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                            | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                                 | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                            | 0.0052    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Tungsten (W)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                              | 0.00298   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                             | 0.00143   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Total                                | <0.0030   |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| <b>Miscellaneous Parameters</b>                |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                          | <0.0050   |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                                   | 45500     |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                          | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-8 MWREFA-2D                               |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:45            |           |            |          |       |           |           |          |
| Matrix: marine H2O                                 |           |            |          |       |           |           |          |
| Orthophosphate-Dissolved (as P)                    | 0.0169    |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                           | 1.42      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245104 |
| Silicate (as SiO2)                                 | 0.316     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                            | 0.139     |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |
| Total Organic Carbon                               | 1.39      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                             | 35200     |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                                 | <0.000010 |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |
| Phosphorus (P)-Total                               | 0.0299    |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                             | 3.0       |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                                 | 7.98      |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                           | 29.8      |            | 1.0      | psu   |           | 29-SEP-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>          |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location              | LAB       |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                             | <0.000010 |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
| L2168530-9 MWREFA-1S                               |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:10            |           |            |          |       |           |           |          |
| Matrix: marine H2O                                 |           |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>             |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b>     |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)                 | 114       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)                   | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)                   | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Total (as CaCO3)                       | 114       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| <b>Anions by Ion Chromatography (seawater)</b>     |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Bromide (Br)                                       | 54.3      |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Chloride by IC (seawater)</b>                   |           |            |          |       |           |           |          |
| Chloride (Cl)                                      | 15900     |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Fluoride by IC (seawater)</b>                   |           |            |          |       |           |           |          |
| Fluoride (F)                                       | <1.0      |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrate in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrate (as N)                                     | <0.50     |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrite in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrite (as N)                                     | <0.10     |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Sulfate by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Sulfate (SO4)                                      | 2260      |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               | LAB       |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Arsenic (As)-Dissolved                             | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                              | 0.0091    |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Boron (B)-Dissolved                                | 3.85      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                             | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                             | 362       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                              | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-9 MWREFA-1S                           |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:10        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Copper (Cu)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                            | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                            | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                         | 0.196     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Dissolved                       | 988       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                       | 0.00065   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                      | 0.0111    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Dissolved                          | 0.00054   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                       | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                        | 338       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Dissolved                        | 0.103     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                        | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                         | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                          | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                          | 9290      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                       | 5.24      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                           | 721       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                        | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                          | 0.00298   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                         | 0.00131   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 4970      |            | 4.8      | mg/L  |           | 18-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0234    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                              | 0.0099    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                                | 3.84      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Total                             | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                             | 370       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                            | 0.00057   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Total                              | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                              | 0.00051   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                                | 0.030     |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                                | <0.00030  |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                             | 0.199     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-9 MWREFA-1S                           |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:10        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Magnesium (Mg)-Total                           | 1040      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                           | 0.00122   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                          | 0.0114    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                              | 0.00068   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                           | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |
| Potassium (K)-Total                            | 343       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                            | 0.106     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Selenium (Se)-Total                            | 0.0025    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                             | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                              | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                              | 9580      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Total                           | 5.52      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                               | 762       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                            | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                                 | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                            | <0.0050   |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Tungsten (W)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                              | 0.00306   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                             | 0.00146   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Total                                | <0.0030   |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| <b>Miscellaneous Parameters</b>                |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                          | <0.0050   |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                                   | 45400     |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |
| Orthophosphate-Dissolved (as P)                | 0.0167    |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                       | 1.40      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245104 |
| Silicate (as SiO2)                             | 0.313     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                        | 0.127     |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |
| Total Organic Carbon                           | 1.25      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                         | 35200     |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                             | <0.000010 |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |
| Phosphorus (P)-Total                           | 0.0233    |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                         | 2.6       |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                             | 7.98      |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                       | 29.7      |            | 1.0      | psu   |           | 29-SEP-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>      |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location          | LAB       |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                         | <0.000010 |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
| L2168530-10 MWREFA-1D                          |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:10        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>         |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b> |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)             | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)               | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)               | <1.0      |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                          | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-10 MWREFA-1D                              |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:10            |           |            |          |       |           |           |          |
| Matrix: marine H2O                                 |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b>     |           |            |          |       |           |           |          |
| Alkalinity, Total (as CaCO3)                       | 113       |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| <b>Anions by Ion Chromatography (seawater)</b>     |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Bromide (Br)                                       | 57.5      |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Chloride by IC (seawater)</b>                   |           |            |          |       |           |           |          |
| Chloride (Cl)                                      | 16800     |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Fluoride by IC (seawater)</b>                   |           |            |          |       |           |           |          |
| Fluoride (F)                                       | <1.0      |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrate in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrate (as N)                                     | <0.50     |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrite in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrite (as N)                                     | <0.10     |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Sulfate by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Sulfate (SO4)                                      | 2350      |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               | LAB       |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Arsenic (As)-Dissolved                             | <0.0020   |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                              | 0.0084    |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Boron (B)-Dissolved                                | 3.94      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                             | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                             | 357       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                              | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Copper (Cu)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                                | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                                | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                             | 0.196     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Dissolved                           | 986       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                           | 0.00076   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                          | 0.0114    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Dissolved                              | 0.00050   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                           | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                            | 340       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Dissolved                            | 0.103     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                            | 0.0023    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                             | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                              | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                              | 9260      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                           | 5.17      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                               | 716       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                            | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                                 | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-10 MWREFA-1D                          |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:10        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                          | 0.00290   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                         | 0.00127   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 4950      |            | 4.8      | mg/L  |           | 18-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0142    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                              | 0.0094    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                                | 4.17      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Total                             | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                             | 356       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Total                              | 0.000054  |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                                | <0.010    |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                                | <0.00030  |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                             | 0.212     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Total                           | 999       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                           | 0.00091   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                          | 0.0118    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                           | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |
| Potassium (K)-Total                            | 339       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                            | 0.110     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Selenium (Se)-Total                            | 0.0021    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                             | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                              | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                              | 9310      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Total                           | 5.44      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                               | 726       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                            | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                                 | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                            | <0.0050   |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Tungsten (W)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                              | 0.00309   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                             | 0.00140   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

| Sample Details/Parameters                          |           | Result | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|-----------|--------|------------|----------|-------|-----------|-----------|----------|
| L2168530-10                                        | MWREFA-1D |        |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 17:10            |           |        |            |          |       |           |           |          |
| Matrix: marine H2O                                 |           |        |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>         |           |        |            |          |       |           |           |          |
| Zinc (Zn)-Total                                    | <0.0030   |        |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                               | <0.00050  |        |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| <b>Miscellaneous Parameters</b>                    |           |        |            |          |       |           |           |          |
| Ammonia, Total (as N)                              | <0.0050   |        |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                                       | 45500     |        |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |
| Orthophosphate-Dissolved (as P)                    | 0.0175    |        |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                           | 1.39      |        |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245104 |
| Silicate (as SiO2)                                 | 0.322     |        |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                            | 0.141     |        |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |
| Total Organic Carbon                               | 1.24      |        |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                             | 35500     |        |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                                 | <0.000010 |        |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |
| Phosphorus (P)-Total                               | 0.0247    |        |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                             | <2.0      |        |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                                 | 7.98      |        |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                           | 29.8      |        |            | 1.0      | psu   |           | 29-SEP-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>          |           |        |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location              | LAB       |        |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                             | <0.000010 |        |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
| L2168530-11                                        | DUP A     |        |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 16:30            |           |        |            |          |       |           |           |          |
| Matrix: marine H2O                                 |           |        |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>             |           |        |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b>     |           |        |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)                 | 114       |        |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Carbonate (as CaCO3)                   | <1.0      |        |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Hydroxide (as CaCO3)                   | <1.0      |        |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| Alkalinity, Total (as CaCO3)                       | 114       |        |            | 1.0      | mg/L  |           | 26-SEP-18 | R4245590 |
| <b>Anions by Ion Chromatography (seawater)</b>     |           |        |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                    |           |        |            |          |       |           |           |          |
| Bromide (Br)                                       | 57.3      |        |            | 5.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Chloride by IC (seawater)</b>                   |           |        |            |          |       |           |           |          |
| Chloride (Cl)                                      | 16800     |        |            | 50       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Fluoride by IC (seawater)</b>                   |           |        |            |          |       |           |           |          |
| Fluoride (F)                                       | <1.0      |        |            | 1.0      | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrate in Seawater by IC</b>                   |           |        |            |          |       |           |           |          |
| Nitrate (as N)                                     | <0.50     |        |            | 0.50     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Nitrite in Seawater by IC</b>                   |           |        |            |          |       |           |           |          |
| Nitrite (as N)                                     | <0.10     |        |            | 0.10     | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Sulfate by IC (seawater)</b>                    |           |        |            |          |       |           |           |          |
| Sulfate (SO4)                                      | 2390      |        |            | 30       | mg/L  |           | 25-SEP-18 | R4243309 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |           |        |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |           |        |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               | LAB       |        |            |          |       |           | 01-OCT-18 | R4254272 |
| Aluminum (Al)-Dissolved                            | <0.0050   |        |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Dissolved                            | <0.00050  |        |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Arsenic (As)-Dissolved                             | <0.0020   |        |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Barium (Ba)-Dissolved                              | 0.0092    |        |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Dissolved                           | <0.00050  |        |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Dissolved                             | <0.00050  |        |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-11 DUP A                              |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 16:30        |           |            |          |       |           |           |          |
| Matrix: marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Boron (B)-Dissolved                            | 4.09      |            | 0.10     | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Dissolved                         | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Dissolved                         | 354       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Dissolved                        | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Cobalt (Co)-Dissolved                          | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Copper (Cu)-Dissolved                          | 0.00065   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Iron (Fe)-Dissolved                            | <0.010    |            | 0.010    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lead (Pb)-Dissolved                            | <0.00030  |            | 0.00030  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Lithium (Li)-Dissolved                         | 0.206     |            | 0.020    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Dissolved                       | 972       |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Dissolved                       | 0.00074   |            | 0.00020  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Dissolved                      | 0.0119    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Dissolved                          | 0.00055   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Dissolved                       | <0.050    |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Potassium (K)-Dissolved                        | 333       |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Dissolved                        | 0.106     |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Selenium (Se)-Dissolved                        | 0.0024    |            | 0.0020   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silicon (Si)-Dissolved                         | <1.0      |            | 1.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Silver (Ag)-Dissolved                          | <0.00010  |            | 0.00010  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sodium (Na)-Dissolved                          | 9330      |            | 20       | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Dissolved                       | 5.25      |            | 0.050    | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Sulfur (S)-Dissolved                           | 711       |            | 5.0      | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Dissolved                        | <0.000050 |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Thorium (Th)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tin (Sn)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Uranium (U)-Dissolved                          | 0.00307   |            | 0.000050 | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Vanadium (V)-Dissolved                         | 0.00135   |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 01-OCT-18 | 18-OCT-18 | R4286768 |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 4890      |            | 4.8      | mg/L  |           | 18-OCT-18 |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0230    |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Barium (Ba)-Total                              | 0.0088    |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Boron (B)-Total                                | 4.00      |            | 0.10     | mg/L  |           | 18-OCT-18 | R4286768 |
| Cadmium (Cd)-Total                             | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Calcium (Ca)-Total                             | 363       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Chromium (Cr)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                  | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|--------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2168530-11 DUP A                          |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 17-SEP-18 @ 16:30    |           |            |          |       |           |           |          |
| Matrix: marine H2O                         |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b> |           |            |          |       |           |           |          |
| Cobalt (Co)-Total                          | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Copper (Cu)-Total                          | 0.00101   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Gallium (Ga)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Iron (Fe)-Total                            | 0.022     |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Lead (Pb)-Total                            | <0.00030  |            | 0.00030  | mg/L  |           | 18-OCT-18 | R4286768 |
| Lithium (Li)-Total                         | 0.206     |            | 0.020    | mg/L  |           | 18-OCT-18 | R4286768 |
| Magnesium (Mg)-Total                       | 1040      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Manganese (Mn)-Total                       | 0.00111   |            | 0.00020  | mg/L  |           | 18-OCT-18 | R4286768 |
| Molybdenum (Mo)-Total                      | 0.0117    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Nickel (Ni)-Total                          | 0.00062   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Phosphorus (P)-Total                       | <0.050    |            | 0.050    | mg/L  |           | 18-OCT-18 | R4286768 |
| Potassium (K)-Total                        | 335       |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Rhenium (Re)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Rubidium (Rb)-Total                        | 0.107     |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Selenium (Se)-Total                        | 0.0027    |            | 0.0020   | mg/L  |           | 18-OCT-18 | R4286768 |
| Silicon (Si)-Total                         | <1.0      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Silver (Ag)-Total                          | <0.00010  |            | 0.00010  | mg/L  |           | 18-OCT-18 | R4286768 |
| Sodium (Na)-Total                          | 9090      |            | 1.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Strontium (Sr)-Total                       | 5.44      |            | 0.010    | mg/L  |           | 18-OCT-18 | R4286768 |
| Sulfur (S)-Total                           | 761       |            | 5.0      | mg/L  |           | 18-OCT-18 | R4286768 |
| Tellurium (Te)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Thallium (Tl)-Total                        | <0.000050 |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Thorium (Th)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Tin (Sn)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Titanium (Ti)-Total                        | <0.0050   |            | 0.0050   | mg/L  |           | 18-OCT-18 | R4286768 |
| Tungsten (W)-Total                         | <0.0010   |            | 0.0010   | mg/L  |           | 18-OCT-18 | R4286768 |
| Uranium (U)-Total                          | 0.00312   |            | 0.000050 | mg/L  |           | 18-OCT-18 | R4286768 |
| Vanadium (V)-Total                         | 0.00146   |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Yttrium (Y)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| Zinc (Zn)-Total                            | <0.0030   |            | 0.0030   | mg/L  |           | 18-OCT-18 | R4286768 |
| Zirconium (Zr)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 18-OCT-18 | R4286768 |
| <b>Miscellaneous Parameters</b>            |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                      | <0.0050   |            | 0.0050   | mg/L  |           | 02-OCT-18 | R4257962 |
| Conductivity                               | 45500     |            | 2.0      | uS/cm |           | 26-SEP-18 | R4245590 |
| Orthophosphate-Dissolved (as P)            | 0.0176    |            | 0.0010   | mg/L  |           | 22-SEP-18 | R4233408 |
| Dissolved Organic Carbon                   | 1.42      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245104 |
| Silicate (as SiO2)                         | 0.333     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                    | 0.134     |            | 0.050    | mg/L  | 28-SEP-18 | 01-OCT-18 | R4254028 |
| Total Organic Carbon                       | 1.34      |            | 0.50     | mg/L  |           | 25-SEP-18 | R4245103 |
| Total Dissolved Solids                     | 33300     |            | 80       | mg/L  |           | 25-SEP-18 | R4247695 |
| Mercury (Hg)-Total                         | <0.000010 |            | 0.000010 | mg/L  |           | 26-SEP-18 | R4241691 |
| Phosphorus (P)-Total                       | 0.0243    |            | 0.0040   | mg/L  |           | 22-SEP-18 | R4233751 |
| Total Suspended Solids                     | 3.8       |            | 2.0      | mg/L  |           | 24-SEP-18 | R4239893 |
| pH                                         | 7.97      |            | 0.10     | pH    |           | 26-SEP-18 | R4245590 |
| Salinity                                   | 29.8      |            | 1.0      | psu   |           | 29-SEP-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>  |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location      | LAB       |            |          |       |           | 25-SEP-18 | R4239017 |
| Mercury (Hg)-Dissolved                     | <0.000010 |            | 0.000010 | mg/L  | 25-SEP-18 | 25-SEP-18 | R4238273 |
|                                            |           |            |          |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## Reference Information

### Test Method References:

| ALS Test Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Matrix   | Test Description                        | Method Reference**                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------|-----------------------------------------|
| ALK-TITR-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Seawater | Alkalinity Spec by Titration (Seawater) | 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-C-BR-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Seawater | Bromide by IC (seawater)                | EPA 300.1 (mod)                         |
| This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                                         |                                         |
| ANIONS-C-CL-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Seawater | Chloride by IC (seawater)               | EPA 300.1 (mod)                         |
| This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                                         |                                         |
| ANIONS-C-F-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Seawater | Fluoride by IC (seawater)               | EPA 300.1 (mod)                         |
| This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                                         |                                         |
| ANIONS-C-NO2-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Seawater | Nitrite in Seawater by IC               | EPA 300.1 (mod)                         |
| This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                         |                                         |
| ANIONS-C-NO3-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Seawater | Nitrate in Seawater by IC               | EPA 300.1 (mod)                         |
| This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                         |                                         |
| ANIONS-C-SO4-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Seawater | Sulfate by IC (seawater)                | EPA 300.1 (mod)                         |
| This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                                         |                                         |
| CARBONS-C-DOC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Seawater | DOC by combustion (seawater)            | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                                         |                                         |
| CARBONS-C-TOC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Seawater | TOC by combustion (seawater)            | APHA 5310B TOTAL ORGANIC CARBON (TOC)   |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                                         |                                         |
| EC-C-PCT-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Seawater | Conductivity (Automated) (seawater)     | APHA 2510 Auto. Conduc.                 |
| This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                                         |                                         |
| HARDNESS-CALC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Seawater | Hardness                                | APHA 2340B                              |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.                                                                                                                                                                                                                                                                                                                                                                                                                          |          |                                         |                                         |
| HG-DIS-C-CVAFS-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Seawater | Diss. Mercury in Seawater by CVAFS      | PUGET SOUND PROTOCOLS, EPA 245.7        |
| This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7). |          |                                         |                                         |
| HG-TOT-C-CVAFS-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Seawater | Total Mercury in Seawater by CVAFS      | PUGET SOUND PROTOCOLS, EPA 245.7        |
| This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedure involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).                                                                                |          |                                         |                                         |
| MET-D-L-HRMS-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Seawater | Diss. Metals in Seawater by HR-ICPMS    | EPA 200.8                               |
| Trace metals in seawater are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) based on US EPA Method 200.8, (Revision 5.5). The procedures may involve laboratory sample filtration based on APHA Method 3030B.                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                                         |                                         |
| MET-T-L-HRMS-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Seawater | Tot. Metals in Seawater by HR-ICPMS     | EPA 200.8                               |
| Trace metals in seawater are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) based on US EPA Method 200.8, (Revision 5.5). The procedures may involve preliminary sample treatment by acid digestion based on APHA Method 3030E.                                                                                                                                                                                                                                                                                                                                                                                                      |          |                                         |                                         |
| NH3-F-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Seawater | Ammonia in Seawater 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. Weston et                                                                                                                                                                                                                                                                                                                                                           |          |                                         |                                         |

## Reference Information

### Test Method References:

| ALS Test Code                                                                                                                                                                                                                                                                                                 | Matrix   | Test Description                       | Method Reference**     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------|------------------------|
| al.                                                                                                                                                                                                                                                                                                           |          |                                        |                        |
| P-T-COL-VA                                                                                                                                                                                                                                                                                                    | Seawater | Total P in Seawater by Colour          | APHA 4500-P Phosphorus |
| This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.                                                                                                                      |          |                                        |                        |
| PH-C-PCT-VA                                                                                                                                                                                                                                                                                                   | Seawater | pH by Meter (Automated) (seawater)     | 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                                                                                                                                                                                                                                                                                                 | Seawater | D-Orthophosphate in Seawater 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.                                                                   |          |                                        |                        |
| SALINITY-CALC-VA                                                                                                                                                                                                                                                                                              | Seawater | Salinity by conductivity meter         | APHA 2520B             |
| Salinity is determined by the APHA 2520B Electrical Conductivity Method. Salinity is a unitless parameter that is roughly equivalent to grams per Litre. ALS applies the unit of psu (practical salinity unit) to indicate that salinity values are derived from the Practical Salinity Scale.                |          |                                        |                        |
| SIO2-L-COL-VA                                                                                                                                                                                                                                                                                                 | Seawater | Low Level Silicate by Colourimetric    | APHA 4500-SiO2 E.      |
| This analysis is carried out using procedures adapted from APHA Method 4500-SiO2 E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method.                                                                                                 |          |                                        |                        |
| TDS-VA                                                                                                                                                                                                                                                                                                        | Seawater | Total Dissolved Solids by Gravimetric  | APHA 2540 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. |          |                                        |                        |
| TKN-C-F-VA                                                                                                                                                                                                                                                                                                    | Seawater | TKN in Seawater by Fluorescence        | APHA 4500-NORG D.      |
| This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.                                               |          |                                        |                        |
| TSS-C-VA                                                                                                                                                                                                                                                                                                      | Seawater | Total Suspended Solids by Gravimetric  | APHA 2540 D            |
| This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) is 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                                     |
|----------------------------|---------------------------------------------------------|
| VA                         | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

### Chain of Custody Numbers:

14-452765

### GLOSSARY OF REPORT TERMS

*Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.*

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

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

*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight*

*mg/L - unit of concentration based on volume, parts per million.*

*< - Less than.*

*D.L. - The reporting limit.*

*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.*

## Quality Control Report

Workorder: L2168530

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Client: Agnico-Eagle - Meliadine Gold Project

PO Box 99

Rankin Inlet NU X0C 0G0

Contact: JENNIFER BROWN

| Test                                      | Matrix   | Reference           | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|-------------------------------------------|----------|---------------------|--------|-----------|-------|-----|--------|-----------|
| <b>ALK-TITR-VA Seawater</b>               |          |                     |        |           |       |     |        |           |
| Batch                                     | R4245590 |                     |        |           |       |     |        |           |
| WG2884434-3 CRM                           |          | VA-ALK-TITR-CONTROL |        |           |       |     |        |           |
| Alkalinity, Total (as CaCO <sub>3</sub> ) |          |                     | 101.1  |           | %     |     | 85-115 | 26-SEP-18 |
| WG2884434-6 DUP                           |          | L2168530-5          |        |           |       |     |        |           |
| Alkalinity, Total (as CaCO <sub>3</sub> ) |          | 112                 | 110    |           | mg/L  | 1.8 | 20     | 26-SEP-18 |
| WG2884434-1 MB                            |          |                     |        |           |       |     |        |           |
| Alkalinity, Total (as CaCO <sub>3</sub> ) |          |                     | <1.0   |           | mg/L  |     | 1      | 26-SEP-18 |
| <b>ANIONS-C-BR-IC-VA Seawater</b>         |          |                     |        |           |       |     |        |           |
| Batch                                     | R4243309 |                     |        |           |       |     |        |           |
| WG2884506-3 DUP                           |          | L2168530-1          |        |           |       |     |        |           |
| Bromide (Br)                              |          | 55.5                | 57.6   |           | mg/L  | 3.7 | 20     | 25-SEP-18 |
| WG2884506-2 LCS                           |          |                     |        |           |       |     |        |           |
| Bromide (Br)                              |          |                     | 101.4  |           | %     |     | 85-115 | 25-SEP-18 |
| WG2884506-1 MB                            |          |                     |        |           |       |     |        |           |
| Bromide (Br)                              |          |                     | <5.0   |           | mg/L  |     | 5      | 25-SEP-18 |
| <b>ANIONS-C-CL-IC-VA Seawater</b>         |          |                     |        |           |       |     |        |           |
| Batch                                     | R4243309 |                     |        |           |       |     |        |           |
| WG2884506-3 DUP                           |          | L2168530-1          |        |           |       |     |        |           |
| Chloride (Cl)                             |          | 16000               | 16600  |           | mg/L  | 4.0 | 20     | 25-SEP-18 |
| WG2884506-2 LCS                           |          |                     |        |           |       |     |        |           |
| Chloride (Cl)                             |          |                     | 99.95  |           | %     |     | 90-110 | 25-SEP-18 |
| WG2884506-1 MB                            |          |                     |        |           |       |     |        |           |
| Chloride (Cl)                             |          |                     | <50    |           | mg/L  |     | 50     | 25-SEP-18 |
| <b>ANIONS-C-F-IC-VA Seawater</b>          |          |                     |        |           |       |     |        |           |
| Batch                                     | R4243309 |                     |        |           |       |     |        |           |
| WG2884506-3 DUP                           |          | L2168530-1          |        |           |       |     |        |           |
| Fluoride (F)                              |          | <1.0                | <1.0   | RPD-NA    | mg/L  | N/A | 20     | 25-SEP-18 |
| WG2884506-2 LCS                           |          |                     |        |           |       |     |        |           |
| Fluoride (F)                              |          |                     | 99.97  |           | %     |     | 90-110 | 25-SEP-18 |
| WG2884506-1 MB                            |          |                     |        |           |       |     |        |           |
| Fluoride (F)                              |          |                     | <1.0   |           | mg/L  |     | 1      | 25-SEP-18 |
| <b>ANIONS-C-NO2-IC-VA Seawater</b>        |          |                     |        |           |       |     |        |           |
| Batch                                     | R4243309 |                     |        |           |       |     |        |           |
| WG2884506-3 DUP                           |          | L2168530-1          |        |           |       |     |        |           |
| Nitrite (as N)                            |          | <0.10               | <0.10  | RPD-NA    | mg/L  | N/A | 20     | 25-SEP-18 |
| WG2884506-2 LCS                           |          |                     |        |           |       |     |        |           |
| Nitrite (as N)                            |          |                     | 100.8  |           | %     |     | 90-110 | 25-SEP-18 |
| WG2884506-1 MB                            |          |                     |        |           |       |     |        |           |



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| Test                     | Matrix   | Reference  | Result | Qualifier | Units  | RPD  | Limit | Analyzed  |           |
|--------------------------|----------|------------|--------|-----------|--------|------|-------|-----------|-----------|
| ANIONS-C-NO2-IC-VA       |          | Seawater   |        |           |        |      |       |           |           |
| Batch                    | R4243309 |            |        |           |        |      |       |           |           |
| WG2884506-1              | MB       |            |        |           |        |      |       |           |           |
| Nitrite (as N)           |          |            | <0.10  |           | mg/L   |      | 0.1   | 25-SEP-18 |           |
| ANIONS-C-NO3-IC-VA       |          | Seawater   |        |           |        |      |       |           |           |
| Batch                    | R4243309 |            |        |           |        |      |       |           |           |
| WG2884506-3              | DUP      | L2168530-1 |        |           |        |      |       |           |           |
| Nitrate (as N)           |          |            | <0.50  | <0.50     | RPD-NA | mg/L | N/A   | 20        | 25-SEP-18 |
| WG2884506-2              | LCS      |            |        |           |        |      |       |           |           |
| Nitrate (as N)           |          |            |        | 99.0      |        | %    |       | 90-110    | 25-SEP-18 |
| WG2884506-1              | MB       |            |        |           |        |      |       |           |           |
| Nitrate (as N)           |          |            | <0.50  |           | mg/L   |      | 0.5   | 25-SEP-18 |           |
| ANIONS-C-SO4-IC-VA       |          | Seawater   |        |           |        |      |       |           |           |
| Batch                    | R4243309 |            |        |           |        |      |       |           |           |
| WG2884506-3              | DUP      | L2168530-1 |        |           |        |      |       |           |           |
| Sulfate (SO4)            |          |            | 2280   | 2360      |        | mg/L | 3.7   | 20        | 25-SEP-18 |
| WG2884506-2              | LCS      |            |        |           |        |      |       |           |           |
| Sulfate (SO4)            |          |            |        | 100.5     |        | %    |       | 90-110    | 25-SEP-18 |
| WG2884506-1              | MB       |            |        |           |        |      |       |           |           |
| Sulfate (SO4)            |          |            | <30    |           | mg/L   |      | 30    | 25-SEP-18 |           |
| CARBONS-C-DOC-VA         |          | Seawater   |        |           |        |      |       |           |           |
| Batch                    | R4245104 |            |        |           |        |      |       |           |           |
| WG2886063-1              | DUP      | L2168530-1 |        |           |        |      |       |           |           |
| Dissolved Organic Carbon |          |            | 1.43   | 1.48      |        | mg/L | 3.4   | 20        | 25-SEP-18 |
| WG2886063-4              | LCS      |            |        |           |        |      |       |           |           |
| Dissolved Organic Carbon |          |            |        | 101.0     |        | %    |       | 80-120    | 25-SEP-18 |
| WG2886063-3              | MB       |            |        |           |        |      |       |           |           |
| Dissolved Organic Carbon |          |            | <0.50  |           | mg/L   |      | 0.5   | 25-SEP-18 |           |
| WG2886063-2              | MS       | L2168530-2 |        |           |        |      |       |           |           |
| Dissolved Organic Carbon |          |            |        | 93.9      |        | %    |       | 70-130    | 25-SEP-18 |
| Batch                    | R4257979 |            |        |           |        |      |       |           |           |
| WG2892697-4              | LCS      |            |        |           |        |      |       |           |           |
| Dissolved Organic Carbon |          |            |        | 96.8      |        | %    |       | 80-120    | 02-OCT-18 |
| WG2892697-3              | MB       |            |        |           |        |      |       |           |           |
| Dissolved Organic Carbon |          |            | <0.50  |           | mg/L   |      | 0.5   | 02-OCT-18 |           |
| CARBONS-C-TOC-VA         |          | Seawater   |        |           |        |      |       |           |           |



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| Test                     | Matrix   | Reference         | Result    | Qualifier | Units | RPD | Limit   | Analyzed  |
|--------------------------|----------|-------------------|-----------|-----------|-------|-----|---------|-----------|
| CARBONS-C-TOC-VA         |          | Seawater          |           |           |       |     |         |           |
| Batch                    | R4245103 |                   |           |           |       |     |         |           |
| WG2886062-1              | DUP      | L2168530-1        | 1.46      |           | mg/L  | 4.5 | 20      | 25-SEP-18 |
| Total Organic Carbon     |          |                   |           |           |       |     |         |           |
| WG2886062-4              | LCS      |                   | 102.2     |           | %     |     | 80-120  | 25-SEP-18 |
| Total Organic Carbon     |          |                   |           |           |       |     |         |           |
| WG2886062-3              | MB       |                   | <0.50     |           | mg/L  |     | 0.5     | 25-SEP-18 |
| Total Organic Carbon     |          |                   |           |           |       |     |         |           |
| WG2886062-2              | MS       | L2168530-2        | 97.4      |           | %     |     | 70-130  | 25-SEP-18 |
| Total Organic Carbon     |          |                   |           |           |       |     |         |           |
| EC-C-PCT-VA              |          | Seawater          |           |           |       |     |         |           |
| Batch                    | R4245590 |                   |           |           |       |     |         |           |
| WG2884434-4              | CRM      | VA-EC-PCT-CONTROL | 103.7     |           | %     |     | 90-110  | 26-SEP-18 |
| Conductivity             |          |                   |           |           |       |     |         |           |
| WG2884434-6              | DUP      | L2168530-5        | 46200     |           | uS/cm | 0.7 | 10      | 26-SEP-18 |
| Conductivity             |          |                   |           |           |       |     |         |           |
| WG2884434-1              | MB       |                   | <2.0      |           | uS/cm |     | 2       | 26-SEP-18 |
| Conductivity             |          |                   |           |           |       |     |         |           |
| HG-DIS-C-CVAFS-VA        |          | Seawater          |           |           |       |     |         |           |
| Batch                    | R4238273 |                   |           |           |       |     |         |           |
| WG2885957-2              | LCS      |                   | 100.3     |           | %     |     | 80-120  | 25-SEP-18 |
| Mercury (Hg)-Dissolved   |          |                   |           |           |       |     |         |           |
| WG2885957-1              | MB       | LF                | <0.000010 |           | mg/L  |     | 0.00001 | 25-SEP-18 |
| Mercury (Hg)-Dissolved   |          |                   |           |           |       |     |         |           |
| HG-TOT-C-CVAFS-VA        |          | Seawater          |           |           |       |     |         |           |
| Batch                    | R4241691 |                   |           |           |       |     |         |           |
| WG2886918-2              | LCS      |                   | 99.4      |           | %     |     | 80-120  | 26-SEP-18 |
| Mercury (Hg)-Total       |          |                   |           |           |       |     |         |           |
| WG2886918-1              | MB       |                   | <0.000010 |           | mg/L  |     | 0.00001 | 26-SEP-18 |
| Mercury (Hg)-Total       |          |                   |           |           |       |     |         |           |
| MET-D-L-HRMS-VA          |          | Seawater          |           |           |       |     |         |           |
| Batch                    | R4286768 |                   |           |           |       |     |         |           |
| WG2891785-3              | DUP      | L2168530-2        |           |           |       |     |         |           |
| Aluminum (Al)-Dissolved  |          | <0.0050           | <0.0050   | RPD-NA    | mg/L  | N/A | 20      | 18-OCT-18 |
| Antimony (Sb)-Dissolved  |          | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A | 20      | 18-OCT-18 |
| Arsenic (As)-Dissolved   |          | <0.0020           | <0.0020   | RPD-NA    | mg/L  | N/A | 20      | 18-OCT-18 |
| Barium (Ba)-Dissolved    |          | 0.0099            | 0.0090    |           | mg/L  | 9.4 | 20      | 18-OCT-18 |
| Beryllium (Be)-Dissolved |          | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A | 20      | 18-OCT-18 |
| Bismuth (Bi)-Dissolved   |          | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A | 20      | 18-OCT-18 |

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| Test                      | Matrix          | Reference         | Result    | Qualifier | Units | RPD    | Limit | Analyzed  |
|---------------------------|-----------------|-------------------|-----------|-----------|-------|--------|-------|-----------|
| <b>MET-D-L-HRMS-VA</b>    |                 | <b>Seawater</b>   |           |           |       |        |       |           |
| <b>Batch</b>              | <b>R4286768</b> |                   |           |           |       |        |       |           |
| <b>WG2891785-3</b>        | <b>DUP</b>      | <b>L2168530-2</b> |           |           |       |        |       |           |
| Boron (B)-Dissolved       |                 | 4.11              | 3.98      |           | mg/L  | 3.3    | 20    | 18-OCT-18 |
| Cadmium (Cd)-Dissolved    |                 | <0.000050         | <0.000050 | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Calcium (Ca)-Dissolved    |                 | 358               | 361       |           | mg/L  | 0.8    | 20    | 18-OCT-18 |
| Cesium (Cs)-Dissolved     |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Chromium (Cr)-Dissolved   |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Cobalt (Co)-Dissolved     |                 | <0.000050         | <0.000050 | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Copper (Cu)-Dissolved     |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Gallium (Ga)-Dissolved    |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Iron (Fe)-Dissolved       |                 | <0.010            | <0.010    | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Lead (Pb)-Dissolved       |                 | <0.00030          | <0.00030  | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Lithium (Li)-Dissolved    |                 | 0.206             | 0.203     |           | mg/L  | 1.7    | 20    | 18-OCT-18 |
| Magnesium (Mg)-Dissolved  |                 | 1040              | 1000      |           | mg/L  | 4.0    | 20    | 18-OCT-18 |
| Manganese (Mn)-Dissolved  |                 | 0.00078           | 0.00073   |           | mg/L  | 6.4    | 20    | 18-OCT-18 |
| Molybdenum (Mo)-Dissolved |                 | 0.0120            | 0.0119    |           | mg/L  | 0.8    | 20    | 18-OCT-18 |
| Nickel (Ni)-Dissolved     |                 | 0.00054           | 0.00058   |           | mg/L  | 6.6    | 20    | 18-OCT-18 |
| Phosphorus (P)-Dissolved  |                 | <0.050            | <0.050    | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Potassium (K)-Dissolved   |                 | 343               | 335       |           | mg/L  | 2.4    | 20    | 18-OCT-18 |
| Rhenium (Re)-Dissolved    |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Rubidium (Rb)-Dissolved   |                 | 0.111             | 0.107     |           | mg/L  | 3.9    | 20    | 18-OCT-18 |
| Selenium (Se)-Dissolved   |                 | 0.0033            | 0.0024    | J         | mg/L  | 0.0009 | 0.004 | 18-OCT-18 |
| Silicon (Si)-Dissolved    |                 | <1.0              | <1.0      | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Silver (Ag)-Dissolved     |                 | <0.00010          | <0.00010  | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Sodium (Na)-Dissolved     |                 | 9380              | 9330      |           | mg/L  | 0.5    | 20    | 18-OCT-18 |
| Strontium (Sr)-Dissolved  |                 | 5.43              | 5.25      |           | mg/L  | 3.4    | 20    | 18-OCT-18 |
| Sulfur (S)-Dissolved      |                 | 770               | 731       |           | mg/L  | 5.3    | 20    | 18-OCT-18 |
| Tellurium (Te)-Dissolved  |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Thallium (Tl)-Dissolved   |                 | <0.000050         | <0.000050 | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Thorium (Th)-Dissolved    |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Tin (Sn)-Dissolved        |                 | <0.0010           | <0.0010   | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Titanium (Ti)-Dissolved   |                 | <0.0050           | <0.0050   | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Tungsten (W)-Dissolved    |                 | <0.0010           | <0.0010   | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |
| Uranium (U)-Dissolved     |                 | 0.00310           | 0.00300   |           | mg/L  | 3.2    | 20    | 18-OCT-18 |
| Vanadium (V)-Dissolved    |                 | 0.00129           | 0.00115   |           | mg/L  | 11     | 20    | 18-OCT-18 |
| Yttrium (Y)-Dissolved     |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A    | 20    | 18-OCT-18 |

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| Test                      | Matrix          | Reference         | Result   | Qualifier | Units | RPD | Limit  | Analyzed  |
|---------------------------|-----------------|-------------------|----------|-----------|-------|-----|--------|-----------|
| <b>MET-D-L-HRMS-VA</b>    |                 | <b>Seawater</b>   |          |           |       |     |        |           |
| <b>Batch</b>              | <b>R4286768</b> |                   |          |           |       |     |        |           |
| <b>WG2891785-3 DUP</b>    |                 | <b>L2168530-2</b> |          |           |       |     |        |           |
| Zinc (Zn)-Dissolved       |                 | <0.0030           | <0.0030  | RPD-NA    | mg/L  | N/A | 20     | 18-OCT-18 |
| Zirconium (Zr)-Dissolved  |                 | <0.00050          | <0.00050 | RPD-NA    | mg/L  | N/A | 20     | 18-OCT-18 |
| <b>WG2891785-4 MS</b>     |                 | <b>L2168530-1</b> |          |           |       |     |        |           |
| Aluminum (Al)-Dissolved   |                 |                   | 106.8    |           | %     |     | 70-130 | 18-OCT-18 |
| Antimony (Sb)-Dissolved   |                 |                   | 102.8    |           | %     |     | 70-130 | 18-OCT-18 |
| Arsenic (As)-Dissolved    |                 |                   | 95.2     |           | %     |     | 70-130 | 18-OCT-18 |
| Barium (Ba)-Dissolved     |                 |                   | 104.8    |           | %     |     | 70-130 | 18-OCT-18 |
| Beryllium (Be)-Dissolved  |                 |                   | 98.5     |           | %     |     | 70-130 | 18-OCT-18 |
| Bismuth (Bi)-Dissolved    |                 |                   | 97.9     |           | %     |     | 70-130 | 18-OCT-18 |
| Boron (B)-Dissolved       |                 |                   | 101.0    |           | %     |     | 70-130 | 18-OCT-18 |
| Cadmium (Cd)-Dissolved    |                 |                   | 91.0     |           | %     |     | 70-130 | 18-OCT-18 |
| Calcium (Ca)-Dissolved    |                 |                   | N/A      | MS-B      | %     |     | -      | 18-OCT-18 |
| Cesium (Cs)-Dissolved     |                 |                   | 104.2    |           | %     |     | 70-130 | 18-OCT-18 |
| Chromium (Cr)-Dissolved   |                 |                   | 94.9     |           | %     |     | 70-130 | 18-OCT-18 |
| Cobalt (Co)-Dissolved     |                 |                   | 90.4     |           | %     |     | 70-130 | 18-OCT-18 |
| Copper (Cu)-Dissolved     |                 |                   | 85.7     |           | %     |     | 70-130 | 18-OCT-18 |
| Gallium (Ga)-Dissolved    |                 |                   | 91.4     |           | %     |     | 70-130 | 18-OCT-18 |
| Iron (Fe)-Dissolved       |                 |                   | 88.6     |           | %     |     | 70-130 | 18-OCT-18 |
| Lead (Pb)-Dissolved       |                 |                   | 89.7     |           | %     |     | 70-130 | 18-OCT-18 |
| Lithium (Li)-Dissolved    |                 |                   | 101.0    |           | %     |     | 70-130 | 18-OCT-18 |
| Magnesium (Mg)-Dissolved  |                 |                   | N/A      | MS-B      | %     |     | -      | 18-OCT-18 |
| Manganese (Mn)-Dissolved  |                 |                   | 94.3     |           | %     |     | 70-130 | 18-OCT-18 |
| Molybdenum (Mo)-Dissolved |                 |                   | 101.7    |           | %     |     | 70-130 | 18-OCT-18 |
| Nickel (Ni)-Dissolved     |                 |                   | 86.8     |           | %     |     | 70-130 | 18-OCT-18 |
| Phosphorus (P)-Dissolved  |                 |                   | 94.0     |           | %     |     | 70-130 | 18-OCT-18 |
| Potassium (K)-Dissolved   |                 |                   | N/A      | MS-B      | %     |     | -      | 18-OCT-18 |
| Rhenium (Re)-Dissolved    |                 |                   | 100.2    |           | %     |     | 70-130 | 18-OCT-18 |
| Rubidium (Rb)-Dissolved   |                 |                   | N/A      | MS-B      | %     |     | -      | 18-OCT-18 |
| Selenium (Se)-Dissolved   |                 |                   | 95.2     |           | %     |     | 70-130 | 18-OCT-18 |
| Silver (Ag)-Dissolved     |                 |                   | 93.8     |           | %     |     | 70-130 | 18-OCT-18 |
| Sodium (Na)-Dissolved     |                 |                   | N/A      | MS-B      | %     |     | -      | 18-OCT-18 |
| Strontium (Sr)-Dissolved  |                 |                   | N/A      | MS-B      | %     |     | -      | 18-OCT-18 |
| Tellurium (Te)-Dissolved  |                 |                   | 98.9     |           | %     |     | 70-130 | 18-OCT-18 |
| Thallium (Tl)-Dissolved   |                 |                   | 97.2     |           | %     |     | 70-130 | 18-OCT-18 |

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| Test                      | Matrix          | Reference         | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|---------------------------|-----------------|-------------------|--------|-----------|-------|-----|--------|-----------|
| <b>MET-D-L-HRMS-VA</b>    |                 | <b>Seawater</b>   |        |           |       |     |        |           |
| <b>Batch</b>              | <b>R4286768</b> |                   |        |           |       |     |        |           |
| <b>WG2891785-4</b>        | <b>MS</b>       | <b>L2168530-1</b> |        |           |       |     |        |           |
| Thorium (Th)-Dissolved    |                 |                   | 95.0   |           | %     |     | 70-130 | 18-OCT-18 |
| Tin (Sn)-Dissolved        |                 |                   | 102.0  |           | %     |     | 70-130 | 18-OCT-18 |
| Titanium (Ti)-Dissolved   |                 |                   | 96.9   |           | %     |     | 70-130 | 18-OCT-18 |
| Tungsten (W)-Dissolved    |                 |                   | 101.5  |           | %     |     | 70-130 | 18-OCT-18 |
| Uranium (U)-Dissolved     |                 |                   | 100.9  |           | %     |     | 70-130 | 18-OCT-18 |
| Vanadium (V)-Dissolved    |                 |                   | 94.7   |           | %     |     | 70-130 | 18-OCT-18 |
| Yttrium (Y)-Dissolved     |                 |                   | 103.8  |           | %     |     | 70-130 | 18-OCT-18 |
| Zinc (Zn)-Dissolved       |                 |                   | 84.1   |           | %     |     | 70-130 | 18-OCT-18 |
| Zirconium (Zr)-Dissolved  |                 |                   | 108.0  |           | %     |     | 70-130 | 18-OCT-18 |
| <b>Batch</b>              | <b>R4286967</b> |                   |        |           |       |     |        |           |
| <b>WG2891785-2</b>        | <b>LCS</b>      |                   |        |           |       |     |        |           |
| Aluminum (Al)-Dissolved   |                 |                   | 89.6   |           | %     |     | 80-120 | 15-OCT-18 |
| Antimony (Sb)-Dissolved   |                 |                   | 89.1   |           | %     |     | 80-120 | 15-OCT-18 |
| Arsenic (As)-Dissolved    |                 |                   | 92.5   |           | %     |     | 80-120 | 15-OCT-18 |
| Barium (Ba)-Dissolved     |                 |                   | 98.4   |           | %     |     | 80-120 | 15-OCT-18 |
| Beryllium (Be)-Dissolved  |                 |                   | 93.6   |           | %     |     | 80-120 | 15-OCT-18 |
| Bismuth (Bi)-Dissolved    |                 |                   | 90.3   |           | %     |     | 80-120 | 15-OCT-18 |
| Boron (B)-Dissolved       |                 |                   | 106.7  |           | %     |     | 80-120 | 15-OCT-18 |
| Cadmium (Cd)-Dissolved    |                 |                   | 99.3   |           | %     |     | 80-120 | 15-OCT-18 |
| Calcium (Ca)-Dissolved    |                 |                   | 97.0   |           | %     |     | 80-120 | 15-OCT-18 |
| Cesium (Cs)-Dissolved     |                 |                   | 101.8  |           | %     |     | 80-120 | 15-OCT-18 |
| Chromium (Cr)-Dissolved   |                 |                   | 95.6   |           | %     |     | 80-120 | 15-OCT-18 |
| Cobalt (Co)-Dissolved     |                 |                   | 94.0   |           | %     |     | 80-120 | 15-OCT-18 |
| Copper (Cu)-Dissolved     |                 |                   | 92.8   |           | %     |     | 80-120 | 15-OCT-18 |
| Gallium (Ga)-Dissolved    |                 |                   | 94.8   |           | %     |     | 80-120 | 15-OCT-18 |
| Iron (Fe)-Dissolved       |                 |                   | 95.7   |           | %     |     | 80-120 | 15-OCT-18 |
| Lead (Pb)-Dissolved       |                 |                   | 105.6  |           | %     |     | 80-120 | 15-OCT-18 |
| Lithium (Li)-Dissolved    |                 |                   | 94.9   |           | %     |     | 80-120 | 15-OCT-18 |
| Magnesium (Mg)-Dissolved  |                 |                   | 98.6   |           | %     |     | 80-120 | 15-OCT-18 |
| Manganese (Mn)-Dissolved  |                 |                   | 105.2  |           | %     |     | 80-120 | 15-OCT-18 |
| Molybdenum (Mo)-Dissolved |                 |                   | 103.2  |           | %     |     | 80-120 | 15-OCT-18 |
| Nickel (Ni)-Dissolved     |                 |                   | 95.0   |           | %     |     | 80-120 | 15-OCT-18 |
| Phosphorus (P)-Dissolved  |                 |                   | 101.3  |           | %     |     | 80-120 | 15-OCT-18 |
| Potassium (K)-Dissolved   |                 |                   | 94.5   |           | %     |     | 80-120 | 15-OCT-18 |

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| Test                     | Matrix          | Reference       | Result    | Qualifier | Units | RPD | Limit   | Analyzed  |
|--------------------------|-----------------|-----------------|-----------|-----------|-------|-----|---------|-----------|
| <b>MET-D-L-HRMS-VA</b>   |                 | <b>Seawater</b> |           |           |       |     |         |           |
| <b>Batch</b>             | <b>R4286967</b> |                 |           |           |       |     |         |           |
| <b>WG2891785-2</b>       | <b>LCS</b>      |                 |           |           |       |     |         |           |
| Rhenium (Re)-Dissolved   |                 |                 | 102.0     |           | %     |     | 80-120  | 15-OCT-18 |
| Rubidium (Rb)-Dissolved  |                 |                 | 101.7     |           | %     |     | 80-120  | 15-OCT-18 |
| Selenium (Se)-Dissolved  |                 |                 | 102.6     |           | %     |     | 80-120  | 15-OCT-18 |
| Silicon (Si)-Dissolved   |                 |                 | 96.0      |           | %     |     | 80-120  | 15-OCT-18 |
| Silver (Ag)-Dissolved    |                 |                 | 97.5      |           | %     |     | 80-120  | 15-OCT-18 |
| Sodium (Na)-Dissolved    |                 |                 | 109.6     |           | %     |     | 80-120  | 15-OCT-18 |
| Strontium (Sr)-Dissolved |                 |                 | 96.8      |           | %     |     | 80-120  | 15-OCT-18 |
| Sulfur (S)-Dissolved     |                 |                 | 102.8     |           | %     |     | 80-120  | 15-OCT-18 |
| Tellurium (Te)-Dissolved |                 |                 | 102.0     |           | %     |     | 80-120  | 15-OCT-18 |
| Thallium (Tl)-Dissolved  |                 |                 | 94.3      |           | %     |     | 80-120  | 15-OCT-18 |
| Thorium (Th)-Dissolved   |                 |                 | 107.5     |           | %     |     | 80-120  | 15-OCT-18 |
| Tin (Sn)-Dissolved       |                 |                 | 102.6     |           | %     |     | 80-120  | 15-OCT-18 |
| Titanium (Ti)-Dissolved  |                 |                 | 95.6      |           | %     |     | 80-120  | 15-OCT-18 |
| Tungsten (W)-Dissolved   |                 |                 | 101.0     |           | %     |     | 80-120  | 15-OCT-18 |
| Uranium (U)-Dissolved    |                 |                 | 108.8     |           | %     |     | 80-120  | 15-OCT-18 |
| Vanadium (V)-Dissolved   |                 |                 | 95.2      |           | %     |     | 80-120  | 15-OCT-18 |
| Yttrium (Y)-Dissolved    |                 |                 | 107.0     |           | %     |     | 80-120  | 15-OCT-18 |
| Zinc (Zn)-Dissolved      |                 |                 | 96.4      |           | %     |     | 80-120  | 15-OCT-18 |
| Zirconium (Zr)-Dissolved |                 |                 | 103.0     |           | %     |     | 80-120  | 15-OCT-18 |
| <b>WG2891785-1</b>       | <b>MB</b>       | <b>LF</b>       |           |           |       |     |         |           |
| Aluminum (Al)-Dissolved  |                 |                 | <0.0050   |           | mg/L  |     | 0.005   | 15-OCT-18 |
| Antimony (Sb)-Dissolved  |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Arsenic (As)-Dissolved   |                 |                 | <0.0020   |           | mg/L  |     | 0.002   | 15-OCT-18 |
| Barium (Ba)-Dissolved    |                 |                 | <0.0010   |           | mg/L  |     | 0.001   | 15-OCT-18 |
| Beryllium (Be)-Dissolved |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Bismuth (Bi)-Dissolved   |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Boron (B)-Dissolved      |                 |                 | <0.10     |           | mg/L  |     | 0.1     | 15-OCT-18 |
| Cadmium (Cd)-Dissolved   |                 |                 | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Calcium (Ca)-Dissolved   |                 |                 | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Cesium (Cs)-Dissolved    |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Chromium (Cr)-Dissolved  |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Cobalt (Co)-Dissolved    |                 |                 | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Copper (Cu)-Dissolved    |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Gallium (Ga)-Dissolved   |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |

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| Test                      | Matrix          | Reference       | Result    | Qualifier | Units | RPD | Limit   | Analyzed  |
|---------------------------|-----------------|-----------------|-----------|-----------|-------|-----|---------|-----------|
| <b>MET-D-L-HRMS-VA</b>    |                 | <b>Seawater</b> |           |           |       |     |         |           |
| <b>Batch</b>              | <b>R4286967</b> |                 |           |           |       |     |         |           |
| <b>WG2891785-1 MB</b>     |                 | <b>LF</b>       |           |           |       |     |         |           |
| Iron (Fe)-Dissolved       |                 |                 | <0.010    |           | mg/L  |     | 0.01    | 15-OCT-18 |
| Lead (Pb)-Dissolved       |                 |                 | <0.00030  |           | mg/L  |     | 0.0003  | 15-OCT-18 |
| Lithium (Li)-Dissolved    |                 |                 | <0.020    |           | mg/L  |     | 0.02    | 15-OCT-18 |
| Magnesium (Mg)-Dissolved  |                 |                 | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Manganese (Mn)-Dissolved  |                 |                 | <0.00020  |           | mg/L  |     | 0.0002  | 15-OCT-18 |
| Molybdenum (Mo)-Dissolved |                 |                 | <0.0020   |           | mg/L  |     | 0.002   | 15-OCT-18 |
| Nickel (Ni)-Dissolved     |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Phosphorus (P)-Dissolved  |                 |                 | <0.050    |           | mg/L  |     | 0.05    | 15-OCT-18 |
| Potassium (K)-Dissolved   |                 |                 | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Rhenium (Re)-Dissolved    |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Rubidium (Rb)-Dissolved   |                 |                 | <0.0050   |           | mg/L  |     | 0.005   | 15-OCT-18 |
| Selenium (Se)-Dissolved   |                 |                 | <0.0020   |           | mg/L  |     | 0.002   | 15-OCT-18 |
| Silicon (Si)-Dissolved    |                 |                 | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Silver (Ag)-Dissolved     |                 |                 | <0.00010  |           | mg/L  |     | 0.0001  | 15-OCT-18 |
| Strontium (Sr)-Dissolved  |                 |                 | <0.010    |           | mg/L  |     | 0.01    | 15-OCT-18 |
| Sulfur (S)-Dissolved      |                 |                 | <5.0      |           | mg/L  |     | 5       | 15-OCT-18 |
| Tellurium (Te)-Dissolved  |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Thallium (Tl)-Dissolved   |                 |                 | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Thorium (Th)-Dissolved    |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Tin (Sn)-Dissolved        |                 |                 | <0.0010   |           | mg/L  |     | 0.001   | 15-OCT-18 |
| Titanium (Ti)-Dissolved   |                 |                 | <0.0050   |           | mg/L  |     | 0.005   | 15-OCT-18 |
| Tungsten (W)-Dissolved    |                 |                 | <0.0010   |           | mg/L  |     | 0.001   | 15-OCT-18 |
| Uranium (U)-Dissolved     |                 |                 | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Vanadium (V)-Dissolved    |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Yttrium (Y)-Dissolved     |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Zinc (Zn)-Dissolved       |                 |                 | <0.0030   |           | mg/L  |     | 0.003   | 15-OCT-18 |
| Zirconium (Zr)-Dissolved  |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| <b>Batch</b>              | <b>R4288587</b> |                 |           |           |       |     |         |           |
| <b>WG2891785-1 MB</b>     |                 | <b>LF</b>       |           |           |       |     |         |           |
| Sodium (Na)-Dissolved     |                 |                 | <1.0      |           | mg/L  |     | 1       | 19-OCT-18 |

**MET-T-L-HRMS-VA**

**Seawater**



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| Test                  | Matrix   | Reference | Result    | Qualifier | Units | RPD | Limit   | Analyzed  |
|-----------------------|----------|-----------|-----------|-----------|-------|-----|---------|-----------|
| MET-T-L-HRMS-VA       |          | Seawater  |           |           |       |     |         |           |
| Batch                 | R4263147 |           |           |           |       |     |         |           |
| WG2888262-1 MB        |          |           |           |           |       |     |         |           |
| Aluminum (Al)-Total   |          |           | <0.0050   |           | mg/L  |     | 0.005   | 04-OCT-18 |
| Antimony (Sb)-Total   |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Arsenic (As)-Total    |          |           | <0.0020   |           | mg/L  |     | 0.002   | 04-OCT-18 |
| Barium (Ba)-Total     |          |           | <0.0010   |           | mg/L  |     | 0.001   | 04-OCT-18 |
| Beryllium (Be)-Total  |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Bismuth (Bi)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Boron (B)-Total       |          |           | <0.10     |           | mg/L  |     | 0.1     | 04-OCT-18 |
| Cadmium (Cd)-Total    |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 04-OCT-18 |
| Calcium (Ca)-Total    |          |           | <1.0      |           | mg/L  |     | 1       | 04-OCT-18 |
| Cesium (Cs)-Total     |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Chromium (Cr)-Total   |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Cobalt (Co)-Total     |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 04-OCT-18 |
| Copper (Cu)-Total     |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Gallium (Ga)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Iron (Fe)-Total       |          |           | <0.010    |           | mg/L  |     | 0.01    | 04-OCT-18 |
| Lead (Pb)-Total       |          |           | <0.00030  |           | mg/L  |     | 0.0003  | 04-OCT-18 |
| Lithium (Li)-Total    |          |           | <0.020    |           | mg/L  |     | 0.02    | 04-OCT-18 |
| Magnesium (Mg)-Total  |          |           | <1.0      |           | mg/L  |     | 1       | 04-OCT-18 |
| Manganese (Mn)-Total  |          |           | <0.00020  |           | mg/L  |     | 0.0002  | 04-OCT-18 |
| Molybdenum (Mo)-Total |          |           | <0.0020   |           | mg/L  |     | 0.002   | 04-OCT-18 |
| Nickel (Ni)-Total     |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Phosphorus (P)-Total  |          |           | <0.050    |           | mg/L  |     | 0.05    | 04-OCT-18 |
| Potassium (K)-Total   |          |           | <1.0      |           | mg/L  |     | 1       | 04-OCT-18 |
| Rhenium (Re)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Rubidium (Rb)-Total   |          |           | <0.0050   |           | mg/L  |     | 0.005   | 04-OCT-18 |
| Selenium (Se)-Total   |          |           | <0.0020   |           | mg/L  |     | 0.002   | 04-OCT-18 |
| Silicon (Si)-Total    |          |           | <1.0      |           | mg/L  |     | 1       | 04-OCT-18 |
| Silver (Ag)-Total     |          |           | <0.00010  |           | mg/L  |     | 0.0001  | 04-OCT-18 |
| Sodium (Na)-Total     |          |           | <1.0      |           | mg/L  |     | 1       | 04-OCT-18 |
| Strontium (Sr)-Total  |          |           | <0.010    |           | mg/L  |     | 0.01    | 04-OCT-18 |
| Sulfur (S)-Total      |          |           | <5.0      |           | mg/L  |     | 5       | 04-OCT-18 |
| Tellurium (Te)-Total  |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Thallium (Tl)-Total   |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 04-OCT-18 |
| Thorium (Th)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |

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| Test                   | Matrix | Reference       | Result    | Qualifier | Units | RPD | Limit   | Analyzed  |
|------------------------|--------|-----------------|-----------|-----------|-------|-----|---------|-----------|
| <b>MET-T-L-HRMS-VA</b> |        | <b>Seawater</b> |           |           |       |     |         |           |
| <b>Batch R4263147</b>  |        |                 |           |           |       |     |         |           |
| <b>WG2888262-1 MB</b>  |        |                 |           |           |       |     |         |           |
| Tin (Sn)-Total         |        |                 | <0.0010   |           | mg/L  |     | 0.001   | 04-OCT-18 |
| Titanium (Ti)-Total    |        |                 | <0.0050   |           | mg/L  |     | 0.005   | 04-OCT-18 |
| Tungsten (W)-Total     |        |                 | <0.0010   |           | mg/L  |     | 0.001   | 04-OCT-18 |
| Uranium (U)-Total      |        |                 | <0.000050 |           | mg/L  |     | 0.00005 | 04-OCT-18 |
| Vanadium (V)-Total     |        |                 | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Yttrium (Y)-Total      |        |                 | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| Zinc (Zn)-Total        |        |                 | <0.0030   |           | mg/L  |     | 0.003   | 04-OCT-18 |
| Zirconium (Zr)-Total   |        |                 | <0.00050  |           | mg/L  |     | 0.0005  | 04-OCT-18 |
| <b>Batch R4265391</b>  |        |                 |           |           |       |     |         |           |
| <b>WG2888262-2 LCS</b> |        |                 |           |           |       |     |         |           |
| Aluminum (Al)-Total    |        |                 | 96.5      |           | %     |     | 80-120  | 09-OCT-18 |
| Antimony (Sb)-Total    |        |                 | 100.0     |           | %     |     | 80-120  | 09-OCT-18 |
| Arsenic (As)-Total     |        |                 | 103.0     |           | %     |     | 80-120  | 09-OCT-18 |
| Barium (Ba)-Total      |        |                 | 93.4      |           | %     |     | 80-120  | 09-OCT-18 |
| Beryllium (Be)-Total   |        |                 | 94.0      |           | %     |     | 80-120  | 09-OCT-18 |
| Bismuth (Bi)-Total     |        |                 | 101.0     |           | %     |     | 80-120  | 09-OCT-18 |
| Boron (B)-Total        |        |                 | 94.2      |           | %     |     | 80-120  | 09-OCT-18 |
| Cadmium (Cd)-Total     |        |                 | 98.5      |           | %     |     | 80-120  | 09-OCT-18 |
| Calcium (Ca)-Total     |        |                 | 89.7      |           | %     |     | 80-120  | 09-OCT-18 |
| Cesium (Cs)-Total      |        |                 | 92.0      |           | %     |     | 80-120  | 09-OCT-18 |
| Chromium (Cr)-Total    |        |                 | 111.0     |           | %     |     | 80-120  | 09-OCT-18 |
| Cobalt (Co)-Total      |        |                 | 95.0      |           | %     |     | 80-120  | 09-OCT-18 |
| Copper (Cu)-Total      |        |                 | 92.8      |           | %     |     | 80-120  | 09-OCT-18 |
| Gallium (Ga)-Total     |        |                 | 98.0      |           | %     |     | 80-120  | 09-OCT-18 |
| Iron (Fe)-Total        |        |                 | 116.5     |           | %     |     | 80-120  | 09-OCT-18 |
| Lead (Pb)-Total        |        |                 | 109.0     |           | %     |     | 80-120  | 09-OCT-18 |
| Lithium (Li)-Total     |        |                 | 88.8      |           | %     |     | 80-120  | 09-OCT-18 |
| Magnesium (Mg)-Total   |        |                 | 98.0      |           | %     |     | 80-120  | 09-OCT-18 |
| Manganese (Mn)-Total   |        |                 | 104.4     |           | %     |     | 80-120  | 09-OCT-18 |
| Molybdenum (Mo)-Total  |        |                 | 90.4      |           | %     |     | 80-120  | 09-OCT-18 |
| Nickel (Ni)-Total      |        |                 | 97.0      |           | %     |     | 80-120  | 09-OCT-18 |
| Phosphorus (P)-Total   |        |                 | 99.5      |           | %     |     | 80-120  | 09-OCT-18 |
| Potassium (K)-Total    |        |                 | 103.1     |           | %     |     | 80-120  | 09-OCT-18 |
| Rhenium (Re)-Total     |        |                 | 98.0      |           | %     |     | 80-120  | 09-OCT-18 |

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| Test                   | Matrix          | Reference       | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|------------------------|-----------------|-----------------|--------|-----------|-------|-----|--------|-----------|
| <b>MET-T-L-HRMS-VA</b> |                 | <b>Seawater</b> |        |           |       |     |        |           |
| <b>Batch</b>           | <b>R4265391</b> |                 |        |           |       |     |        |           |
| <b>WG2888262-2</b>     | <b>LCS</b>      |                 |        |           |       |     |        |           |
| Rubidium (Rb)-Total    |                 |                 | 95.0   |           | %     |     | 80-120 | 09-OCT-18 |
| Selenium (Se)-Total    |                 |                 | 96.5   |           | %     |     | 80-120 | 09-OCT-18 |
| Silicon (Si)-Total     |                 |                 | 112.0  |           | %     |     | 80-120 | 09-OCT-18 |
| Silver (Ag)-Total      |                 |                 | 93.5   |           | %     |     | 80-120 | 09-OCT-18 |
| Sodium (Na)-Total      |                 |                 | 107.4  |           | %     |     | 80-120 | 09-OCT-18 |
| Strontium (Sr)-Total   |                 |                 | 89.8   |           | %     |     | 80-120 | 09-OCT-18 |
| Sulfur (S)-Total       |                 |                 | 106.4  |           | %     |     | 70-130 | 09-OCT-18 |
| Tellurium (Te)-Total   |                 |                 | 100.5  |           | %     |     | 80-120 | 09-OCT-18 |
| Thallium (Tl)-Total    |                 |                 | 99.0   |           | %     |     | 80-120 | 09-OCT-18 |
| Thorium (Th)-Total     |                 |                 | 103.2  |           | %     |     | 80-120 | 09-OCT-18 |
| Tin (Sn)-Total         |                 |                 | 94.2   |           | %     |     | 80-120 | 09-OCT-18 |
| Titanium (Ti)-Total    |                 |                 | 96.8   |           | %     |     | 80-120 | 09-OCT-18 |
| Tungsten (W)-Total     |                 |                 | 99.5   |           | %     |     | 80-120 | 09-OCT-18 |
| Uranium (U)-Total      |                 |                 | 105.0  |           | %     |     | 80-120 | 09-OCT-18 |
| Vanadium (V)-Total     |                 |                 | 94.8   |           | %     |     | 80-120 | 09-OCT-18 |
| Yttrium (Y)-Total      |                 |                 | 97.5   |           | %     |     | 80-120 | 09-OCT-18 |
| Zinc (Zn)-Total        |                 |                 | 100.0  |           | %     |     | 80-120 | 09-OCT-18 |
| Zirconium (Zr)-Total   |                 |                 | 93.0   |           | %     |     | 80-120 | 09-OCT-18 |
| <b>Batch</b>           | <b>R4273148</b> |                 |        |           |       |     |        |           |
| <b>WG2892233-2</b>     | <b>LCS</b>      |                 |        |           |       |     |        |           |
| Aluminum (Al)-Total    |                 |                 | 89.2   |           | %     |     | 80-120 | 10-OCT-18 |
| Antimony (Sb)-Total    |                 |                 | 99.2   |           | %     |     | 80-120 | 10-OCT-18 |
| Arsenic (As)-Total     |                 |                 | 95.7   |           | %     |     | 80-120 | 10-OCT-18 |
| Barium (Ba)-Total      |                 |                 | 101.2  |           | %     |     | 80-120 | 10-OCT-18 |
| Beryllium (Be)-Total   |                 |                 | 93.3   |           | %     |     | 80-120 | 10-OCT-18 |
| Bismuth (Bi)-Total     |                 |                 | 102.9  |           | %     |     | 80-120 | 10-OCT-18 |
| Boron (B)-Total        |                 |                 | 108.0  |           | %     |     | 80-120 | 10-OCT-18 |
| Cadmium (Cd)-Total     |                 |                 | 102.0  |           | %     |     | 80-120 | 10-OCT-18 |
| Calcium (Ca)-Total     |                 |                 | 101.1  |           | %     |     | 80-120 | 10-OCT-18 |
| Cesium (Cs)-Total      |                 |                 | 103.8  |           | %     |     | 80-120 | 10-OCT-18 |
| Chromium (Cr)-Total    |                 |                 | 101.2  |           | %     |     | 80-120 | 10-OCT-18 |
| Cobalt (Co)-Total      |                 |                 | 94.8   |           | %     |     | 80-120 | 10-OCT-18 |
| Copper (Cu)-Total      |                 |                 | 92.8   |           | %     |     | 80-120 | 10-OCT-18 |
| Gallium (Ga)-Total     |                 |                 | 97.2   |           | %     |     | 80-120 | 10-OCT-18 |

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| Test                   | Matrix          | Reference       | Result   | Qualifier | Units | RPD | Limit  | Analyzed  |
|------------------------|-----------------|-----------------|----------|-----------|-------|-----|--------|-----------|
| <b>MET-T-L-HRMS-VA</b> |                 | <b>Seawater</b> |          |           |       |     |        |           |
| <b>Batch</b>           | <b>R4273148</b> |                 |          |           |       |     |        |           |
| <b>WG2892233-2</b>     | <b>LCS</b>      |                 |          |           |       |     |        |           |
| Iron (Fe)-Total        |                 |                 | 95.7     |           | %     |     | 80-120 | 10-OCT-18 |
| Lead (Pb)-Total        |                 |                 | 111.0    |           | %     |     | 80-120 | 10-OCT-18 |
| Lithium (Li)-Total     |                 |                 | 102.7    |           | %     |     | 80-120 | 10-OCT-18 |
| Magnesium (Mg)-Total   |                 |                 | 94.8     |           | %     |     | 80-120 | 10-OCT-18 |
| Manganese (Mn)-Total   |                 |                 | 104.4    |           | %     |     | 80-120 | 10-OCT-18 |
| Molybdenum (Mo)-Total  |                 |                 | 103.2    |           | %     |     | 80-120 | 10-OCT-18 |
| Nickel (Ni)-Total      |                 |                 | 91.8     |           | %     |     | 80-120 | 10-OCT-18 |
| Phosphorus (P)-Total   |                 |                 | 98.0     |           | %     |     | 80-120 | 10-OCT-18 |
| Potassium (K)-Total    |                 |                 | 94.2     |           | %     |     | 80-120 | 10-OCT-18 |
| Rhenium (Re)-Total     |                 |                 | 105.0    |           | %     |     | 80-120 | 10-OCT-18 |
| Rubidium (Rb)-Total    |                 |                 | 105.9    |           | %     |     | 80-120 | 10-OCT-18 |
| Selenium (Se)-Total    |                 |                 | 107.2    |           | %     |     | 80-120 | 10-OCT-18 |
| Silicon (Si)-Total     |                 |                 | 96.5     |           | %     |     | 80-120 | 10-OCT-18 |
| Silver (Ag)-Total      |                 |                 | 99.7     |           | %     |     | 80-120 | 10-OCT-18 |
| Sodium (Na)-Total      |                 |                 | 114.0    |           | %     |     | 80-120 | 10-OCT-18 |
| Strontium (Sr)-Total   |                 |                 | 98.4     |           | %     |     | 80-120 | 10-OCT-18 |
| Sulfur (S)-Total       |                 |                 | 102.3    |           | %     |     | 70-130 | 10-OCT-18 |
| Tellurium (Te)-Total   |                 |                 | 101.0    |           | %     |     | 80-120 | 10-OCT-18 |
| Thallium (Tl)-Total    |                 |                 | 98.3     |           | %     |     | 80-120 | 10-OCT-18 |
| Thorium (Th)-Total     |                 |                 | 113.6    |           | %     |     | 80-120 | 10-OCT-18 |
| Tin (Sn)-Total         |                 |                 | 112.2    |           | %     |     | 80-120 | 10-OCT-18 |
| Titanium (Ti)-Total    |                 |                 | 95.2     |           | %     |     | 80-120 | 10-OCT-18 |
| Tungsten (W)-Total     |                 |                 | 104.0    |           | %     |     | 80-120 | 10-OCT-18 |
| Uranium (U)-Total      |                 |                 | 109.8    |           | %     |     | 80-120 | 10-OCT-18 |
| Vanadium (V)-Total     |                 |                 | 96.2     |           | %     |     | 80-120 | 10-OCT-18 |
| Yttrium (Y)-Total      |                 |                 | 107.0    |           | %     |     | 80-120 | 10-OCT-18 |
| Zinc (Zn)-Total        |                 |                 | 93.2     |           | %     |     | 80-120 | 10-OCT-18 |
| Zirconium (Zr)-Total   |                 |                 | 103.0    |           | %     |     | 80-120 | 10-OCT-18 |
| <b>WG2892233-1</b>     | <b>MB</b>       |                 |          |           |       |     |        |           |
| Aluminum (Al)-Total    |                 |                 | <0.0050  |           | mg/L  |     | 0.005  | 10-OCT-18 |
| Antimony (Sb)-Total    |                 |                 | <0.00050 |           | mg/L  |     | 0.0005 | 10-OCT-18 |
| Arsenic (As)-Total     |                 |                 | <0.0020  |           | mg/L  |     | 0.002  | 10-OCT-18 |
| Barium (Ba)-Total      |                 |                 | <0.0010  |           | mg/L  |     | 0.001  | 10-OCT-18 |
| Beryllium (Be)-Total   |                 |                 | <0.00050 |           | mg/L  |     | 0.0005 | 10-OCT-18 |

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| Test                  | Matrix   | Reference | Result    | Qualifier | Units | RPD | Limit   | Analyzed  |
|-----------------------|----------|-----------|-----------|-----------|-------|-----|---------|-----------|
| MET-T-L-HRMS-VA       |          | Seawater  |           |           |       |     |         |           |
| Batch                 | R4273148 |           |           |           |       |     |         |           |
| WG2892233-1 MB        |          |           |           |           |       |     |         |           |
| Bismuth (Bi)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 10-OCT-18 |
| Boron (B)-Total       |          |           | <0.10     |           | mg/L  |     | 0.1     | 10-OCT-18 |
| Cadmium (Cd)-Total    |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 10-OCT-18 |
| Calcium (Ca)-Total    |          |           | <1.0      |           | mg/L  |     | 1       | 10-OCT-18 |
| Cesium (Cs)-Total     |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 10-OCT-18 |
| Chromium (Cr)-Total   |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 10-OCT-18 |
| Cobalt (Co)-Total     |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 10-OCT-18 |
| Copper (Cu)-Total     |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 10-OCT-18 |
| Gallium (Ga)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 10-OCT-18 |
| Iron (Fe)-Total       |          |           | <0.010    |           | mg/L  |     | 0.01    | 10-OCT-18 |
| Lead (Pb)-Total       |          |           | <0.00030  |           | mg/L  |     | 0.0003  | 10-OCT-18 |
| Lithium (Li)-Total    |          |           | <0.020    |           | mg/L  |     | 0.02    | 10-OCT-18 |
| Magnesium (Mg)-Total  |          |           | <1.0      |           | mg/L  |     | 1       | 10-OCT-18 |
| Manganese (Mn)-Total  |          |           | <0.00020  |           | mg/L  |     | 0.0002  | 10-OCT-18 |
| Molybdenum (Mo)-Total |          |           | <0.0020   |           | mg/L  |     | 0.002   | 10-OCT-18 |
| Nickel (Ni)-Total     |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 10-OCT-18 |
| Phosphorus (P)-Total  |          |           | <0.050    |           | mg/L  |     | 0.05    | 10-OCT-18 |
| Potassium (K)-Total   |          |           | <1.0      |           | mg/L  |     | 1       | 10-OCT-18 |
| Rhenium (Re)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 10-OCT-18 |
| Rubidium (Rb)-Total   |          |           | <0.0050   |           | mg/L  |     | 0.005   | 10-OCT-18 |
| Selenium (Se)-Total   |          |           | <0.0020   |           | mg/L  |     | 0.002   | 10-OCT-18 |
| Silicon (Si)-Total    |          |           | <1.0      |           | mg/L  |     | 1       | 10-OCT-18 |
| Silver (Ag)-Total     |          |           | <0.00010  |           | mg/L  |     | 0.0001  | 10-OCT-18 |
| Sodium (Na)-Total     |          |           | <1.0      |           | mg/L  |     | 1       | 10-OCT-18 |
| Strontium (Sr)-Total  |          |           | <0.010    |           | mg/L  |     | 0.01    | 10-OCT-18 |
| Sulfur (S)-Total      |          |           | <5.0      |           | mg/L  |     | 5       | 10-OCT-18 |
| Tellurium (Te)-Total  |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 10-OCT-18 |
| Thallium (Tl)-Total   |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 10-OCT-18 |
| Thorium (Th)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 10-OCT-18 |
| Tin (Sn)-Total        |          |           | <0.0010   |           | mg/L  |     | 0.001   | 10-OCT-18 |
| Titanium (Ti)-Total   |          |           | <0.0050   |           | mg/L  |     | 0.005   | 10-OCT-18 |
| Tungsten (W)-Total    |          |           | <0.0010   |           | mg/L  |     | 0.001   | 10-OCT-18 |
| Uranium (U)-Total     |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 10-OCT-18 |
| Vanadium (V)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 10-OCT-18 |

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| Test                   | Matrix | Reference         | Result    | Qualifier | Units | RPD     | Limit  | Analyzed  |
|------------------------|--------|-------------------|-----------|-----------|-------|---------|--------|-----------|
| <b>MET-T-L-HRMS-VA</b> |        | <b>Seawater</b>   |           |           |       |         |        |           |
| <b>Batch R4273148</b>  |        |                   |           |           |       |         |        |           |
| <b>WG2892233-1 MB</b>  |        |                   |           |           |       |         |        |           |
| Yttrium (Y)-Total      |        |                   | <0.00050  |           | mg/L  |         | 0.0005 | 10-OCT-18 |
| Zinc (Zn)-Total        |        |                   | <0.0030   |           | mg/L  |         | 0.003  | 10-OCT-18 |
| Zirconium (Zr)-Total   |        |                   | <0.00050  |           | mg/L  |         | 0.0005 | 10-OCT-18 |
| <b>Batch R4286768</b>  |        |                   |           |           |       |         |        |           |
| <b>WG2892233-3 DUP</b> |        | <b>L2168530-4</b> |           |           |       |         |        |           |
| Antimony (Sb)-Total    |        | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Arsenic (As)-Total     |        | <0.0020           | <0.0020   | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Barium (Ba)-Total      |        | 0.0098            | 0.0090    |           | mg/L  | 8.8     | 20     | 18-OCT-18 |
| Beryllium (Be)-Total   |        | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Bismuth (Bi)-Total     |        | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Boron (B)-Total        |        | 4.29              | 3.99      |           | mg/L  | 7.1     | 20     | 18-OCT-18 |
| Cadmium (Cd)-Total     |        | <0.000050         | <0.000050 | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Calcium (Ca)-Total     |        | 364               | 355       |           | mg/L  | 2.6     | 20     | 18-OCT-18 |
| Cesium (Cs)-Total      |        | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Chromium (Cr)-Total    |        | <0.00050          | 0.00063   | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Cobalt (Co)-Total      |        | 0.000058          | 0.000055  |           | mg/L  | 5.6     | 20     | 18-OCT-18 |
| Copper (Cu)-Total      |        | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Gallium (Ga)-Total     |        | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Iron (Fe)-Total        |        | 0.041             | 0.052     | J         | mg/L  | 0.012   | 0.02   | 18-OCT-18 |
| Lead (Pb)-Total        |        | <0.00030          | <0.00030  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Lithium (Li)-Total     |        | 0.215             | 0.204     |           | mg/L  | 5.4     | 20     | 18-OCT-18 |
| Magnesium (Mg)-Total   |        | 1040              | 1140      |           | mg/L  | 9.0     | 20     | 18-OCT-18 |
| Manganese (Mn)-Total   |        | 0.00138           | 0.00159   |           | mg/L  | 14      | 20     | 18-OCT-18 |
| Molybdenum (Mo)-Total  |        | 0.0123            | 0.0119    |           | mg/L  | 3.3     | 20     | 18-OCT-18 |
| Nickel (Ni)-Total      |        | 0.00056           | 0.00082   | J         | mg/L  | 0.00026 | 0.001  | 18-OCT-18 |
| Phosphorus (P)-Total   |        | <0.050            | <0.050    | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Potassium (K)-Total    |        | 346               | 338       |           | mg/L  | 2.3     | 20     | 18-OCT-18 |
| Rhenium (Re)-Total     |        | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Rubidium (Rb)-Total    |        | 0.112             | 0.108     |           | mg/L  | 3.8     | 20     | 18-OCT-18 |
| Selenium (Se)-Total    |        | 0.0024            | 0.0023    |           | mg/L  | 3.9     | 20     | 18-OCT-18 |
| Silicon (Si)-Total     |        | <1.0              | <1.0      | RPD-NA    | mg/L  | N/A     | 25     | 18-OCT-18 |
| Silver (Ag)-Total      |        | <0.00010          | <0.00010  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Sodium (Na)-Total      |        | 9340              | 9430      |           | mg/L  | 1.0     | 20     | 18-OCT-18 |
| Strontium (Sr)-Total   |        | 5.38              | 5.75      |           | mg/L  | 6.7     | 20     | 18-OCT-18 |



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| Test                   | Matrix          | Reference         | Result    | Qualifier | Units | RPD     | Limit  | Analyzed  |
|------------------------|-----------------|-------------------|-----------|-----------|-------|---------|--------|-----------|
| <b>MET-T-L-HRMS-VA</b> |                 | <b>Seawater</b>   |           |           |       |         |        |           |
| <b>Batch</b>           | <b>R4286768</b> |                   |           |           |       |         |        |           |
| <b>WG2892233-3 DUP</b> |                 | <b>L2168530-4</b> |           |           |       |         |        |           |
| Sulfur (S)-Total       |                 | 750               | 845       |           | mg/L  | 12      | 25     | 18-OCT-18 |
| Tellurium (Te)-Total   |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Thallium (Tl)-Total    |                 | <0.000050         | <0.000050 | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Thorium (Th)-Total     |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Tin (Sn)-Total         |                 | <0.0010           | <0.0010   | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Titanium (Ti)-Total    |                 | <0.0050           | 0.0059    | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Tungsten (W)-Total     |                 | <0.0010           | <0.0010   | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Uranium (U)-Total      |                 | 0.00309           | 0.00300   |           | mg/L  | 2.9     | 20     | 18-OCT-18 |
| Vanadium (V)-Total     |                 | 0.00126           | 0.00165   | J         | mg/L  | 0.00039 | 0.001  | 18-OCT-18 |
| Yttrium (Y)-Total      |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Zinc (Zn)-Total        |                 | <0.0030           | 0.0042    | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| Zirconium (Zr)-Total   |                 | <0.00050          | <0.00050  | RPD-NA    | mg/L  | N/A     | 20     | 18-OCT-18 |
| <b>WG2892233-4 MS</b>  |                 | <b>L2168530-1</b> |           |           |       |         |        |           |
| Aluminum (Al)-Total    |                 |                   | 107.3     |           | %     |         | 70-130 | 18-OCT-18 |
| Antimony (Sb)-Total    |                 |                   | 100.7     |           | %     |         | 70-130 | 18-OCT-18 |
| Arsenic (As)-Total     |                 |                   | 93.7      |           | %     |         | 70-130 | 18-OCT-18 |
| Barium (Ba)-Total      |                 |                   | 104.9     |           | %     |         | 70-130 | 18-OCT-18 |
| Beryllium (Be)-Total   |                 |                   | 98.0      |           | %     |         | 70-130 | 18-OCT-18 |
| Bismuth (Bi)-Total     |                 |                   | 97.0      |           | %     |         | 70-130 | 18-OCT-18 |
| Boron (B)-Total        |                 |                   | 96.7      |           | %     |         | 70-130 | 18-OCT-18 |
| Cadmium (Cd)-Total     |                 |                   | 90.0      |           | %     |         | 70-130 | 18-OCT-18 |
| Calcium (Ca)-Total     |                 |                   | N/A       | MS-B      | %     |         | -      | 18-OCT-18 |
| Cesium (Cs)-Total      |                 |                   | 104.1     |           | %     |         | 70-130 | 18-OCT-18 |
| Chromium (Cr)-Total    |                 |                   | 93.9      |           | %     |         | 70-130 | 18-OCT-18 |
| Cobalt (Co)-Total      |                 |                   | 92.6      |           | %     |         | 70-130 | 18-OCT-18 |
| Copper (Cu)-Total      |                 |                   | 86.5      |           | %     |         | 70-130 | 18-OCT-18 |
| Gallium (Ga)-Total     |                 |                   | 93.6      |           | %     |         | 70-130 | 18-OCT-18 |
| Iron (Fe)-Total        |                 |                   | 91.0      |           | %     |         | 70-130 | 18-OCT-18 |
| Lead (Pb)-Total        |                 |                   | 89.1      |           | %     |         | 70-130 | 18-OCT-18 |
| Lithium (Li)-Total     |                 |                   | 101.8     |           | %     |         | 70-130 | 18-OCT-18 |
| Magnesium (Mg)-Total   |                 |                   | N/A       | MS-B      | %     |         | -      | 18-OCT-18 |
| Manganese (Mn)-Total   |                 |                   | 94.5      |           | %     |         | 70-130 | 18-OCT-18 |
| Molybdenum (Mo)-Total  |                 |                   | 101.3     |           | %     |         | 70-130 | 18-OCT-18 |
| Nickel (Ni)-Total      |                 |                   | 88.2      |           | %     |         | 70-130 | 18-OCT-18 |



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| Test                  | Matrix   | Reference   | Result  | Qualifier | Units | RPD    | Limit  | Analyzed  |
|-----------------------|----------|-------------|---------|-----------|-------|--------|--------|-----------|
| MET-T-L-HRMS-VA       |          | Seawater    |         |           |       |        |        |           |
| Batch                 | R4286768 |             |         |           |       |        |        |           |
| WG2892233-4           | MS       | L2168530-1  |         |           |       |        |        |           |
| Phosphorus (P)-Total  |          |             | 93.7    |           | %     |        | 70-130 | 18-OCT-18 |
| Potassium (K)-Total   |          |             | N/A     | MS-B      | %     |        | -      | 18-OCT-18 |
| Rhenium (Re)-Total    |          |             | 98.0    |           | %     |        | 70-130 | 18-OCT-18 |
| Rubidium (Rb)-Total   |          |             | N/A     | MS-B      | %     |        | -      | 18-OCT-18 |
| Selenium (Se)-Total   |          |             | 93.0    |           | %     |        | 70-130 | 18-OCT-18 |
| Silver (Ag)-Total     |          |             | 92.2    |           | %     |        | 70-130 | 18-OCT-18 |
| Sodium (Na)-Total     |          |             | N/A     | MS-B      | %     |        | -      | 18-OCT-18 |
| Strontium (Sr)-Total  |          |             | N/A     | MS-B      | %     |        | -      | 18-OCT-18 |
| Tellurium (Te)-Total  |          |             | 97.1    |           | %     |        | 70-130 | 18-OCT-18 |
| Thallium (Tl)-Total   |          |             | 95.9    |           | %     |        | 70-130 | 18-OCT-18 |
| Thorium (Th)-Total    |          |             | 94.6    |           | %     |        | 70-130 | 18-OCT-18 |
| Tin (Sn)-Total        |          |             | 102.9   |           | %     |        | 70-130 | 18-OCT-18 |
| Titanium (Ti)-Total   |          |             | 96.5    |           | %     |        | 70-130 | 18-OCT-18 |
| Tungsten (W)-Total    |          |             | 97.8    |           | %     |        | 70-130 | 18-OCT-18 |
| Uranium (U)-Total     |          |             | 98.9    |           | %     |        | 70-130 | 18-OCT-18 |
| Vanadium (V)-Total    |          |             | 95.9    |           | %     |        | 70-130 | 18-OCT-18 |
| Yttrium (Y)-Total     |          |             | 102.9   |           | %     |        | 70-130 | 18-OCT-18 |
| Zinc (Zn)-Total       |          |             | 84.5    |           | %     |        | 70-130 | 18-OCT-18 |
| Zirconium (Zr)-Total  |          |             | 106.0   |           | %     |        | 70-130 | 18-OCT-18 |
| Batch                 | R4288587 |             |         |           |       |        |        |           |
| WG2892233-3           | DUP      | L2168530-4  |         |           |       |        |        |           |
| Aluminum (Al)-Total   |          | 0.0255      | 0.0323  | J         | mg/L  | 0.0068 | 0.01   | 19-OCT-18 |
| NH3-F-VA              |          | Seawater    |         |           |       |        |        |           |
| Batch                 | R4257962 |             |         |           |       |        |        |           |
| WG2892382-3           | DUP      | L2168530-11 |         |           |       |        |        |           |
| Ammonia, Total (as N) |          | <0.0050     | <0.0050 | RPD-NA    | mg/L  | N/A    | 20     | 02-OCT-18 |
| WG2892382-2           | LCS      |             | 102.8   |           | %     |        | 85-115 | 02-OCT-18 |
| WG2892382-1           | MB       |             | <0.0050 |           | mg/L  |        | 0.005  | 02-OCT-18 |
| WG2892382-4           | MS       | L2168530-11 | 103.3   |           | %     |        | 75-125 | 02-OCT-18 |
| P-T-COL-VA            |          | Seawater    |         |           |       |        |        |           |



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| Test                    | Matrix          | Reference         | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|-------------------------|-----------------|-------------------|--------|-----------|-------|-----|--------|-----------|
| <b>TKN-C-F-VA</b>       |                 | <b>Seawater</b>   |        |           |       |     |        |           |
| <b>Batch</b>            | <b>R4254028</b> |                   |        |           |       |     |        |           |
| <b>WG2889252-3 DUP</b>  |                 | <b>L2168530-1</b> |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen |                 | 0.135             | 0.130  |           | mg/L  | 3.7 | 20     | 01-OCT-18 |
| <b>WG2889252-2 LCS</b>  |                 |                   |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen |                 |                   | 80.2   |           | %     |     | 75-125 | 01-OCT-18 |
| <b>WG2889252-1 MB</b>   |                 |                   |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen |                 |                   | <0.050 |           | mg/L  |     | 0.05   | 01-OCT-18 |
| <b>WG2889252-4 MS</b>   |                 | <b>L2168530-2</b> |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen |                 |                   | 118.4  |           | %     |     | 70-130 | 01-OCT-18 |
| <b>TSS-C-VA</b>         |                 | <b>Seawater</b>   |        |           |       |     |        |           |
| <b>Batch</b>            | <b>R4239893</b> |                   |        |           |       |     |        |           |
| <b>WG2884830-6 LCS</b>  |                 |                   |        |           |       |     |        |           |
| Total Suspended Solids  |                 |                   | 89.7   |           | %     |     | 85-115 | 24-SEP-18 |
| <b>WG2884830-5 MB</b>   |                 |                   |        |           |       |     |        |           |
| Total Suspended Solids  |                 |                   | <2.0   |           | mg/L  |     | 2      | 24-SEP-18 |

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## Legend:

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|       |                                             |
|-------|---------------------------------------------|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP   | Duplicate                                   |
| RPD   | Relative Percent Difference                 |
| N/A   | Not Available                               |
| LCS   | Laboratory Control Sample                   |
| SRM   | Standard Reference Material                 |
| MS    | Matrix Spike                                |
| MSD   | Matrix Spike Duplicate                      |
| ADE   | Average Desorption Efficiency               |
| MB    | Method Blank                                |
| IRM   | Internal Reference Material                 |
| CRM   | Certified Reference Material                |
| CCV   | Continuing Calibration Verification         |
| CVS   | Calibration Verification Standard           |
| LCSD  | Laboratory Control Sample Duplicate         |

## Sample Parameter Qualifier Definitions:

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| Qualifier | Description                                                                                        |
|-----------|----------------------------------------------------------------------------------------------------|
| J         | Duplicate results and limits are expressed in terms of absolute difference.                        |
| MS-B      | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA    | Relative Percent Difference Not Available due to result(s) being less than detection limit.        |

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## Hold Time Exceedances:

| ALS Product Description                | Sample ID | Sampling Date   | Date Processed  | Rec. HT | Actual HT | Units | Qualifier |
|----------------------------------------|-----------|-----------------|-----------------|---------|-----------|-------|-----------|
| <b>Physical Tests</b>                  |           |                 |                 |         |           |       |           |
| Total Dissolved Solids by Gravimetric  |           |                 |                 |         |           |       |           |
|                                        | 1         | 17-SEP-18 18:15 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
|                                        | 2         | 17-SEP-18 18:15 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
|                                        | 3         | 17-SEP-18 18:45 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
|                                        | 4         | 17-SEP-18 18:45 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
|                                        | 5         | 17-SEP-18 16:30 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
|                                        | 6         | 17-SEP-18 16:30 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
|                                        | 7         | 17-SEP-18 17:45 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
|                                        | 8         | 17-SEP-18 17:45 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
|                                        | 9         | 17-SEP-18 17:10 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
|                                        | 10        | 17-SEP-18 17:10 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
|                                        | 11        | 17-SEP-18 16:30 | 25-SEP-18 23:59 | 7       | 8         | days  | EHT       |
| pH by Meter (Automated) (seawater)     |           |                 |                 |         |           |       |           |
|                                        | 1         | 17-SEP-18 18:15 | 26-SEP-18 07:47 | 0.25    | 205       | hours | EHTR-FM   |
|                                        | 2         | 17-SEP-18 18:15 | 26-SEP-18 07:47 | 0.25    | 205       | hours | EHTR-FM   |
|                                        | 3         | 17-SEP-18 18:45 | 26-SEP-18 07:47 | 0.25    | 205       | hours | EHTR-FM   |
|                                        | 4         | 17-SEP-18 18:45 | 26-SEP-18 07:47 | 0.25    | 205       | hours | EHTR-FM   |
|                                        | 5         | 17-SEP-18 16:30 | 26-SEP-18 07:47 | 0.25    | 207       | hours | EHTR-FM   |
|                                        | 6         | 17-SEP-18 16:30 | 26-SEP-18 07:47 | 0.25    | 207       | hours | EHTR-FM   |
|                                        | 7         | 17-SEP-18 17:45 | 26-SEP-18 07:47 | 0.25    | 206       | hours | EHTR-FM   |
|                                        | 8         | 17-SEP-18 17:45 | 26-SEP-18 07:47 | 0.25    | 206       | hours | EHTR-FM   |
|                                        | 9         | 17-SEP-18 17:10 | 26-SEP-18 07:47 | 0.25    | 207       | hours | EHTR-FM   |
|                                        | 10        | 17-SEP-18 17:10 | 26-SEP-18 07:47 | 0.25    | 207       | hours | EHTR-FM   |
|                                        | 11        | 17-SEP-18 16:30 | 26-SEP-18 07:47 | 0.25    | 207       | hours | EHTR-FM   |
| <b>Anions and Nutrients</b>            |           |                 |                 |         |           |       |           |
| D-Orthophosphate in Seawater by Colour |           |                 |                 |         |           |       |           |
|                                        | 1         | 17-SEP-18 18:15 | 22-SEP-18 06:59 | 3       | 5         | days  | EHTR      |
|                                        | 2         | 17-SEP-18 18:15 | 22-SEP-18 06:59 | 3       | 5         | days  | EHTR      |
|                                        | 3         | 17-SEP-18 18:45 | 22-SEP-18 06:59 | 3       | 5         | days  | EHTR      |
|                                        | 4         | 17-SEP-18 18:45 | 22-SEP-18 07:01 | 3       | 5         | days  | EHTR      |
|                                        | 5         | 17-SEP-18 16:30 | 22-SEP-18 07:03 | 3       | 5         | days  | EHTR      |
|                                        | 6         | 17-SEP-18 16:30 | 22-SEP-18 07:03 | 3       | 5         | days  | EHTR      |
|                                        | 7         | 17-SEP-18 17:45 | 22-SEP-18 07:03 | 3       | 5         | days  | EHTR      |
|                                        | 8         | 17-SEP-18 17:45 | 22-SEP-18 07:04 | 3       | 5         | days  | EHTR      |
|                                        | 9         | 17-SEP-18 17:10 | 22-SEP-18 07:04 | 3       | 5         | days  | EHTR      |
|                                        | 10        | 17-SEP-18 17:10 | 22-SEP-18 07:06 | 3       | 5         | days  | EHTR      |
|                                        | 11        | 17-SEP-18 16:30 | 22-SEP-18 07:06 | 3       | 5         | days  | EHTR      |
| Nitrate in Seawater by IC              |           |                 |                 |         |           |       |           |
|                                        | 1         | 17-SEP-18 18:15 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 2         | 17-SEP-18 18:15 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 3         | 17-SEP-18 18:45 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 4         | 17-SEP-18 18:45 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 5         | 17-SEP-18 16:30 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 6         | 17-SEP-18 16:30 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 7         | 17-SEP-18 17:45 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 8         | 17-SEP-18 17:45 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 9         | 17-SEP-18 17:10 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 10        | 17-SEP-18 17:10 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 11        | 17-SEP-18 16:30 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
| Nitrite in Seawater by IC              |           |                 |                 |         |           |       |           |
|                                        | 1         | 17-SEP-18 18:15 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 2         | 17-SEP-18 18:15 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 3         | 17-SEP-18 18:45 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 4         | 17-SEP-18 18:45 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 5         | 17-SEP-18 16:30 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 6         | 17-SEP-18 16:30 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                                        | 7         | 17-SEP-18 17:45 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |



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## Hold Time Exceedances:

| ALS Product Description       | Sample ID | Sampling Date   | Date Processed  | Rec. HT | Actual HT | Units | Qualifier |
|-------------------------------|-----------|-----------------|-----------------|---------|-----------|-------|-----------|
| <b>Anions and Nutrients</b>   |           |                 |                 |         |           |       |           |
| Nitrite in Seawater by IC     | 8         | 17-SEP-18 17:45 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                               | 9         | 17-SEP-18 17:10 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                               | 10        | 17-SEP-18 17:10 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
|                               | 11        | 17-SEP-18 16:30 | 25-SEP-18 07:25 | 3       | 8         | days  | EHTR      |
| Total P in Seawater by Colour | 1         | 17-SEP-18 18:15 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |
|                               | 2         | 17-SEP-18 18:15 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |
|                               | 3         | 17-SEP-18 18:45 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |
|                               | 4         | 17-SEP-18 18:45 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |
|                               | 5         | 17-SEP-18 16:30 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |
|                               | 6         | 17-SEP-18 16:30 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |
|                               | 7         | 17-SEP-18 17:45 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |
|                               | 8         | 17-SEP-18 17:45 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |
|                               | 9         | 17-SEP-18 17:10 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |
|                               | 10        | 17-SEP-18 17:10 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |
|                               | 11        | 17-SEP-18 16:30 | 22-SEP-18 04:05 | 3       | 4         | days  | EHTR      |

## Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.  
 EHTR: Exceeded ALS recommended hold time prior to sample receipt.  
 EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.  
 EHT: Exceeded ALS recommended hold time prior to analysis.  
 Rec. HT: ALS recommended hold time (see units).

### Notes\*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.  
 Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2168530 were received on 21-SEP-18 08:35.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



L2168530-COFC

COC Number: 14 - 452765

Page 1 of 1

| <b>Report To</b><br>Company: <u>Agnico Eagle Mines</u><br>Contact: <u>Jennifer Brown</u><br>Address: <u>Meliadine, Rankin Inlet, NU X0C 0G0</u><br>Phone: <u>1-819-759-7555 ext 4603996</u>                                                                                                 |                                                                                              |                        | <b>Report Format / Distribution</b><br>Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)<br>Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> Criteria on Report - provide details below if box checked<br>Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX<br>Email 1 or Fax: <u>arman-ospan@golder.com</u><br>Email 2: <u>erichard@golder.com</u> |                    |                  | Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)<br>R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3pm)<br>P <input type="checkbox"/> Priority (2-4 business days if received by 3pm)<br>E <input type="checkbox"/> Emergency (1-2 business days if received by 3pm)<br>E2 <input type="checkbox"/> Same day or weekend emergency if received by 10am - contact ALS for surcharge.<br>Specify Date Required for E2, E or P:                                                                                                                                                                                                                                    |   |   |                                                                             |                  |           |            |                    |                  |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|-----------------------------------------------------------------------------|------------------|-----------|------------|--------------------|------------------|------------------|------------------|-----------|----------------------|--------------------|------------------|------------------|----------|----------|----------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| <b>Invoice To</b><br>Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Company: <u>Agnico Eagle &amp; Golder</u><br>Contact:                      |                                                                                              |                        | <b>Invoice Distribution</b><br>Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX<br>Email 1 or Fax: <u>invoices.meliadine@agnico-eagle.com</u><br>Email 2: <u>carolina-leseigneurtorres@golder.com</u>                                                                                                                                                                                                                                                                                                               |                    |                  | <b>Analysis Request</b><br>Indicates Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |                                                                             |                  |           |            |                    |                  |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| <b>Project Information</b><br>ALS Quote #: <u>Q 69808</u><br>Job #:<br>PO / AFE:<br>LSD:                                                                                                                                                                                                    |                                                                                              |                        | <b>Oil and Gas Required Fields (client use)</b><br>Approver ID:<br>GL Account:<br>Activity Code:<br>Location:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                  | <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <th>Indicates Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below</th> <th>PH</th> <th>Hardness</th> <th>alkalinity</th> <th>conductivity</th> <th>DOC (lab filter)</th> <th>Total Metals</th> <th>Dissolved Metals</th> <th>Nutrients</th> <th>Salinity</th> <th>Routine Parameters</th> <th>Total + Diss. Hg</th> <th>PSA (background)</th> <th>TOC, TKN</th> <th>TDS, TSS</th> <th>Number of Containers</th> </tr> <tr> <td></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>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> </tr> </table> |   |   | Indicates Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below | PH               | Hardness  | alkalinity | conductivity       | DOC (lab filter) | Total Metals     | Dissolved Metals | Nutrients | Salinity             | Routine Parameters | Total + Diss. Hg | PSA (background) | TOC, TKN | TDS, TSS | Number of Containers |  | X | X | X | X | X | X | X | X | X | X | X | X | X | X |  |
| Indicates Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                                                                                                                                                                                                                 | PH                                                                                           | Hardness               | alkalinity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | conductivity       | DOC (lab filter) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |   |   | Total Metals                                                                | Dissolved Metals | Nutrients | Salinity   | Routine Parameters | Total + Diss. Hg | PSA (background) | TOC, TKN         | TDS, TSS  | Number of Containers |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | X                                                                                            | X                      | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | X                  | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| <b>ALS Lab Work Order # (lab use only)</b>                                                                                                                                                                                                                                                  |                                                                                              |                        | <b>ALS Contact:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                  | <b>Sampler:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |   |   |                                                                             |                  |           |            |                    |                  |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| <b>ALS Sample # (lab use only)</b>                                                                                                                                                                                                                                                          | <b>Sample Identification and/or Coordinates (This description will appear on the report)</b> | <b>Date (dd-mm-yy)</b> | <b>Time (hh:mm)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Sample Type</b> |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |   |   |                                                                             |                  |           |            |                    |                  |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | WW 1 S                                                                                       | Sept 17                | 18:15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | marine             | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | WW 1 D                                                                                       | 2018                   | 18:15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | H <sub>2</sub> O   | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | MWE-1S                                                                                       |                        | 18:45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | MWE-1D                                                                                       |                        | 18:45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | MWE-2S                                                                                       |                        | 16:30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | MWE-2D                                                                                       |                        | 16:30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | MWR <sub>6</sub> A-2S                                                                        |                        | 17:45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | MWR <sub>6</sub> A-2D                                                                        |                        | 17:45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | MWR <sub>6</sub> A-1S                                                                        |                        | 17:10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | MWR <sub>6</sub> A-1D                                                                        |                        | 17:10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             | DUP A                                                                                        |                        | 16:30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    | X                | X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | X | X | X                                                                           | X                | X         | X          | X                  | X                |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                                                                                                                                                                                                                                                                             |                                                                                              |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | Final Analysis   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |   |   |                                                                             |                  |           |            |                    |                  |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| <b>Drinking Water (DW) Samples (client use)</b><br>Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                              |                        | <b>Special Instructions / Specify Criteria to add on report (client use)</b><br><u>CCNE criteria; contact erichard@golder.com</u><br><u>agnico-equis@golder.com</u><br><u>report to: carolina-leseigneurtorres@golder.com</u>                                                                                                                                                                                                                                                                                                                                                                        |                    |                  | <b>SAMPLE CONDITION AS RECEIVED (lab use only)</b><br>Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/><br>Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/><br>Cooling Initiated <input type="checkbox"/><br>INITIAL COOLER TEMPERATURES °C: _____ FINAL COOLER TEMPERATURES °C: <u>10</u>                                                                                                                                                                                                                                                                     |   |   |                                                                             |                  |           |            |                    |                  |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| <b>SHIPMENT RELEASE (client use)</b><br>Released by: <u>Andrew Rippington</u> Date: <u>Sept 18</u> Time: <u>07:30</u>                                                                                                                                                                       |                                                                                              |                        | <b>INITIAL SHIPMENT RECEPTION (lab use only)</b><br>Received by: _____ Date: _____ Time: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                  | <b>FINAL SHIPMENT RECEPTION (lab use only)</b><br>Received by: <u>JC</u> Date: <u>9/21/18</u> Time: <u>8:35AM</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |   |   |                                                                             |                  |           |            |                    |                  |                  |                  |           |                      |                    |                  |                  |          |          |                      |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-336a v08 Form03 October 2013

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.

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

## Appendix F-2. Water Quality QA/QC results

| Sample ID                                       |                 |       | MWE-2D    | DUP A     |         |
|-------------------------------------------------|-----------------|-------|-----------|-----------|---------|
| Parameter                                       | Detection Limit | Units | Seawater  | Seawater  | RPD (%) |
| <b>Physical Tests (Seawater)</b>                |                 |       |           |           |         |
| Conductivity                                    | 2.0             | uS/cm | 45500     | 45500     | 0.0     |
| Hardness (as CaCO <sub>3</sub> )                | 4.8             | mg/L  | 4970      | 4890      | 1.6     |
| pH                                              | 0.10            | pH    | 7.98      | 7.97      | 0.1     |
| Salinity                                        | 1.0             | psu   | 29.8      | 29.8      | 0.0     |
| Total Suspended Solids                          | 2.0             | mg/L  | <2.0      | 3.8       | <DL*5   |
| Total Dissolved Solids                          | 80              | mg/L  | 36000     | 33300     | 7.8     |
| <b>Anions and Nutrients (Seawater)</b>          |                 |       |           |           |         |
| Alkalinity, Bicarbonate (as CaCO <sub>3</sub> ) | 1.0             | mg/L  | 113       | 114       | 0.9     |
| Alkalinity, Carbonate (as CaCO <sub>3</sub> )   | 1.0             | mg/L  | <1.0      | <1.0      | <DL*5   |
| Alkalinity, Hydroxide (as CaCO <sub>3</sub> )   | 1.0             | mg/L  | <1.0      | <1.0      | <DL*5   |
| Alkalinity, Total (as CaCO <sub>3</sub> )       | 1.0             | mg/L  | 113       | 114       | 0.9     |
| Ammonia, Total (as N)                           | 0.0050          | mg/L  | <0.0050   | <0.0050   | <DL*5   |
| Bromide (Br)                                    | 5.0             | mg/L  | 58.9      | 57.3      | 2.8     |
| Chloride (Cl)                                   | 50              | mg/L  | 17000     | 16800     | 1.2     |
| Fluoride (F)                                    | 1.0             | mg/L  | <1.0      | <1.0      | <DL*5   |
| Nitrate (as N)                                  | 0.50            | mg/L  | <0.50     | <0.50     | <DL*5   |
| Nitrite (as N)                                  | 0.10            | mg/L  | <0.10     | <0.10     | <DL*5   |
| Total Kjeldahl Nitrogen                         | 0.050           | mg/L  | 0.139     | 0.134     | <DL*5   |
| Orthophosphate-Dissolved (as P)                 | 0.0010          | mg/L  | 0.0174    | 0.0176    | 1.1     |
| Phosphorus (P)-Total                            | 0.0040          | mg/L  | 0.0247    | 0.0243    | 1.6     |
| Silicate (as SiO <sub>2</sub> )                 | 0.010           | mg/L  | 0.344     | 0.333     | 3.2     |
| Sulfate (SO <sub>4</sub> )                      | 30              | mg/L  | 2430      | 2390      | 1.7     |
| <b>Organic / Inorganic Carbon (Seawater)</b>    |                 |       |           |           |         |
| Dissolved Organic Carbon                        | 0.50            | mg/L  | 1.43      | 1.42      | <DL*5   |
| Total Organic Carbon                            | 0.50            | mg/L  | 1.54      | 1.34      | <DL*5   |
| <b>Total Metals (Seawater)</b>                  |                 |       |           |           |         |
| Aluminum (Al)-Total                             | 0.0050          | mg/L  | 0.0232    | 0.0230    | <DL*5   |
| Antimony (Sb)-Total                             | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Arsenic (As)-Total                              | 0.0020          | mg/L  | <0.0020   | <0.0020   | <DL*5   |
| Barium (Ba)-Total                               | 0.0010          | mg/L  | 0.0090    | 0.0088    | 2.2     |
| Beryllium (Be)-Total                            | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Bismuth (Bi)-Total                              | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Boron (B)-Total                                 | 0.10            | mg/L  | 4.10      | 4.00      | 2.5     |
| Cadmium (Cd)-Total                              | 0.000050        | mg/L  | <0.000050 | <0.000050 | <DL*5   |
| Calcium (Ca)-Total                              | 1.0             | mg/L  | 348       | 363       | 4.2     |
| Cesium (Cs)-Total                               | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Chromium (Cr)-Total                             | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Cobalt (Co)-Total                               | 0.000050        | mg/L  | 0.000050  | <0.000050 | <DL*5   |
| Copper (Cu)-Total                               | 0.00050         | mg/L  | <0.00050  | 0.00101   | <DL*5   |
| Gallium (Ga)-Total                              | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Iron (Fe)-Total                                 | 0.010           | mg/L  | 0.029     | 0.022     | <DL*5   |
| Lead (Pb)-Total                                 | 0.00030         | mg/L  | <0.00030  | <0.00030  | <DL*5   |
| Lithium (Li)-Total                              | 0.020           | mg/L  | 0.206     | 0.206     | 0.0     |
| Magnesium (Mg)-Total                            | 1.0             | mg/L  | 1030      | 1040      | 1.0     |
| Manganese (Mn)-Total                            | 0.00020         | mg/L  | 0.00119   | 0.00111   | 7.0     |
| Mercury (Hg)-Total                              | 0.000010        | mg/L  | <0.000010 | <0.000010 | <DL*5   |
| Molybdenum (Mo)-Total                           | 0.0020          | mg/L  | 0.0118    | 0.0117    | 0.9     |
| Nickel (Ni)-Total                               | 0.00050         | mg/L  | 0.00063   | 0.00062   | <DL*5   |
| Phosphorus (P)-Total                            | 0.050           | mg/L  | <0.050    | <0.050    | <DL*5   |
| Potassium (K)-Total                             | 1.0             | mg/L  | 334       | 335       | 0.3     |
| Rhenium (Re)-Total                              | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Rubidium (Rb)-Total                             | 0.0050          | mg/L  | 0.109     | 0.107     | 1.9     |
| Selenium (Se)-Total                             | 0.0020          | mg/L  | <0.0020   | 0.0027    | <DL*5   |
| Silicon (Si)-Total                              | 1.0             | mg/L  | <1.0      | <1.0      | <DL*5   |
| Silver (Ag)-Total                               | 0.00010         | mg/L  | <0.00010  | <0.00010  | <DL*5   |
| Sodium (Na)-Total                               | 1.0             | mg/L  | 9240      | 9090      | 1.6     |
| Strontium (Sr)-Total                            | 0.010           | mg/L  | 5.38      | 5.44      | 1.1     |
| Sulfur (S)-Total                                | 5.0             | mg/L  | 757       | 761       | 0.5     |
| Tellurium (Te)-Total                            | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Thallium (Tl)-Total                             | 0.000050        | mg/L  | <0.000050 | <0.000050 | <DL*5   |
| Thorium (Th)-Total                              | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Tin (Sn)-Total                                  | 0.0010          | mg/L  | <0.0010   | <0.0010   | <DL*5   |
| Titanium (Ti)-Total                             | 0.0050          | mg/L  | <0.0050   | <0.0050   | <DL*5   |
| Tungsten (W)-Total                              | 0.0010          | mg/L  | <0.0010   | <0.0010   | <DL*5   |
| Uranium (U)-Total                               | 0.000050        | mg/L  | 0.00302   | 0.00312   | 3.3     |
| Vanadium (V)-Total                              | 0.00050         | mg/L  | 0.00146   | 0.00146   | <DL*5   |
| Yttrium (Y)-Total                               | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Zinc (Zn)-Total                                 | 0.0030          | mg/L  | <0.0030   | <0.0030   | <DL*5   |
| Zirconium (Zr)-Total                            | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| <b>Dissolved Metals (Seawater)</b>              |                 |       |           |           |         |
| Aluminum (Al)-Dissolved                         | 0.0050          | mg/L  | <0.0050   | <0.0050   | <DL*5   |
| Antimony (Sb)-Dissolved                         | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Arsenic (As)-Dissolved                          | 0.0020          | mg/L  | <0.0020   | <0.0020   | <DL*5   |
| Barium (Ba)-Dissolved                           | 0.0010          | mg/L  | 0.0088    | 0.0092    | 4.4     |
| Beryllium (Be)-Dissolved                        | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Bismuth (Bi)-Dissolved                          | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Boron (B)-Dissolved                             | 0.10            | mg/L  | 3.95      | 4.09      | 3.5     |
| Cadmium (Cd)-Dissolved                          | 0.000050        | mg/L  | <0.000050 | <0.000050 | <DL*5   |
| Calcium (Ca)-Dissolved                          | 1.0             | mg/L  | 354       | 354       | 0.0     |
| Cesium (Cs)-Dissolved                           | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Chromium (Cr)-Dissolved                         | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Cobalt (Co)-Dissolved                           | 0.000050        | mg/L  | <0.000050 | <0.000050 | <DL*5   |
| Copper (Cu)-Dissolved                           | 0.00050         | mg/L  | <0.00050  | 0.00065   | <DL*5   |
| Gallium (Ga)-Dissolved                          | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Iron (Fe)-Dissolved                             | 0.010           | mg/L  | <0.010    | <0.010    | <DL*5   |
| Lead (Pb)-Dissolved                             | 0.00030         | mg/L  | <0.00030  | <0.00030  | <DL*5   |
| Lithium (Li)-Dissolved                          | 0.020           | mg/L  | 0.195     | 0.206     | 5.5     |
| Magnesium (Mg)-Dissolved                        | 1.0             | mg/L  | 993       | 972       | 2.1     |

## Appendix F-2. Water Quality QA/QC results

| Sample ID                 |                 |       | MWE-2D    | DUP A     | RPD (%) |
|---------------------------|-----------------|-------|-----------|-----------|---------|
| Parameter                 | Detection Limit | Units | Seawater  | Seawater  |         |
| Manganese (Mn)-Dissolved  | 0.00020         | mg/L  | 0.00068   | 0.00074   | <DL*5   |
| Mercury (Hg)-Dissolved    | 0.000010        | mg/L  | <0.000010 | <0.000010 | <DL*5   |
| Molybdenum (Mo)-Dissolved | 0.0020          | mg/L  | 0.0113    | 0.0119    | 5.2     |
| Nickel (Ni)-Dissolved     | 0.00050         | mg/L  | <0.00050  | 0.00055   | <DL*5   |
| Phosphorus (P)-Dissolved  | 0.050           | mg/L  | <0.050    | <0.050    | <DL*5   |
| Potassium (K)-Dissolved   | 20              | mg/L  | 344       | 333       | 3.2     |
| Rhenium (Re)-Dissolved    | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Rubidium (Rb)-Dissolved   | 0.0050          | mg/L  | 0.104     | 0.106     | 1.9     |
| Selenium (Se)-Dissolved   | 0.0020          | mg/L  | 0.0023    | 0.0024    | <DL*5   |
| Silicon (Si)-Dissolved    | 1.0             | mg/L  | <1.0      | <1.0      | <DL*5   |
| Silver (Ag)-Dissolved     | 0.00010         | mg/L  | <0.00010  | <0.00010  | <DL*5   |
| Sodium (Na)-Dissolved     | 20              | mg/L  | 9420      | 9330      | 1.0     |
| Strontium (Sr)-Dissolved  | 0.050           | mg/L  | 5.27      | 5.25      | 0.4     |
| Sulfur (S)-Dissolved      | 5.0             | mg/L  | 720       | 711       | 1.3     |
| Tellurium (Te)-Dissolved  | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Thallium (Tl)-Dissolved   | 0.000050        | mg/L  | <0.000050 | <0.000050 | <DL*5   |
| Thorium (Th)-Dissolved    | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Tin (Sn)-Dissolved        | 0.0010          | mg/L  | <0.0010   | <0.0010   | <DL*5   |
| Titanium (Ti)-Dissolved   | 0.0050          | mg/L  | <0.0050   | <0.0050   | <DL*5   |
| Tungsten (W)-Dissolved    | 0.0010          | mg/L  | <0.0010   | <0.0010   | <DL*5   |
| Uranium (U)-Dissolved     | 0.000050        | mg/L  | 0.00296   | 0.00307   | 3.6     |
| Vanadium (V)-Dissolved    | 0.00050         | mg/L  | 0.00122   | 0.00135   | <DL*5   |
| Yttrium (Y)-Dissolved     | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |
| Zinc (Zn)-Dissolved       | 0.0030          | mg/L  | <0.0030   | <0.0030   | <DL*5   |
| Zirconium (Zr)-Dissolved  | 0.00050         | mg/L  | <0.00050  | <0.00050  | <DL*5   |

## Notes:

RPD - relative percent difference

&lt;DL\*5 - values are less than 5 times detection limit (DL)

**Bold values** - indicate RPDs greater than 20%

**APPENDIX G**

**Marine Sediment and Water Quality  
Analytical Results**



Agnico-Eagle - Meliadine Gold Project  
ATTN: Jennifer Brown  
PO Box 99  
Rankin Inlet NU X0C 0G0

Date Received: 26-SEP-18  
Report Date: 19-OCT-18 15:32 (MT)  
Version: FINAL

Client Phone: 819-759-7555

## Certificate of Analysis

Lab Work Order #: L2170896  
Project P.O. #: NOT SUBMITTED  
Job Reference:  
C of C Numbers: 14-452766, 14-452767, 14-452768  
Legal Site Desc:

Amber Springer, B.Sc  
Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700  
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## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-1 MBE-1 REP 1                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 17:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.83         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.64         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.100        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.541        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0108       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.065        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 8080         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | 0.10         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 6.34         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 49.8         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 14.8         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5710         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 40.5         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 4.43         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 8.80         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 14400        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.14         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 11.0         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 7320         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 153          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.55         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 16.4         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 924          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 2230         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 6090         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 27.7         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.085        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 595          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.700        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 32.7         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 25.8         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.2          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-2 MBE-1 REP 2                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 17:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-2 MBE-1 REP 2                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 17:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 1.16         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.80         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.139        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.661        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0114       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.069        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 7800         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | 0.11         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 5.95         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 49.4         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.16         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 16.1         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 6210         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 39.9         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 4.47         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 9.23         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 14400        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.65         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 13.0         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 7260         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 151          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.60         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 16.1         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 854          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 2270         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 6770         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 30.5         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.094        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 595          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.801        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 32.9         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 26.0         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.8          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-3 MBE-1 REP 3                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 17:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-3 MBE-1 REP 3                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 17:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.81         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.63         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.097        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.530        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0095       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.057        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 7250         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 4.99         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 45.8         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 14.3         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5490         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 57.0         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 4.40         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 9.08         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 13200        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.10         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 11.6         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 7010         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 146          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 2.19         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 26.3         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 815          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 2110         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 6000         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 25.4         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.086        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 559          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.743        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 31.1         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 24.4         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.2          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-4 MBE-2 REP 1                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 16:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-4 MBE-2 REP 1                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 16:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.79         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.65         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.095        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.552        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0101       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.055        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6860         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 5.44         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 43.7         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.14         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 13.5         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5430         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 36.3         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 4.05         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 7.91         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 13200        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.21         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 10.9         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 6560         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 137          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.58         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 15.0         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 857          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 2070         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | 0.21         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 6210         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 24.7         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.083        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | 1.2          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 510          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.702        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 29.4         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 24.3         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 3.9          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-5 MBE-2 REP 2                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 16:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-5 MBE-2 REP 2                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 16:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.72         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.60         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.087        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.511        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0095       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.054        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 7450         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 4.75         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 45.0         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 13.4         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5520         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 38.8         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 4.25         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 8.06         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 13300        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.10         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 11.1         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 7010         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 146          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.61         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 15.2         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 860          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 2140         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 6220         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 24.3         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.075        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 608          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.741        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 31.2         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 23.7         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 5.2          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-6 MBE-2 REP 3                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 16:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-6 MBE-2 REP 3                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 16:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.74         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.57         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.088        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.483        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0098       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.054        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6860         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 4.31         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 42.2         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 13.5         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 6230         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 35.3         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 3.88         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 7.53         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 12400        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.13         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 11.7         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 6220         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 135          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.60         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 14.1         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 799          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 1900         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 6020         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 28.2         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.081        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 533          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.731        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 28.3         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 22.3         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.5          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-7 MBE-3 REP 1                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 15:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-7 MBE-3 REP 1                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 15:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.70         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.56         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.084        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.480        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0097       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.046        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6780         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 4.72         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 42.6         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 13.4         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5470         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 35.9         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 3.97         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 7.51         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 12800        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 2.95         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 10.8         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 6500         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 135          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.57         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 14.1         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 831          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 1950         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 5470         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 24.3         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.074        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 554          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.732        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 28.8         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 22.2         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.6          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-8 MBE-3 REP 2                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 15:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-8 MBE-3 REP 2                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 15:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.91         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.61         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.109        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.502        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0099       |            | 0.0050 | mg/kg | 09-OCT-18 | 18-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.055        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 7570         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 5.55         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 48.9         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 14.1         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 7260         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 40.6         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 4.43         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 8.43         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 13900        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.18         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 10.9         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 7150         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 152          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.61         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 16.4         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 928          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 2180         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 6010         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 32.3         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.077        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 623          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.751        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 32.5         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 24.8         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.5          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-9 MBE-3 REP 3                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 15:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-9 MBE-3 REP 3                      |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 15:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.74         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.59         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.089        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.499        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0100       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.055        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 7120         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 4.91         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 42.2         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 14.2         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5460         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 35.7         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 3.96         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 7.49         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 12700        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.12         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 11.0         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 6260         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 135          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.58         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 14.6         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 794          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 2000         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 5550         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 25.8         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.079        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 549          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.730        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 29.1         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 22.2         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.6          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-10 MBE-4 REP 1                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 14:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-10 MBE-4 REP 1                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 14:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.66         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.56         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.079        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.479        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0093       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.051        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6610         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 4.35         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 39.1         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.14         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 12.7         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5090         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 33.2         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 3.72         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 6.99         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 11900        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 2.78         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 10.8         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 5940         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 127          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.52         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 13.6         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 794          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 1810         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 5780         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 23.2         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.069        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 502          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.687        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 26.6         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 23.1         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 3.9          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-11 MBE-4 REP 2                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 14:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-11 MBE-4 REP 2                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 14:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.67         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.57         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.080        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.493        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0109       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.054        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6260         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 4.38         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 42.0         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 14.2         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5490         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 33.5         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 3.72         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 7.29         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 11800        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.11         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 11.1         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 6300         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 124          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.58         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 14.2         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 728          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 1880         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 6890         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 24.8         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.079        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 476          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.692        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 26.5         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 21.4         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.0          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-12 MBE-4 REP 3                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 14:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-12 MBE-4 REP 3                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 14:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.68         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.58         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.081        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.496        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0099       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.053        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6660         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 4.80         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 41.9         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.13         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 13.0         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 4940         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 35.3         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 3.84         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 7.94         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 12100        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.28         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 10.7         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 6290         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 129          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.53         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 14.5         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 710          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 1890         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 6280         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 22.8         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.078        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 487          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.682        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 27.3         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 66.4         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 3.8          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-13 MBE-5 REP 1                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 12:20     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-13 MBE-5 REP 1                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 12:20     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.90         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.62         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.109        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.513        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0092       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.053        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 7080         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 5.64         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 44.5         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.14         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 13.9         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5820         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 35.6         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 3.99         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 8.57         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 12900        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 2.93         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 10.6         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 6650         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 135          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.66         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 15.0         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 799          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 2060         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 7210         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 26.4         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.081        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 512          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.692        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 28.4         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 23.6         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.2          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-14 MBE-5 REP 2                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 12:20     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-14 MBE-5 REP 2                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 12:20     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.75         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.64         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.090        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.554        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0101       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.064        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6810         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 6.55         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 45.3         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 16.2         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5580         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 36.2         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 4.04         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 10.3         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 13500        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 3.20         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 11.6         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 6610         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 135          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.65         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 15.0         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 848          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 2070         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 7550         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 27.9         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.082        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 515          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.711        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 29.3         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 22.4         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.1          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-15 MBE-5 REP 3                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 12:20     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-15 MBE-5 REP 3                     |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 12:20     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.74         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.60         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.089        |            | 0.050  | %     |           | 11-OCT-18 | R4271167 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.508        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0095       |            | 0.0050 | mg/kg | 09-OCT-18 | 09-OCT-18 | R4268284 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.056        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6640         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Arsenic (As)                                | 5.06         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Barium (Ba)                                 | 41.5         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Beryllium (Be)                              | 0.14         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Boron (B)                                   | 13.8         |            | 5.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Calcium (Ca)                                | 5340         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Chromium (Cr)                               | 34.0         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Cobalt (Co)                                 | 3.75         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Copper (Cu)                                 | 7.46         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Iron (Fe)                                   | 12300        |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lead (Pb)                                   | 2.99         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Lithium (Li)                                | 10.7         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Magnesium (Mg)                              | 6040         |            | 20     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Manganese (Mn)                              | 128          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Molybdenum (Mo)                             | 0.53         |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Nickel (Ni)                                 | 13.9         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Phosphorus (P)                              | 797          |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Potassium (K)                               | 1860         |            | 100    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sodium (Na)                                 | 5400         |            | 50     | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Strontium (Sr)                              | 24.4         |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Thallium (Tl)                               | 0.078        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Titanium (Ti)                               | 499          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Uranium (U)                                 | 0.719        |            | 0.050  | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Vanadium (V)                                | 27.5         |            | 0.20   | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zinc (Zn)                                   | 22.2         |            | 2.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| Zirconium (Zr)                              | 4.1          |            | 1.0    | mg/kg | 09-OCT-18 | 10-OCT-18 | R4268336 |
| L2170896-16 MB REF A1 REP 1                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 08:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-16 MB REF A1 REP 1                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 08:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.65         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.63         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.078        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.547        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0126       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.059        |            | 0.020  | %     | 10-OCT-18 | 17-OCT-18 | R4283767 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 7180         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                | 4.64         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                 | 39.1         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                              | 0.16         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                   | 17.4         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                | 6050         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                               | 29.9         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                 | 3.81         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                 | 6.76         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                   | 12500        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                   | 3.38         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                | 10.1         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                              | 6690         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                              | 137          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                             | 0.77         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                 | 12.8         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                              | 848          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                               | 2240         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                               | 0.20         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                 | 10700        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                              | 28.3         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                  | 1200         |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                               | 0.088        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                               | 543          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                 | 0.906        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                | 28.1         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                   | 23.1         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                              | 5.0          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-17 MB REF A1 REP 2                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 08:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-17 MB REF A1 REP 2                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 08:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.71         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.58         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.085        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.499        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0118       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.066        |            | 0.020  | %     | 12-OCT-18 | 15-OCT-18 | R4280989 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 5980         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                | 4.56         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                 | 37.1         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                   | 15.0         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                | 5560         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                               | 26.2         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                 | 3.38         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                 | 5.56         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                   | 11300        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                   | 3.16         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                | 9.4          |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                              | 5570         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                              | 122          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                             | 0.65         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                 | 11.1         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                              | 767          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                               | 1830         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                 | 6650         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                              | 24.0         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                               | 0.083        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                               | 468          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                 | 0.830        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                | 24.8         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                   | 20.5         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                              | 4.6          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-18 MB REF A1 REP 3                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 08:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-18 MB REF A1 REP 3                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 08:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.68         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.61         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.082        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.525        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0123       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.065        |            | 0.020  | %     | 12-OCT-18 | 15-OCT-18 | R4280989 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6400         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                | 4.67         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                 | 36.1         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                   | 15.1         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                | 5480         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                               | 27.0         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                 | 3.49         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                 | 6.15         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                   | 11300        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                   | 3.17         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                | 9.3          |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                              | 5920         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                              | 124          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                             | 0.62         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                 | 11.6         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                              | 799          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                               | 1930         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                 | 7410         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                              | 25.9         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                               | 0.081        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                               | 492          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                 | 0.810        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                | 25.5         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                   | 21.1         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                              | 4.5          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-19 MB REF A2 REP 1                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 09:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-19 MB REF A2 REP 1                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 09:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.70         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.66         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.085        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.577        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0127       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.069        |            | 0.020  | %     | 12-OCT-18 | 15-OCT-18 | R4280989 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6380         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                | 4.49         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                 | 35.0         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                              | 0.16         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                   | 16.3         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                | 5740         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                               | 27.3         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                 | 3.51         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                 | 5.94         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                   | 11500        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                   | 3.24         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                | 10.5         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                              | 5810         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                              | 124          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                             | 0.65         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                 | 11.6         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                              | 741          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                               | 1960         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                 | 6960         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                              | 25.8         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                               | 0.083        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                               | 470          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                 | 0.822        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                | 25.4         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                   | 20.6         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                              | 4.7          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-20 MB REF A2 REP 2                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 09:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-20 MB REF A2 REP 2                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 09:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.72         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.69         |            | 0.05   | %     | 05-OCT-18 | 05-OCT-18 | R4263371 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.087        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.603        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0135       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 16-OCT-18 | R4281910 |
| Total Kjeldahl Nitrogen                     | 0.074        |            | 0.020  | %     | 12-OCT-18 | 15-OCT-18 | R4280989 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6630         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                | 4.96         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                 | 38.0         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                              | 0.14         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                   | 16.5         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                | 5660         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                               | 27.7         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                 | 3.65         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                 | 6.40         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                   | 12100        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                   | 3.24         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                | 9.6          |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                              | 6040         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                              | 128          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                             | 0.63         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                 | 11.7         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                              | 799          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                               | 2070         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                               | 0.20         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                 | 8050         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                              | 26.9         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                               | 0.083        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                               | 477          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                 | 0.813        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                | 26.2         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                   | 21.8         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                              | 4.3          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-21 MB REF A2 REP 3                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 09:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-21 MB REF A2 REP 3                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 09:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.76         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.74         |            | 0.05   | %     | 10-OCT-18 | 10-OCT-18 | R4270350 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.092        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.651        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0133       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 15-OCT-18 | R4281568 |
| Total Kjeldahl Nitrogen                     | 0.069        |            | 0.020  | %     | 12-OCT-18 | 15-OCT-18 | R4280989 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6740         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                | 5.06         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                 | 38.5         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                              | 0.15         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                   | 16.9         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                | 5850         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                               | 29.4         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                 | 3.80         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                 | 6.72         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                   | 12600        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                   | 3.34         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                | 10.9         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                              | 6200         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                              | 134          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                             | 0.66         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                 | 13.3         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                              | 834          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                               | 2090         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                               | 0.21         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                 | 7050         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                              | 25.4         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                               | 0.089        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                               | 498          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                 | 0.856        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                | 27.5         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                   | 22.7         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                              | 4.5          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-22 MB REF A3 REP 1                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 12:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-22 MB REF A3 REP 1                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 12:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.76         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.85         |            | 0.05   | %     | 10-OCT-18 | 10-OCT-18 | R4270350 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.091        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.755        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0144       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 15-OCT-18 | R4281568 |
| Total Kjeldahl Nitrogen                     | 0.085        |            | 0.020  | %     | 12-OCT-18 | 15-OCT-18 | R4280989 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 7660         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                | 5.66         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                 | 43.0         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                              | 0.17         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                   | 20.8         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                | 5820         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                               | 31.7         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                 | 4.03         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                 | 6.84         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                   | 13300        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                   | 3.79         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                | 11.4         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                              | 7000         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                              | 140          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                             | 0.78         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                 | 13.4         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                              | 730          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                               | 2490         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                 | 10500        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                              | 30.0         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                  | 1200         |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                               | 0.096        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                               | 517          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                 | 0.868        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                | 29.9         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                   | 24.6         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                              | 4.8          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-23 MB REF A3 REP 2                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 12:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-23 MB REF A3 REP 2                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 12:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.78         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.71         |            | 0.05   | %     | 10-OCT-18 | 10-OCT-18 | R4270350 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.093        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.613        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0127       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 15-OCT-18 | R4281568 |
| Total Kjeldahl Nitrogen                     | 0.071        |            | 0.020  | %     | 12-OCT-18 | 15-OCT-18 | R4280989 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 7750         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                | 6.17         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                 | 45.5         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                              | 0.17         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                   | 17.1         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                | 0.020        |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                | 5420         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                               | 32.9         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                 | 4.43         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                 | 7.14         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                   | 13800        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                   | 3.72         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                | 10.4         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                              | 6780         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                              | 149          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                             | 0.66         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                 | 13.7         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                              | 836          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                               | 2390         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                               | 0.22         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                 | 7140         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                              | 26.4         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                               | 0.093        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                               | 571          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                 | 0.886        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                | 31.1         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                   | 25.6         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                              | 4.7          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-24 MB REF A3 REP 3                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 12:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-24 MB REF A3 REP 3                 |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 12:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.63         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.59         |            | 0.05   | %     | 10-OCT-18 | 10-OCT-18 | R4270350 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.075        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.511        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0096       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 15-OCT-18 | R4281568 |
| Total Kjeldahl Nitrogen                     | 0.058        |            | 0.020  | %     | 12-OCT-18 | 15-OCT-18 | R4280989 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6050         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                | 4.51         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                 | 35.4         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                              | 0.14         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                   | 14.8         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                | 5260         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                               | 26.7         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                 | 3.35         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                 | 6.09         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                   | 10900        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                   | 3.06         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                | 9.0          |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                              | 5480         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                              | 118          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                             | 0.63         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                 | 10.9         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                              | 695          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                               | 1910         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                 | 7990         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                              | 25.2         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                               | 0.078        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                               | 455          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                 | 0.716        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                | 24.4         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                   | 20.2         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                              | 4.1          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-25 MB REF 1                        |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 15:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                   | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|---------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-25 MB REF 1                        |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 19-SEP-18 @ 15:30     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)      | 0.70         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>    |              |            |        |       |           |           |          |
| Total Carbon by Combustion                  | 0.52         |            | 0.05   | %     | 10-OCT-18 | 10-OCT-18 | R4270350 |
| <b>Total Inorganic Carbon in Soil</b>       |              |            |        |       |           |           |          |
| Inorganic Carbon                            | 0.083        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>     |              |            |        |       |           |           |          |
| Total Organic Carbon                        | 0.440        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>             |              |            |        |       |           |           |          |
| Mercury (Hg)                                | 0.0094       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                             | See Attached |            |        |       | 12-OCT-18 | 15-OCT-18 | R4281568 |
| Total Kjeldahl Nitrogen                     | 0.052        |            | 0.020  | %     | 12-OCT-18 | 15-OCT-18 | R4280989 |
| <b>Metals in Soil by CRC ICPMS</b>          |              |            |        |       |           |           |          |
| Aluminum (Al)                               | 6150         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                               | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                | 5.68         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                 | 31.6         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                              | 0.14         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                   | 14.6         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                | <0.020       |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                | 5120         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                               | 34.2         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                 | 3.39         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                 | 5.49         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                   | 12100        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                   | 3.11         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                | 9.2          |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                              | 5950         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                              | 127          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                             | 0.75         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                 | 12.6         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                              | 575          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                               | 1850         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                               | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                 | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                 | 7840         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                              | 25.5         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                  | <1000        |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                               | 0.103        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                    | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                               | 382          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                 | 0.649        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                | 27.4         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                   | 20.5         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                              | 3.2          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-26 DUP A                           |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 17:00     |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                     |              |            |        |       |           |           |          |
| <b>Total Carbon, TOC and TIC in soil</b>    |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result       | Qualifier* | D.L.   | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|--------------|------------|--------|-------|-----------|-----------|----------|
| L2170896-26 DUP A                              |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 13-SEP-18 @ 17:00        |              |            |        |       |           |           |          |
| Matrix: Marine Sediment                        |              |            |        |       |           |           |          |
| <b>Inorganic Carbon as CaCO3 Equivalent</b>    |              |            |        |       |           |           |          |
| Inorganic Carbon (as CaCO3 Equivalent)         | 0.74         |            | 0.40   | %     |           | 11-OCT-18 |          |
| <b>Total Carbon by combustion method</b>       |              |            |        |       |           |           |          |
| Total Carbon by Combustion                     | 0.64         |            | 0.05   | %     | 10-OCT-18 | 10-OCT-18 | R4270350 |
| <b>Total Inorganic Carbon in Soil</b>          |              |            |        |       |           |           |          |
| Inorganic Carbon                               | 0.089        |            | 0.050  | %     |           | 11-OCT-18 | R4270928 |
| <b>Total Organic Carbon Calculation</b>        |              |            |        |       |           |           |          |
| Total Organic Carbon                           | 0.551        |            | 0.050  | %     |           | 11-OCT-18 |          |
| <b>Miscellaneous Parameters</b>                |              |            |        |       |           |           |          |
| Mercury (Hg)                                   | 0.0109       |            | 0.0050 | mg/kg | 11-OCT-18 | 12-OCT-18 | R4276967 |
| Special Request                                | See Attached |            |        |       | 12-OCT-18 | 15-OCT-18 | R4281568 |
| Total Kjeldahl Nitrogen                        | 0.058        |            | 0.020  | %     | 12-OCT-18 | 15-OCT-18 | R4280989 |
| <b>Metals in Soil by CRC ICPMS</b>             |              |            |        |       |           |           |          |
| Aluminum (Al)                                  | 7380         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Antimony (Sb)                                  | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Arsenic (As)                                   | 4.70         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Barium (Ba)                                    | 40.1         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Beryllium (Be)                                 | 0.15         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Boron (B)                                      | 14.9         |            | 5.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Bismuth (Bi)                                   | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cadmium (Cd)                                   | <0.020       |            | 0.020  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Calcium (Ca)                                   | 6140         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Chromium (Cr)                                  | 36.9         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Cobalt (Co)                                    | 4.11         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Copper (Cu)                                    | 7.77         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Iron (Fe)                                      | 12200        |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lead (Pb)                                      | 3.51         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Lithium (Li)                                   | 10.5         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Magnesium (Mg)                                 | 6500         |            | 20     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Manganese (Mn)                                 | 139          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Molybdenum (Mo)                                | 0.63         |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Nickel (Ni)                                    | 15.1         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Phosphorus (P)                                 | 765          |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Potassium (K)                                  | 1960         |            | 100    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Selenium (Se)                                  | <0.20        |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Silver (Ag)                                    | <0.10        |            | 0.10   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sodium (Na)                                    | 5920         |            | 50     | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Strontium (Sr)                                 | 27.4         |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Sulfur (S)                                     | <1000        |            | 1000   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Thallium (Tl)                                  | 0.089        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tin (Sn)                                       | <1.0         |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Titanium (Ti)                                  | 500          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Tungsten (W)                                   | <0.50        |            | 0.50   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Uranium (U)                                    | 0.838        |            | 0.050  | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Vanadium (V)                                   | 28.8         |            | 0.20   | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zinc (Zn)                                      | 22.9         |            | 2.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| Zirconium (Zr)                                 | 4.6          |            | 1.0    | mg/kg | 11-OCT-18 | 15-OCT-18 | R4278629 |
| L2170896-27 MW REF A3 D                        |              |            |        |       |           |           |          |
| Sampled By: CLIENT on 20-SEP-18 @ 11:00        |              |            |        |       |           |           |          |
| Matrix: Marine H2O                             |              |            |        |       |           |           |          |
| <b>Alkalinity Species by Titration</b>         |              |            |        |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b> |              |            |        |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                          | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2170896-27 MW REF A3 D                            |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 20-SEP-18 @ 11:00            |           |            |          |       |           |           |          |
| Matrix: Marine H2O                                 |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b>     |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)                 | 114       |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| Alkalinity, Carbonate (as CaCO3)                   | <1.0      |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| Alkalinity, Hydroxide (as CaCO3)                   | <1.0      |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| Alkalinity, Total (as CaCO3)                       | 114       |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| <b>Anions by Ion Chromatography (seawater)</b>     |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Bromide (Br)                                       | 60.4      |            | 5.0      | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Chloride by IC (seawater)</b>                   |           |            |          |       |           |           |          |
| Chloride (Cl)                                      | 17400     |            | 50       | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Fluoride by IC (seawater)</b>                   |           |            |          |       |           |           |          |
| Fluoride (F)                                       | 1.0       |            | 1.0      | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Nitrate in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrate (as N)                                     | <0.50     |            | 0.50     | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Nitrite in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrite (as N)                                     | <0.10     |            | 0.10     | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Sulfate by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Sulfate (SO4)                                      | 2450      |            | 30       | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               | LAB       |            |          |       |           | 08-OCT-18 | R4263895 |
| Aluminum (Al)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Antimony (Sb)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Arsenic (As)-Dissolved                             | <0.0020   |            | 0.0020   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Barium (Ba)-Dissolved                              | 0.0105    |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Beryllium (Be)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Bismuth (Bi)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Boron (B)-Dissolved                                | 4.16      |            | 0.10     | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Cadmium (Cd)-Dissolved                             | <0.000050 |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Calcium (Ca)-Dissolved                             | 336       |            | 1.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Cesium (Cs)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Chromium (Cr)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Cobalt (Co)-Dissolved                              | <0.000050 |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Copper (Cu)-Dissolved                              | 0.00126   |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Gallium (Ga)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Iron (Fe)-Dissolved                                | <0.010    |            | 0.010    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Lead (Pb)-Dissolved                                | <0.00030  |            | 0.00030  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Lithium (Li)-Dissolved                             | 0.190     |            | 0.020    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Magnesium (Mg)-Dissolved                           | 1010      |            | 1.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Manganese (Mn)-Dissolved                           | 0.00082   |            | 0.00020  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Molybdenum (Mo)-Dissolved                          | 0.0124    |            | 0.0020   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Nickel (Ni)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Phosphorus (P)-Dissolved                           | <0.050    |            | 0.050    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Potassium (K)-Dissolved                            | 327       |            | 20       | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Rhenium (Re)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Rubidium (Rb)-Dissolved                            | 0.113     |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Selenium (Se)-Dissolved                            | <0.0020   |            | 0.0020   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Silicon (Si)-Dissolved                             | <1.0      |            | 1.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Silver (Ag)-Dissolved                              | <0.00010  |            | 0.00010  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Sodium (Na)-Dissolved                              | 8710      |            | 20       | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Strontium (Sr)-Dissolved                           | 5.60      |            | 0.050    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Sulfur (S)-Dissolved                               | 746       |            | 5.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tellurium (Te)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2170896-27 MW REF A3 D                        |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 20-SEP-18 @ 11:00        |           |            |          |       |           |           |          |
| Matrix: Marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Thallium (Tl)-Dissolved                        | <0.000050 |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Thorium (Th)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tin (Sn)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Uranium (U)-Dissolved                          | 0.00308   |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Vanadium (V)-Dissolved                         | 0.00135   |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 5000      |            | 4.8      | mg/L  |           | 19-OCT-18 |          |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0304    |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Barium (Ba)-Total                              | 0.0107    |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Boron (B)-Total                                | 4.08      |            | 0.10     | mg/L  |           | 19-OCT-18 | R4288587 |
| Cadmium (Cd)-Total                             | <0.000050 |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Calcium (Ca)-Total                             | 338       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Chromium (Cr)-Total                            | 0.00075   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Cobalt (Co)-Total                              | 0.000080  |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Copper (Cu)-Total                              | 0.00121   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Gallium (Ga)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Iron (Fe)-Total                                | 0.053     |            | 0.010    | mg/L  |           | 19-OCT-18 | R4288587 |
| Lead (Pb)-Total                                | <0.00030  |            | 0.00030  | mg/L  |           | 19-OCT-18 | R4288587 |
| Lithium (Li)-Total                             | 0.194     |            | 0.020    | mg/L  |           | 19-OCT-18 | R4288587 |
| Magnesium (Mg)-Total                           | 1020      |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Manganese (Mn)-Total                           | 0.00161   |            | 0.00020  | mg/L  |           | 19-OCT-18 | R4288587 |
| Molybdenum (Mo)-Total                          | 0.0122    |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Nickel (Ni)-Total                              | 0.00052   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Phosphorus (P)-Total                           | <0.050    |            | 0.050    | mg/L  |           | 19-OCT-18 | R4288587 |
| Potassium (K)-Total                            | 337       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Rhenium (Re)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Rubidium (Rb)-Total                            | 0.113     |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Selenium (Se)-Total                            | <0.0020   |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Silicon (Si)-Total                             | <1.0      |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Silver (Ag)-Total                              | <0.00010  |            | 0.00010  | mg/L  |           | 19-OCT-18 | R4288587 |
| Sodium (Na)-Total                              | 8910      |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Strontium (Sr)-Total                           | 5.52      |            | 0.010    | mg/L  |           | 19-OCT-18 | R4288587 |
| Sulfur (S)-Total                               | 739       |            | 5.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Tellurium (Te)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Thallium (Tl)-Total                            | <0.000050 |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Thorium (Th)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Tin (Sn)-Total                                 | <0.0010   |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Titanium (Ti)-Total                            | <0.0050   |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Tungsten (W)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

| Sample Details/Parameters                                                                             |  | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|-------------------------------------------------------------------------------------------------------|--|-----------|------------|----------|-------|-----------|-----------|----------|
| L2170896-27    MW REF A3 D<br>Sampled By:    CLIENT on 20-SEP-18 @ 11:00<br>Matrix:        Marine H2O |  |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>                                                            |  |           |            |          |       |           |           |          |
| Uranium (U)-Total                                                                                     |  | 0.00289   |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Vanadium (V)-Total                                                                                    |  | 0.00162   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Yttrium (Y)-Total                                                                                     |  | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Zinc (Zn)-Total                                                                                       |  | <0.0030   |            | 0.0030   | mg/L  |           | 19-OCT-18 | R4288587 |
| Zirconium (Zr)-Total                                                                                  |  | 0.00092   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| <b>Miscellaneous Parameters</b>                                                                       |  |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                                                                                 |  | <0.0050   |            | 0.0050   | mg/L  |           | 16-OCT-18 | R4282102 |
| Conductivity                                                                                          |  | 46700     |            | 2.0      | uS/cm |           | 02-OCT-18 | R4257666 |
| Orthophosphate-Dissolved (as P)                                                                       |  | 0.0187    |            | 0.0010   | mg/L  |           | 29-SEP-18 | R4252115 |
| Dissolved Organic Carbon                                                                              |  | 0.99      |            | 0.50     | mg/L  |           | 02-OCT-18 | R4257979 |
| Silicate (as SiO2)                                                                                    |  | 0.295     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                                                                               |  | 0.127     |            | 0.050    | mg/L  | 10-OCT-18 | 11-OCT-18 | R4272089 |
| Total Organic Carbon                                                                                  |  | 1.16      |            | 0.50     | mg/L  |           | 02-OCT-18 | R4257978 |
| Total Dissolved Solids                                                                                |  | 35400     |            | 80       | mg/L  |           | 29-SEP-18 | R4253115 |
| Mercury (Hg)-Total                                                                                    |  | <0.000010 |            | 0.000010 | mg/L  |           | 06-OCT-18 | R4263241 |
| Phosphorus (P)-Total                                                                                  |  | 0.0273    |            | 0.0040   | mg/L  |           | 01-OCT-18 | R4255689 |
| Total Suspended Solids                                                                                |  | 2.4       |            | 2.0      | mg/L  |           | 29-SEP-18 | R4253121 |
| pH                                                                                                    |  | 7.99      |            | 0.10     | pH    |           | 02-OCT-18 | R4257666 |
| Salinity                                                                                              |  | 30.9      |            | 1.0      | psu   |           | 03-OCT-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>                                                             |  |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location                                                                 |  | LAB       |            |          |       |           | 15-OCT-18 | R4278475 |
| Dissolved Mercury Filtration Location                                                                 |  | LAB       |            |          |       |           | 11-OCT-18 | R4269591 |
| Dissolved Mercury Filtration Location                                                                 |  | LAB       |            |          |       |           | 14-OCT-18 | R4277474 |
| Mercury (Hg)-Dissolved                                                                                |  | <0.000010 |            | 0.000010 | mg/L  | 15-OCT-18 | 16-OCT-18 | R4280190 |
| L2170896-28    MW REF A3 S<br>Sampled By:    CLIENT on 20-SEP-18 @ 11:00<br>Matrix:        Marine H2O |  |           |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>                                                                |  |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b>                                                        |  |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)                                                                    |  | 113       |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| Alkalinity, Carbonate (as CaCO3)                                                                      |  | <1.0      |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| Alkalinity, Hydroxide (as CaCO3)                                                                      |  | <1.0      |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| Alkalinity, Total (as CaCO3)                                                                          |  | 113       |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| <b>Anions by Ion Chromatography (seawater)</b>                                                        |  |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                                                                       |  |           |            |          |       |           |           |          |
| Bromide (Br)                                                                                          |  | 65.2      |            | 5.0      | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Chloride by IC (seawater)</b>                                                                      |  |           |            |          |       |           |           |          |
| Chloride (Cl)                                                                                         |  | 18800     |            | 50       | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Fluoride by IC (seawater)</b>                                                                      |  |           |            |          |       |           |           |          |
| Fluoride (F)                                                                                          |  | 1.1       |            | 1.0      | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Nitrate in Seawater by IC</b>                                                                      |  |           |            |          |       |           |           |          |
| Nitrate (as N)                                                                                        |  | <0.50     |            | 0.50     | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Nitrite in Seawater by IC</b>                                                                      |  |           |            |          |       |           |           |          |
| Nitrite (as N)                                                                                        |  | <0.10     |            | 0.10     | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Sulfate by IC (seawater)</b>                                                                       |  |           |            |          |       |           |           |          |
| Sulfate (SO4)                                                                                         |  | 2660      |            | 30       | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b>                                                    |  |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>                                                           |  |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location                                                                  |  | LAB       |            |          |       |           | 08-OCT-18 | R4263895 |
| Aluminum (Al)-Dissolved                                                                               |  | <0.0050   |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2170896-28 MW REF A3 S                        |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 20-SEP-18 @ 11:00        |           |            |          |       |           |           |          |
| Matrix: Marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Antimony (Sb)-Dissolved                        | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Arsenic (As)-Dissolved                         | <0.0020   |            | 0.0020   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Barium (Ba)-Dissolved                          | 0.0103    |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Beryllium (Be)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Bismuth (Bi)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Boron (B)-Dissolved                            | 4.14      |            | 0.10     | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Cadmium (Cd)-Dissolved                         | <0.000050 |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Calcium (Ca)-Dissolved                         | 329       |            | 1.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Cesium (Cs)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Chromium (Cr)-Dissolved                        | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Cobalt (Co)-Dissolved                          | <0.000050 |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Copper (Cu)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Gallium (Ga)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Iron (Fe)-Dissolved                            | <0.010    |            | 0.010    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Lead (Pb)-Dissolved                            | <0.00030  |            | 0.00030  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Lithium (Li)-Dissolved                         | 0.205     |            | 0.020    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Magnesium (Mg)-Dissolved                       | 1000      |            | 1.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Manganese (Mn)-Dissolved                       | 0.00044   |            | 0.00020  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Molybdenum (Mo)-Dissolved                      | 0.0127    |            | 0.0020   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Nickel (Ni)-Dissolved                          | 0.00055   |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Phosphorus (P)-Dissolved                       | <0.050    |            | 0.050    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Potassium (K)-Dissolved                        | 337       |            | 20       | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Rhenium (Re)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Rubidium (Rb)-Dissolved                        | 0.114     |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Selenium (Se)-Dissolved                        | <0.0020   |            | 0.0020   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Silicon (Si)-Dissolved                         | <1.0      |            | 1.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Silver (Ag)-Dissolved                          | <0.00010  |            | 0.00010  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Sodium (Na)-Dissolved                          | 8850      |            | 20       | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Strontium (Sr)-Dissolved                       | 5.54      |            | 0.050    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Sulfur (S)-Dissolved                           | 739       |            | 5.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tellurium (Te)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Thallium (Tl)-Dissolved                        | <0.000050 |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Thorium (Th)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tin (Sn)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Uranium (U)-Dissolved                          | 0.00291   |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Vanadium (V)-Dissolved                         | 0.00133   |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 4940      |            | 4.8      | mg/L  |           | 19-OCT-18 |          |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0147    |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Barium (Ba)-Total                              | 0.0105    |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                  | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|--------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2170896-28 MW REF A3 S                    |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 20-SEP-18 @ 11:00    |           |            |          |       |           |           |          |
| Matrix: Marine H2O                         |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b> |           |            |          |       |           |           |          |
| Boron (B)-Total                            | 4.22      |            | 0.10     | mg/L  |           | 19-OCT-18 | R4288587 |
| Cadmium (Cd)-Total                         | <0.000050 |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Calcium (Ca)-Total                         | 340       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Cesium (Cs)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Chromium (Cr)-Total                        | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Cobalt (Co)-Total                          | 0.000058  |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Copper (Cu)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Gallium (Ga)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Iron (Fe)-Total                            | 0.028     |            | 0.010    | mg/L  |           | 19-OCT-18 | R4288587 |
| Lead (Pb)-Total                            | <0.00030  |            | 0.00030  | mg/L  |           | 19-OCT-18 | R4288587 |
| Lithium (Li)-Total                         | 0.206     |            | 0.020    | mg/L  |           | 19-OCT-18 | R4288587 |
| Magnesium (Mg)-Total                       | 960       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Manganese (Mn)-Total                       | 0.00091   |            | 0.00020  | mg/L  |           | 19-OCT-18 | R4288587 |
| Molybdenum (Mo)-Total                      | 0.0127    |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Nickel (Ni)-Total                          | 0.00053   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Phosphorus (P)-Total                       | <0.050    |            | 0.050    | mg/L  |           | 19-OCT-18 | R4288587 |
| Potassium (K)-Total                        | 349       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Rhenium (Re)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Rubidium (Rb)-Total                        | 0.118     |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Selenium (Se)-Total                        | <0.0020   |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Silicon (Si)-Total                         | <1.0      |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Silver (Ag)-Total                          | <0.00010  |            | 0.00010  | mg/L  |           | 19-OCT-18 | R4288587 |
| Sodium (Na)-Total                          | 8870      |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Strontium (Sr)-Total                       | 5.51      |            | 0.010    | mg/L  |           | 19-OCT-18 | R4288587 |
| Sulfur (S)-Total                           | 721       |            | 5.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Tellurium (Te)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Thallium (Tl)-Total                        | <0.000050 |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Thorium (Th)-Total                         | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Tin (Sn)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Titanium (Ti)-Total                        | <0.0050   |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Tungsten (W)-Total                         | <0.0010   |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Uranium (U)-Total                          | 0.00304   |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Vanadium (V)-Total                         | 0.00140   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Yttrium (Y)-Total                          | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Zinc (Zn)-Total                            | <0.0030   |            | 0.0030   | mg/L  |           | 19-OCT-18 | R4288587 |
| Zirconium (Zr)-Total                       | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| <b>Miscellaneous Parameters</b>            |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                      | <0.0050   |            | 0.0050   | mg/L  |           | 16-OCT-18 | R4282102 |
| Conductivity                               | 46800     |            | 2.0      | uS/cm |           | 02-OCT-18 | R4257666 |
| Orthophosphate-Dissolved (as P)            | 0.0181    |            | 0.0010   | mg/L  |           | 29-SEP-18 | R4252115 |
| Dissolved Organic Carbon                   | 0.97      |            | 0.50     | mg/L  |           | 02-OCT-18 | R4257979 |
| Silicate (as SiO2)                         | 0.308     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                    | 0.128     |            | 0.050    | mg/L  | 10-OCT-18 | 11-OCT-18 | R4272089 |
| Total Organic Carbon                       | 1.01      |            | 0.50     | mg/L  |           | 02-OCT-18 | R4257978 |
| Total Dissolved Solids                     | 35400     |            | 80       | mg/L  |           | 29-SEP-18 | R4253115 |
| Mercury (Hg)-Total                         | <0.000010 |            | 0.000010 | mg/L  |           | 06-OCT-18 | R4263241 |
| Phosphorus (P)-Total                       | 0.0248    |            | 0.0040   | mg/L  |           | 01-OCT-18 | R4255689 |
| Total Suspended Solids                     | <2.0      |            | 2.0      | mg/L  |           | 29-SEP-18 | R4253121 |
| pH                                         | 7.99      |            | 0.10     | pH    |           | 02-OCT-18 | R4257666 |
| Salinity                                   | 31.0      |            | 1.0      | psu   |           | 03-OCT-18 |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

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# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2170896-29 MW REF B1 D                        |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 20-SEP-18 @ 12:00        |           |            |          |       |           |           |          |
| Matrix: Marine H2O                             |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>    |           |            |          |       |           |           |          |
| Potassium (K)-Dissolved                        | 321       |            | 20       | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Rhenium (Re)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Rubidium (Rb)-Dissolved                        | 0.118     |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Selenium (Se)-Dissolved                        | <0.0020   |            | 0.0020   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Silicon (Si)-Dissolved                         | <1.0      |            | 1.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Silver (Ag)-Dissolved                          | <0.00010  |            | 0.00010  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Sodium (Na)-Dissolved                          | 8680      |            | 20       | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Strontium (Sr)-Dissolved                       | 5.40      |            | 0.050    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Sulfur (S)-Dissolved                           | 716       |            | 5.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tellurium (Te)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Thallium (Tl)-Dissolved                        | <0.000050 |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Thorium (Th)-Dissolved                         | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tin (Sn)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Titanium (Ti)-Dissolved                        | <0.0050   |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tungsten (W)-Dissolved                         | <0.0010   |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Uranium (U)-Dissolved                          | 0.00301   |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Vanadium (V)-Dissolved                         | 0.00120   |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Yttrium (Y)-Dissolved                          | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Zinc (Zn)-Dissolved                            | <0.0030   |            | 0.0030   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Zirconium (Zr)-Dissolved                       | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| <b>Hardness</b>                                |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                            | 4780      |            | 4.8      | mg/L  |           | 19-OCT-18 |          |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0125    |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Barium (Ba)-Total                              | 0.0101    |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Boron (B)-Total                                | 4.10      |            | 0.10     | mg/L  |           | 19-OCT-18 | R4288587 |
| Cadmium (Cd)-Total                             | <0.000050 |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Calcium (Ca)-Total                             | 334       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Chromium (Cr)-Total                            | 0.00051   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Cobalt (Co)-Total                              | <0.000050 |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Copper (Cu)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Gallium (Ga)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Iron (Fe)-Total                                | 0.028     |            | 0.010    | mg/L  |           | 19-OCT-18 | R4288587 |
| Lead (Pb)-Total                                | <0.00030  |            | 0.00030  | mg/L  |           | 19-OCT-18 | R4288587 |
| Lithium (Li)-Total                             | 0.196     |            | 0.020    | mg/L  |           | 19-OCT-18 | R4288587 |
| Magnesium (Mg)-Total                           | 972       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Manganese (Mn)-Total                           | 0.00094   |            | 0.00020  | mg/L  |           | 19-OCT-18 | R4288587 |
| Molybdenum (Mo)-Total                          | 0.0127    |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Nickel (Ni)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Phosphorus (P)-Total                           | <0.050    |            | 0.050    | mg/L  |           | 19-OCT-18 | R4288587 |
| Potassium (K)-Total                            | 333       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Rhenium (Re)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Rubidium (Rb)-Total                            | 0.115     |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Selenium (Se)-Total                            | <0.0020   |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Silicon (Si)-Total                             | <1.0      |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2170896-29 MW REF B1 D                        |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 20-SEP-18 @ 12:00        |           |            |          |       |           |           |          |
| Matrix: Marine H2O                             |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Silver (Ag)-Total                              | <0.00010  |            | 0.00010  | mg/L  |           | 19-OCT-18 | R4288587 |
| Sodium (Na)-Total                              | 8670      |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Strontium (Sr)-Total                           | 5.47      |            | 0.010    | mg/L  |           | 19-OCT-18 | R4288587 |
| Sulfur (S)-Total                               | 716       |            | 5.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Tellurium (Te)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Thallium (Tl)-Total                            | <0.000050 |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Thorium (Th)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Tin (Sn)-Total                                 | <0.0010   |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Titanium (Ti)-Total                            | <0.0050   |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Tungsten (W)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Uranium (U)-Total                              | 0.00294   |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Vanadium (V)-Total                             | 0.00129   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Yttrium (Y)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Zinc (Zn)-Total                                | <0.0030   |            | 0.0030   | mg/L  |           | 19-OCT-18 | R4288587 |
| Zirconium (Zr)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| <b>Miscellaneous Parameters</b>                |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                          | <0.0050   |            | 0.0050   | mg/L  |           | 16-OCT-18 | R4282102 |
| Conductivity                                   | 46900     |            | 2.0      | uS/cm |           | 02-OCT-18 | R4257666 |
| Orthophosphate-Dissolved (as P)                | 0.0175    |            | 0.0010   | mg/L  |           | 29-SEP-18 | R4252115 |
| Dissolved Organic Carbon                       | 1.02      |            | 0.50     | mg/L  |           | 02-OCT-18 | R4257979 |
| Silicate (as SiO2)                             | 0.308     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                        | 0.133     |            | 0.050    | mg/L  | 10-OCT-18 | 11-OCT-18 | R4272089 |
| Total Organic Carbon                           | 1.11      |            | 0.50     | mg/L  |           | 04-OCT-18 | R4263002 |
| Total Dissolved Solids                         | 35500     |            | 80       | mg/L  |           | 29-SEP-18 | R4253115 |
| Mercury (Hg)-Total                             | <0.000010 |            | 0.000010 | mg/L  |           | 06-OCT-18 | R4263241 |
| Phosphorus (P)-Total                           | 0.0253    |            | 0.0040   | mg/L  |           | 01-OCT-18 | R4255689 |
| Total Suspended Solids                         | 2.9       |            | 2.0      | mg/L  |           | 29-SEP-18 | R4253121 |
| pH                                             | 7.98      |            | 0.10     | pH    |           | 02-OCT-18 | R4257666 |
| Salinity                                       | 31.0      |            | 1.0      | psu   |           | 03-OCT-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>      |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location          | LAB       |            |          |       |           | 15-OCT-18 | R4278475 |
| Dissolved Mercury Filtration Location          | LAB       |            |          |       |           | 14-OCT-18 | R4277474 |
| Dissolved Mercury Filtration Location          | LAB       |            |          |       |           | 11-OCT-18 | R4269591 |
| Mercury (Hg)-Dissolved                         | <0.000010 |            | 0.000010 | mg/L  | 15-OCT-18 | 16-OCT-18 | R4280190 |
| L2170896-30 MW REF B1 S                        |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 20-SEP-18 @ 12:00        |           |            |          |       |           |           |          |
| Matrix: Marine H2O                             |           |            |          |       |           |           |          |
| <b>Alkalinity Species by Titration</b>         |           |            |          |       |           |           |          |
| <b>Alkalinity Spec by Titration (Seawater)</b> |           |            |          |       |           |           |          |
| Alkalinity, Bicarbonate (as CaCO3)             | 115       |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| Alkalinity, Carbonate (as CaCO3)               | <1.0      |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| Alkalinity, Hydroxide (as CaCO3)               | <1.0      |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| Alkalinity, Total (as CaCO3)                   | 115       |            | 1.0      | mg/L  |           | 02-OCT-18 | R4257666 |
| <b>Anions by Ion Chromatography (seawater)</b> |           |            |          |       |           |           |          |
| <b>Bromide by IC (seawater)</b>                |           |            |          |       |           |           |          |
| Bromide (Br)                                   | 58.6      |            | 5.0      | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Chloride by IC (seawater)</b>               |           |            |          |       |           |           |          |
| Chloride (Cl)                                  | 17000     |            | 50       | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Fluoride by IC (seawater)</b>               |           |            |          |       |           |           |          |
| Fluoride (F)                                   | <1.0      |            | 1.0      | mg/L  |           | 02-OCT-18 | R4258739 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                          | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|----------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2170896-30 MW REF B1 S                            |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 20-SEP-18 @ 12:00            |           |            |          |       |           |           |          |
| Matrix: Marine H2O                                 |           |            |          |       |           |           |          |
| <b>Nitrate in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrate (as N)                                     | <0.50     |            | 0.50     | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Nitrite in Seawater by IC</b>                   |           |            |          |       |           |           |          |
| Nitrite (as N)                                     | <0.10     |            | 0.10     | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Sulfate by IC (seawater)</b>                    |           |            |          |       |           |           |          |
| Sulfate (SO4)                                      | 2400      |            | 30       | mg/L  |           | 02-OCT-18 | R4258739 |
| <b>Dissolved ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Diss. Metals in Seawater by HR-ICPMS</b>        |           |            |          |       |           |           |          |
| Dissolved Metals Filtration Location               | LAB       |            |          |       |           | 08-OCT-18 | R4263895 |
| Aluminum (Al)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Antimony (Sb)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Arsenic (As)-Dissolved                             | <0.0020   |            | 0.0020   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Barium (Ba)-Dissolved                              | 0.0102    |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Beryllium (Be)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Bismuth (Bi)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Boron (B)-Dissolved                                | 3.89      |            | 0.10     | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Cadmium (Cd)-Dissolved                             | <0.000050 |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Calcium (Ca)-Dissolved                             | 331       |            | 1.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Cesium (Cs)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Chromium (Cr)-Dissolved                            | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Cobalt (Co)-Dissolved                              | <0.000050 |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Copper (Cu)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Gallium (Ga)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Iron (Fe)-Dissolved                                | <0.010    |            | 0.010    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Lead (Pb)-Dissolved                                | <0.00030  |            | 0.00030  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Lithium (Li)-Dissolved                             | 0.192     |            | 0.020    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Magnesium (Mg)-Dissolved                           | 978       |            | 1.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Manganese (Mn)-Dissolved                           | 0.00032   |            | 0.00020  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Molybdenum (Mo)-Dissolved                          | 0.0120    |            | 0.0020   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Nickel (Ni)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Phosphorus (P)-Dissolved                           | <0.050    |            | 0.050    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Potassium (K)-Dissolved                            | 322       |            | 20       | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Rhenium (Re)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Rubidium (Rb)-Dissolved                            | 0.111     |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Selenium (Se)-Dissolved                            | <0.0020   |            | 0.0020   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Silicon (Si)-Dissolved                             | <1.0      |            | 1.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Silver (Ag)-Dissolved                              | <0.00010  |            | 0.00010  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Sodium (Na)-Dissolved                              | 8620      |            | 20       | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Strontium (Sr)-Dissolved                           | 5.45      |            | 0.050    | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Sulfur (S)-Dissolved                               | 721       |            | 5.0      | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tellurium (Te)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Thallium (Tl)-Dissolved                            | <0.000050 |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Thorium (Th)-Dissolved                             | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tin (Sn)-Dissolved                                 | <0.0010   |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Titanium (Ti)-Dissolved                            | <0.0050   |            | 0.0050   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Tungsten (W)-Dissolved                             | <0.0010   |            | 0.0010   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Uranium (U)-Dissolved                              | 0.00295   |            | 0.000050 | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Vanadium (V)-Dissolved                             | 0.00128   |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Yttrium (Y)-Dissolved                              | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Zinc (Zn)-Dissolved                                | <0.0030   |            | 0.0030   | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| Zirconium (Zr)-Dissolved                           | <0.00050  |            | 0.00050  | mg/L  | 08-OCT-18 | 19-OCT-18 | R4288587 |
| <b>Hardness</b>                                    |           |            |          |       |           |           |          |
| Hardness (as CaCO3)                                | 4860      |            | 4.8      | mg/L  |           | 19-OCT-18 |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample Details/Parameters                      | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|------------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2170896-30 MW REF B1 S                        |           |            |          |       |           |           |          |
| Sampled By: CLIENT on 20-SEP-18 @ 12:00        |           |            |          |       |           |           |          |
| Matrix: Marine H2O                             |           |            |          |       |           |           |          |
| <b>Total ICPOES &amp; HR-ICPMS in Seawater</b> |           |            |          |       |           |           |          |
| <b>Tot. Metals in Seawater by HR-ICPMS</b>     |           |            |          |       |           |           |          |
| Aluminum (Al)-Total                            | 0.0137    |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Antimony (Sb)-Total                            | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Arsenic (As)-Total                             | <0.0020   |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Barium (Ba)-Total                              | 0.0099    |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Beryllium (Be)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Bismuth (Bi)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Boron (B)-Total                                | 3.83      |            | 0.10     | mg/L  |           | 19-OCT-18 | R4288587 |
| Cadmium (Cd)-Total                             | <0.000050 |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Calcium (Ca)-Total                             | 339       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Cesium (Cs)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Chromium (Cr)-Total                            | 0.00085   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Cobalt (Co)-Total                              | <0.000050 |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Copper (Cu)-Total                              | 0.00061   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Gallium (Ga)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Iron (Fe)-Total                                | 0.031     |            | 0.010    | mg/L  |           | 19-OCT-18 | R4288587 |
| Lead (Pb)-Total                                | <0.00030  |            | 0.00030  | mg/L  |           | 19-OCT-18 | R4288587 |
| Lithium (Li)-Total                             | 0.193     |            | 0.020    | mg/L  |           | 19-OCT-18 | R4288587 |
| Magnesium (Mg)-Total                           | 976       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Manganese (Mn)-Total                           | 0.00102   |            | 0.00020  | mg/L  |           | 19-OCT-18 | R4288587 |
| Molybdenum (Mo)-Total                          | 0.0119    |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Nickel (Ni)-Total                              | 0.00064   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Phosphorus (P)-Total                           | <0.050    |            | 0.050    | mg/L  |           | 19-OCT-18 | R4288587 |
| Potassium (K)-Total                            | 335       |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Rhenium (Re)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Rubidium (Rb)-Total                            | 0.110     |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Selenium (Se)-Total                            | <0.0020   |            | 0.0020   | mg/L  |           | 19-OCT-18 | R4288587 |
| Silicon (Si)-Total                             | <1.0      |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Silver (Ag)-Total                              | <0.00010  |            | 0.00010  | mg/L  |           | 19-OCT-18 | R4288587 |
| Sodium (Na)-Total                              | 8640      |            | 1.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Strontium (Sr)-Total                           | 5.60      |            | 0.010    | mg/L  |           | 19-OCT-18 | R4288587 |
| Sulfur (S)-Total                               | 719       |            | 5.0      | mg/L  |           | 19-OCT-18 | R4288587 |
| Tellurium (Te)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Thallium (Tl)-Total                            | <0.000050 |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Thorium (Th)-Total                             | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Tin (Sn)-Total                                 | <0.0010   |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Titanium (Ti)-Total                            | <0.0050   |            | 0.0050   | mg/L  |           | 19-OCT-18 | R4288587 |
| Tungsten (W)-Total                             | <0.0010   |            | 0.0010   | mg/L  |           | 19-OCT-18 | R4288587 |
| Uranium (U)-Total                              | 0.00295   |            | 0.000050 | mg/L  |           | 19-OCT-18 | R4288587 |
| Vanadium (V)-Total                             | 0.00129   |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Yttrium (Y)-Total                              | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| Zinc (Zn)-Total                                | <0.0030   |            | 0.0030   | mg/L  |           | 19-OCT-18 | R4288587 |
| Zirconium (Zr)-Total                           | <0.00050  |            | 0.00050  | mg/L  |           | 19-OCT-18 | R4288587 |
| <b>Miscellaneous Parameters</b>                |           |            |          |       |           |           |          |
| Ammonia, Total (as N)                          | <0.0050   |            | 0.0050   | mg/L  |           | 16-OCT-18 | R4282102 |
| Conductivity                                   | 47300     |            | 2.0      | uS/cm |           | 02-OCT-18 | R4257666 |
| Orthophosphate-Dissolved (as P)                | 0.0171    |            | 0.0010   | mg/L  |           | 29-SEP-18 | R4252115 |
| Dissolved Organic Carbon                       | 0.97      |            | 0.50     | mg/L  |           | 02-OCT-18 | R4257979 |
| Silicate (as SiO2)                             | 0.305     |            | 0.010    | mg/L  |           | 03-OCT-18 | R4258600 |
| Total Kjeldahl Nitrogen                        | 0.136     |            | 0.050    | mg/L  | 10-OCT-18 | 11-OCT-18 | R4272089 |
| Total Organic Carbon                           | 1.15      |            | 0.50     | mg/L  |           | 02-OCT-18 | R4257978 |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

| Sample Details/Parameters                  | Result    | Qualifier* | D.L.     | Units | Extracted | Analyzed  | Batch    |
|--------------------------------------------|-----------|------------|----------|-------|-----------|-----------|----------|
| L2170896-30    MW REF B1 S                 |           |            |          |       |           |           |          |
| Sampled By:    CLIENT on 20-SEP-18 @ 12:00 |           |            |          |       |           |           |          |
| Matrix:            Marine H2O              |           |            |          |       |           |           |          |
| Total Dissolved Solids                     | 35700     |            | 80       | mg/L  |           | 29-SEP-18 | R4253115 |
| Mercury (Hg)-Total                         | <0.000010 |            | 0.000010 | mg/L  |           | 06-OCT-18 | R4263241 |
| Phosphorus (P)-Total                       | 0.0251    |            | 0.0040   | mg/L  |           | 01-OCT-18 | R4255689 |
| Total Suspended Solids                     | 2.5       |            | 2.0      | mg/L  |           | 29-SEP-18 | R4253121 |
| pH                                         | 8.00      |            | 0.10     | pH    |           | 02-OCT-18 | R4257666 |
| Salinity                                   | 31.3      |            | 1.0      | psu   |           | 03-OCT-18 |          |
| <b>Diss. Mercury in Seawater by CVAFS</b>  |           |            |          |       |           |           |          |
| Dissolved Mercury Filtration Location      | LAB       |            |          |       |           | 14-OCT-18 | R4277474 |
| Dissolved Mercury Filtration Location      | LAB       |            |          |       |           | 15-OCT-18 | R4278475 |
| Dissolved Mercury Filtration Location      | LAB       |            |          |       |           | 11-OCT-18 | R4269591 |
| Mercury (Hg)-Dissolved                     | <0.000010 |            | 0.000010 | mg/L  | 15-OCT-18 | 16-OCT-18 | R4280190 |
|                                            |           |            |          |       |           |           |          |

\* Refer to Referenced Information for Qualifiers (if any) and Methodology.

## Reference Information

### Test Method References:

| ALS Test Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Matrix   | Test Description                        | Method Reference**                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------------|---------------------------------------|
| ALK-TITR-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Seawater | Alkalinity Spec by Titration (Seawater) | 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-C-BR-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Seawater | Bromide by IC (seawater)                | EPA 300.1 (mod)                       |
| This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                                         |                                       |
| ANIONS-C-CL-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Seawater | Chloride by IC (seawater)               | EPA 300.1 (mod)                       |
| This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                                         |                                       |
| ANIONS-C-F-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Seawater | Fluoride by IC (seawater)               | EPA 300.1 (mod)                       |
| This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                                         |                                       |
| ANIONS-C-NO2-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Seawater | Nitrite in Seawater by IC               | EPA 300.1 (mod)                       |
| This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                         |                                       |
| ANIONS-C-NO3-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Seawater | Nitrate in Seawater by IC               | EPA 300.1 (mod)                       |
| This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                         |                                       |
| ANIONS-C-SO4-IC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Seawater | Sulfate by IC (seawater)                | EPA 300.1 (mod)                       |
| This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography".                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                                         |                                       |
| C-TIC-PCT-SK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Soil     | Total Inorganic Carbon in Soil          | CSSS (2008) P216-217                  |
| A known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |                                         |                                       |
| C-TOC-CALC-SK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Soil     | Total Organic Carbon Calculation        | CSSS (2008) 21.2                      |
| Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon. (TIC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                                         |                                       |
| C-TOT-LECO-SK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Soil     | Total Carbon by combustion method       | CSSS (2008) 21.2                      |
| The sample is ignited in a combustion analyzer where carbon in the reduced CO2 gas is determined using a thermal conductivity detector.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |                                         |                                       |
| CARBONS-C-DOC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Seawater | DOC by combustion (seawater)            | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                                         |                                       |
| CARBONS-C-TOC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Seawater | TOC by combustion (seawater)            | APHA 5310B TOTAL ORGANIC CARBON (TOC) |
| This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                                         |                                       |
| EC-C-PCT-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Seawater | Conductivity (Automated) (seawater)     | APHA 2510 Auto. Conduc.               |
| This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                                         |                                       |
| HARDNESS-CALC-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Seawater | Hardness                                | APHA 2340B                            |
| Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.                                                                                                                                                                                                                                                                                                                                                                                                                          |          |                                         |                                       |
| HG-200.2-CVAA-SK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Soil     | Mercury in Soil by CVAAS                | EPA 200.2/1631E (mod)                 |
| Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                         |                                       |
| HG-DIS-C-CVAFS-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Seawater | Diss. Mercury in Seawater by CVAFS      | PUGET SOUND PROTOCOLS, EPA 245.7      |
| This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7). |          |                                         |                                       |
| HG-TOT-C-CVAFS-VA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Seawater | Total Mercury in Seawater by CVAFS      | PUGET SOUND PROTOCOLS, EPA 245.7      |
| This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The                                                                                                                                                                                                                                                                                                                                                                                  |          |                                         |                                       |

## Reference Information

### Test Method References:

| ALS Test Code                                                                                                                                                                                                                                                                                                                                                                                                                            | Matrix   | Test Description                       | Method Reference**                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------|-----------------------------------------|
| <p>procedure involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).</p>                                                                                                                                 |          |                                        |                                         |
| IC-CACO3-CALC-SK                                                                                                                                                                                                                                                                                                                                                                                                                         | Soil     | Inorganic Carbon as CaCO3 Equivalent   | Calculation                             |
| MET-200.2-CCMS-SK                                                                                                                                                                                                                                                                                                                                                                                                                        | Soil     | Metals in Soil by CRC ICPMS            | EPA 200.2/6020A (mod)                   |
| <p>Soil/sediment is dried, disaggregated, and sieved (2 mm). Strong Acid Leachable Metals in the &lt;2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.</p>                                                                                                                                                                               |          |                                        |                                         |
| <p>Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H<sub>2</sub>S) may be excluded if lost during sampling, storage, or digestion.</p> |          |                                        |                                         |
| MET-D-L-HRMS-VA                                                                                                                                                                                                                                                                                                                                                                                                                          | Seawater | Diss. Metals in Seawater by HR-ICPMS   | EPA 200.8                               |
| <p>Trace metals in seawater are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) based on US EPA Method 200.8, (Revision 5.5). The procedures may involve laboratory sample filtration based on APHA Method 3030B.</p>                                                                                                                                                                                |          |                                        |                                         |
| MET-T-L-HRMS-VA                                                                                                                                                                                                                                                                                                                                                                                                                          | Seawater | Tot. Metals in Seawater by HR-ICPMS    | EPA 200.8                               |
| <p>Trace metals in seawater are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) based on US EPA Method 200.8, (Revision 5.5). The procedures may involve preliminary sample treatment by acid digestion based on APHA Method 3030E.</p>                                                                                                                                                              |          |                                        |                                         |
| N-TOTKJ-COL-SK                                                                                                                                                                                                                                                                                                                                                                                                                           | Soil     | Total Kjeldahl Nitrogen                | CSSS (2008) 22.2.3                      |
| <p>The soil is digested with sulfuric acid in the presence of CuSO<sub>4</sub> and K<sub>2</sub>SO<sub>4</sub> catalysts. Ammonia in the soil extract is determined colorimetrically at 660 nm.</p>                                                                                                                                                                                                                                      |          |                                        |                                         |
| NH3-F-VA                                                                                                                                                                                                                                                                                                                                                                                                                                 | Seawater | Ammonia in Seawater by Fluorescence    | J. ENVIRON. MONIT., 2005, 7, 37-42, RSC |
| <p>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.</p>                                                                                                               |          |                                        |                                         |
| P-T-COL-VA                                                                                                                                                                                                                                                                                                                                                                                                                               | Seawater | Total P in Seawater by Colour          | APHA 4500-P Phosphorus                  |
| <p>This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colorimetrically after persulphate digestion of the sample.</p>                                                                                                                                                                                                                                           |          |                                        |                                         |
| PH-C-PCT-VA                                                                                                                                                                                                                                                                                                                                                                                                                              | Seawater | pH by Meter (Automated) (seawater)     | APHA 4500-H pH Value                    |
| <p>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.</p>                                                                                                                                                                                                                                                                            |          |                                        |                                         |
| <p>It is recommended that this analysis be conducted in the field.</p>                                                                                                                                                                                                                                                                                                                                                                   |          |                                        |                                         |
| PO4-DO-COL-VA                                                                                                                                                                                                                                                                                                                                                                                                                            | Seawater | D-Orthophosphate in Seawater by Colour | APHA 4500-P Phosphorus                  |
| <p>This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colorimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.</p>                                                                                                                                                                                        |          |                                        |                                         |
| SALINITY-CALC-VA                                                                                                                                                                                                                                                                                                                                                                                                                         | Seawater | Salinity by conductivity meter         | APHA 2520B                              |
| <p>Salinity is determined by the APHA 2520B Electrical Conductivity Method. Salinity is a unitless parameter that is roughly equivalent to grams per Litre. ALS applies the unit of psu (practical salinity unit) to indicate that salinity values are derived from the Practical Salinity Scale.</p>                                                                                                                                    |          |                                        |                                         |
| SIO2-L-COL-VA                                                                                                                                                                                                                                                                                                                                                                                                                            | Seawater | Low Level Silicate by Colourimetric    | APHA 4500-SiO <sub>2</sub> E.           |
| <p>This analysis is carried out using procedures adapted from APHA Method 4500-SiO<sub>2</sub> E. "Silica". Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colorimetric method.</p>                                                                                                                                                                                                           |          |                                        |                                         |
| SPECIAL REQUEST-SK                                                                                                                                                                                                                                                                                                                                                                                                                       | Misc.    | Special Request Sask Lab               | SEE SUBLET LAB RESULTS                  |
| TDS-VA                                                                                                                                                                                                                                                                                                                                                                                                                                   | Seawater | Total Dissolved Solids by Gravimetric  | APHA 2540 Gravimetric                   |
| <p>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.</p>                                                                                                                     |          |                                        |                                         |
| TKN-C-F-VA                                                                                                                                                                                                                                                                                                                                                                                                                               | Seawater | TKN in Seawater by Fluorescence        | APHA 4500-NORG D.                       |
| <p>This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.</p>                                                                                                                                                                   |          |                                        |                                         |
| TSS-C-VA                                                                                                                                                                                                                                                                                                                                                                                                                                 | Seawater | Total Suspended Solids by Gravimetric  | APHA 2540 D                             |
| <p>This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) is determined by filtering a sample through a glass fibre filter. TSS is determined by drying the filter at 104 degrees celsius.</p>                                                                                                                                        |          |                                        |                                         |

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

## Reference Information

### Test Method References:

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---------------|--------|------------------|--------------------|
|---------------|--------|------------------|--------------------|

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                                     |
|----------------------------|---------------------------------------------------------|
| SK                         | ALS ENVIRONMENTAL - SASKATOON, SASKATCHEWAN, CANADA     |
| VA                         | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

### Chain of Custody Numbers:

|           |           |           |
|-----------|-----------|-----------|
| 14-452766 | 14-452767 | 14-452768 |
|-----------|-----------|-----------|

### GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

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

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

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.



# Quality Control Report

Workorder: L2170896

Report Date: 19-OCT-18

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Client: Agnico-Eagle - Meliadine Gold Project

PO Box 99

Rankin Inlet NU X0C 0G0

Contact: Jennifer Brown

| Test                       | Matrix          | Reference           | Result  | Qualifier | Units | RPD | Limit  | Analyzed  |
|----------------------------|-----------------|---------------------|---------|-----------|-------|-----|--------|-----------|
| <b>C-TIC-PCT-SK</b>        |                 | <b>Soil</b>         |         |           |       |     |        |           |
| <b>Batch</b>               | <b>R4270928</b> |                     |         |           |       |     |        |           |
| <b>WG2893808-1</b>         | <b>DUP</b>      | <b>L2170896-20</b>  |         |           |       |     |        |           |
| Inorganic Carbon           |                 | 0.087               | 0.088   |           | %     | 1.4 | 20     | 11-OCT-18 |
| <b>WG2893808-2</b>         | <b>LCS</b>      |                     |         |           | %     |     | 80-120 | 11-OCT-18 |
| Inorganic Carbon           |                 |                     | 95.8    |           | %     |     | 80-120 | 11-OCT-18 |
| <b>WG2893808-3</b>         | <b>MB</b>       |                     |         |           | %     |     | 0.05   | 11-OCT-18 |
| Inorganic Carbon           |                 |                     | <0.050  |           | %     |     | 0.05   | 11-OCT-18 |
| <b>Batch</b>               | <b>R4271167</b> |                     |         |           |       |     |        |           |
| <b>WG2893800-2</b>         | <b>LCS</b>      |                     |         |           | %     |     | 80-120 | 11-OCT-18 |
| Inorganic Carbon           |                 |                     | 95.4    |           | %     |     | 80-120 | 11-OCT-18 |
| <b>WG2893800-3</b>         | <b>MB</b>       |                     |         |           | %     |     | 0.05   | 11-OCT-18 |
| Inorganic Carbon           |                 |                     | <0.050  |           | %     |     | 0.05   | 11-OCT-18 |
| <b>C-TOT-LECO-SK</b>       |                 | <b>Soil</b>         |         |           |       |     |        |           |
| <b>Batch</b>               | <b>R4263371</b> |                     |         |           |       |     |        |           |
| <b>WG2894570-1</b>         | <b>DUP</b>      | <b>L2170896-10</b>  |         |           |       |     |        |           |
| Total Carbon by Combustion |                 | 0.56                | 0.55    |           | %     | 2.0 | 20     | 05-OCT-18 |
| <b>WG2894570-2</b>         | <b>IRM</b>      | <b>08-109_SOIL</b>  |         |           |       |     |        |           |
| Total Carbon by Combustion |                 |                     | 93.7    |           | %     |     | 80-120 | 05-OCT-18 |
| <b>WG2894570-4</b>         | <b>LCS</b>      | <b>SULFADIAZINE</b> |         |           |       |     |        |           |
| Total Carbon by Combustion |                 |                     | 100.2   |           | %     |     | 90-110 | 05-OCT-18 |
| <b>WG2894570-3</b>         | <b>MB</b>       |                     |         |           | %     |     | 0.05   | 05-OCT-18 |
| Total Carbon by Combustion |                 |                     | <0.05   |           | %     |     | 0.05   | 05-OCT-18 |
| <b>Batch</b>               | <b>R4270350</b> |                     |         |           |       |     |        |           |
| <b>WG2895151-2</b>         | <b>IRM</b>      | <b>08-109_SOIL</b>  |         |           |       |     |        |           |
| Total Carbon by Combustion |                 |                     | 93.5    |           | %     |     | 80-120 | 10-OCT-18 |
| <b>WG2895151-4</b>         | <b>LCS</b>      | <b>SULFADIAZINE</b> |         |           |       |     |        |           |
| Total Carbon by Combustion |                 |                     | 100.7   |           | %     |     | 90-110 | 10-OCT-18 |
| <b>WG2895151-3</b>         | <b>MB</b>       |                     |         |           | %     |     | 0.05   | 10-OCT-18 |
| Total Carbon by Combustion |                 |                     | <0.05   |           | %     |     | 0.05   | 10-OCT-18 |
| <b>HG-200.2-CVAA-SK</b>    |                 | <b>Soil</b>         |         |           |       |     |        |           |
| <b>Batch</b>               | <b>R4268284</b> |                     |         |           |       |     |        |           |
| <b>WG2894269-3</b>         | <b>CRM</b>      | <b>TILL-1</b>       |         |           |       |     |        |           |
| Mercury (Hg)               |                 |                     | 93.0    |           | %     |     | 70-130 | 09-OCT-18 |
| <b>WG2894269-2</b>         | <b>DUP</b>      | <b>L2170896-4</b>   |         |           |       |     |        |           |
| Mercury (Hg)               |                 | 0.0101              | 0.0100  |           | mg/kg | 0.9 | 40     | 09-OCT-18 |
| <b>WG2894269-4</b>         | <b>LCS</b>      |                     |         |           | %     |     | 80-120 | 09-OCT-18 |
| Mercury (Hg)               |                 |                     | 97.2    |           | %     |     | 80-120 | 09-OCT-18 |
| <b>WG2894269-1</b>         | <b>MB</b>       |                     |         |           | mg/kg |     | 0.005  | 09-OCT-18 |
| Mercury (Hg)               |                 |                     | <0.0050 |           | mg/kg |     | 0.005  | 09-OCT-18 |

## Quality Control Report

Workorder: L2170896

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| Test                     | Matrix          | Reference          | Result  | Qualifier | Units | RPD | Limit     | Analyzed  |
|--------------------------|-----------------|--------------------|---------|-----------|-------|-----|-----------|-----------|
| <b>HG-200.2-CVAA-SK</b>  |                 | <b>Soil</b>        |         |           |       |     |           |           |
| <b>Batch</b>             | <b>R4276967</b> |                    |         |           |       |     |           |           |
| <b>WG2894273-3</b>       | <b>CRM</b>      | <b>TILL-1</b>      |         |           |       |     |           |           |
| Mercury (Hg)             |                 |                    | 93.3    |           | %     |     | 70-130    | 12-OCT-18 |
| <b>WG2894273-2</b>       | <b>DUP</b>      | <b>L2170896-21</b> |         |           |       |     |           |           |
| Mercury (Hg)             |                 | 0.0133             | 0.0125  |           | mg/kg | 6.0 | 40        | 12-OCT-18 |
| <b>WG2894273-4</b>       | <b>LCS</b>      |                    |         |           |       |     |           |           |
| Mercury (Hg)             |                 |                    | 98.9    |           | %     |     | 80-120    | 12-OCT-18 |
| <b>WG2894273-1</b>       | <b>MB</b>       |                    |         |           |       |     |           |           |
| Mercury (Hg)             |                 |                    | <0.0050 |           | mg/kg |     | 0.005     | 12-OCT-18 |
| <b>MET-200.2-CCMS-SK</b> |                 | <b>Soil</b>        |         |           |       |     |           |           |
| <b>Batch</b>             | <b>R4268336</b> |                    |         |           |       |     |           |           |
| <b>WG2894269-3</b>       | <b>CRM</b>      | <b>TILL-1</b>      |         |           |       |     |           |           |
| Aluminum (Al)            |                 |                    | 94.1    |           | %     |     | 70-130    | 10-OCT-18 |
| Antimony (Sb)            |                 |                    | 99.6    |           | %     |     | 70-130    | 10-OCT-18 |
| Arsenic (As)             |                 |                    | 92.3    |           | %     |     | 70-130    | 10-OCT-18 |
| Barium (Ba)              |                 |                    | 99.8    |           | %     |     | 70-130    | 10-OCT-18 |
| Beryllium (Be)           |                 |                    | 97.2    |           | %     |     | 70-130    | 10-OCT-18 |
| Boron (B)                |                 |                    | 2.9     |           | mg/kg |     | 0-8.2     | 10-OCT-18 |
| Bismuth (Bi)             |                 |                    | 88.9    |           | %     |     | 70-130    | 10-OCT-18 |
| Cadmium (Cd)             |                 |                    | 89.6    |           | %     |     | 70-130    | 10-OCT-18 |
| Calcium (Ca)             |                 |                    | 95.0    |           | %     |     | 70-130    | 10-OCT-18 |
| Chromium (Cr)            |                 |                    | 92.6    |           | %     |     | 70-130    | 10-OCT-18 |
| Cobalt (Co)              |                 |                    | 87.6    |           | %     |     | 70-130    | 10-OCT-18 |
| Copper (Cu)              |                 |                    | 91.7    |           | %     |     | 70-130    | 10-OCT-18 |
| Iron (Fe)                |                 |                    | 92.1    |           | %     |     | 70-130    | 10-OCT-18 |
| Lead (Pb)                |                 |                    | 93.6    |           | %     |     | 70-130    | 10-OCT-18 |
| Lithium (Li)             |                 |                    | 91.6    |           | %     |     | 70-130    | 10-OCT-18 |
| Magnesium (Mg)           |                 |                    | 86.8    |           | %     |     | 70-130    | 10-OCT-18 |
| Manganese (Mn)           |                 |                    | 90.5    |           | %     |     | 70-130    | 10-OCT-18 |
| Molybdenum (Mo)          |                 |                    | 92.4    |           | %     |     | 70-130    | 10-OCT-18 |
| Nickel (Ni)              |                 |                    | 90.7    |           | %     |     | 70-130    | 10-OCT-18 |
| Phosphorus (P)           |                 |                    | 95.7    |           | %     |     | 70-130    | 10-OCT-18 |
| Potassium (K)            |                 |                    | 108.6   |           | %     |     | 70-130    | 10-OCT-18 |
| Selenium (Se)            |                 |                    | 0.27    |           | mg/kg |     | 0.11-0.51 | 10-OCT-18 |
| Silver (Ag)              |                 |                    | 0.23    |           | mg/kg |     | 0.13-0.33 | 10-OCT-18 |
| Sodium (Na)              |                 |                    | 105.5   |           | %     |     | 70-130    | 10-OCT-18 |
| Strontium (Sr)           |                 |                    | 91.2    |           | %     |     | 70-130    | 10-OCT-18 |

## Quality Control Report

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| Test                     | Matrix          | Reference         | Result | Qualifier | Units | RPD | Limit      | Analyzed  |
|--------------------------|-----------------|-------------------|--------|-----------|-------|-----|------------|-----------|
| <b>MET-200.2-CCMS-SK</b> |                 | <b>Soil</b>       |        |           |       |     |            |           |
| <b>Batch</b>             | <b>R4268336</b> |                   |        |           |       |     |            |           |
| <b>WG2894269-3</b>       | <b>CRM</b>      | <b>TILL-1</b>     |        |           |       |     |            |           |
| Thallium (Tl)            |                 |                   | 0.113  |           | mg/kg |     | 0.077-0.18 | 10-OCT-18 |
| Tin (Sn)                 |                 |                   | 0.9    |           | mg/kg |     | 0-3.1      | 10-OCT-18 |
| Titanium (Ti)            |                 |                   | 81.3   |           | %     |     | 70-130     | 10-OCT-18 |
| Tungsten (W)             |                 |                   | 0.13   |           | mg/kg |     | 0-0.66     | 10-OCT-18 |
| Uranium (U)              |                 |                   | 88.0   |           | %     |     | 70-130     | 10-OCT-18 |
| Vanadium (V)             |                 |                   | 90.3   |           | %     |     | 70-130     | 10-OCT-18 |
| Zinc (Zn)                |                 |                   | 90.4   |           | %     |     | 70-130     | 10-OCT-18 |
| Zirconium (Zr)           |                 |                   | 1.0    |           | mg/kg |     | 0-1.8      | 10-OCT-18 |
| <b>WG2894269-2</b>       | <b>DUP</b>      | <b>L2170896-4</b> |        |           |       |     |            |           |
| Aluminum (Al)            |                 | 6860              | 8410   |           | mg/kg | 20  | 40         | 10-OCT-18 |
| Antimony (Sb)            |                 | <0.10             | <0.10  | RPD-NA    | mg/kg | N/A | 30         | 10-OCT-18 |
| Arsenic (As)             |                 | 5.44              | 6.23   |           | mg/kg | 14  | 30         | 10-OCT-18 |
| Barium (Ba)              |                 | 43.7              | 51.7   |           | mg/kg | 17  | 40         | 10-OCT-18 |
| Beryllium (Be)           |                 | 0.14              | 0.15   |           | mg/kg | 1.5 | 30         | 10-OCT-18 |
| Boron (B)                |                 | 13.5              | 14.2   |           | mg/kg | 4.8 | 30         | 10-OCT-18 |
| Bismuth (Bi)             |                 | <0.20             | <0.20  | RPD-NA    | mg/kg | N/A | 30         | 10-OCT-18 |
| Cadmium (Cd)             |                 | <0.020            | <0.020 | RPD-NA    | mg/kg | N/A | 30         | 10-OCT-18 |
| Calcium (Ca)             |                 | 5430              | 5680   |           | mg/kg | 4.4 | 30         | 10-OCT-18 |
| Chromium (Cr)            |                 | 36.3              | 42.7   |           | mg/kg | 16  | 30         | 10-OCT-18 |
| Cobalt (Co)              |                 | 4.05              | 4.74   |           | mg/kg | 16  | 30         | 10-OCT-18 |
| Copper (Cu)              |                 | 7.91              | 9.07   |           | mg/kg | 14  | 30         | 10-OCT-18 |
| Iron (Fe)                |                 | 13200             | 14400  |           | mg/kg | 9.2 | 30         | 10-OCT-18 |
| Lead (Pb)                |                 | 3.21              | 3.30   |           | mg/kg | 2.9 | 40         | 10-OCT-18 |
| Lithium (Li)             |                 | 10.9              | 11.5   |           | mg/kg | 5.9 | 30         | 10-OCT-18 |
| Magnesium (Mg)           |                 | 6560              | 7490   |           | mg/kg | 13  | 30         | 10-OCT-18 |
| Manganese (Mn)           |                 | 137               | 160    |           | mg/kg | 16  | 30         | 10-OCT-18 |
| Molybdenum (Mo)          |                 | 0.58              | 0.58   |           | mg/kg | 0.0 | 40         | 10-OCT-18 |
| Nickel (Ni)              |                 | 15.0              | 17.2   |           | mg/kg | 14  | 30         | 10-OCT-18 |
| Phosphorus (P)           |                 | 857               | 1030   |           | mg/kg | 19  | 30         | 10-OCT-18 |
| Potassium (K)            |                 | 2070              | 2370   |           | mg/kg | 14  | 40         | 10-OCT-18 |
| Selenium (Se)            |                 | 0.21              | 0.22   |           | mg/kg | 1.0 | 30         | 10-OCT-18 |
| Silver (Ag)              |                 | <0.10             | <0.10  | RPD-NA    | mg/kg | N/A | 40         | 10-OCT-18 |
| Sodium (Na)              |                 | 6210              | 6960   |           | mg/kg | 11  | 40         | 10-OCT-18 |
| Strontium (Sr)           |                 | 24.7              | 26.3   |           | mg/kg | 6.1 | 40         | 10-OCT-18 |

## Quality Control Report

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| Test                     | Matrix          | Reference         | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|--------------------------|-----------------|-------------------|--------|-----------|-------|-----|--------|-----------|
| <b>MET-200.2-CCMS-SK</b> |                 | <b>Soil</b>       |        |           |       |     |        |           |
| <b>Batch</b>             | <b>R4268336</b> |                   |        |           |       |     |        |           |
| <b>WG2894269-2</b>       | <b>DUP</b>      | <b>L2170896-4</b> |        |           |       |     |        |           |
| Sulfur (S)               |                 | <1000             | <1000  | RPD-NA    | mg/kg | N/A | 30     | 10-OCT-18 |
| Thallium (Tl)            |                 | 0.083             | 0.083  |           | mg/kg | 0.1 | 30     | 10-OCT-18 |
| Tin (Sn)                 |                 | 1.2               | <1.0   | RPD-NA    | mg/kg | N/A | 40     | 10-OCT-18 |
| Titanium (Ti)            |                 | 510               | 650    |           | mg/kg | 24  | 40     | 10-OCT-18 |
| Tungsten (W)             |                 | <0.50             | <0.50  | RPD-NA    | mg/kg | N/A | 30     | 10-OCT-18 |
| Uranium (U)              |                 | 0.702             | 0.752  |           | mg/kg | 6.9 | 30     | 10-OCT-18 |
| Vanadium (V)             |                 | 29.4              | 34.5   |           | mg/kg | 16  | 30     | 10-OCT-18 |
| Zinc (Zn)                |                 | 24.3              | 27.3   |           | mg/kg | 12  | 30     | 10-OCT-18 |
| Zirconium (Zr)           |                 | 3.9               | 4.4    |           | mg/kg | 11  | 30     | 10-OCT-18 |
| <b>WG2894269-4</b>       | <b>LCS</b>      |                   |        |           |       |     |        |           |
| Aluminum (Al)            |                 |                   | 106.8  |           | %     |     | 80-120 | 10-OCT-18 |
| Antimony (Sb)            |                 |                   | 105.6  |           | %     |     | 80-120 | 10-OCT-18 |
| Arsenic (As)             |                 |                   | 104.0  |           | %     |     | 80-120 | 10-OCT-18 |
| Barium (Ba)              |                 |                   | 108.9  |           | %     |     | 80-120 | 10-OCT-18 |
| Beryllium (Be)           |                 |                   | 101.4  |           | %     |     | 80-120 | 10-OCT-18 |
| Boron (B)                |                 |                   | 95.8   |           | %     |     | 80-120 | 10-OCT-18 |
| Bismuth (Bi)             |                 |                   | 91.3   |           | %     |     | 80-120 | 10-OCT-18 |
| Cadmium (Cd)             |                 |                   | 95.2   |           | %     |     | 80-120 | 10-OCT-18 |
| Calcium (Ca)             |                 |                   | 102.2  |           | %     |     | 80-120 | 10-OCT-18 |
| Chromium (Cr)            |                 |                   | 105.8  |           | %     |     | 80-120 | 10-OCT-18 |
| Cobalt (Co)              |                 |                   | 96.9   |           | %     |     | 80-120 | 10-OCT-18 |
| Copper (Cu)              |                 |                   | 99.9   |           | %     |     | 80-120 | 10-OCT-18 |
| Iron (Fe)                |                 |                   | 112.2  |           | %     |     | 80-120 | 10-OCT-18 |
| Lead (Pb)                |                 |                   | 94.4   |           | %     |     | 80-120 | 10-OCT-18 |
| Lithium (Li)             |                 |                   | 101.6  |           | %     |     | 80-120 | 10-OCT-18 |
| Magnesium (Mg)           |                 |                   | 98.8   |           | %     |     | 80-120 | 10-OCT-18 |
| Manganese (Mn)           |                 |                   | 104.2  |           | %     |     | 80-120 | 10-OCT-18 |
| Molybdenum (Mo)          |                 |                   | 97.8   |           | %     |     | 80-120 | 10-OCT-18 |
| Nickel (Ni)              |                 |                   | 100.7  |           | %     |     | 80-120 | 10-OCT-18 |
| Phosphorus (P)           |                 |                   | 108.2  |           | %     |     | 80-120 | 10-OCT-18 |
| Potassium (K)            |                 |                   | 104.2  |           | %     |     | 80-120 | 10-OCT-18 |
| Selenium (Se)            |                 |                   | 104.8  |           | %     |     | 80-120 | 10-OCT-18 |
| Silver (Ag)              |                 |                   | 99.2   |           | %     |     | 80-120 | 10-OCT-18 |
| Sodium (Na)              |                 |                   | 99.8   |           | %     |     | 80-120 | 10-OCT-18 |

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| Test                     | Matrix          | Reference   | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|--------------------------|-----------------|-------------|--------|-----------|-------|-----|--------|-----------|
| <b>MET-200.2-CCMS-SK</b> |                 | <b>Soil</b> |        |           |       |     |        |           |
| <b>Batch</b>             | <b>R4268336</b> |             |        |           |       |     |        |           |
| <b>WG2894269-4</b>       | <b>LCS</b>      |             |        |           |       |     |        |           |
| Strontium (Sr)           |                 |             | 103.8  |           | %     |     | 80-120 | 10-OCT-18 |
| Sulfur (S)               |                 |             | 98.6   |           | %     |     | 80-120 | 10-OCT-18 |
| Thallium (Tl)            |                 |             | 92.5   |           | %     |     | 80-120 | 10-OCT-18 |
| Tin (Sn)                 |                 |             | 95.9   |           | %     |     | 80-120 | 10-OCT-18 |
| Titanium (Ti)            |                 |             | 100.7  |           | %     |     | 80-120 | 10-OCT-18 |
| Tungsten (W)             |                 |             | 96.3   |           | %     |     | 80-120 | 10-OCT-18 |
| Uranium (U)              |                 |             | 95.8   |           | %     |     | 80-120 | 10-OCT-18 |
| Vanadium (V)             |                 |             | 105.5  |           | %     |     | 80-120 | 10-OCT-18 |
| Zinc (Zn)                |                 |             | 106.5  |           | %     |     | 80-120 | 10-OCT-18 |
| Zirconium (Zr)           |                 |             | 100.5  |           | %     |     | 80-120 | 10-OCT-18 |
| <b>WG2894269-1</b>       | <b>MB</b>       |             |        |           |       |     |        |           |
| Aluminum (Al)            |                 |             | <50    |           | mg/kg |     | 50     | 10-OCT-18 |
| Antimony (Sb)            |                 |             | <0.10  |           | mg/kg |     | 0.1    | 10-OCT-18 |
| Arsenic (As)             |                 |             | <0.10  |           | mg/kg |     | 0.1    | 10-OCT-18 |
| Barium (Ba)              |                 |             | <0.50  |           | mg/kg |     | 0.5    | 10-OCT-18 |
| Beryllium (Be)           |                 |             | <0.10  |           | mg/kg |     | 0.1    | 10-OCT-18 |
| Boron (B)                |                 |             | <5.0   |           | mg/kg |     | 5      | 10-OCT-18 |
| Bismuth (Bi)             |                 |             | <0.20  |           | mg/kg |     | 0.2    | 10-OCT-18 |
| Cadmium (Cd)             |                 |             | <0.020 |           | mg/kg |     | 0.02   | 10-OCT-18 |
| Calcium (Ca)             |                 |             | <50    |           | mg/kg |     | 50     | 10-OCT-18 |
| Chromium (Cr)            |                 |             | <0.50  |           | mg/kg |     | 0.5    | 10-OCT-18 |
| Cobalt (Co)              |                 |             | <0.10  |           | mg/kg |     | 0.1    | 10-OCT-18 |
| Copper (Cu)              |                 |             | <0.50  |           | mg/kg |     | 0.5    | 10-OCT-18 |
| Iron (Fe)                |                 |             | <50    |           | mg/kg |     | 50     | 10-OCT-18 |
| Lead (Pb)                |                 |             | <0.50  |           | mg/kg |     | 0.5    | 10-OCT-18 |
| Lithium (Li)             |                 |             | <2.0   |           | mg/kg |     | 2      | 10-OCT-18 |
| Magnesium (Mg)           |                 |             | <20    |           | mg/kg |     | 20     | 10-OCT-18 |
| Manganese (Mn)           |                 |             | <1.0   |           | mg/kg |     | 1      | 10-OCT-18 |
| Molybdenum (Mo)          |                 |             | <0.10  |           | mg/kg |     | 0.1    | 10-OCT-18 |
| Nickel (Ni)              |                 |             | <0.50  |           | mg/kg |     | 0.5    | 10-OCT-18 |
| Phosphorus (P)           |                 |             | <50    |           | mg/kg |     | 50     | 10-OCT-18 |
| Potassium (K)            |                 |             | <100   |           | mg/kg |     | 100    | 10-OCT-18 |
| Selenium (Se)            |                 |             | <0.20  |           | mg/kg |     | 0.2    | 10-OCT-18 |
| Silver (Ag)              |                 |             | <0.10  |           | mg/kg |     | 0.1    | 10-OCT-18 |

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| Test                     | Matrix          | Reference     | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|--------------------------|-----------------|---------------|--------|-----------|-------|-----|--------|-----------|
| <b>MET-200.2-CCMS-SK</b> |                 | <b>Soil</b>   |        |           |       |     |        |           |
| <b>Batch</b>             | <b>R4268336</b> |               |        |           |       |     |        |           |
| <b>WG2894269-1</b>       | <b>MB</b>       |               |        |           |       |     |        |           |
| Sodium (Na)              |                 |               | <50    |           | mg/kg |     | 50     | 10-OCT-18 |
| Strontium (Sr)           |                 |               | <0.50  |           | mg/kg |     | 0.5    | 10-OCT-18 |
| Sulfur (S)               |                 |               | <1000  |           | mg/kg |     | 1000   | 10-OCT-18 |
| Thallium (Tl)            |                 |               | <0.050 |           | mg/kg |     | 0.05   | 10-OCT-18 |
| Tin (Sn)                 |                 |               | <1.0   |           | mg/kg |     | 1      | 10-OCT-18 |
| Titanium (Ti)            |                 |               | <1.0   |           | mg/kg |     | 1      | 10-OCT-18 |
| Tungsten (W)             |                 |               | <0.50  |           | mg/kg |     | 0.5    | 10-OCT-18 |
| Uranium (U)              |                 |               | <0.050 |           | mg/kg |     | 0.05   | 10-OCT-18 |
| Vanadium (V)             |                 |               | <0.20  |           | mg/kg |     | 0.2    | 10-OCT-18 |
| Zinc (Zn)                |                 |               | <2.0   |           | mg/kg |     | 2      | 10-OCT-18 |
| Zirconium (Zr)           |                 |               | <1.0   |           | mg/kg |     | 1      | 10-OCT-18 |
| <b>Batch</b>             | <b>R4278629</b> |               |        |           |       |     |        |           |
| <b>WG2894273-3</b>       | <b>CRM</b>      | <b>TILL-1</b> |        |           |       |     |        |           |
| Aluminum (Al)            |                 |               | 86.9   |           | %     |     | 70-130 | 15-OCT-18 |
| Antimony (Sb)            |                 |               | 99.8   |           | %     |     | 70-130 | 15-OCT-18 |
| Arsenic (As)             |                 |               | 92.0   |           | %     |     | 70-130 | 15-OCT-18 |
| Barium (Ba)              |                 |               | 89.2   |           | %     |     | 70-130 | 15-OCT-18 |
| Beryllium (Be)           |                 |               | 97.3   |           | %     |     | 70-130 | 15-OCT-18 |
| Boron (B)                |                 |               | 2.5    |           | mg/kg |     | 0-8.2  | 15-OCT-18 |
| Bismuth (Bi)             |                 |               | 95.9   |           | %     |     | 70-130 | 15-OCT-18 |
| Cadmium (Cd)             |                 |               | 87.4   |           | %     |     | 70-130 | 15-OCT-18 |
| Calcium (Ca)             |                 |               | 93.7   |           | %     |     | 70-130 | 15-OCT-18 |
| Chromium (Cr)            |                 |               | 85.5   |           | %     |     | 70-130 | 15-OCT-18 |
| Cobalt (Co)              |                 |               | 84.7   |           | %     |     | 70-130 | 15-OCT-18 |
| Copper (Cu)              |                 |               | 90.7   |           | %     |     | 70-130 | 15-OCT-18 |
| Iron (Fe)                |                 |               | 88.2   |           | %     |     | 70-130 | 15-OCT-18 |
| Lead (Pb)                |                 |               | 96.3   |           | %     |     | 70-130 | 15-OCT-18 |
| Lithium (Li)             |                 |               | 98.7   |           | %     |     | 70-130 | 15-OCT-18 |
| Magnesium (Mg)           |                 |               | 85.6   |           | %     |     | 70-130 | 15-OCT-18 |
| Manganese (Mn)           |                 |               | 91.3   |           | %     |     | 70-130 | 15-OCT-18 |
| Molybdenum (Mo)          |                 |               | 92.6   |           | %     |     | 70-130 | 15-OCT-18 |
| Nickel (Ni)              |                 |               | 87.9   |           | %     |     | 70-130 | 15-OCT-18 |
| Phosphorus (P)           |                 |               | 87.9   |           | %     |     | 70-130 | 15-OCT-18 |
| Potassium (K)            |                 |               | 85.2   |           | %     |     | 70-130 | 15-OCT-18 |

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| Test                     | Matrix          | Reference          | Result | Qualifier | Units | RPD | Limit      | Analyzed  |
|--------------------------|-----------------|--------------------|--------|-----------|-------|-----|------------|-----------|
| <b>MET-200.2-CCMS-SK</b> |                 | <b>Soil</b>        |        |           |       |     |            |           |
| <b>Batch</b>             | <b>R4278629</b> |                    |        |           |       |     |            |           |
| <b>WG2894273-3</b>       | <b>CRM</b>      | <b>TILL-1</b>      |        |           |       |     |            |           |
| Selenium (Se)            |                 |                    | 0.30   |           | mg/kg |     | 0.11-0.51  | 15-OCT-18 |
| Silver (Ag)              |                 |                    | 0.24   |           | mg/kg |     | 0.13-0.33  | 15-OCT-18 |
| Sodium (Na)              |                 |                    | 84.2   |           | %     |     | 70-130     | 15-OCT-18 |
| Strontium (Sr)           |                 |                    | 88.9   |           | %     |     | 70-130     | 15-OCT-18 |
| Thallium (Tl)            |                 |                    | 0.118  |           | mg/kg |     | 0.077-0.18 | 15-OCT-18 |
| Tin (Sn)                 |                 |                    | 0.8    |           | mg/kg |     | 0-3.1      | 15-OCT-18 |
| Titanium (Ti)            |                 |                    | 72.8   |           | %     |     | 70-130     | 15-OCT-18 |
| Tungsten (W)             |                 |                    | 0.12   |           | mg/kg |     | 0-0.66     | 15-OCT-18 |
| Uranium (U)              |                 |                    | 94.6   |           | %     |     | 70-130     | 15-OCT-18 |
| Vanadium (V)             |                 |                    | 86.0   |           | %     |     | 70-130     | 15-OCT-18 |
| Zinc (Zn)                |                 |                    | 89.7   |           | %     |     | 70-130     | 15-OCT-18 |
| Zirconium (Zr)           |                 |                    | 1.1    |           | mg/kg |     | 0-1.8      | 15-OCT-18 |
| <b>WG2894273-2</b>       | <b>DUP</b>      | <b>L2170896-21</b> |        |           |       |     |            |           |
| Aluminum (Al)            |                 | 6740               | 6920   |           | mg/kg | 2.7 | 40         | 15-OCT-18 |
| Antimony (Sb)            |                 | <0.10              | <0.10  | RPD-NA    | mg/kg | N/A | 30         | 15-OCT-18 |
| Arsenic (As)             |                 | 5.06               | 4.90   |           | mg/kg | 3.1 | 30         | 15-OCT-18 |
| Barium (Ba)              |                 | 38.5               | 36.6   |           | mg/kg | 5.1 | 40         | 15-OCT-18 |
| Beryllium (Be)           |                 | 0.15               | 0.15   |           | mg/kg | 1.2 | 30         | 15-OCT-18 |
| Boron (B)                |                 | 16.9               | 16.3   |           | mg/kg | 3.2 | 30         | 15-OCT-18 |
| Bismuth (Bi)             |                 | <0.20              | <0.20  | RPD-NA    | mg/kg | N/A | 30         | 15-OCT-18 |
| Cadmium (Cd)             |                 | <0.020             | <0.020 | RPD-NA    | mg/kg | N/A | 30         | 15-OCT-18 |
| Calcium (Ca)             |                 | 5850               | 5760   |           | mg/kg | 1.6 | 30         | 15-OCT-18 |
| Chromium (Cr)            |                 | 29.4               | 28.5   |           | mg/kg | 3.2 | 30         | 15-OCT-18 |
| Cobalt (Co)              |                 | 3.80               | 3.69   |           | mg/kg | 3.1 | 30         | 15-OCT-18 |
| Copper (Cu)              |                 | 6.72               | 6.39   |           | mg/kg | 5.1 | 30         | 15-OCT-18 |
| Iron (Fe)                |                 | 12600              | 12100  |           | mg/kg | 3.8 | 30         | 15-OCT-18 |
| Lead (Pb)                |                 | 3.34               | 3.24   |           | mg/kg | 2.9 | 40         | 15-OCT-18 |
| Lithium (Li)             |                 | 10.9               | 10.7   |           | mg/kg | 1.3 | 30         | 15-OCT-18 |
| Magnesium (Mg)           |                 | 6200               | 6150   |           | mg/kg | 0.7 | 30         | 15-OCT-18 |
| Manganese (Mn)           |                 | 134                | 131    |           | mg/kg | 2.5 | 30         | 15-OCT-18 |
| Molybdenum (Mo)          |                 | 0.66               | 0.67   |           | mg/kg | 0.8 | 40         | 15-OCT-18 |
| Nickel (Ni)              |                 | 13.3               | 12.2   |           | mg/kg | 8.5 | 30         | 15-OCT-18 |
| Phosphorus (P)           |                 | 834                | 783    |           | mg/kg | 6.3 | 30         | 15-OCT-18 |
| Potassium (K)            |                 | 2090               | 2030   |           | mg/kg | 2.9 | 40         | 15-OCT-18 |



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| Test                     | Matrix          | Reference          | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|--------------------------|-----------------|--------------------|--------|-----------|-------|-----|--------|-----------|
| <b>MET-200.2-CCMS-SK</b> |                 | <b>Soil</b>        |        |           |       |     |        |           |
| <b>Batch</b>             | <b>R4278629</b> |                    |        |           |       |     |        |           |
| <b>WG2894273-2</b>       | <b>DUP</b>      | <b>L2170896-21</b> |        |           |       |     |        |           |
| Selenium (Se)            |                 | 0.21               | <0.20  | RPD-NA    | mg/kg | N/A | 30     | 15-OCT-18 |
| Silver (Ag)              |                 | <0.10              | <0.10  | RPD-NA    | mg/kg | N/A | 40     | 15-OCT-18 |
| Sodium (Na)              |                 | 7050               | 6200   |           | mg/kg | 13  | 40     | 15-OCT-18 |
| Strontium (Sr)           |                 | 25.4               | 24.3   |           | mg/kg | 4.6 | 40     | 15-OCT-18 |
| Sulfur (S)               |                 | <1000              | <1000  | RPD-NA    | mg/kg | N/A | 30     | 15-OCT-18 |
| Thallium (Tl)            |                 | 0.089              | 0.082  |           | mg/kg | 8.7 | 30     | 15-OCT-18 |
| Tin (Sn)                 |                 | <1.0               | <1.0   | RPD-NA    | mg/kg | N/A | 40     | 15-OCT-18 |
| Titanium (Ti)            |                 | 498                | 501    |           | mg/kg | 0.6 | 40     | 15-OCT-18 |
| Tungsten (W)             |                 | <0.50              | <0.50  | RPD-NA    | mg/kg | N/A | 30     | 15-OCT-18 |
| Uranium (U)              |                 | 0.856              | 0.810  |           | mg/kg | 5.6 | 30     | 15-OCT-18 |
| Vanadium (V)             |                 | 27.5               | 26.7   |           | mg/kg | 2.8 | 30     | 15-OCT-18 |
| Zinc (Zn)                |                 | 22.7               | 21.9   |           | mg/kg | 4.0 | 30     | 15-OCT-18 |
| Zirconium (Zr)           |                 | 4.5                | 4.5    |           | mg/kg | 0.8 | 30     | 15-OCT-18 |
| <b>WG2894273-4</b>       | <b>LCS</b>      |                    |        |           |       |     |        |           |
| Aluminum (Al)            |                 |                    | 99.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Antimony (Sb)            |                 |                    | 107.2  |           | %     |     | 80-120 | 15-OCT-18 |
| Arsenic (As)             |                 |                    | 98.4   |           | %     |     | 80-120 | 15-OCT-18 |
| Barium (Ba)              |                 |                    | 98.8   |           | %     |     | 80-120 | 15-OCT-18 |
| Beryllium (Be)           |                 |                    | 102.5  |           | %     |     | 80-120 | 15-OCT-18 |
| Boron (B)                |                 |                    | 91.9   |           | %     |     | 80-120 | 15-OCT-18 |
| Bismuth (Bi)             |                 |                    | 100.5  |           | %     |     | 80-120 | 15-OCT-18 |
| Cadmium (Cd)             |                 |                    | 99.0   |           | %     |     | 80-120 | 15-OCT-18 |
| Calcium (Ca)             |                 |                    | 101.2  |           | %     |     | 80-120 | 15-OCT-18 |
| Chromium (Cr)            |                 |                    | 96.8   |           | %     |     | 80-120 | 15-OCT-18 |
| Cobalt (Co)              |                 |                    | 93.4   |           | %     |     | 80-120 | 15-OCT-18 |
| Copper (Cu)              |                 |                    | 97.4   |           | %     |     | 80-120 | 15-OCT-18 |
| Iron (Fe)                |                 |                    | 103.6  |           | %     |     | 80-120 | 15-OCT-18 |
| Lead (Pb)                |                 |                    | 100.1  |           | %     |     | 80-120 | 15-OCT-18 |
| Lithium (Li)             |                 |                    | 102.8  |           | %     |     | 80-120 | 15-OCT-18 |
| Magnesium (Mg)           |                 |                    | 97.6   |           | %     |     | 80-120 | 15-OCT-18 |
| Manganese (Mn)           |                 |                    | 103.1  |           | %     |     | 80-120 | 15-OCT-18 |
| Molybdenum (Mo)          |                 |                    | 102.9  |           | %     |     | 80-120 | 15-OCT-18 |
| Nickel (Ni)              |                 |                    | 96.7   |           | %     |     | 80-120 | 15-OCT-18 |
| Phosphorus (P)           |                 |                    | 100.9  |           | %     |     | 80-120 | 15-OCT-18 |

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| Test                     | Matrix | Reference   | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|--------------------------|--------|-------------|--------|-----------|-------|-----|--------|-----------|
| <b>MET-200.2-CCMS-SK</b> |        | <b>Soil</b> |        |           |       |     |        |           |
| <b>Batch R4278629</b>    |        |             |        |           |       |     |        |           |
| <b>WG2894273-4 LCS</b>   |        |             |        |           |       |     |        |           |
| Potassium (K)            |        |             | 101.7  |           | %     |     | 80-120 | 15-OCT-18 |
| Selenium (Se)            |        |             | 96.4   |           | %     |     | 80-120 | 15-OCT-18 |
| Silver (Ag)              |        |             | 100.1  |           | %     |     | 80-120 | 15-OCT-18 |
| Sodium (Na)              |        |             | 98.1   |           | %     |     | 80-120 | 15-OCT-18 |
| Strontium (Sr)           |        |             | 99.8   |           | %     |     | 80-120 | 15-OCT-18 |
| Sulfur (S)               |        |             | 100.3  |           | %     |     | 80-120 | 15-OCT-18 |
| Thallium (Tl)            |        |             | 92.1   |           | %     |     | 80-120 | 15-OCT-18 |
| Tin (Sn)                 |        |             | 96.8   |           | %     |     | 80-120 | 15-OCT-18 |
| Titanium (Ti)            |        |             | 88.3   |           | %     |     | 80-120 | 15-OCT-18 |
| Tungsten (W)             |        |             | 97.5   |           | %     |     | 80-120 | 15-OCT-18 |
| Uranium (U)              |        |             | 99.4   |           | %     |     | 80-120 | 15-OCT-18 |
| Vanadium (V)             |        |             | 98.6   |           | %     |     | 80-120 | 15-OCT-18 |
| Zinc (Zn)                |        |             | 98.3   |           | %     |     | 80-120 | 15-OCT-18 |
| Zirconium (Zr)           |        |             | 101.7  |           | %     |     | 80-120 | 15-OCT-18 |
| <b>WG2894273-1 MB</b>    |        |             |        |           |       |     |        |           |
| Aluminum (Al)            |        |             | <50    |           | mg/kg |     | 50     | 15-OCT-18 |
| Antimony (Sb)            |        |             | <0.10  |           | mg/kg |     | 0.1    | 15-OCT-18 |
| Arsenic (As)             |        |             | <0.10  |           | mg/kg |     | 0.1    | 15-OCT-18 |
| Barium (Ba)              |        |             | <0.50  |           | mg/kg |     | 0.5    | 15-OCT-18 |
| Beryllium (Be)           |        |             | <0.10  |           | mg/kg |     | 0.1    | 15-OCT-18 |
| Boron (B)                |        |             | <5.0   |           | mg/kg |     | 5      | 15-OCT-18 |
| Bismuth (Bi)             |        |             | <0.20  |           | mg/kg |     | 0.2    | 15-OCT-18 |
| Cadmium (Cd)             |        |             | <0.020 |           | mg/kg |     | 0.02   | 15-OCT-18 |
| Calcium (Ca)             |        |             | <50    |           | mg/kg |     | 50     | 15-OCT-18 |
| Chromium (Cr)            |        |             | <0.50  |           | mg/kg |     | 0.5    | 15-OCT-18 |
| Cobalt (Co)              |        |             | <0.10  |           | mg/kg |     | 0.1    | 15-OCT-18 |
| Copper (Cu)              |        |             | <0.50  |           | mg/kg |     | 0.5    | 15-OCT-18 |
| Iron (Fe)                |        |             | <50    |           | mg/kg |     | 50     | 15-OCT-18 |
| Lead (Pb)                |        |             | <0.50  |           | mg/kg |     | 0.5    | 15-OCT-18 |
| Lithium (Li)             |        |             | <2.0   |           | mg/kg |     | 2      | 15-OCT-18 |
| Magnesium (Mg)           |        |             | <20    |           | mg/kg |     | 20     | 15-OCT-18 |
| Manganese (Mn)           |        |             | <1.0   |           | mg/kg |     | 1      | 15-OCT-18 |
| Molybdenum (Mo)          |        |             | <0.10  |           | mg/kg |     | 0.1    | 15-OCT-18 |
| Nickel (Ni)              |        |             | <0.50  |           | mg/kg |     | 0.5    | 15-OCT-18 |

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| Test                         | Matrix | Reference                  | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|------------------------------|--------|----------------------------|--------|-----------|-------|-----|--------|-----------|
| <b>MET-200.2-CCMS-SK</b>     |        | <b>Soil</b>                |        |           |       |     |        |           |
| <b>Batch R4278629</b>        |        |                            |        |           |       |     |        |           |
| <b>WG2894273-1 MB</b>        |        |                            |        |           |       |     |        |           |
| Phosphorus (P)               |        |                            | <50    |           | mg/kg |     | 50     | 15-OCT-18 |
| Potassium (K)                |        |                            | <100   |           | mg/kg |     | 100    | 15-OCT-18 |
| Selenium (Se)                |        |                            | <0.20  |           | mg/kg |     | 0.2    | 15-OCT-18 |
| Silver (Ag)                  |        |                            | <0.10  |           | mg/kg |     | 0.1    | 15-OCT-18 |
| Sodium (Na)                  |        |                            | <50    |           | mg/kg |     | 50     | 15-OCT-18 |
| Strontium (Sr)               |        |                            | <0.50  |           | mg/kg |     | 0.5    | 15-OCT-18 |
| Sulfur (S)                   |        |                            | <1000  |           | mg/kg |     | 1000   | 15-OCT-18 |
| Thallium (Tl)                |        |                            | <0.050 |           | mg/kg |     | 0.05   | 15-OCT-18 |
| Tin (Sn)                     |        |                            | <1.0   |           | mg/kg |     | 1      | 15-OCT-18 |
| Titanium (Ti)                |        |                            | <1.0   |           | mg/kg |     | 1      | 15-OCT-18 |
| Tungsten (W)                 |        |                            | <0.50  |           | mg/kg |     | 0.5    | 15-OCT-18 |
| Uranium (U)                  |        |                            | <0.050 |           | mg/kg |     | 0.05   | 15-OCT-18 |
| Vanadium (V)                 |        |                            | <0.20  |           | mg/kg |     | 0.2    | 15-OCT-18 |
| Zinc (Zn)                    |        |                            | <2.0   |           | mg/kg |     | 2      | 15-OCT-18 |
| Zirconium (Zr)               |        |                            | <1.0   |           | mg/kg |     | 1      | 15-OCT-18 |
| <b>N-TOTKJ-COL-SK</b>        |        | <b>Soil</b>                |        |           |       |     |        |           |
| <b>Batch R4280989</b>        |        |                            |        |           |       |     |        |           |
| <b>WG2893968-1 DUP</b>       |        | <b>L2170896-22</b>         |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen      |        | 0.085                      | 0.087  |           | %     | 3.2 | 20     | 15-OCT-18 |
| <b>WG2893968-2 IRM</b>       |        | <b>08-109_SOIL</b>         |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen      |        |                            | 93.5   |           | %     |     | 80-120 | 15-OCT-18 |
| <b>WG2893968-3 MB</b>        |        |                            |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen      |        |                            | <0.020 |           | %     |     | 0.02   | 15-OCT-18 |
| <b>Batch R4283767</b>        |        |                            |        |           |       |     |        |           |
| <b>WG2893965-1 DUP</b>       |        | <b>L2170896-12</b>         |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen      |        | 0.053                      | 0.051  |           | %     | 3.8 | 20     | 17-OCT-18 |
| <b>WG2893965-2 IRM</b>       |        | <b>08-109_SOIL</b>         |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen      |        |                            | 94.5   |           | %     |     | 80-120 | 17-OCT-18 |
| <b>WG2893965-3 MB</b>        |        |                            |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen      |        |                            | <0.020 |           | %     |     | 0.02   | 17-OCT-18 |
| <b>ALK-TITR-VA</b>           |        | <b>Seawater</b>            |        |           |       |     |        |           |
| <b>Batch R4257666</b>        |        |                            |        |           |       |     |        |           |
| <b>WG2890442-3 CRM</b>       |        | <b>VA-ALK-TITR-CONTROL</b> |        |           |       |     |        |           |
| Alkalinity, Total (as CaCO3) |        |                            | 102.0  |           | %     |     | 85-115 | 02-OCT-18 |
| <b>WG2890442-1 MB</b>        |        |                            |        |           |       |     |        |           |



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| Test                         | Matrix   | Reference   | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|------------------------------|----------|-------------|--------|-----------|-------|-----|--------|-----------|
| ALK-TITR-VA                  |          | Seawater    |        |           |       |     |        |           |
| Batch                        | R4257666 |             |        |           |       |     |        |           |
| WG2890442-1                  | MB       |             |        |           |       |     |        |           |
| Alkalinity, Total (as CaCO3) |          |             | <1.0   |           | mg/L  |     | 1      | 02-OCT-18 |
| ANIONS-C-BR-IC-VA            |          | Seawater    |        |           |       |     |        |           |
| Batch                        | R4258739 |             |        |           |       |     |        |           |
| WG2891645-3                  | DUP      | L2170896-27 |        |           |       |     |        |           |
| Bromide (Br)                 |          |             | 60.4   | 60.5      | mg/L  | 0.2 | 20     | 02-OCT-18 |
| WG2891645-2                  | LCS      |             |        |           |       |     |        |           |
| Bromide (Br)                 |          |             |        | 100.4     | %     |     | 85-115 | 02-OCT-18 |
| WG2891645-1                  | MB       |             |        |           |       |     |        |           |
| Bromide (Br)                 |          |             |        | <5.0      | mg/L  |     | 5      | 02-OCT-18 |
| WG2891645-4                  | MS       | L2170896-28 |        |           |       |     |        |           |
| Bromide (Br)                 |          |             | N/A    | MS-B      | %     |     | -      | 02-OCT-18 |
| ANIONS-C-CL-IC-VA            |          | Seawater    |        |           |       |     |        |           |
| Batch                        | R4258739 |             |        |           |       |     |        |           |
| WG2891645-3                  | DUP      | L2170896-27 |        |           |       |     |        |           |
| Chloride (Cl)                |          |             | 17400  | 17300     | mg/L  | 0.2 | 20     | 02-OCT-18 |
| WG2891645-2                  | LCS      |             |        |           |       |     |        |           |
| Chloride (Cl)                |          |             |        | 100.0     | %     |     | 90-110 | 02-OCT-18 |
| WG2891645-1                  | MB       |             |        |           |       |     |        |           |
| Chloride (Cl)                |          |             |        | <50       | mg/L  |     | 50     | 02-OCT-18 |
| WG2891645-4                  | MS       | L2170896-28 |        |           |       |     |        |           |
| Chloride (Cl)                |          |             | N/A    | MS-B      | %     |     | -      | 02-OCT-18 |
| ANIONS-C-F-IC-VA             |          | Seawater    |        |           |       |     |        |           |
| Batch                        | R4258739 |             |        |           |       |     |        |           |
| WG2891645-3                  | DUP      | L2170896-27 |        |           |       |     |        |           |
| Fluoride (F)                 |          |             | 1.0    | <1.0      | mg/L  | N/A | 20     | 02-OCT-18 |
| WG2891645-2                  | LCS      |             |        |           |       |     |        |           |
| Fluoride (F)                 |          |             |        | 99.9      | %     |     | 90-110 | 02-OCT-18 |
| WG2891645-1                  | MB       |             |        |           |       |     |        |           |
| Fluoride (F)                 |          |             |        | <1.0      | mg/L  |     | 1      | 02-OCT-18 |
| WG2891645-4                  | MS       | L2170896-28 |        |           |       |     |        |           |
| Fluoride (F)                 |          |             | N/A    | MS-B      | %     |     | -      | 02-OCT-18 |
| ANIONS-C-NO2-IC-VA           |          | Seawater    |        |           |       |     |        |           |
| Batch                        | R4258739 |             |        |           |       |     |        |           |
| WG2891645-3                  | DUP      | L2170896-27 |        |           |       |     |        |           |
| Nitrite (as N)               |          |             | <0.10  | <0.10     | mg/L  | N/A | 20     | 02-OCT-18 |
| WG2891645-2                  | LCS      |             |        |           |       |     |        |           |

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| Test                     | Matrix   | Reference   | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|--------------------------|----------|-------------|--------|-----------|-------|-----|--------|-----------|
| ANIONS-C-NO2-IC-VA       |          | Seawater    |        |           |       |     |        |           |
| Batch                    | R4258739 |             |        |           |       |     |        |           |
| WG2891645-2              | LCS      |             |        |           |       |     |        |           |
| Nitrite (as N)           |          |             | 100.4  |           | %     |     | 90-110 | 02-OCT-18 |
| WG2891645-1              | MB       |             |        |           |       |     |        |           |
| Nitrite (as N)           |          |             | <0.10  |           | mg/L  |     | 0.1    | 02-OCT-18 |
| ANIONS-C-NO3-IC-VA       |          | Seawater    |        |           |       |     |        |           |
| Batch                    | R4258739 |             |        |           |       |     |        |           |
| WG2891645-3              | DUP      | L2170896-27 |        |           |       |     |        |           |
| Nitrate (as N)           |          | <0.50       | <0.50  | RPD-NA    | mg/L  | N/A | 20     | 02-OCT-18 |
| WG2891645-2              | LCS      |             |        |           |       |     |        |           |
| Nitrate (as N)           |          |             | 99.96  |           | %     |     | 90-110 | 02-OCT-18 |
| WG2891645-1              | MB       |             |        |           |       |     |        |           |
| Nitrate (as N)           |          |             | <0.50  |           | mg/L  |     | 0.5    | 02-OCT-18 |
| ANIONS-C-SO4-IC-VA       |          | Seawater    |        |           |       |     |        |           |
| Batch                    | R4258739 |             |        |           |       |     |        |           |
| WG2891645-3              | DUP      | L2170896-27 |        |           |       |     |        |           |
| Sulfate (SO4)            |          | 2450        | 2440   |           | mg/L  | 0.3 | 20     | 02-OCT-18 |
| WG2891645-2              | LCS      |             |        |           |       |     |        |           |
| Sulfate (SO4)            |          |             | 100.8  |           | %     |     | 90-110 | 02-OCT-18 |
| WG2891645-1              | MB       |             |        |           |       |     |        |           |
| Sulfate (SO4)            |          |             | <30    |           | mg/L  |     | 30     | 02-OCT-18 |
| WG2891645-4              | MS       | L2170896-28 |        |           |       |     |        |           |
| Sulfate (SO4)            |          |             | N/A    | MS-B      | %     |     | -      | 02-OCT-18 |
| CARBONS-C-DOC-VA         |          | Seawater    |        |           |       |     |        |           |
| Batch                    | R4257979 |             |        |           |       |     |        |           |
| WG2892697-4              | LCS      |             |        |           |       |     |        |           |
| Dissolved Organic Carbon |          |             | 96.8   |           | %     |     | 80-120 | 02-OCT-18 |
| WG2892697-3              | MB       |             |        |           |       |     |        |           |
| Dissolved Organic Carbon |          |             | <0.50  |           | mg/L  |     | 0.5    | 02-OCT-18 |
| CARBONS-C-TOC-VA         |          | Seawater    |        |           |       |     |        |           |
| Batch                    | R4257978 |             |        |           |       |     |        |           |
| WG2892696-1              | LCS      |             |        |           |       |     |        |           |
| Total Organic Carbon     |          |             | 98.2   |           | %     |     | 80-120 | 02-OCT-18 |
| WG2892696-5              | LCS      |             |        |           |       |     |        |           |
| Total Organic Carbon     |          |             | 95.6   |           | %     |     | 80-120 | 02-OCT-18 |
| WG2892696-4              | MB       |             |        |           |       |     |        |           |
| Total Organic Carbon     |          |             | <0.50  |           | mg/L  |     | 0.5    | 02-OCT-18 |

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| Test                     | Matrix          | Reference         | Result    | Qualifier | Units | RPD | Limit   | Analyzed  |
|--------------------------|-----------------|-------------------|-----------|-----------|-------|-----|---------|-----------|
| <b>CARBONS-C-TOC-VA</b>  | <b>Seawater</b> |                   |           |           |       |     |         |           |
| Batch R4263002           |                 |                   |           |           |       |     |         |           |
| WG2895786-4 LCS          |                 |                   |           |           |       |     |         |           |
| Total Organic Carbon     |                 |                   | 99.5      |           | %     |     | 80-120  | 04-OCT-18 |
| WG2895786-3 MB           |                 |                   |           |           |       |     |         |           |
| Total Organic Carbon     |                 |                   | <0.50     |           | mg/L  |     | 0.5     | 04-OCT-18 |
| <b>EC-C-PCT-VA</b>       | <b>Seawater</b> |                   |           |           |       |     |         |           |
| Batch R4257666           |                 |                   |           |           |       |     |         |           |
| WG2890442-4 CRM          |                 | VA-EC-PCT-CONTROL |           |           |       |     |         |           |
| Conductivity             |                 |                   | 101.8     |           | %     |     | 90-110  | 02-OCT-18 |
| WG2890442-1 MB           |                 |                   |           |           |       |     |         |           |
| Conductivity             |                 |                   | <2.0      |           | uS/cm |     | 2       | 02-OCT-18 |
| <b>HG-DIS-C-CVAFS-VA</b> | <b>Seawater</b> |                   |           |           |       |     |         |           |
| Batch R4280190           |                 |                   |           |           |       |     |         |           |
| WG2904000-2 LCS          |                 |                   |           |           |       |     |         |           |
| Mercury (Hg)-Dissolved   |                 |                   | 99.0      |           | %     |     | 80-120  | 16-OCT-18 |
| WG2904000-1 MB           |                 | LF                |           |           |       |     |         |           |
| Mercury (Hg)-Dissolved   |                 |                   | <0.000010 |           | mg/L  |     | 0.00001 | 16-OCT-18 |
| <b>HG-TOT-C-CVAFS-VA</b> | <b>Seawater</b> |                   |           |           |       |     |         |           |
| Batch R4263241           |                 |                   |           |           |       |     |         |           |
| WG2897182-2 LCS          |                 |                   |           |           |       |     |         |           |
| Mercury (Hg)-Total       |                 |                   | 94.7      |           | %     |     | 80-120  | 06-OCT-18 |
| WG2897182-1 MB           |                 |                   |           |           |       |     |         |           |
| Mercury (Hg)-Total       |                 |                   | <0.000010 |           | mg/L  |     | 0.00001 | 06-OCT-18 |
| <b>MET-D-L-HRMS-VA</b>   | <b>Seawater</b> |                   |           |           |       |     |         |           |
| Batch R4286967           |                 |                   |           |           |       |     |         |           |
| WG2897898-2 LCS          |                 |                   |           |           |       |     |         |           |
| Aluminum (Al)-Dissolved  |                 |                   | 89.6      |           | %     |     | 80-120  | 15-OCT-18 |
| Aluminum (Al)-Dissolved  |                 |                   | 89.6      |           | %     |     | 80-120  | 15-OCT-18 |
| Antimony (Sb)-Dissolved  |                 |                   | 93.7      |           | %     |     | 80-120  | 15-OCT-18 |
| Antimony (Sb)-Dissolved  |                 |                   | 93.7      |           | %     |     | 80-120  | 15-OCT-18 |
| Arsenic (As)-Dissolved   |                 |                   | 93.4      |           | %     |     | 80-120  | 15-OCT-18 |
| Arsenic (As)-Dissolved   |                 |                   | 93.4      |           | %     |     | 80-120  | 15-OCT-18 |
| Barium (Ba)-Dissolved    |                 |                   | 102.0     |           | %     |     | 80-120  | 15-OCT-18 |
| Barium (Ba)-Dissolved    |                 |                   | 102.0     |           | %     |     | 80-120  | 15-OCT-18 |
| Beryllium (Be)-Dissolved |                 |                   | 98.4      |           | %     |     | 80-120  | 15-OCT-18 |
| Beryllium (Be)-Dissolved |                 |                   | 98.4      |           | %     |     | 80-120  | 15-OCT-18 |
| Bismuth (Bi)-Dissolved   |                 |                   | 88.6      |           | %     |     | 80-120  | 15-OCT-18 |

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| Test                      | Matrix          | Reference       | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|---------------------------|-----------------|-----------------|--------|-----------|-------|-----|--------|-----------|
| <b>MET-D-L-HRMS-VA</b>    |                 | <b>Seawater</b> |        |           |       |     |        |           |
| <b>Batch</b>              | <b>R4286967</b> |                 |        |           |       |     |        |           |
| <b>WG2897898-2</b>        | <b>LCS</b>      |                 |        |           |       |     |        |           |
| Bismuth (Bi)-Dissolved    |                 |                 | 88.6   |           | %     |     | 80-120 | 15-OCT-18 |
| Boron (B)-Dissolved       |                 |                 | 114.2  |           | %     |     | 80-120 | 15-OCT-18 |
| Boron (B)-Dissolved       |                 |                 | 114.2  |           | %     |     | 80-120 | 15-OCT-18 |
| Cadmium (Cd)-Dissolved    |                 |                 | 100.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Cadmium (Cd)-Dissolved    |                 |                 | 100.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Calcium (Ca)-Dissolved    |                 |                 | 96.9   |           | %     |     | 80-120 | 15-OCT-18 |
| Calcium (Ca)-Dissolved    |                 |                 | 96.9   |           | %     |     | 80-120 | 15-OCT-18 |
| Cesium (Cs)-Dissolved     |                 |                 | 106.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Cesium (Cs)-Dissolved     |                 |                 | 106.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Chromium (Cr)-Dissolved   |                 |                 | 104.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Chromium (Cr)-Dissolved   |                 |                 | 104.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Cobalt (Co)-Dissolved     |                 |                 | 95.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Cobalt (Co)-Dissolved     |                 |                 | 95.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Copper (Cu)-Dissolved     |                 |                 | 95.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Copper (Cu)-Dissolved     |                 |                 | 95.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Gallium (Ga)-Dissolved    |                 |                 | 96.4   |           | %     |     | 80-120 | 15-OCT-18 |
| Gallium (Ga)-Dissolved    |                 |                 | 96.4   |           | %     |     | 80-120 | 15-OCT-18 |
| Iron (Fe)-Dissolved       |                 |                 | 98.3   |           | %     |     | 80-120 | 15-OCT-18 |
| Iron (Fe)-Dissolved       |                 |                 | 98.3   |           | %     |     | 80-120 | 15-OCT-18 |
| Lead (Pb)-Dissolved       |                 |                 | 107.4  |           | %     |     | 80-120 | 15-OCT-18 |
| Lead (Pb)-Dissolved       |                 |                 | 107.4  |           | %     |     | 80-120 | 15-OCT-18 |
| Lithium (Li)-Dissolved    |                 |                 | 100.7  |           | %     |     | 80-120 | 15-OCT-18 |
| Lithium (Li)-Dissolved    |                 |                 | 100.7  |           | %     |     | 80-120 | 15-OCT-18 |
| Magnesium (Mg)-Dissolved  |                 |                 | 102.9  |           | %     |     | 80-120 | 15-OCT-18 |
| Magnesium (Mg)-Dissolved  |                 |                 | 102.9  |           | %     |     | 80-120 | 15-OCT-18 |
| Manganese (Mn)-Dissolved  |                 |                 | 106.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Manganese (Mn)-Dissolved  |                 |                 | 106.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Molybdenum (Mo)-Dissolved |                 |                 | 104.4  |           | %     |     | 80-120 | 15-OCT-18 |
| Molybdenum (Mo)-Dissolved |                 |                 | 104.4  |           | %     |     | 80-120 | 15-OCT-18 |
| Nickel (Ni)-Dissolved     |                 |                 | 97.4   |           | %     |     | 80-120 | 15-OCT-18 |
| Nickel (Ni)-Dissolved     |                 |                 | 97.4   |           | %     |     | 80-120 | 15-OCT-18 |
| Phosphorus (P)-Dissolved  |                 |                 | 101.1  |           | %     |     | 80-120 | 15-OCT-18 |
| Phosphorus (P)-Dissolved  |                 |                 | 101.1  |           | %     |     | 80-120 | 15-OCT-18 |
| Potassium (K)-Dissolved   |                 |                 | 98.1   |           | %     |     | 80-120 | 15-OCT-18 |



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| Test                     | Matrix          | Reference       | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|--------------------------|-----------------|-----------------|--------|-----------|-------|-----|--------|-----------|
| <b>MET-D-L-HRMS-VA</b>   |                 | <b>Seawater</b> |        |           |       |     |        |           |
| <b>Batch</b>             | <b>R4286967</b> |                 |        |           |       |     |        |           |
| <b>WG2897898-2</b>       | <b>LCS</b>      |                 |        |           |       |     |        |           |
| Potassium (K)-Dissolved  |                 |                 | 98.1   |           | %     |     | 80-120 | 15-OCT-18 |
| Rhenium (Re)-Dissolved   |                 |                 | 99.3   |           | %     |     | 80-120 | 15-OCT-18 |
| Rhenium (Re)-Dissolved   |                 |                 | 99.3   |           | %     |     | 80-120 | 15-OCT-18 |
| Rubidium (Rb)-Dissolved  |                 |                 | 107.4  |           | %     |     | 80-120 | 15-OCT-18 |
| Rubidium (Rb)-Dissolved  |                 |                 | 107.4  |           | %     |     | 80-120 | 15-OCT-18 |
| Selenium (Se)-Dissolved  |                 |                 | 100.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Selenium (Se)-Dissolved  |                 |                 | 100.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Silicon (Si)-Dissolved   |                 |                 | 99.9   |           | %     |     | 80-120 | 15-OCT-18 |
| Silicon (Si)-Dissolved   |                 |                 | 99.9   |           | %     |     | 80-120 | 15-OCT-18 |
| Silver (Ag)-Dissolved    |                 |                 | 101.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Silver (Ag)-Dissolved    |                 |                 | 101.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Sodium (Na)-Dissolved    |                 |                 | 115.1  |           | %     |     | 80-120 | 15-OCT-18 |
| Sodium (Na)-Dissolved    |                 |                 | 115.1  |           | %     |     | 80-120 | 15-OCT-18 |
| Strontium (Sr)-Dissolved |                 |                 | 93.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Strontium (Sr)-Dissolved |                 |                 | 93.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Sulfur (S)-Dissolved     |                 |                 | 103.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Sulfur (S)-Dissolved     |                 |                 | 103.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Tellurium (Te)-Dissolved |                 |                 | 106.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Tellurium (Te)-Dissolved |                 |                 | 106.0  |           | %     |     | 80-120 | 15-OCT-18 |
| Thallium (Tl)-Dissolved  |                 |                 | 94.5   |           | %     |     | 80-120 | 15-OCT-18 |
| Thallium (Tl)-Dissolved  |                 |                 | 94.5   |           | %     |     | 80-120 | 15-OCT-18 |
| Thorium (Th)-Dissolved   |                 |                 | 107.5  |           | %     |     | 80-120 | 15-OCT-18 |
| Thorium (Th)-Dissolved   |                 |                 | 107.5  |           | %     |     | 80-120 | 15-OCT-18 |
| Tin (Sn)-Dissolved       |                 |                 | 109.8  |           | %     |     | 80-120 | 15-OCT-18 |
| Tin (Sn)-Dissolved       |                 |                 | 109.8  |           | %     |     | 80-120 | 15-OCT-18 |
| Titanium (Ti)-Dissolved  |                 |                 | 97.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Titanium (Ti)-Dissolved  |                 |                 | 97.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Tungsten (W)-Dissolved   |                 |                 | 98.8   |           | %     |     | 80-120 | 15-OCT-18 |
| Tungsten (W)-Dissolved   |                 |                 | 98.8   |           | %     |     | 80-120 | 15-OCT-18 |
| Uranium (U)-Dissolved    |                 |                 | 108.6  |           | %     |     | 80-120 | 15-OCT-18 |
| Uranium (U)-Dissolved    |                 |                 | 108.6  |           | %     |     | 80-120 | 15-OCT-18 |
| Vanadium (V)-Dissolved   |                 |                 | 98.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Vanadium (V)-Dissolved   |                 |                 | 98.2   |           | %     |     | 80-120 | 15-OCT-18 |
| Yttrium (Y)-Dissolved    |                 |                 | 113.0  |           | %     |     | 80-120 | 15-OCT-18 |

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| Test                     | Matrix          | Reference       | Result     | Qualifier | Units | RPD | Limit    | Analyzed  |
|--------------------------|-----------------|-----------------|------------|-----------|-------|-----|----------|-----------|
| <b>MET-D-L-HRMS-VA</b>   |                 | <b>Seawater</b> |            |           |       |     |          |           |
| <b>Batch</b>             | <b>R4286967</b> |                 |            |           |       |     |          |           |
| <b>WG2897898-2</b>       | <b>LCS</b>      |                 |            |           |       |     |          |           |
| Yttrium (Y)-Dissolved    |                 |                 | 113.0      |           | %     |     | 80-120   | 15-OCT-18 |
| Zinc (Zn)-Dissolved      |                 |                 | 93.2       |           | %     |     | 80-120   | 15-OCT-18 |
| Zinc (Zn)-Dissolved      |                 |                 | 93.2       |           | %     |     | 80-120   | 15-OCT-18 |
| Zirconium (Zr)-Dissolved |                 |                 | 109.0      |           | %     |     | 80-120   | 15-OCT-18 |
| Zirconium (Zr)-Dissolved |                 |                 | 109.0      |           | %     |     | 80-120   | 15-OCT-18 |
| <b>WG2897898-1</b>       | <b>MB</b>       | <b>LF</b>       |            |           |       |     |          |           |
| Aluminum (Al)-Dissolved  |                 |                 | <0.0050    |           | mg/L  |     | 0.005    | 16-OCT-18 |
| Antimony (Sb)-Dissolved  |                 |                 | <0.000010  |           | mg/L  |     | 0.00001  | 15-OCT-18 |
| Antimony (Sb)-Dissolved  |                 |                 | <0.000010  |           | mg/L  |     | 0.00001  | 15-OCT-18 |
| Antimony (Sb)-Dissolved  |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 16-OCT-18 |
| Arsenic (As)-Dissolved   |                 |                 | <0.0020    |           | mg/L  |     | 0.002    | 16-OCT-18 |
| Barium (Ba)-Dissolved    |                 |                 | <0.0010    |           | mg/L  |     | 0.001    | 15-OCT-18 |
| Barium (Ba)-Dissolved    |                 |                 | <0.0010    |           | mg/L  |     | 0.001    | 15-OCT-18 |
| Barium (Ba)-Dissolved    |                 |                 | <0.0010    |           | mg/L  |     | 0.001    | 16-OCT-18 |
| Beryllium (Be)-Dissolved |                 |                 | <0.0000050 |           | mg/L  |     | 0.000005 | 15-OCT-18 |
| Beryllium (Be)-Dissolved |                 |                 | <0.0000050 |           | mg/L  |     | 0.000005 | 15-OCT-18 |
| Beryllium (Be)-Dissolved |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 16-OCT-18 |
| Bismuth (Bi)-Dissolved   |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 15-OCT-18 |
| Bismuth (Bi)-Dissolved   |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 15-OCT-18 |
| Bismuth (Bi)-Dissolved   |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 16-OCT-18 |
| Boron (B)-Dissolved      |                 |                 | <0.10      |           | mg/L  |     | 0.1      | 16-OCT-18 |
| Cadmium (Cd)-Dissolved   |                 |                 | <0.000050  |           | mg/L  |     | 0.00005  | 16-OCT-18 |
| Calcium (Ca)-Dissolved   |                 |                 | <1.0       |           | mg/L  |     | 1        | 16-OCT-18 |
| Cesium (Cs)-Dissolved    |                 |                 | <0.0000050 |           | mg/L  |     | 0.000005 | 15-OCT-18 |
| Cesium (Cs)-Dissolved    |                 |                 | <0.0000050 |           | mg/L  |     | 0.000005 | 15-OCT-18 |
| Cesium (Cs)-Dissolved    |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 16-OCT-18 |
| Chromium (Cr)-Dissolved  |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 15-OCT-18 |
| Chromium (Cr)-Dissolved  |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 15-OCT-18 |
| Chromium (Cr)-Dissolved  |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 16-OCT-18 |
| Cobalt (Co)-Dissolved    |                 |                 | <0.000050  |           | mg/L  |     | 0.00005  | 15-OCT-18 |
| Cobalt (Co)-Dissolved    |                 |                 | <0.000050  |           | mg/L  |     | 0.00005  | 15-OCT-18 |
| Cobalt (Co)-Dissolved    |                 |                 | <0.000050  |           | mg/L  |     | 0.00005  | 16-OCT-18 |
| Copper (Cu)-Dissolved    |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 15-OCT-18 |
| Copper (Cu)-Dissolved    |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 15-OCT-18 |

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| Test                      | Matrix          | Reference       | Result    | Qualifier | Units | RPD | Limit   | Analyzed  |
|---------------------------|-----------------|-----------------|-----------|-----------|-------|-----|---------|-----------|
| <b>MET-D-L-HRMS-VA</b>    |                 | <b>Seawater</b> |           |           |       |     |         |           |
| <b>Batch</b>              | <b>R4286967</b> |                 |           |           |       |     |         |           |
| <b>WG2897898-1 MB</b>     |                 | <b>LF</b>       |           |           |       |     |         |           |
| Copper (Cu)-Dissolved     |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 16-OCT-18 |
| Gallium (Ga)-Dissolved    |                 |                 | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Gallium (Ga)-Dissolved    |                 |                 | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Gallium (Ga)-Dissolved    |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 16-OCT-18 |
| Iron (Fe)-Dissolved       |                 |                 | <0.010    |           | mg/L  |     | 0.01    | 15-OCT-18 |
| Iron (Fe)-Dissolved       |                 |                 | <0.010    |           | mg/L  |     | 0.01    | 15-OCT-18 |
| Iron (Fe)-Dissolved       |                 |                 | <0.010    |           | mg/L  |     | 0.01    | 16-OCT-18 |
| Lead (Pb)-Dissolved       |                 |                 | <0.00030  |           | mg/L  |     | 0.0003  | 15-OCT-18 |
| Lead (Pb)-Dissolved       |                 |                 | <0.00030  |           | mg/L  |     | 0.0003  | 15-OCT-18 |
| Lead (Pb)-Dissolved       |                 |                 | <0.00030  |           | mg/L  |     | 0.0003  | 16-OCT-18 |
| Lithium (Li)-Dissolved    |                 |                 | <0.020    |           | mg/L  |     | 0.02    | 16-OCT-18 |
| Magnesium (Mg)-Dissolved  |                 |                 | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Magnesium (Mg)-Dissolved  |                 |                 | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Magnesium (Mg)-Dissolved  |                 |                 | <1.0      |           | mg/L  |     | 1       | 16-OCT-18 |
| Manganese (Mn)-Dissolved  |                 |                 | <0.00020  |           | mg/L  |     | 0.0002  | 15-OCT-18 |
| Manganese (Mn)-Dissolved  |                 |                 | <0.00020  |           | mg/L  |     | 0.0002  | 15-OCT-18 |
| Manganese (Mn)-Dissolved  |                 |                 | <0.00020  |           | mg/L  |     | 0.0002  | 16-OCT-18 |
| Molybdenum (Mo)-Dissolved |                 |                 | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Molybdenum (Mo)-Dissolved |                 |                 | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Molybdenum (Mo)-Dissolved |                 |                 | <0.0020   |           | mg/L  |     | 0.002   | 16-OCT-18 |
| Nickel (Ni)-Dissolved     |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Nickel (Ni)-Dissolved     |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Nickel (Ni)-Dissolved     |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 16-OCT-18 |
| Phosphorus (P)-Dissolved  |                 |                 | <0.050    |           | mg/L  |     | 0.05    | 15-OCT-18 |
| Phosphorus (P)-Dissolved  |                 |                 | <0.050    |           | mg/L  |     | 0.05    | 15-OCT-18 |
| Phosphorus (P)-Dissolved  |                 |                 | <0.050    |           | mg/L  |     | 0.05    | 16-OCT-18 |
| Potassium (K)-Dissolved   |                 |                 | <1.0      |           | mg/L  |     | 1       | 16-OCT-18 |
| Rhenium (Re)-Dissolved    |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Rhenium (Re)-Dissolved    |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Rhenium (Re)-Dissolved    |                 |                 | <0.00050  |           | mg/L  |     | 0.0005  | 16-OCT-18 |
| Rubidium (Rb)-Dissolved   |                 |                 | <0.0050   |           | mg/L  |     | 0.005   | 16-OCT-18 |
| Selenium (Se)-Dissolved   |                 |                 | <0.0020   |           | mg/L  |     | 0.002   | 15-OCT-18 |
| Selenium (Se)-Dissolved   |                 |                 | <0.0020   |           | mg/L  |     | 0.002   | 15-OCT-18 |
| Selenium (Se)-Dissolved   |                 |                 | <0.0020   |           | mg/L  |     | 0.002   | 16-OCT-18 |

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| Test                     | Matrix          | Reference       | Result     | Qualifier | Units | RPD | Limit    | Analyzed  |
|--------------------------|-----------------|-----------------|------------|-----------|-------|-----|----------|-----------|
| <b>MET-D-L-HRMS-VA</b>   |                 | <b>Seawater</b> |            |           |       |     |          |           |
| <b>Batch</b>             | <b>R4286967</b> |                 |            |           |       |     |          |           |
| <b>WG2897898-1 MB</b>    |                 | <b>LF</b>       |            |           |       |     |          |           |
| Silicon (Si)-Dissolved   |                 |                 | <1.0       |           | mg/L  |     | 1        | 16-OCT-18 |
| Silver (Ag)-Dissolved    |                 |                 | <0.00010   |           | mg/L  |     | 0.0001   | 16-OCT-18 |
| Sodium (Na)-Dissolved    |                 |                 | <1.0       |           | mg/L  |     | 1        | 16-OCT-18 |
| Strontium (Sr)-Dissolved |                 |                 | <0.010     |           | mg/L  |     | 0.01     | 15-OCT-18 |
| Strontium (Sr)-Dissolved |                 |                 | <0.010     |           | mg/L  |     | 0.01     | 15-OCT-18 |
| Strontium (Sr)-Dissolved |                 |                 | <0.010     |           | mg/L  |     | 0.01     | 16-OCT-18 |
| Sulfur (S)-Dissolved     |                 |                 | <5.0       |           | mg/L  |     | 5        | 15-OCT-18 |
| Sulfur (S)-Dissolved     |                 |                 | <5.0       |           | mg/L  |     | 5        | 15-OCT-18 |
| Sulfur (S)-Dissolved     |                 |                 | <5.0       |           | mg/L  |     | 5        | 16-OCT-18 |
| Tellurium (Te)-Dissolved |                 |                 | <0.000010  |           | mg/L  |     | 0.00001  | 15-OCT-18 |
| Tellurium (Te)-Dissolved |                 |                 | <0.000010  |           | mg/L  |     | 0.00001  | 15-OCT-18 |
| Tellurium (Te)-Dissolved |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 16-OCT-18 |
| Thallium (Tl)-Dissolved  |                 |                 | <0.000050  |           | mg/L  |     | 0.00005  | 15-OCT-18 |
| Thallium (Tl)-Dissolved  |                 |                 | <0.000050  |           | mg/L  |     | 0.00005  | 15-OCT-18 |
| Thallium (Tl)-Dissolved  |                 |                 | <0.000050  |           | mg/L  |     | 0.00005  | 16-OCT-18 |
| Thorium (Th)-Dissolved   |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 15-OCT-18 |
| Thorium (Th)-Dissolved   |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 15-OCT-18 |
| Thorium (Th)-Dissolved   |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 16-OCT-18 |
| Tin (Sn)-Dissolved       |                 |                 | <0.0010    |           | mg/L  |     | 0.001    | 15-OCT-18 |
| Tin (Sn)-Dissolved       |                 |                 | <0.0010    |           | mg/L  |     | 0.001    | 15-OCT-18 |
| Tin (Sn)-Dissolved       |                 |                 | <0.0010    |           | mg/L  |     | 0.001    | 16-OCT-18 |
| Titanium (Ti)-Dissolved  |                 |                 | <0.00020   |           | mg/L  |     | 0.0002   | 15-OCT-18 |
| Titanium (Ti)-Dissolved  |                 |                 | <0.00020   |           | mg/L  |     | 0.0002   | 15-OCT-18 |
| Titanium (Ti)-Dissolved  |                 |                 | <0.0050    |           | mg/L  |     | 0.005    | 16-OCT-18 |
| Tungsten (W)-Dissolved   |                 |                 | <0.000010  |           | mg/L  |     | 0.00001  | 15-OCT-18 |
| Tungsten (W)-Dissolved   |                 |                 | <0.000010  |           | mg/L  |     | 0.00001  | 15-OCT-18 |
| Tungsten (W)-Dissolved   |                 |                 | <0.0010    |           | mg/L  |     | 0.001    | 16-OCT-18 |
| Uranium (U)-Dissolved    |                 |                 | <0.000050  |           | mg/L  |     | 0.00005  | 15-OCT-18 |
| Uranium (U)-Dissolved    |                 |                 | <0.000050  |           | mg/L  |     | 0.00005  | 15-OCT-18 |
| Uranium (U)-Dissolved    |                 |                 | <0.000050  |           | mg/L  |     | 0.00005  | 16-OCT-18 |
| Vanadium (V)-Dissolved   |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 16-OCT-18 |
| Yttrium (Y)-Dissolved    |                 |                 | <0.0000050 |           | mg/L  |     | 0.000005 | 15-OCT-18 |
| Yttrium (Y)-Dissolved    |                 |                 | <0.0000050 |           | mg/L  |     | 0.000005 | 15-OCT-18 |
| Yttrium (Y)-Dissolved    |                 |                 | <0.00050   |           | mg/L  |     | 0.0005   | 16-OCT-18 |

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| Test                      | Matrix          | Reference          | Result    | Qualifier | Units | RPD     | Limit   | Analyzed  |
|---------------------------|-----------------|--------------------|-----------|-----------|-------|---------|---------|-----------|
| <b>MET-D-L-HRMS-VA</b>    |                 | <b>Seawater</b>    |           |           |       |         |         |           |
| <b>Batch</b>              | <b>R4286967</b> |                    |           |           |       |         |         |           |
| <b>WG2897898-1 MB</b>     |                 | <b>LF</b>          |           |           |       |         |         |           |
| Zinc (Zn)-Dissolved       |                 |                    | <0.0010   |           | mg/L  |         | 0.001   | 15-OCT-18 |
| Zinc (Zn)-Dissolved       |                 |                    | <0.0010   |           | mg/L  |         | 0.001   | 15-OCT-18 |
| Zinc (Zn)-Dissolved       |                 |                    | <0.0030   |           | mg/L  |         | 0.003   | 16-OCT-18 |
| Zirconium (Zr)-Dissolved  |                 |                    | <0.000050 |           | mg/L  |         | 0.00005 | 15-OCT-18 |
| Zirconium (Zr)-Dissolved  |                 |                    | <0.000050 |           | mg/L  |         | 0.00005 | 15-OCT-18 |
| Zirconium (Zr)-Dissolved  |                 |                    | <0.00050  |           | mg/L  |         | 0.0005  | 16-OCT-18 |
| <b>Batch</b>              | <b>R4288587</b> |                    |           |           |       |         |         |           |
| <b>WG2897898-3 DUP</b>    |                 | <b>L2170896-29</b> |           |           |       |         |         |           |
| Aluminum (Al)-Dissolved   |                 | <0.0050            | <0.0050   | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Antimony (Sb)-Dissolved   |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Arsenic (As)-Dissolved    |                 | <0.0020            | <0.0020   | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Barium (Ba)-Dissolved     |                 | 0.0098             | 0.0100    |           | mg/L  | 1.7     | 20      | 19-OCT-18 |
| Beryllium (Be)-Dissolved  |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Bismuth (Bi)-Dissolved    |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Boron (B)-Dissolved       |                 | 4.21               | 4.01      |           | mg/L  | 4.8     | 20      | 19-OCT-18 |
| Cadmium (Cd)-Dissolved    |                 | <0.000050          | <0.000050 | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Calcium (Ca)-Dissolved    |                 | 312                | 335       |           | mg/L  | 7.0     | 20      | 19-OCT-18 |
| Cesium (Cs)-Dissolved     |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Chromium (Cr)-Dissolved   |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Cobalt (Co)-Dissolved     |                 | <0.000050          | 0.000058  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Copper (Cu)-Dissolved     |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Gallium (Ga)-Dissolved    |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Iron (Fe)-Dissolved       |                 | <0.010             | <0.010    | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Lead (Pb)-Dissolved       |                 | <0.00030           | <0.00030  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Lithium (Li)-Dissolved    |                 | 0.205              | 0.192     |           | mg/L  | 6.8     | 20      | 19-OCT-18 |
| Magnesium (Mg)-Dissolved  |                 | 970                | 964       |           | mg/L  | 0.7     | 20      | 19-OCT-18 |
| Manganese (Mn)-Dissolved  |                 | 0.00026            | 0.00033   | J         | mg/L  | 0.00007 | 0.0004  | 19-OCT-18 |
| Molybdenum (Mo)-Dissolved |                 | 0.0128             | 0.0123    |           | mg/L  | 3.4     | 20      | 19-OCT-18 |
| Nickel (Ni)-Dissolved     |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Phosphorus (P)-Dissolved  |                 | <0.050             | <0.050    | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Potassium (K)-Dissolved   |                 | 321                | 335       |           | mg/L  | 4.4     | 20      | 19-OCT-18 |
| Rhenium (Re)-Dissolved    |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |
| Rubidium (Rb)-Dissolved   |                 | 0.118              | 0.112     |           | mg/L  | 4.7     | 20      | 19-OCT-18 |
| Selenium (Se)-Dissolved   |                 | <0.0020            | <0.0020   | RPD-NA    | mg/L  | N/A     | 20      | 19-OCT-18 |

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| Test                     | Matrix          | Reference          | Result    | Qualifier | Units | RPD | Limit  | Analyzed  |
|--------------------------|-----------------|--------------------|-----------|-----------|-------|-----|--------|-----------|
| <b>MET-D-L-HRMS-VA</b>   |                 | <b>Seawater</b>    |           |           |       |     |        |           |
| <b>Batch</b>             | <b>R4288587</b> |                    |           |           |       |     |        |           |
| <b>WG2897898-3</b>       | <b>DUP</b>      | <b>L2170896-29</b> |           |           |       |     |        |           |
| Silicon (Si)-Dissolved   |                 | <1.0               | <1.0      | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| Silver (Ag)-Dissolved    |                 | <0.00010           | <0.00010  | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| Sodium (Na)-Dissolved    |                 | 8680               | 8980      |           | mg/L  | 3.5 | 20     | 19-OCT-18 |
| Strontium (Sr)-Dissolved |                 | 5.40               | 5.39      |           | mg/L  | 0.1 | 20     | 19-OCT-18 |
| Sulfur (S)-Dissolved     |                 | 716                | 708       |           | mg/L  | 1.2 | 20     | 19-OCT-18 |
| Tellurium (Te)-Dissolved |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| Thallium (Tl)-Dissolved  |                 | <0.000050          | <0.000050 | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| Thorium (Th)-Dissolved   |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| Tin (Sn)-Dissolved       |                 | <0.0010            | <0.0010   | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| Titanium (Ti)-Dissolved  |                 | <0.0050            | <0.0050   | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| Tungsten (W)-Dissolved   |                 | <0.0010            | <0.0010   | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| Uranium (U)-Dissolved    |                 | 0.00301            | 0.00301   |           | mg/L  | 0.3 | 20     | 19-OCT-18 |
| Vanadium (V)-Dissolved   |                 | 0.00120            | 0.00117   |           | mg/L  | 2.6 | 20     | 19-OCT-18 |
| Yttrium (Y)-Dissolved    |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| Zinc (Zn)-Dissolved      |                 | <0.0030            | <0.0030   | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| Zirconium (Zr)-Dissolved |                 | <0.00050           | <0.00050  | RPD-NA    | mg/L  | N/A | 20     | 19-OCT-18 |
| <b>MET-T-L-HRMS-VA</b>   |                 | <b>Seawater</b>    |           |           |       |     |        |           |
| <b>Batch</b>             | <b>R4286967</b> |                    |           |           |       |     |        |           |
| <b>WG2897866-2</b>       | <b>LCS</b>      |                    |           |           |       |     |        |           |
| Aluminum (Al)-Total      |                 |                    | 93.6      |           | %     |     | 80-120 | 15-OCT-18 |
| Antimony (Sb)-Total      |                 |                    | 96.6      |           | %     |     | 80-120 | 15-OCT-18 |
| Arsenic (As)-Total       |                 |                    | 100.4     |           | %     |     | 80-120 | 15-OCT-18 |
| Barium (Ba)-Total        |                 |                    | 104.4     |           | %     |     | 80-120 | 15-OCT-18 |
| Beryllium (Be)-Total     |                 |                    | 101.0     |           | %     |     | 80-120 | 15-OCT-18 |
| Bismuth (Bi)-Total       |                 |                    | 90.9      |           | %     |     | 80-120 | 15-OCT-18 |
| Boron (B)-Total          |                 |                    | 119.0     |           | %     |     | 80-120 | 15-OCT-18 |
| Cadmium (Cd)-Total       |                 |                    | 105.0     |           | %     |     | 80-120 | 15-OCT-18 |
| Calcium (Ca)-Total       |                 |                    | 97.1      |           | %     |     | 80-120 | 15-OCT-18 |
| Cesium (Cs)-Total        |                 |                    | 107.2     |           | %     |     | 80-120 | 15-OCT-18 |
| Chromium (Cr)-Total      |                 |                    | 100.0     |           | %     |     | 80-120 | 15-OCT-18 |
| Cobalt (Co)-Total        |                 |                    | 98.4      |           | %     |     | 80-120 | 15-OCT-18 |
| Copper (Cu)-Total        |                 |                    | 96.8      |           | %     |     | 80-120 | 15-OCT-18 |
| Gallium (Ga)-Total       |                 |                    | 100.0     |           | %     |     | 80-120 | 15-OCT-18 |
| Iron (Fe)-Total          |                 |                    | 101.3     |           | %     |     | 80-120 | 15-OCT-18 |

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| Test                   | Matrix          | Reference       | Result   | Qualifier | Units | RPD | Limit  | Analyzed  |
|------------------------|-----------------|-----------------|----------|-----------|-------|-----|--------|-----------|
| <b>MET-T-L-HRMS-VA</b> |                 | <b>Seawater</b> |          |           |       |     |        |           |
| <b>Batch</b>           | <b>R4286967</b> |                 |          |           |       |     |        |           |
| <b>WG2897866-2</b>     | <b>LCS</b>      |                 |          |           |       |     |        |           |
| Lead (Pb)-Total        |                 |                 | 107.2    |           | %     |     | 80-120 | 15-OCT-18 |
| Lithium (Li)-Total     |                 |                 | 102.8    |           | %     |     | 80-120 | 15-OCT-18 |
| Magnesium (Mg)-Total   |                 |                 | 106.7    |           | %     |     | 80-120 | 15-OCT-18 |
| Manganese (Mn)-Total   |                 |                 | 110.0    |           | %     |     | 80-120 | 15-OCT-18 |
| Molybdenum (Mo)-Total  |                 |                 | 106.8    |           | %     |     | 80-120 | 15-OCT-18 |
| Nickel (Ni)-Total      |                 |                 | 100.4    |           | %     |     | 80-120 | 15-OCT-18 |
| Phosphorus (P)-Total   |                 |                 | 107.1    |           | %     |     | 80-120 | 15-OCT-18 |
| Potassium (K)-Total    |                 |                 | 101.2    |           | %     |     | 80-120 | 15-OCT-18 |
| Rhenium (Re)-Total     |                 |                 | 103.0    |           | %     |     | 80-120 | 15-OCT-18 |
| Rubidium (Rb)-Total    |                 |                 | 109.3    |           | %     |     | 80-120 | 15-OCT-18 |
| Selenium (Se)-Total    |                 |                 | 103.1    |           | %     |     | 80-120 | 15-OCT-18 |
| Silicon (Si)-Total     |                 |                 | 103.0    |           | %     |     | 80-120 | 15-OCT-18 |
| Silver (Ag)-Total      |                 |                 | 103.0    |           | %     |     | 80-120 | 15-OCT-18 |
| Sodium (Na)-Total      |                 |                 | 114.9    |           | %     |     | 80-120 | 15-OCT-18 |
| Strontium (Sr)-Total   |                 |                 | 95.6     |           | %     |     | 80-120 | 15-OCT-18 |
| Sulfur (S)-Total       |                 |                 | 108.1    |           | %     |     | 70-130 | 15-OCT-18 |
| Tellurium (Te)-Total   |                 |                 | 106.0    |           | %     |     | 80-120 | 15-OCT-18 |
| Thallium (Tl)-Total    |                 |                 | 96.5     |           | %     |     | 80-120 | 15-OCT-18 |
| Thorium (Th)-Total     |                 |                 | 107.5    |           | %     |     | 80-120 | 15-OCT-18 |
| Tin (Sn)-Total         |                 |                 | 113.0    |           | %     |     | 80-120 | 15-OCT-18 |
| Titanium (Ti)-Total    |                 |                 | 98.4     |           | %     |     | 80-120 | 15-OCT-18 |
| Tungsten (W)-Total     |                 |                 | 101.0    |           | %     |     | 80-120 | 15-OCT-18 |
| Uranium (U)-Total      |                 |                 | 109.6    |           | %     |     | 80-120 | 15-OCT-18 |
| Vanadium (V)-Total     |                 |                 | 101.4    |           | %     |     | 80-120 | 15-OCT-18 |
| Yttrium (Y)-Total      |                 |                 | 114.0    |           | %     |     | 80-120 | 15-OCT-18 |
| Zinc (Zn)-Total        |                 |                 | 100.6    |           | %     |     | 80-120 | 15-OCT-18 |
| Zirconium (Zr)-Total   |                 |                 | 109.0    |           | %     |     | 80-120 | 15-OCT-18 |
| <b>WG2897866-1</b>     | <b>MB</b>       |                 |          |           |       |     |        |           |
| Aluminum (Al)-Total    |                 |                 | <0.0050  |           | mg/L  |     | 0.005  | 15-OCT-18 |
| Antimony (Sb)-Total    |                 |                 | <0.00050 |           | mg/L  |     | 0.0005 | 15-OCT-18 |
| Arsenic (As)-Total     |                 |                 | <0.0020  |           | mg/L  |     | 0.002  | 15-OCT-18 |
| Barium (Ba)-Total      |                 |                 | <0.0010  |           | mg/L  |     | 0.001  | 15-OCT-18 |
| Beryllium (Be)-Total   |                 |                 | <0.00050 |           | mg/L  |     | 0.0005 | 15-OCT-18 |
| Bismuth (Bi)-Total     |                 |                 | <0.00050 |           | mg/L  |     | 0.0005 | 15-OCT-18 |



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| Test                  | Matrix   | Reference | Result    | Qualifier | Units | RPD | Limit   | Analyzed  |
|-----------------------|----------|-----------|-----------|-----------|-------|-----|---------|-----------|
| MET-T-L-HRMS-VA       |          | Seawater  |           |           |       |     |         |           |
| Batch                 | R4286967 |           |           |           |       |     |         |           |
| WG2897866-1 MB        |          |           |           |           |       |     |         |           |
| Boron (B)-Total       |          |           | <0.10     |           | mg/L  |     | 0.1     | 15-OCT-18 |
| Cadmium (Cd)-Total    |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Calcium (Ca)-Total    |          |           | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Cesium (Cs)-Total     |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Chromium (Cr)-Total   |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Cobalt (Co)-Total     |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Copper (Cu)-Total     |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Gallium (Ga)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Iron (Fe)-Total       |          |           | <0.010    |           | mg/L  |     | 0.01    | 15-OCT-18 |
| Lead (Pb)-Total       |          |           | <0.00030  |           | mg/L  |     | 0.0003  | 15-OCT-18 |
| Lithium (Li)-Total    |          |           | <0.020    |           | mg/L  |     | 0.02    | 15-OCT-18 |
| Magnesium (Mg)-Total  |          |           | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Manganese (Mn)-Total  |          |           | <0.00020  |           | mg/L  |     | 0.0002  | 15-OCT-18 |
| Molybdenum (Mo)-Total |          |           | <0.0020   |           | mg/L  |     | 0.002   | 15-OCT-18 |
| Nickel (Ni)-Total     |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Phosphorus (P)-Total  |          |           | <0.050    |           | mg/L  |     | 0.05    | 15-OCT-18 |
| Potassium (K)-Total   |          |           | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Rhenium (Re)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Rubidium (Rb)-Total   |          |           | <0.0050   |           | mg/L  |     | 0.005   | 15-OCT-18 |
| Selenium (Se)-Total   |          |           | <0.0020   |           | mg/L  |     | 0.002   | 15-OCT-18 |
| Silicon (Si)-Total    |          |           | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Silver (Ag)-Total     |          |           | <0.00010  |           | mg/L  |     | 0.0001  | 15-OCT-18 |
| Sodium (Na)-Total     |          |           | <1.0      |           | mg/L  |     | 1       | 15-OCT-18 |
| Strontium (Sr)-Total  |          |           | <0.010    |           | mg/L  |     | 0.01    | 15-OCT-18 |
| Sulfur (S)-Total      |          |           | <5.0      |           | mg/L  |     | 5       | 15-OCT-18 |
| Tellurium (Te)-Total  |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Thallium (Tl)-Total   |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Thorium (Th)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Tin (Sn)-Total        |          |           | <0.0010   |           | mg/L  |     | 0.001   | 15-OCT-18 |
| Titanium (Ti)-Total   |          |           | <0.0050   |           | mg/L  |     | 0.005   | 15-OCT-18 |
| Tungsten (W)-Total    |          |           | <0.0010   |           | mg/L  |     | 0.001   | 15-OCT-18 |
| Uranium (U)-Total     |          |           | <0.000050 |           | mg/L  |     | 0.00005 | 15-OCT-18 |
| Vanadium (V)-Total    |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| Yttrium (Y)-Total     |          |           | <0.00050  |           | mg/L  |     | 0.0005  | 15-OCT-18 |

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| Test                            | Matrix          | Reference              | Result   | Qualifier | Units | RPD | Limit   | Analyzed  |
|---------------------------------|-----------------|------------------------|----------|-----------|-------|-----|---------|-----------|
| <b>MET-T-L-HRMS-VA</b>          | <b>Seawater</b> |                        |          |           |       |     |         |           |
| <b>Batch R4286967</b>           |                 |                        |          |           |       |     |         |           |
| <b>WG2897866-1 MB</b>           |                 |                        |          |           |       |     |         |           |
| Zinc (Zn)-Total                 |                 |                        | <0.0030  |           | mg/L  |     | 0.003   | 15-OCT-18 |
| Zirconium (Zr)-Total            |                 |                        | <0.00050 |           | mg/L  |     | 0.0005  | 15-OCT-18 |
| <b>NH3-F-VA</b>                 | <b>Seawater</b> |                        |          |           |       |     |         |           |
| <b>Batch R4282102</b>           |                 |                        |          |           |       |     |         |           |
| <b>WG2904276-3 DUP</b>          |                 | <b>L2170896-29</b>     |          |           |       |     |         |           |
| Ammonia, Total (as N)           |                 | <0.0050                | <0.0050  | RPD-NA    | mg/L  | N/A | 20      | 16-OCT-18 |
| <b>WG2904276-2 LCS</b>          |                 |                        |          |           |       |     |         |           |
| Ammonia, Total (as N)           |                 |                        | 99.7     |           | %     |     | 85-115  | 16-OCT-18 |
| <b>WG2904276-1 MB</b>           |                 |                        |          |           |       |     |         |           |
| Ammonia, Total (as N)           |                 |                        | <0.0050  |           | mg/L  |     | 0.005   | 16-OCT-18 |
| <b>WG2904276-4 MS</b>           |                 | <b>L2170896-29</b>     |          |           |       |     |         |           |
| Ammonia, Total (as N)           |                 |                        | 102.6    |           | %     |     | 75-125  | 16-OCT-18 |
| <b>P-T-COL-VA</b>               | <b>Seawater</b> |                        |          |           |       |     |         |           |
| <b>Batch R4255689</b>           |                 |                        |          |           |       |     |         |           |
| <b>WG2891084-2 CRM</b>          |                 | <b>VA-ERA-PO4</b>      |          |           |       |     |         |           |
| Phosphorus (P)-Total            |                 |                        | 102.9    |           | %     |     | 80-120  | 01-OCT-18 |
| <b>WG2891084-3 DUP</b>          |                 | <b>L2170896-27</b>     |          |           |       |     |         |           |
| Phosphorus (P)-Total            |                 | 0.0273                 | 0.0257   |           | mg/L  | 5.8 | 20      | 01-OCT-18 |
| <b>WG2891084-1 MB</b>           |                 |                        |          |           |       |     |         |           |
| Phosphorus (P)-Total            |                 |                        | <0.0040  |           | mg/L  |     | 0.004   | 01-OCT-18 |
| <b>PH-C-PCT-VA</b>              | <b>Seawater</b> |                        |          |           |       |     |         |           |
| <b>Batch R4257666</b>           |                 |                        |          |           |       |     |         |           |
| <b>WG2890442-2 CRM</b>          |                 | <b>VA-PH7-BUF</b>      |          |           |       |     |         |           |
| pH                              |                 |                        | 7.04     |           | pH    |     | 6.9-7.1 | 02-OCT-18 |
| <b>PO4-DO-COL-VA</b>            | <b>Seawater</b> |                        |          |           |       |     |         |           |
| <b>Batch R4252115</b>           |                 |                        |          |           |       |     |         |           |
| <b>WG2890710-2 CRM</b>          |                 | <b>VA-OPO4-CONTROL</b> |          |           |       |     |         |           |
| Orthophosphate-Dissolved (as P) |                 |                        | 101.0    |           | %     |     | 80-120  | 29-SEP-18 |
| <b>WG2890710-3 DUP</b>          |                 | <b>L2170896-27</b>     |          |           |       |     |         |           |
| Orthophosphate-Dissolved (as P) |                 | 0.0187                 | 0.0182   |           | mg/L  | 2.8 | 20      | 29-SEP-18 |
| <b>WG2890710-1 MB</b>           |                 |                        |          |           |       |     |         |           |
| Orthophosphate-Dissolved (as P) |                 |                        | <0.0010  |           | mg/L  |     | 0.001   | 29-SEP-18 |
| <b>WG2890710-4 MS</b>           |                 | <b>L2170896-28</b>     |          |           |       |     |         |           |
| Orthophosphate-Dissolved (as P) |                 |                        | 96.5     |           | %     |     | 70-130  | 29-SEP-18 |
| <b>SIO2-L-COL-VA</b>            | <b>Seawater</b> |                        |          |           |       |     |         |           |

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| Test                    | Matrix          | Reference              | Result | Qualifier | Units | RPD | Limit  | Analyzed  |
|-------------------------|-----------------|------------------------|--------|-----------|-------|-----|--------|-----------|
| <b>SIO2-L-COL-VA</b>    | <b>Seawater</b> |                        |        |           |       |     |        |           |
| <b>Batch R4258600</b>   |                 |                        |        |           |       |     |        |           |
| <b>WG2893982-2 CRM</b>  |                 | <b>VA-SIO2-L-0.025</b> |        |           |       |     |        |           |
| Silicate (as SiO2)      |                 |                        | 105.3  |           | %     |     | 85-115 | 03-OCT-18 |
| <b>WG2893982-1 MB</b>   |                 |                        |        |           |       |     |        |           |
| Silicate (as SiO2)      |                 |                        | <0.010 |           | mg/L  |     | 0.01   | 03-OCT-18 |
| <b>TDS-VA</b>           | <b>Seawater</b> |                        |        |           |       |     |        |           |
| <b>Batch R4253115</b>   |                 |                        |        |           |       |     |        |           |
| <b>WG2890897-3 DUP</b>  |                 | <b>L2170896-27</b>     |        |           |       |     |        |           |
| Total Dissolved Solids  |                 | 35400                  | 36400  |           | mg/L  | 2.8 | 20     | 29-SEP-18 |
| <b>WG2890897-2 LCS</b>  |                 |                        |        |           |       |     |        |           |
| Total Dissolved Solids  |                 |                        | 103.5  |           | %     |     | 85-115 | 29-SEP-18 |
| <b>WG2890897-1 MB</b>   |                 |                        |        |           |       |     |        |           |
| Total Dissolved Solids  |                 |                        | <10    |           | mg/L  |     | 10     | 29-SEP-18 |
| <b>TKN-C-F-VA</b>       | <b>Seawater</b> |                        |        |           |       |     |        |           |
| <b>Batch R4272089</b>   |                 |                        |        |           |       |     |        |           |
| <b>WG2899817-3 DUP</b>  |                 | <b>L2170896-29</b>     |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen |                 | 0.133                  | 0.125  |           | mg/L  | 6.3 | 20     | 11-OCT-18 |
| <b>WG2899817-2 LCS</b>  |                 |                        |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen |                 |                        | 92.5   |           | %     |     | 75-125 | 11-OCT-18 |
| <b>WG2899817-1 MB</b>   |                 |                        |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen |                 |                        | <0.050 |           | mg/L  |     | 0.05   | 11-OCT-18 |
| <b>WG2899817-4 MS</b>   |                 | <b>L2170896-30</b>     |        |           |       |     |        |           |
| Total Kjeldahl Nitrogen |                 |                        | 114.3  |           | %     |     | 70-130 | 11-OCT-18 |
| <b>TSS-C-VA</b>         | <b>Seawater</b> |                        |        |           |       |     |        |           |
| <b>Batch R4253121</b>   |                 |                        |        |           |       |     |        |           |
| <b>WG2890894-2 LCS</b>  |                 |                        |        |           |       |     |        |           |
| Total Suspended Solids  |                 |                        | 97.7   |           | %     |     | 85-115 | 29-SEP-18 |
| <b>WG2890894-1 MB</b>   |                 |                        |        |           |       |     |        |           |
| Total Suspended Solids  |                 |                        | <2.0   |           | mg/L  |     | 2      | 29-SEP-18 |

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## Legend:

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|       |                                             |
|-------|---------------------------------------------|
| Limit | ALS Control Limit (Data Quality Objectives) |
| DUP   | Duplicate                                   |
| RPD   | Relative Percent Difference                 |
| N/A   | Not Available                               |
| LCS   | Laboratory Control Sample                   |
| SRM   | Standard Reference Material                 |
| MS    | Matrix Spike                                |
| MSD   | Matrix Spike Duplicate                      |
| ADE   | Average Desorption Efficiency               |
| MB    | Method Blank                                |
| IRM   | Internal Reference Material                 |
| CRM   | Certified Reference Material                |
| CCV   | Continuing Calibration Verification         |
| CVS   | Calibration Verification Standard           |
| LCSD  | Laboratory Control Sample Duplicate         |

## Sample Parameter Qualifier Definitions:

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| Qualifier | Description                                                                                        |
|-----------|----------------------------------------------------------------------------------------------------|
| J         | Duplicate results and limits are expressed in terms of absolute difference.                        |
| MS-B      | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA    | Relative Percent Difference Not Available due to result(s) being less than detection limit.        |

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## Hold Time Exceedances:

| ALS Product Description                | Sample ID | Sampling Date   | Date Processed  | Rec. HT | Actual HT | Units | Qualifier |
|----------------------------------------|-----------|-----------------|-----------------|---------|-----------|-------|-----------|
| <b>Physical Tests</b>                  |           |                 |                 |         |           |       |           |
| Total Dissolved Solids by Gravimetric  |           |                 |                 |         |           |       |           |
|                                        | 27        | 20-SEP-18 11:00 | 29-SEP-18 15:57 | 7       | 9         | days  | EHT       |
|                                        | 28        | 20-SEP-18 11:00 | 29-SEP-18 15:57 | 7       | 9         | days  | EHT       |
|                                        | 29        | 20-SEP-18 12:00 | 29-SEP-18 15:57 | 7       | 9         | days  | EHT       |
|                                        | 30        | 20-SEP-18 12:00 | 29-SEP-18 15:57 | 7       | 9         | days  | EHT       |
| Total Suspended Solids by Gravimetric  |           |                 |                 |         |           |       |           |
|                                        | 27        | 20-SEP-18 11:00 | 29-SEP-18 15:56 | 7       | 9         | days  | EHT       |
|                                        | 28        | 20-SEP-18 11:00 | 29-SEP-18 15:56 | 7       | 9         | days  | EHT       |
|                                        | 29        | 20-SEP-18 12:00 | 29-SEP-18 15:56 | 7       | 9         | days  | EHT       |
|                                        | 30        | 20-SEP-18 12:00 | 29-SEP-18 15:56 | 7       | 9         | days  | EHT       |
| pH by Meter (Automated) (seawater)     |           |                 |                 |         |           |       |           |
|                                        | 27        | 20-SEP-18 11:00 | 02-OCT-18 13:45 | 0.25    | 291       | hours | EHTR-FM   |
|                                        | 28        | 20-SEP-18 11:00 | 02-OCT-18 13:45 | 0.25    | 291       | hours | EHTR-FM   |
|                                        | 29        | 20-SEP-18 12:00 | 02-OCT-18 13:45 | 0.25    | 290       | hours | EHTR-FM   |
|                                        | 30        | 20-SEP-18 12:00 | 02-OCT-18 13:45 | 0.25    | 290       | hours | EHTR-FM   |
| <b>Anions and Nutrients</b>            |           |                 |                 |         |           |       |           |
| D-Orthophosphate in Seawater by Colour |           |                 |                 |         |           |       |           |
|                                        | 27        | 20-SEP-18 11:00 | 29-SEP-18 15:17 | 3       | 9         | days  | EHTR      |
|                                        | 28        | 20-SEP-18 11:00 | 29-SEP-18 15:19 | 3       | 9         | days  | EHTR      |
|                                        | 29        | 20-SEP-18 12:00 | 29-SEP-18 15:19 | 3       | 9         | days  | EHTR      |
|                                        | 30        | 20-SEP-18 12:00 | 29-SEP-18 15:20 | 3       | 9         | days  | EHTR      |
| Nitrate in Seawater by IC              |           |                 |                 |         |           |       |           |
|                                        | 27        | 20-SEP-18 11:00 | 02-OCT-18 07:08 | 3       | 12        | days  | EHTR      |
|                                        | 28        | 20-SEP-18 11:00 | 02-OCT-18 07:08 | 3       | 12        | days  | EHTR      |
|                                        | 29        | 20-SEP-18 12:00 | 02-OCT-18 07:08 | 3       | 12        | days  | EHTR      |
|                                        | 30        | 20-SEP-18 12:00 | 02-OCT-18 07:08 | 3       | 12        | days  | EHTR      |
| Nitrite in Seawater by IC              |           |                 |                 |         |           |       |           |
|                                        | 27        | 20-SEP-18 11:00 | 02-OCT-18 07:08 | 3       | 12        | days  | EHTR      |
|                                        | 28        | 20-SEP-18 11:00 | 02-OCT-18 07:08 | 3       | 12        | days  | EHTR      |
|                                        | 29        | 20-SEP-18 12:00 | 02-OCT-18 07:08 | 3       | 12        | days  | EHTR      |
|                                        | 30        | 20-SEP-18 12:00 | 02-OCT-18 07:08 | 3       | 12        | days  | EHTR      |
| Total P in Seawater by Colour          |           |                 |                 |         |           |       |           |
|                                        | 27        | 20-SEP-18 11:00 | 01-OCT-18 17:29 | 3       | 11        | days  | EHTR      |
|                                        | 28        | 20-SEP-18 11:00 | 01-OCT-18 17:29 | 3       | 11        | days  | EHTR      |
|                                        | 29        | 20-SEP-18 12:00 | 01-OCT-18 17:29 | 3       | 11        | days  | EHTR      |
|                                        | 30        | 20-SEP-18 12:00 | 01-OCT-18 17:29 | 3       | 11        | days  | EHTR      |
| <b>Metals</b>                          |           |                 |                 |         |           |       |           |
| Mercury in Soil by CVAAS               |           |                 |                 |         |           |       |           |
|                                        | 8         | 13-SEP-18 15:00 | 18-OCT-18 13:00 | 28      | 35        | days  | EHT       |
|                                        | 26        | 13-SEP-18 17:00 | 12-OCT-18 14:00 | 28      | 29        | days  | EHT       |

## Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.  
 EHTR: Exceeded ALS recommended hold time prior to sample receipt.  
 EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.  
 EHT: Exceeded ALS recommended hold time prior to analysis.  
 Rec. HT: ALS recommended hold time (see units).

## Notes\*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.  
 Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2170896 were received on 26-SEP-18 09:00.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the

# Quality Control Report

Workorder: L2170896

Report Date: 19-OCT-18

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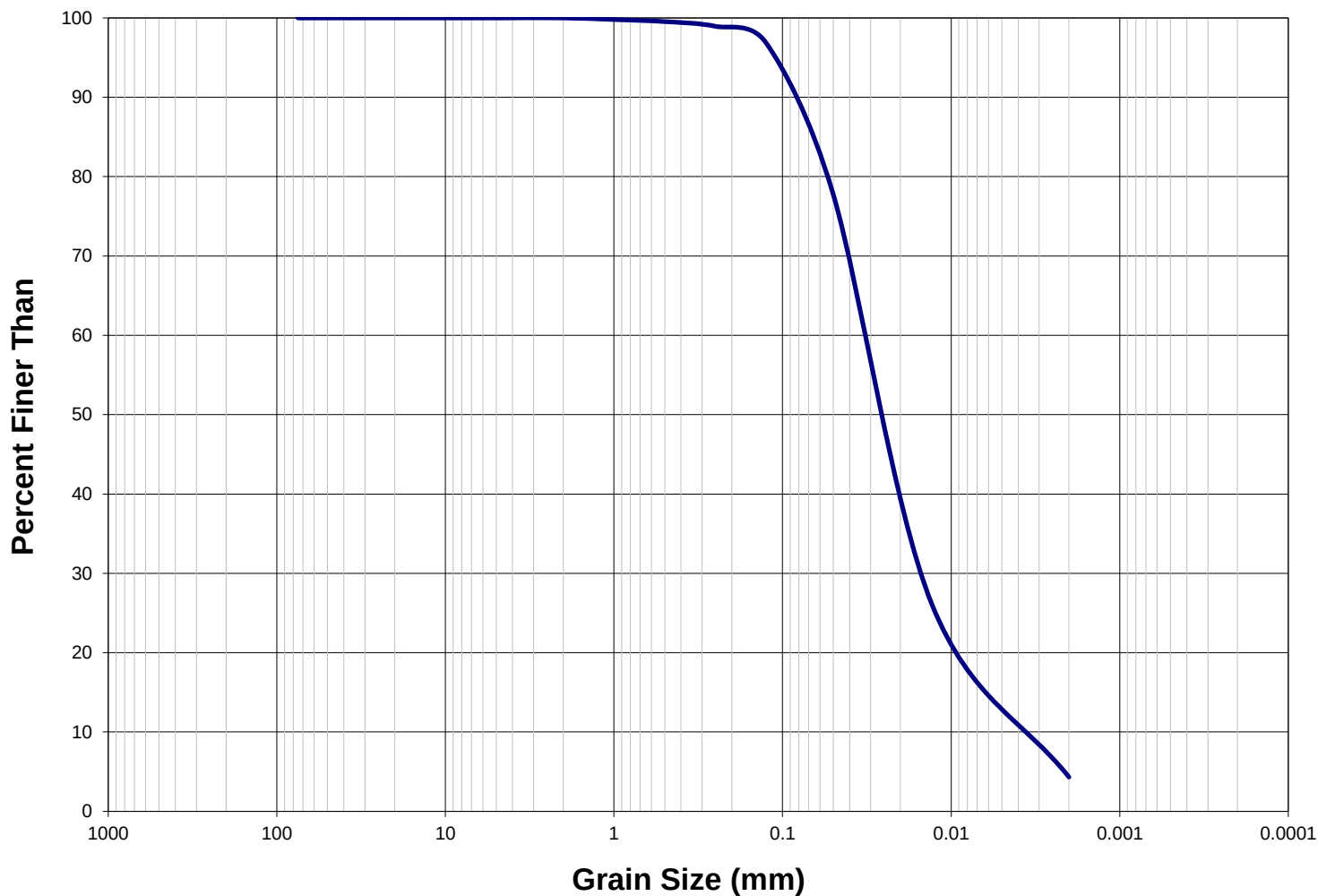
US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



## Particle Size Distribution Curve



### Particle Size Distribution

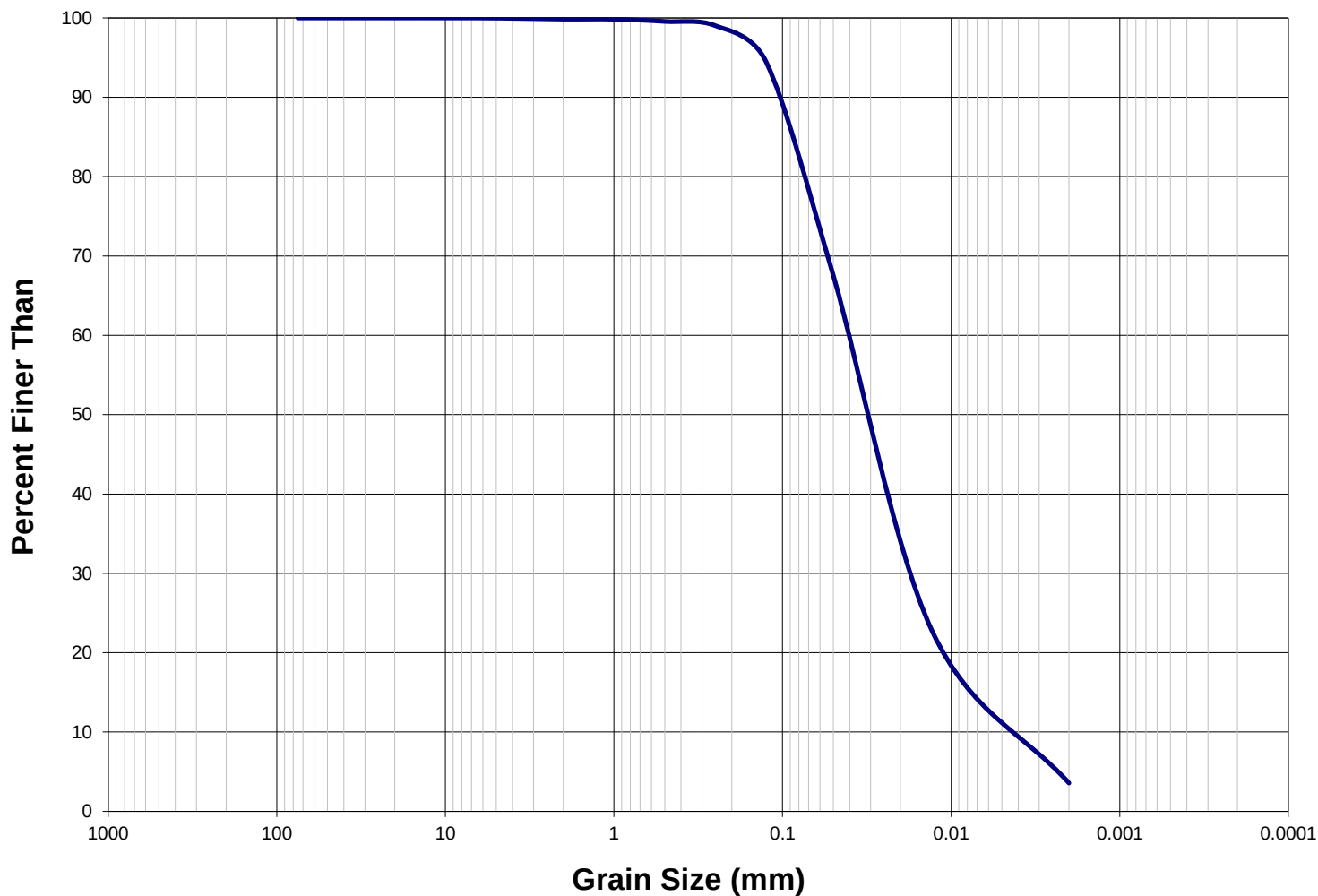
| Range (mm)      | Wt. (%) | Class            | Range (mm) | Wt. (%) | Class |
|-----------------|---------|------------------|------------|---------|-------|
| > 64            | 0.00    | Cobble           | <0.0039    | 8.08    | Clay  |
| 64 - 4          | 0.00    | Pebble           |            |         |       |
| 4 - 2           | 0.00    | Granule          |            |         |       |
| 2 - 1           | 0.20    | Very coarse sand |            |         |       |
| 1 - 0.5         | 0.26    | Coarse sand      |            |         |       |
| 0.5 - 0.25      | 0.60    | Medium sand      |            |         |       |
| 0.25 - 0.125    | 2.11    | Fine sand        |            |         |       |
| 0.125 - 0.0625  | 15.92   | Very fine sand   |            |         |       |
| 0.0625 - 0.031  | 29.71   | Coarse silt      |            |         |       |
| 0.031 - 0.0156  | 21.50   | Medium silt      |            |         |       |
| 0.0156 - 0.0078 | 13.92   | Fine silt        |            |         |       |
| 0.0078 - 0.0039 | 7.72    | Very fine silt   |            |         |       |

Texture: Silt loam





## Particle Size Distribution Curve



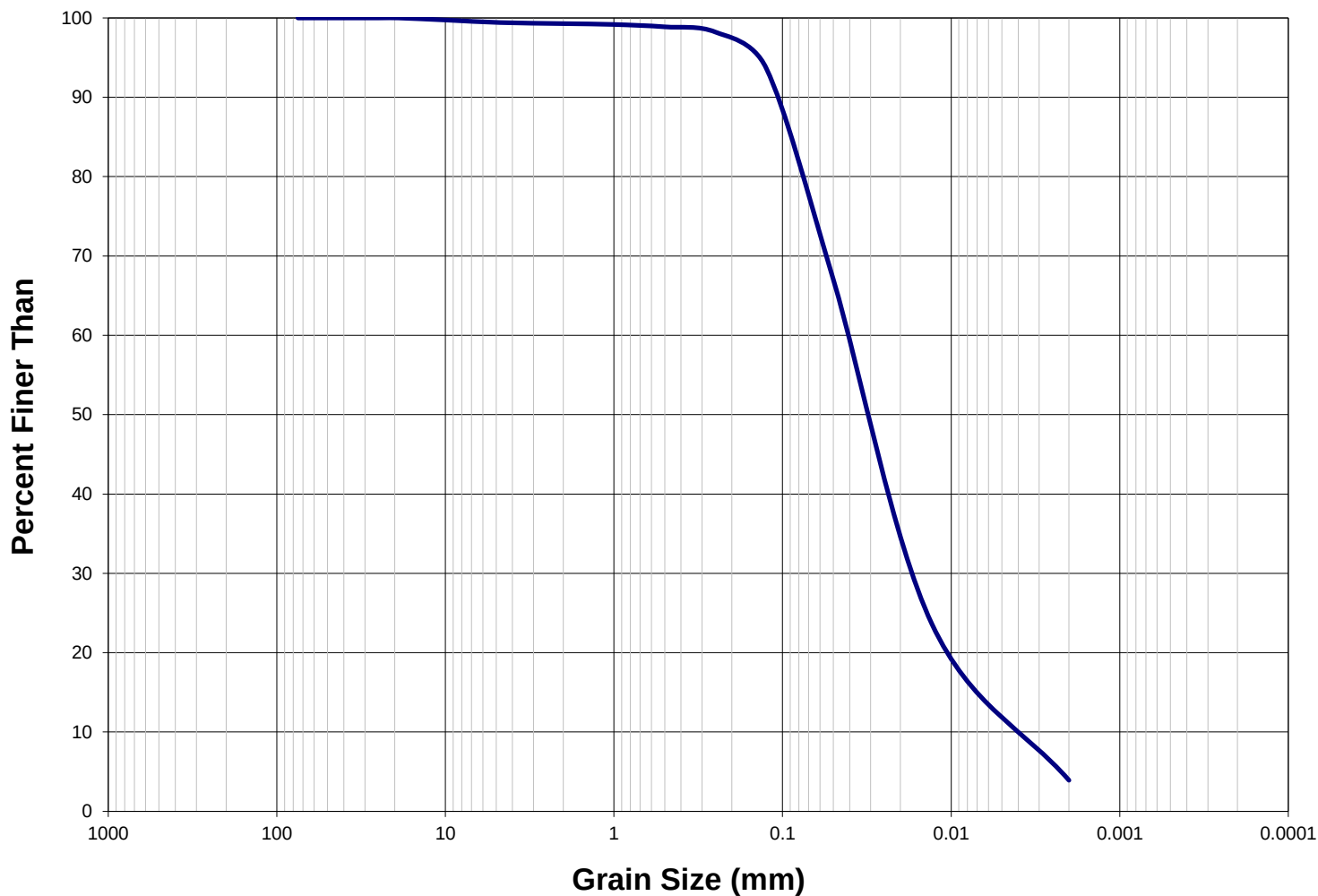
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 6.89    | Clay  |
| 64 - 4          | 0.06    | Pebble         |            |         |       |
| 4 - 2           | 0.09    | Granule        |            |         |       |
| 2 - 1           | 0.01    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.28    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.54    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 4.58    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 22.42   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 27.46   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 18.62   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.23   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.81    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



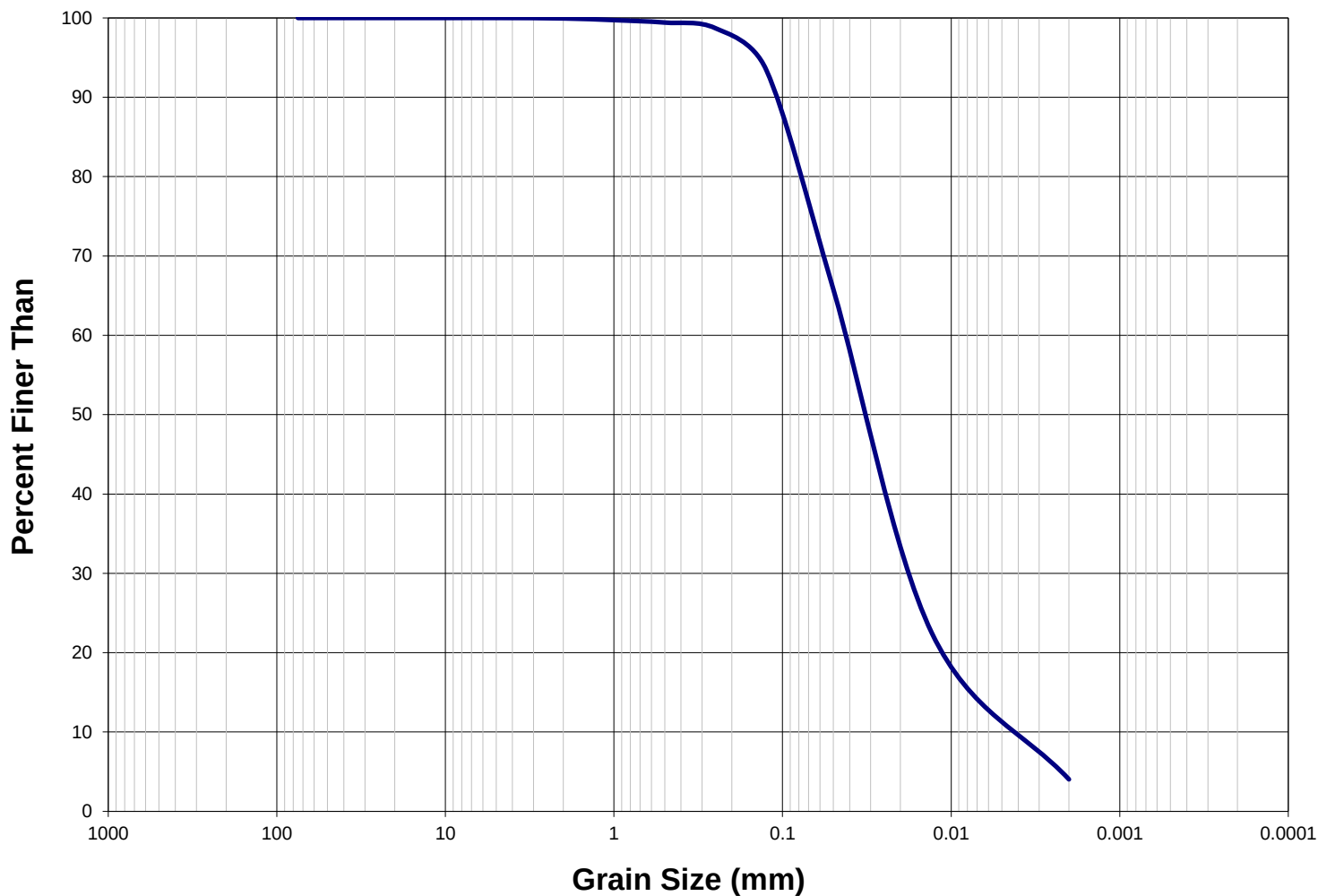
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.33    | Clay  |
| 64 - 4          | 0.62    | Pebble         |            |         |       |
| 4 - 2           | 0.10    | Granule        |            |         |       |
| 2 - 1           | 0.11    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.30    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.66    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 4.55    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 22.19   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 26.74   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 18.08   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.36   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.98    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



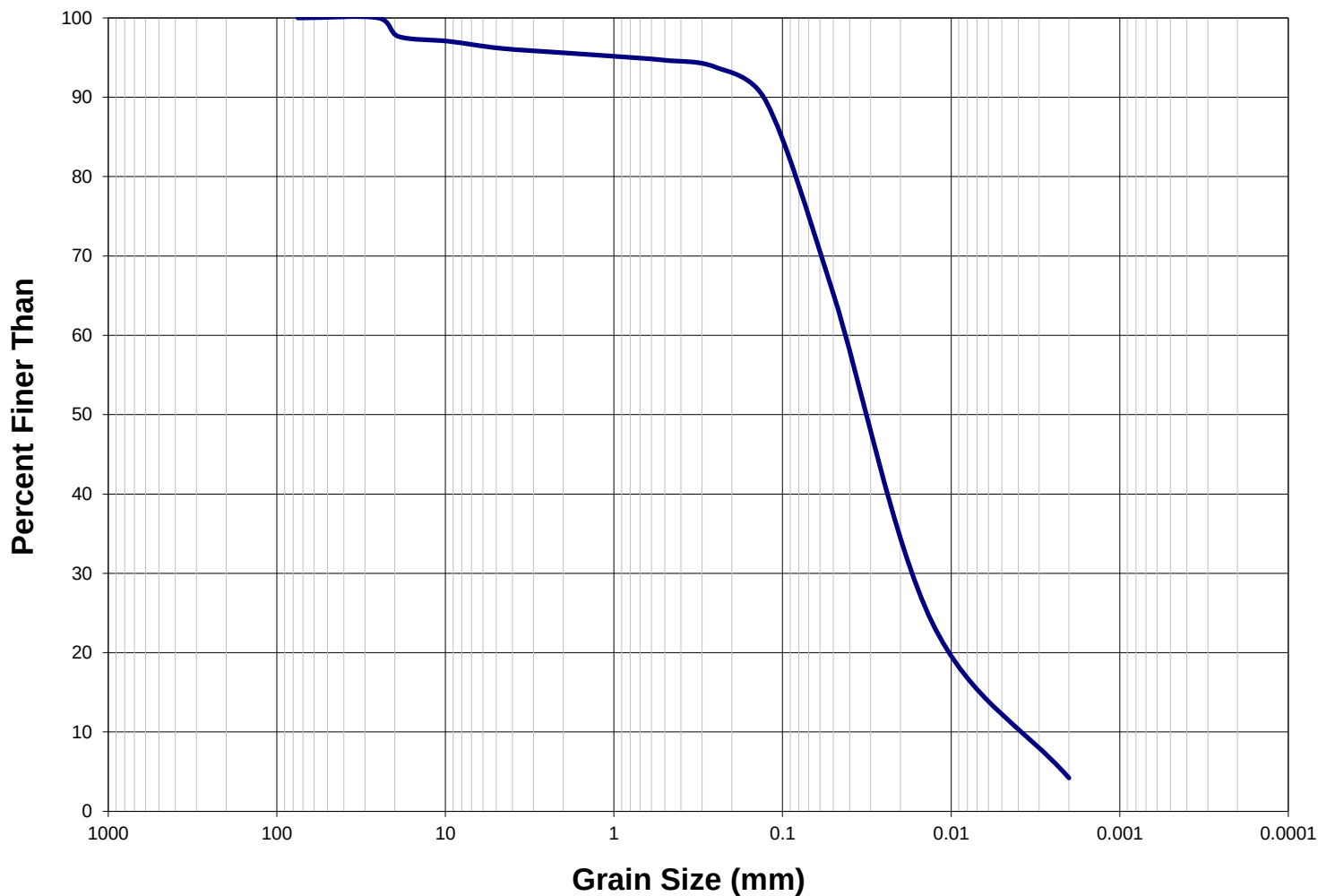
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.22    | Clay  |
| 64 - 4          | 0.02    | Pebble         |            |         |       |
| 4 - 2           | 0.04    | Granule        |            |         |       |
| 2 - 1           | 0.22    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.31    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.72    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 5.24    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 23.04   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 26.87   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 18.05   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 11.76   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.53    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



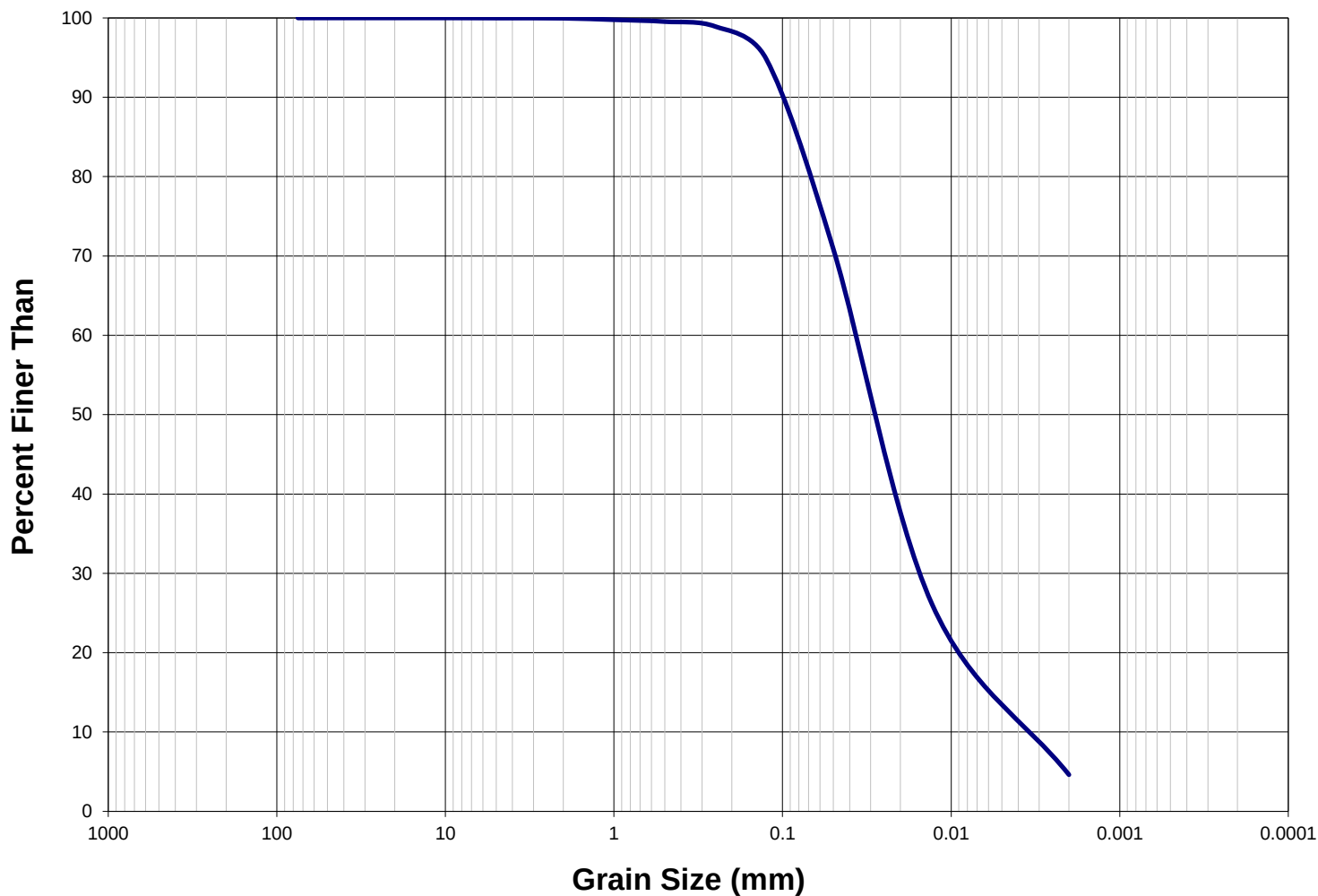
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.61    | Clay  |
| 64 - 4          | 3.98    | Pebble         |            |         |       |
| 4 - 2           | 0.41    | Granule        |            |         |       |
| 2 - 1           | 0.44    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.50    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.87    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 4.35    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 20.17   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 25.28   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 17.22   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.20   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.97    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



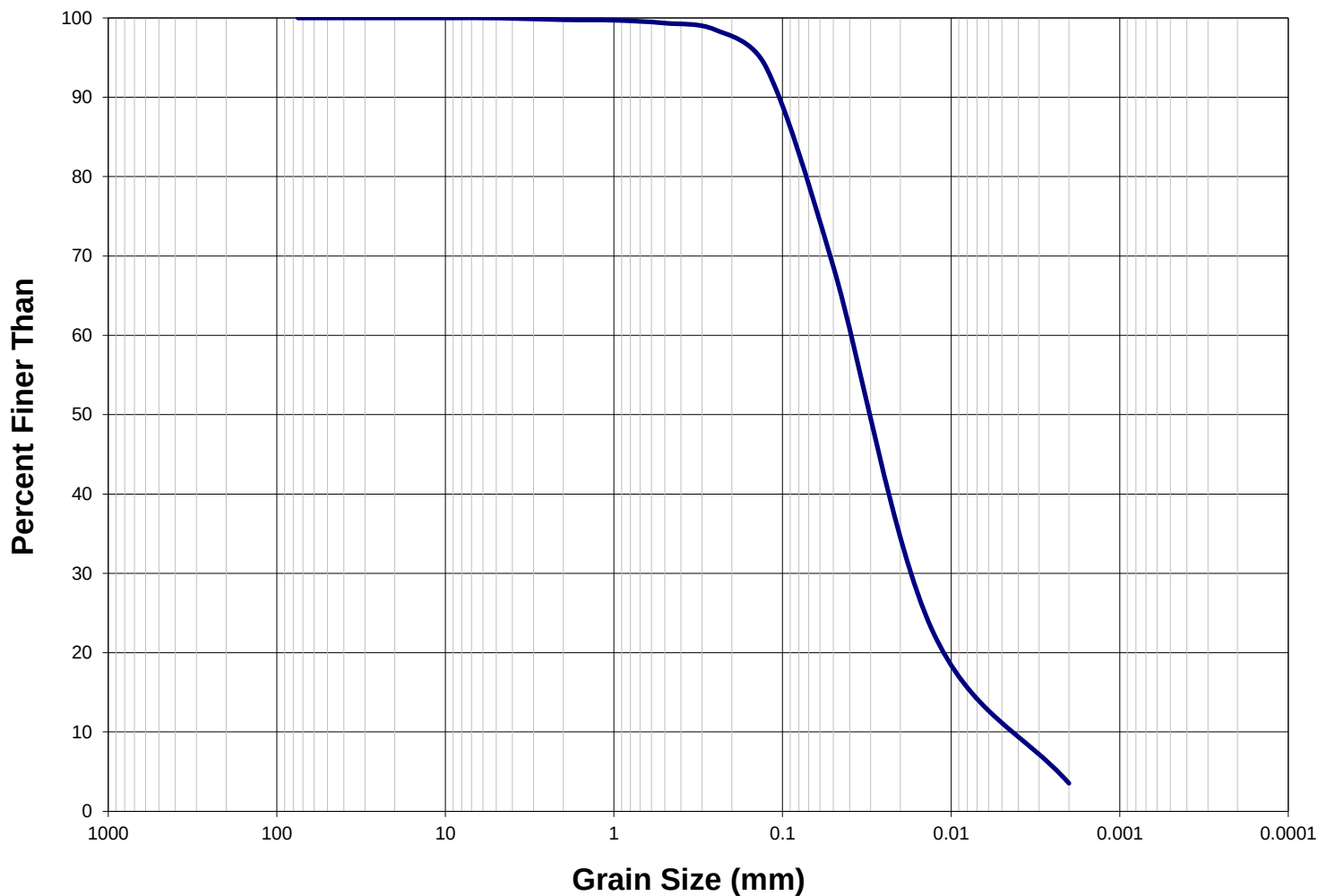
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 8.34    | Clay  |
| 64 - 4          | 0.03    | Pebble         |            |         |       |
| 4 - 2           | 0.01    | Granule        |            |         |       |
| 2 - 1           | 0.19    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.23    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.63    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 4.08    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 19.96   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 26.96   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 18.62   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 13.32   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 7.63    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



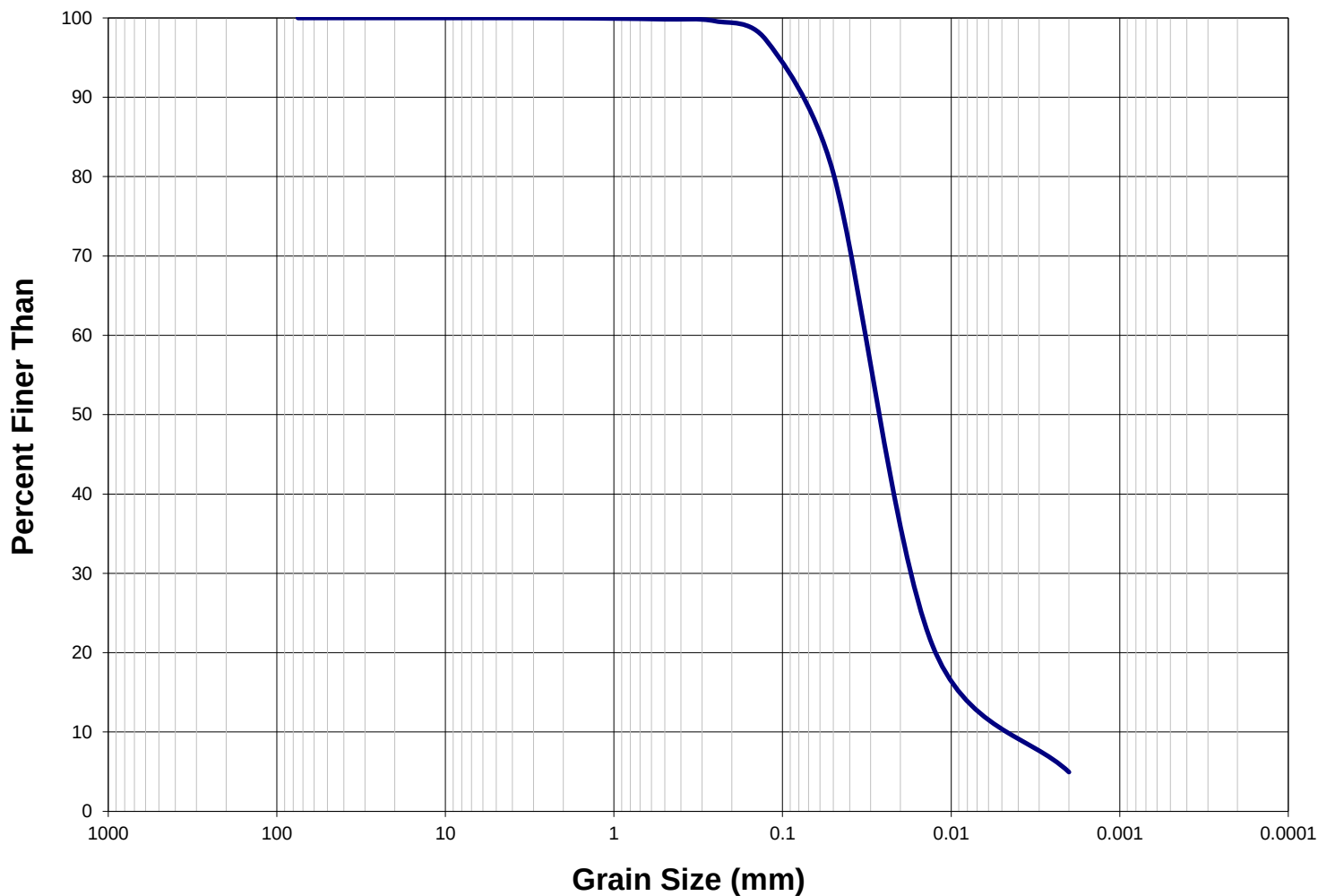
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 6.88    | Clay  |
| 64 - 4          | 0.08    | Pebble         |            |         |       |
| 4 - 2           | 0.15    | Granule        |            |         |       |
| 2 - 1           | 0.06    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.36    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.85    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 4.73    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 20.91   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 27.68   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 19.05   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.38   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.87    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



### Particle Size Distribution

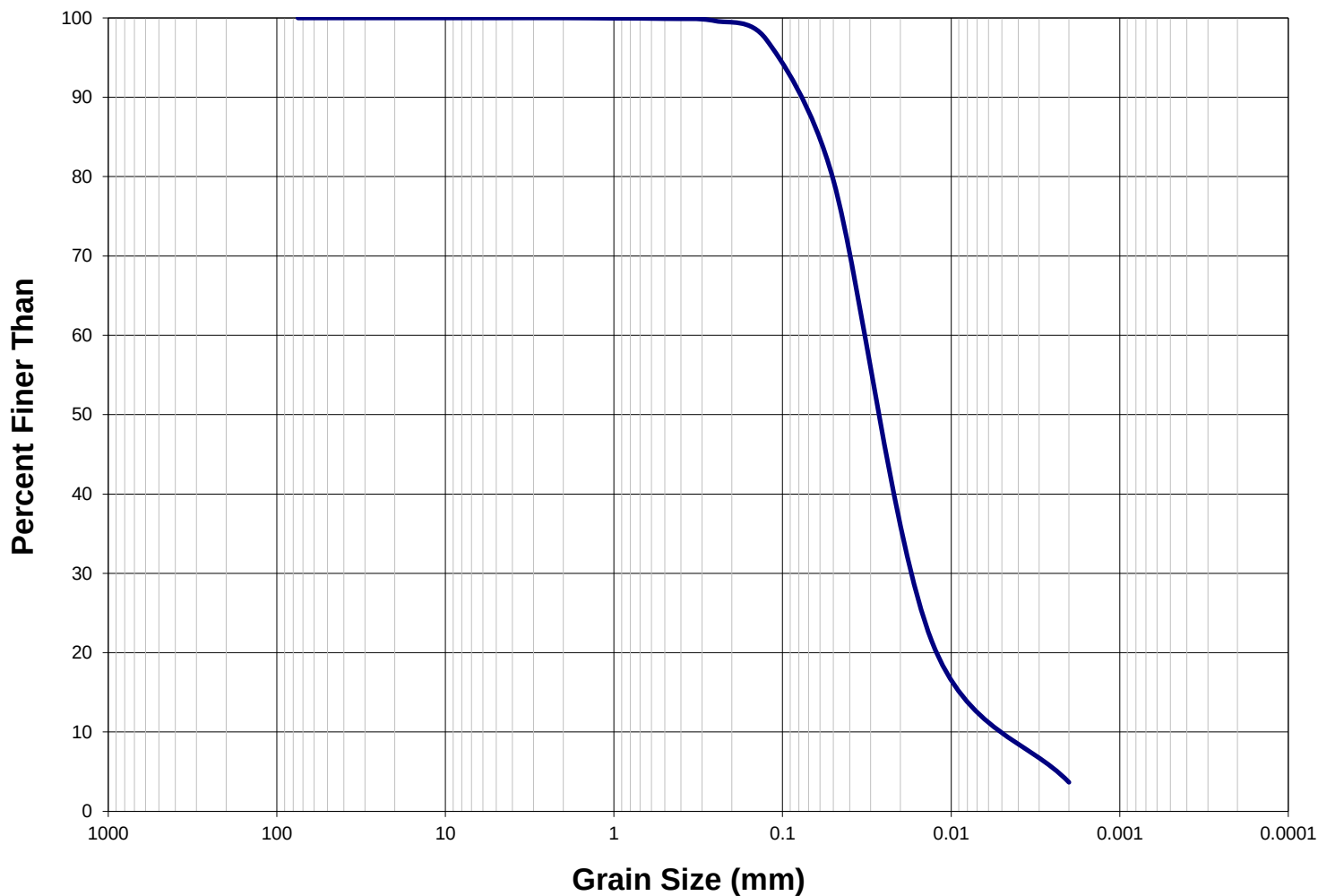
| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.74    | Clay  |
| 64 - 4          | 0.01    | Pebble         |            |         |       |
| 4 - 2           | 0.01    | Granule        |            |         |       |
| 2 - 1           | 0.05    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.10    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.24    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 2.40    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 13.96   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 33.27   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 24.70   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 11.81   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 5.73    | Very fine silt |            |         |       |

Texture: Silt loam





## Particle Size Distribution Curve



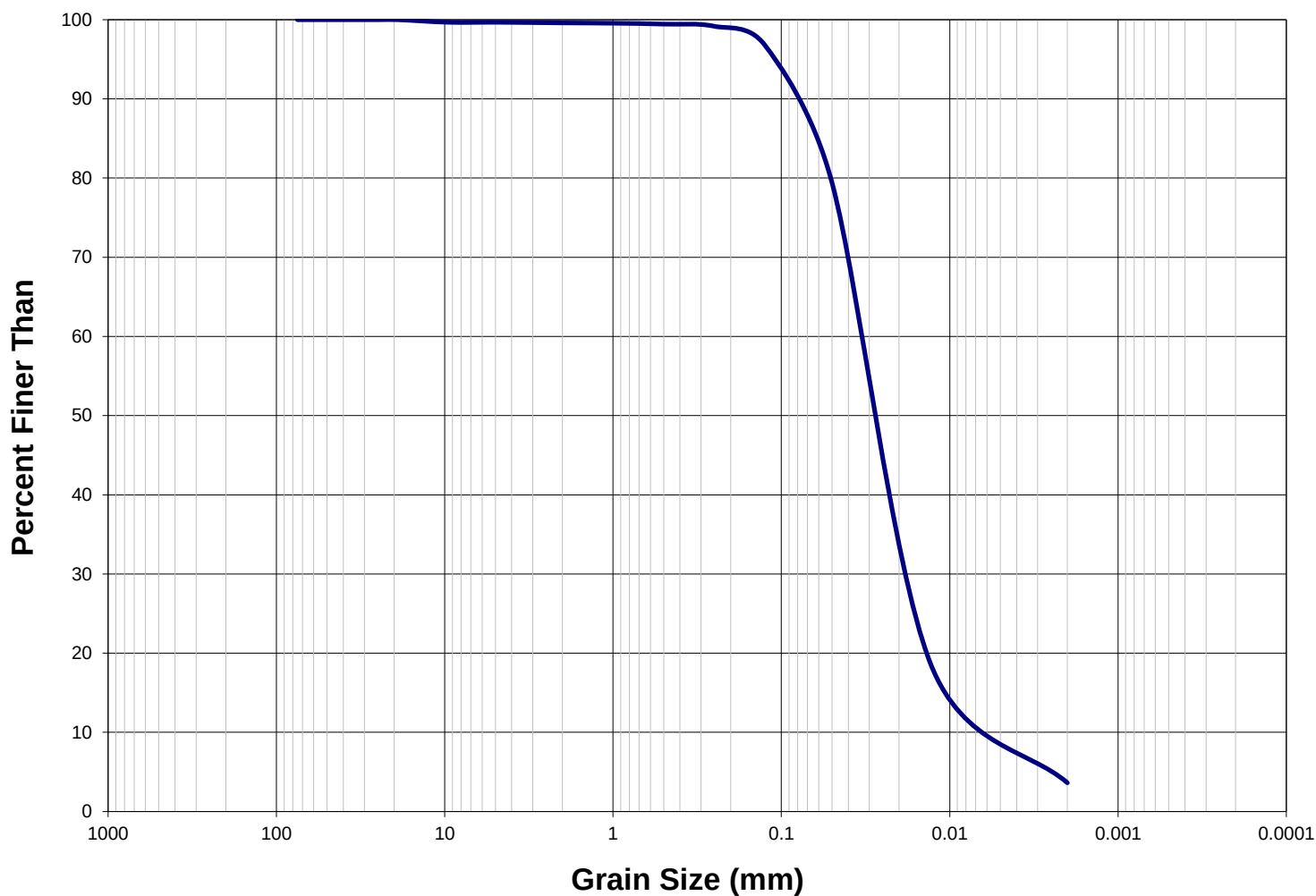
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 6.73    | Clay  |
| 64 - 4          | 0.00    | Pebble         |            |         |       |
| 4 - 2           | 0.00    | Granule        |            |         |       |
| 2 - 1           | 0.04    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.05    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.29    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 2.33    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 14.76   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 32.83   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 24.22   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.47   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.29    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



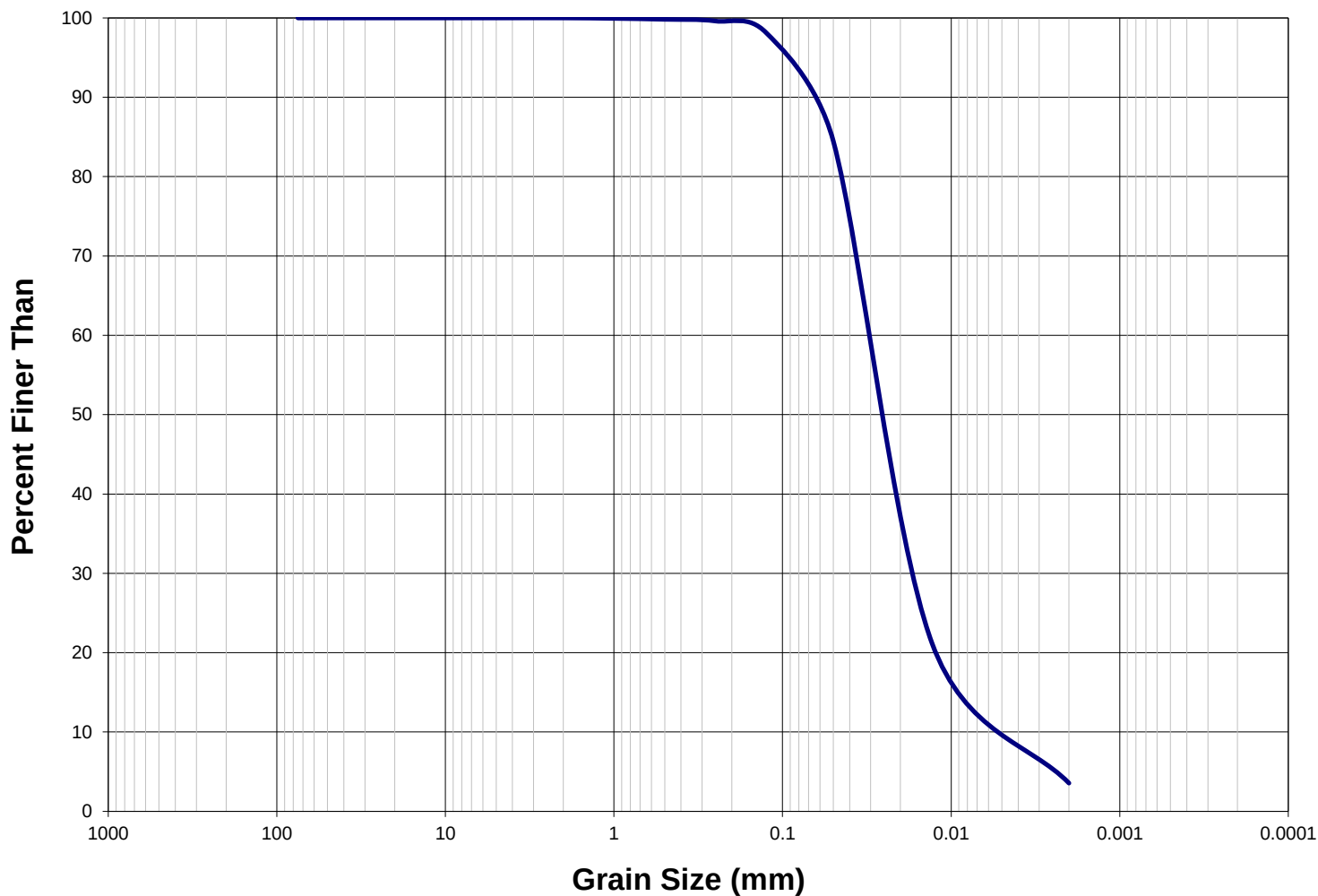
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 6.23    | Clay  |
| 64 - 4          | 0.35    | Pebble         |            |         |       |
| 4 - 2           | 0.06    | Granule        |            |         |       |
| 2 - 1           | 0.04    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.11    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.27    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 2.41    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 14.46   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 34.07   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 25.27   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 11.39   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 5.34    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



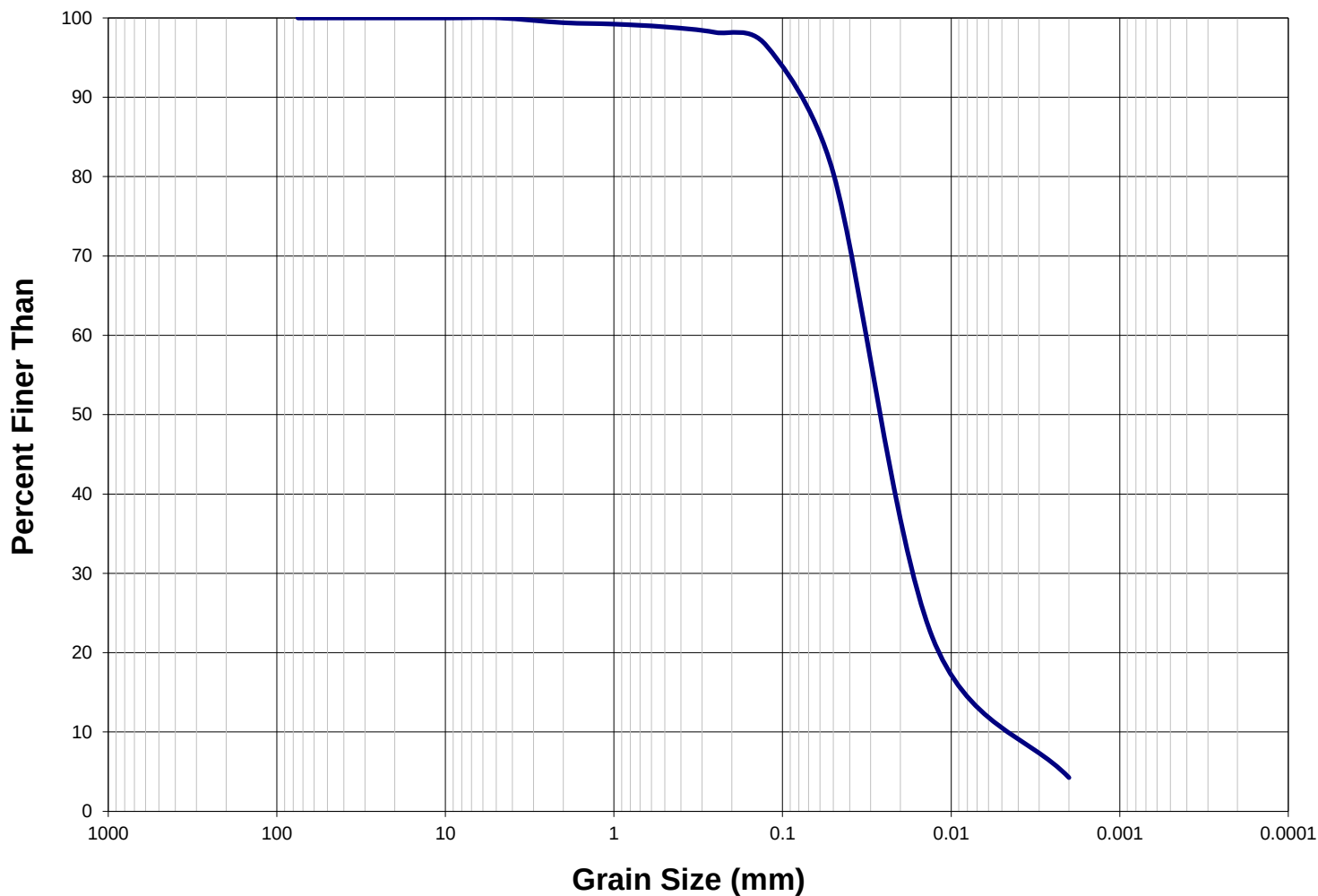
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 6.61    | Clay  |
| 64 - 4          | 0.00    | Pebble         |            |         |       |
| 4 - 2           | 0.00    | Granule        |            |         |       |
| 2 - 1           | 0.06    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.12    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.21    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 1.48    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 11.37   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 34.75   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 26.33   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.80   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.27    | Very fine silt |            |         |       |

Texture: Silt



## Particle Size Distribution Curve



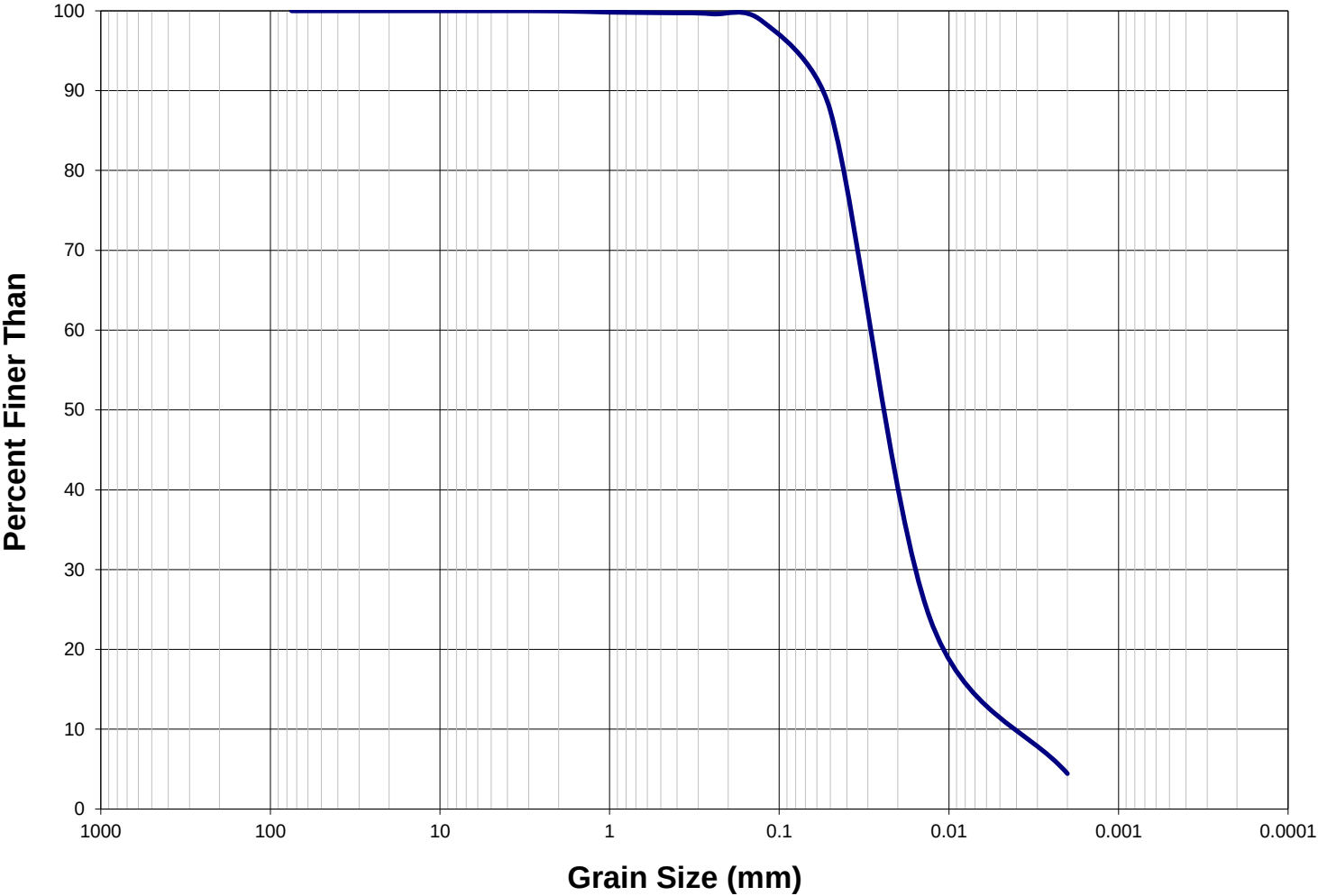
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.34    | Clay  |
| 64 - 4          | 0.16    | Pebble         |            |         |       |
| 4 - 2           | 0.43    | Granule        |            |         |       |
| 2 - 1           | 0.18    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.35    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.70    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 1.64    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 13.40   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 32.65   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 24.29   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.53   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.32    | Very fine silt |            |         |       |

Texture: Silt loam



# Particle Size Distribution Curve



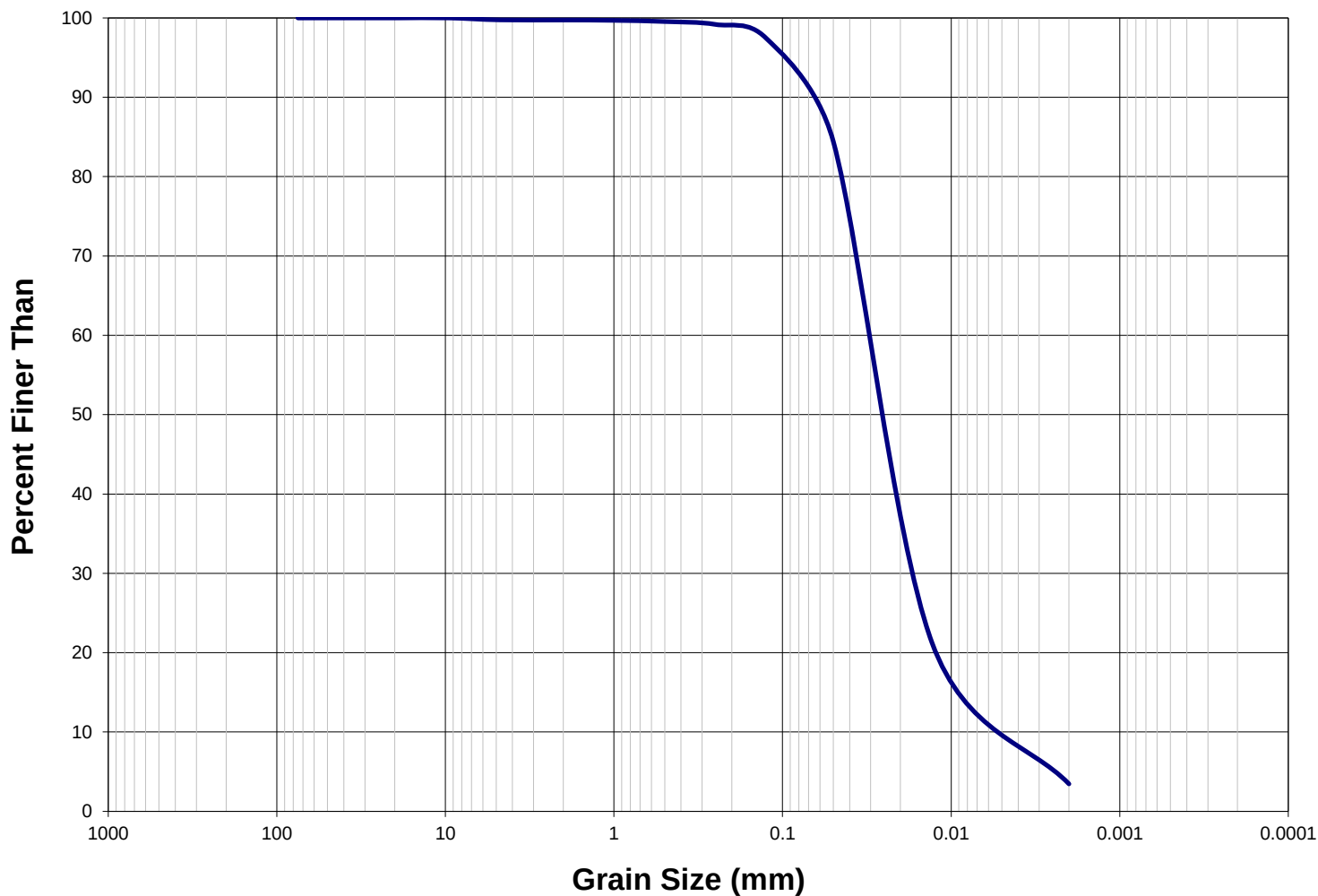
Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.83    | Clay  |
| 64 - 4          | 0.01    | Pebble         |            |         |       |
| 4 - 2           | 0.02    | Granule        |            |         |       |
| 2 - 1           | 0.15    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.07    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.14    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 0.97    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 9.30    | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 34.44   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 26.41   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 13.72   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.95    | Very fine silt |            |         |       |

Texture: Silt



## Particle Size Distribution Curve



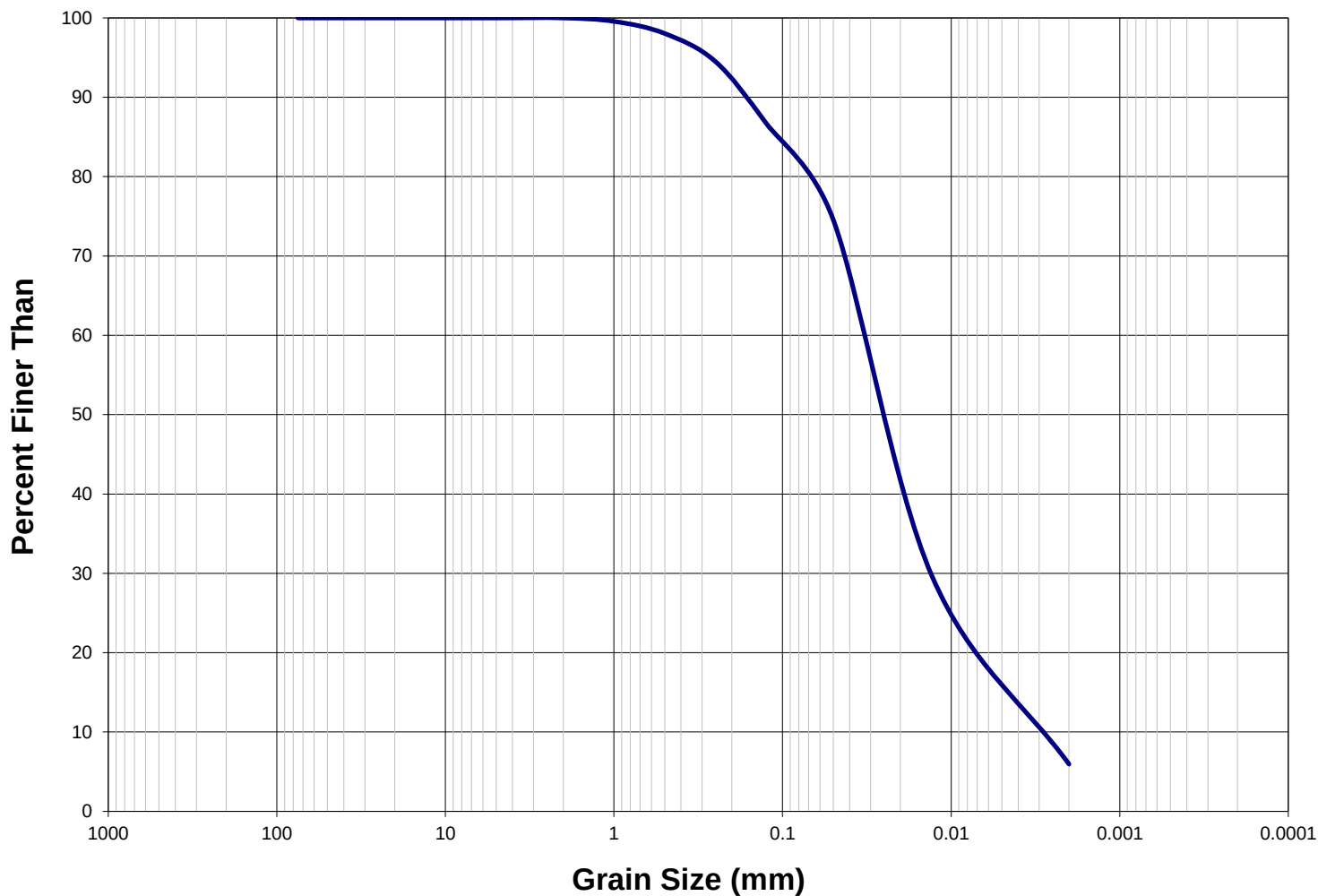
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 6.54    | Clay  |
| 64 - 4          | 0.25    | Pebble         |            |         |       |
| 4 - 2           | 0.01    | Granule        |            |         |       |
| 2 - 1           | 0.04    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.15    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.37    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 1.75    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 10.83   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 34.59   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 26.28   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.86   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.32    | Very fine silt |            |         |       |

Texture: Silt



## Particle Size Distribution Curve



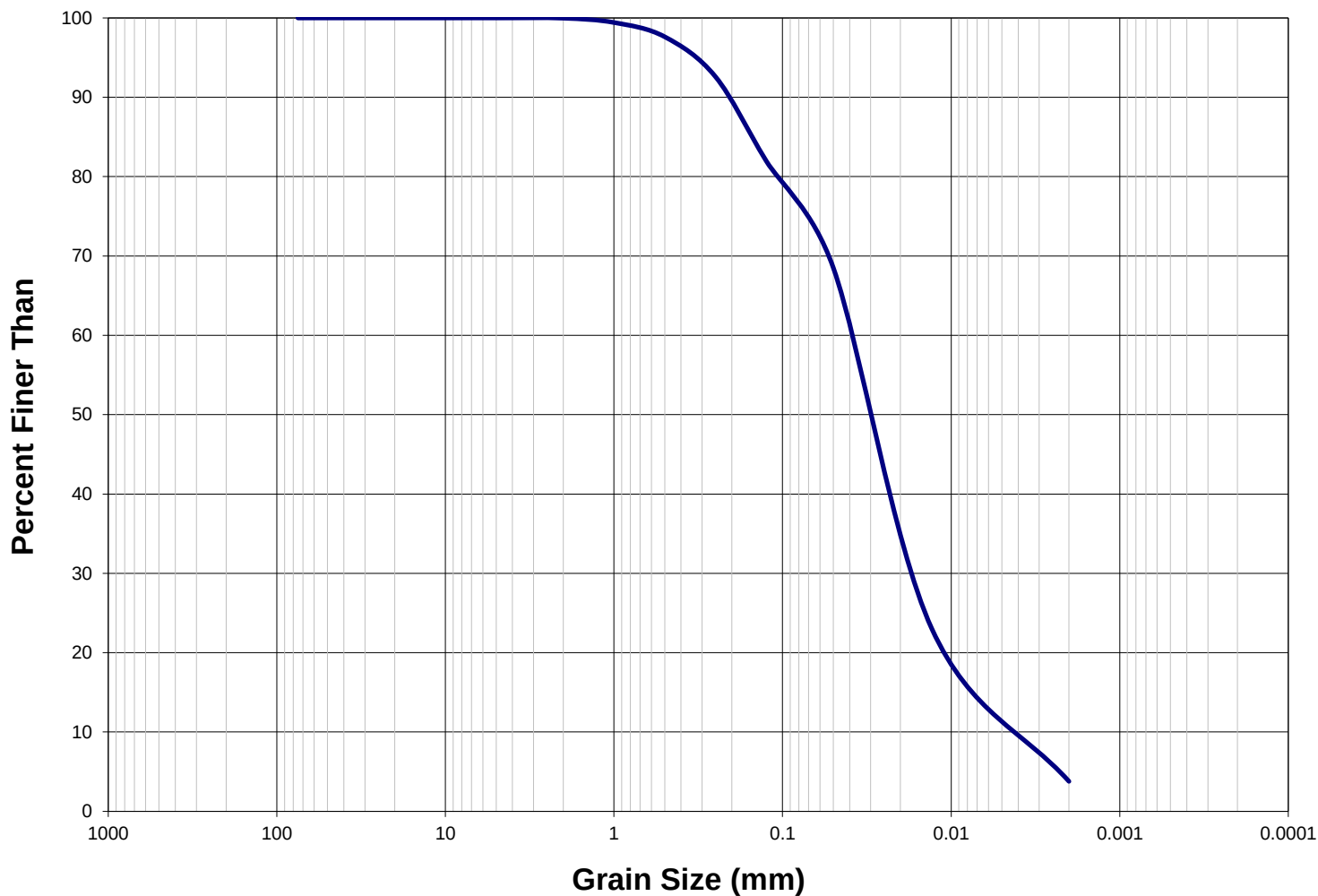
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class            | Range (mm) | Wt. (%) | Class |
|-----------------|---------|------------------|------------|---------|-------|
| > 64            | 0.00    | Cobble           | <0.0039    | 10.05   | Clay  |
| 64 - 4          | 0.00    | Pebble           |            |         |       |
| 4 - 2           | 0.00    | Granule          |            |         |       |
| 2 - 1           | 0.43    | Very coarse sand |            |         |       |
| 1 - 0.5         | 1.53    | Coarse sand      |            |         |       |
| 0.5 - 0.25      | 3.54    | Medium sand      |            |         |       |
| 0.25 - 0.125    | 7.78    | Fine sand        |            |         |       |
| 0.125 - 0.0625  | 10.13   | Very fine sand   |            |         |       |
| 0.0625 - 0.031  | 25.08   | Coarse silt      |            |         |       |
| 0.031 - 0.0156  | 18.68   | Medium silt      |            |         |       |
| 0.0156 - 0.0078 | 14.36   | Fine silt        |            |         |       |
| 0.0078 - 0.0039 | 8.41    | Very fine silt   |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.10    | Clay  |
| 64 - 4          | 0.01    | Pebble         |            |         |       |
| 4 - 2           | 0.02    | Granule        |            |         |       |
| 2 - 1           | 0.55    | Very coarse s  |            |         |       |
| 1 - 0.5         | 1.80    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 5.03    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 10.62   | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 11.22   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 25.62   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 18.95   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.28   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.81    | Very fine silt |            |         |       |

Texture: Silt loam

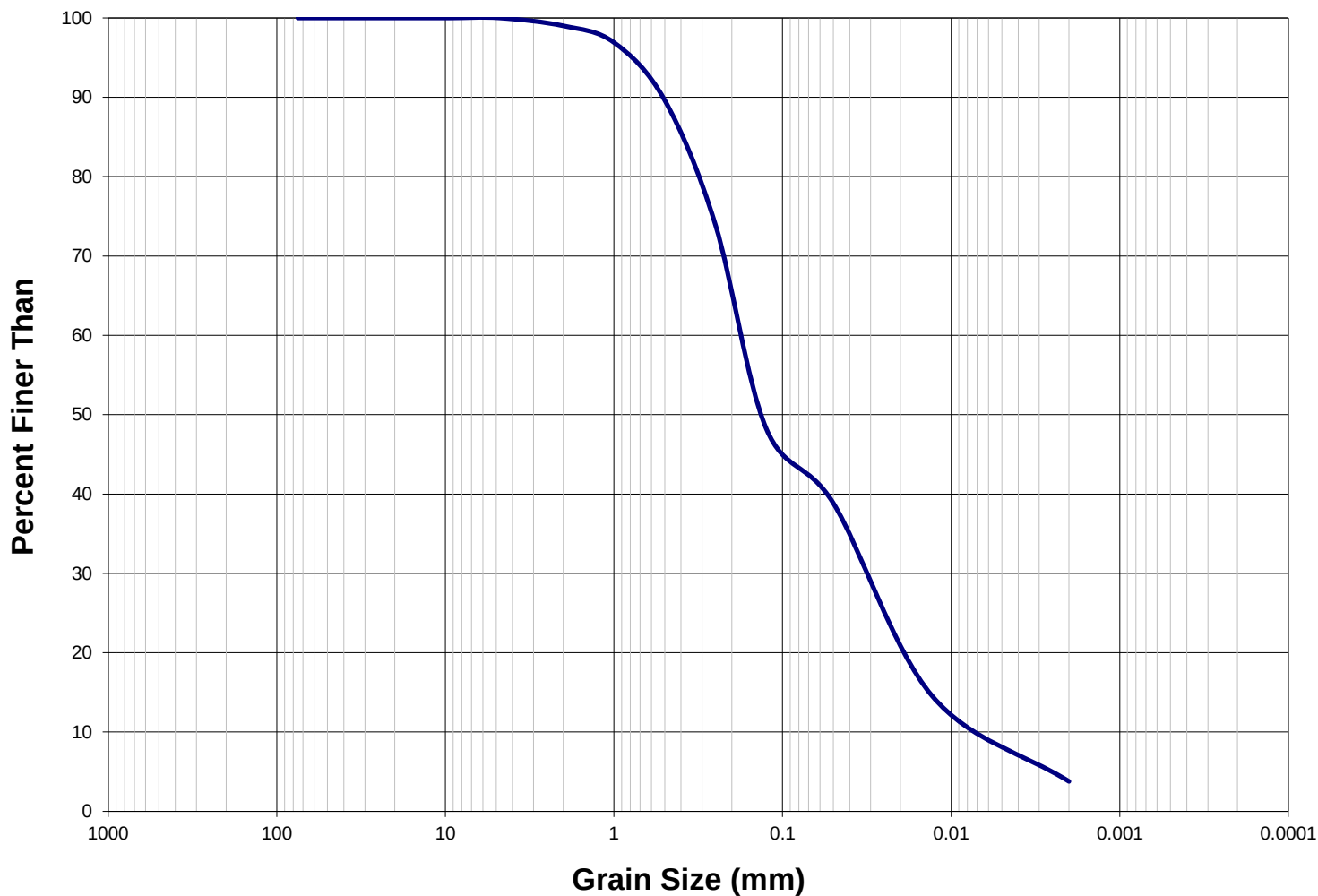




**Lab ID: L2170896-24**



## Particle Size Distribution Curve



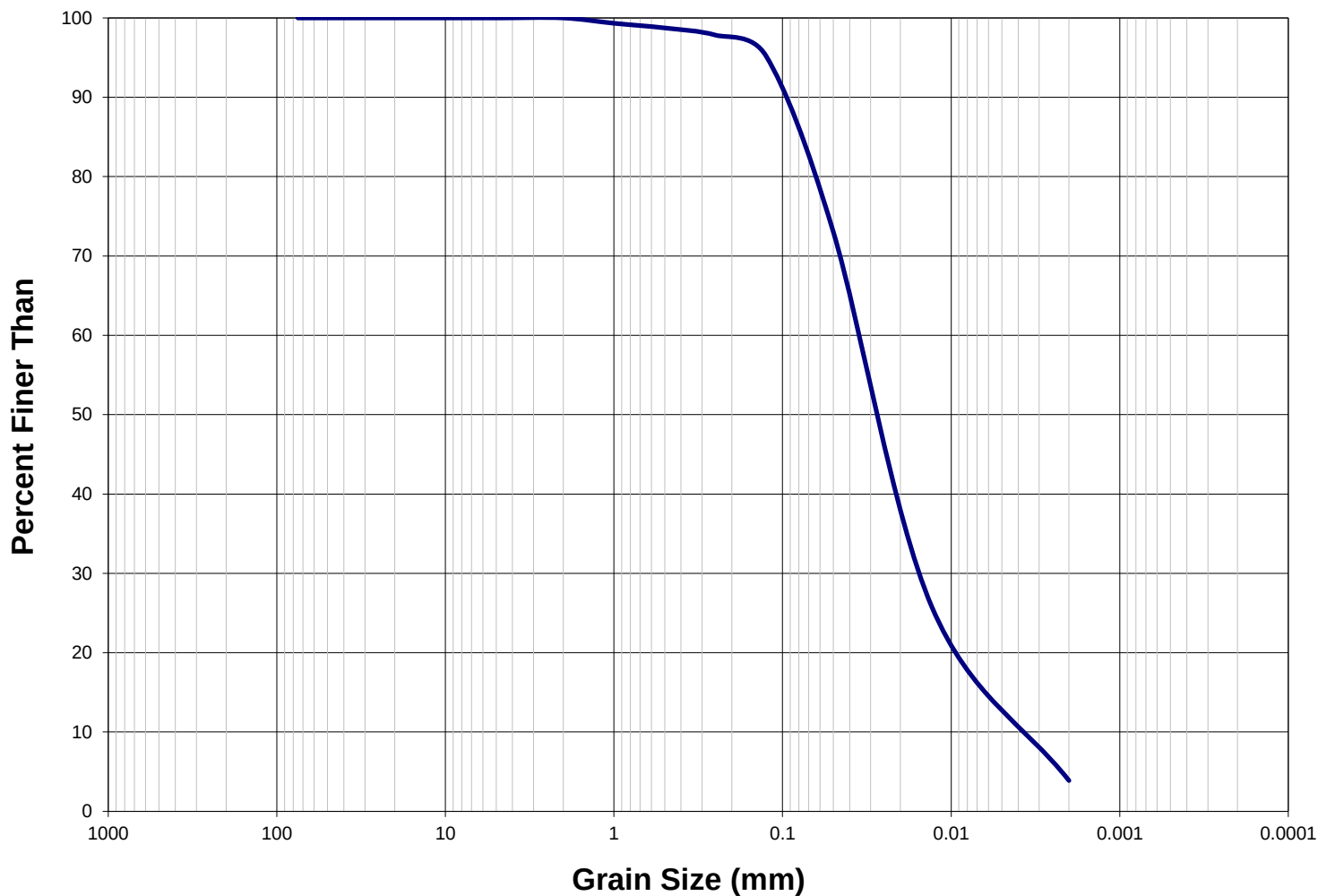
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 5.65    | Clay  |
| 64 - 4          | 0.27    | Pebble         |            |         |       |
| 4 - 2           | 0.72    | Granule        |            |         |       |
| 2 - 1           | 2.10    | Very coarse s  |            |         |       |
| 1 - 0.5         | 7.28    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 15.71   | Medium sand    |            |         |       |
| 0.25 - 0.125    | 25.66   | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 7.84    | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 14.03   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 10.10   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 6.81    | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 3.83    | Very fine silt |            |         |       |

Texture: Sandy loam



## Particle Size Distribution Curve



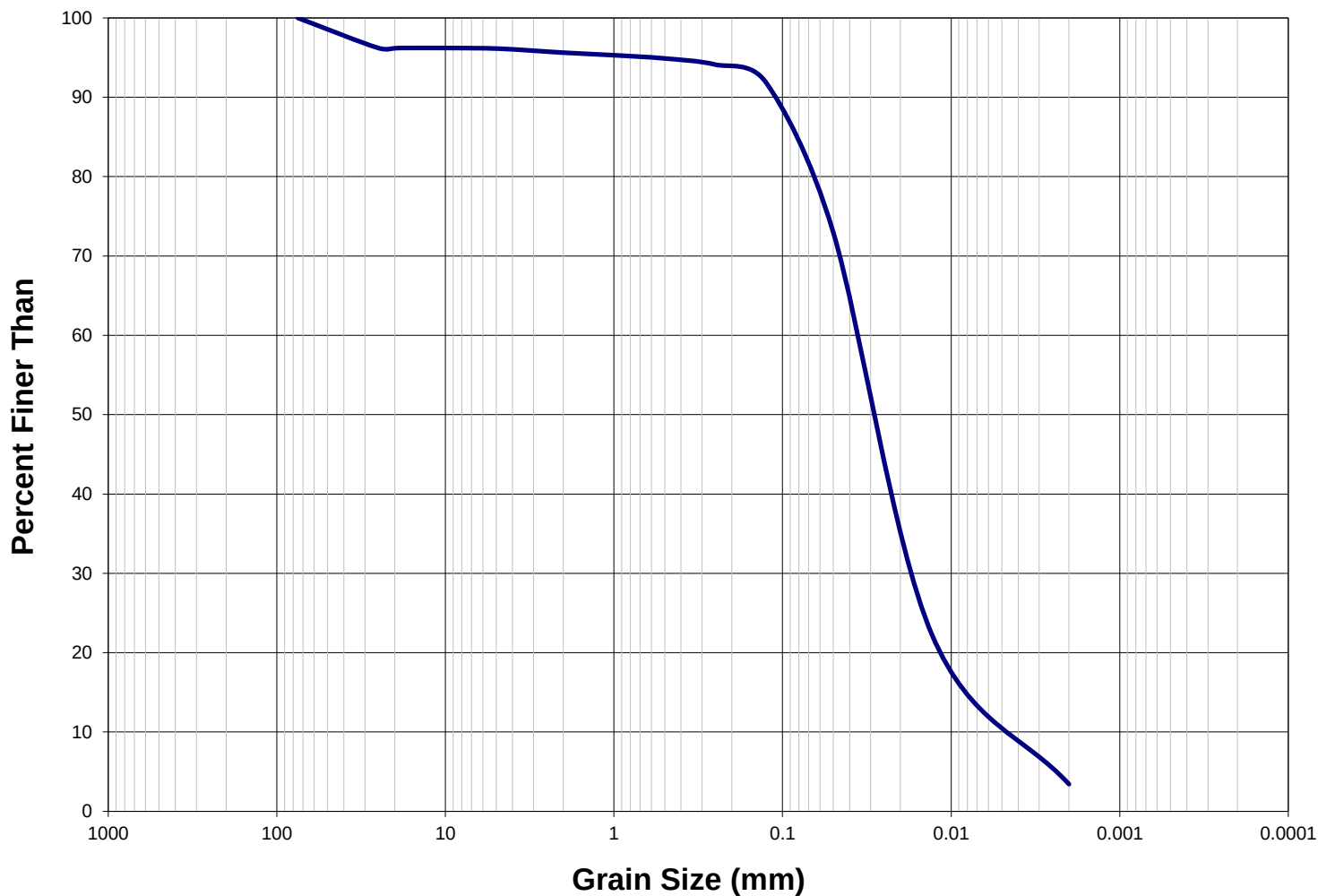
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.66    | Clay  |
| 64 - 4          | 0.00    | Pebble         |            |         |       |
| 4 - 2           | 0.00    | Granule        |            |         |       |
| 2 - 1           | 0.67    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.59    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.90    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 2.66    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 18.44   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 27.97   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 19.68   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 13.66   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 7.75    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



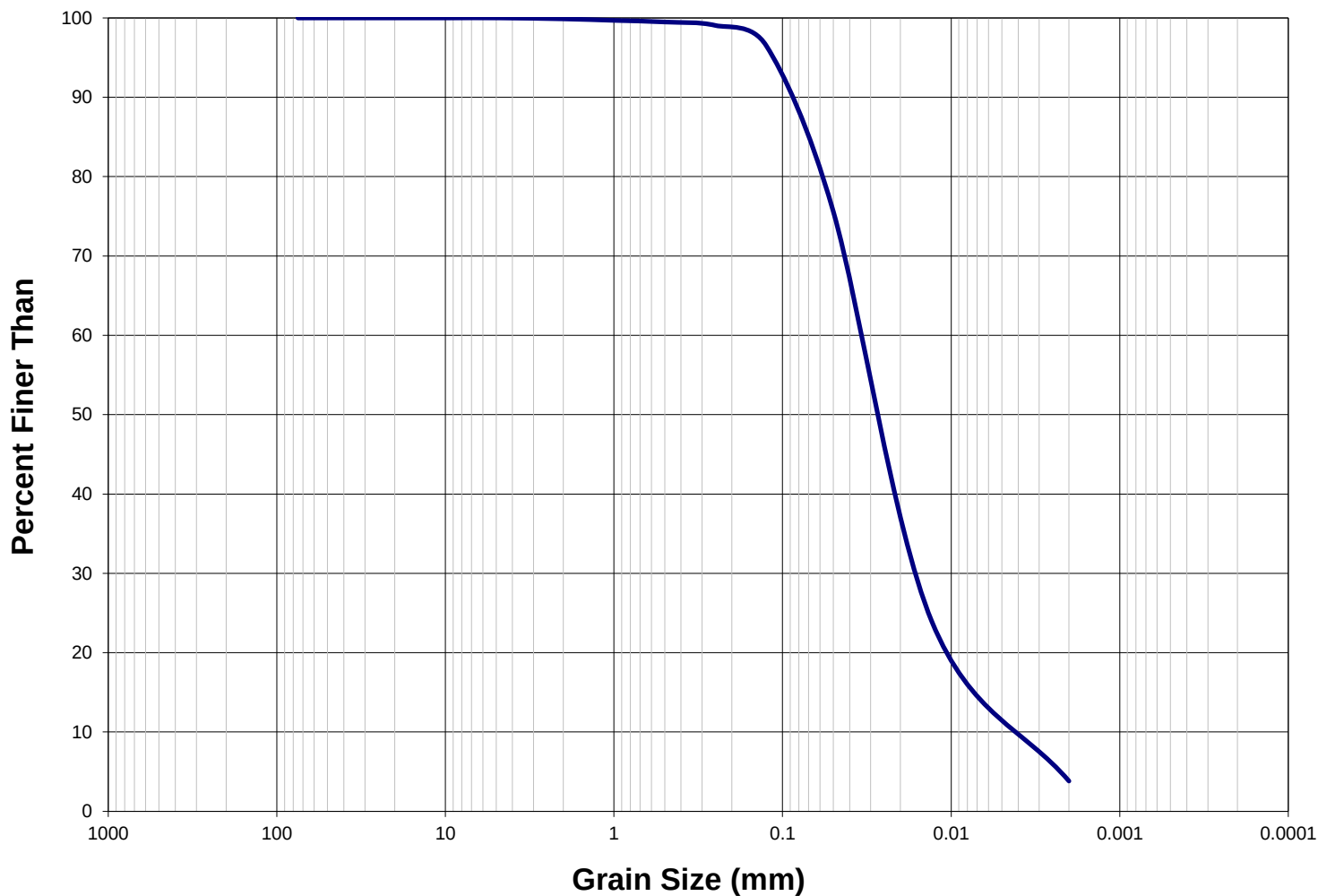
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.83    | Cobble         | <0.0039    | 6.69    | Clay  |
| 64 - 4          | 3.18    | Pebble         |            |         |       |
| 4 - 2           | 0.36    | Granule        |            |         |       |
| 2 - 1           | 0.33    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.40    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.78    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 2.28    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 15.72   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 29.17   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 21.10   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.47   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.68    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



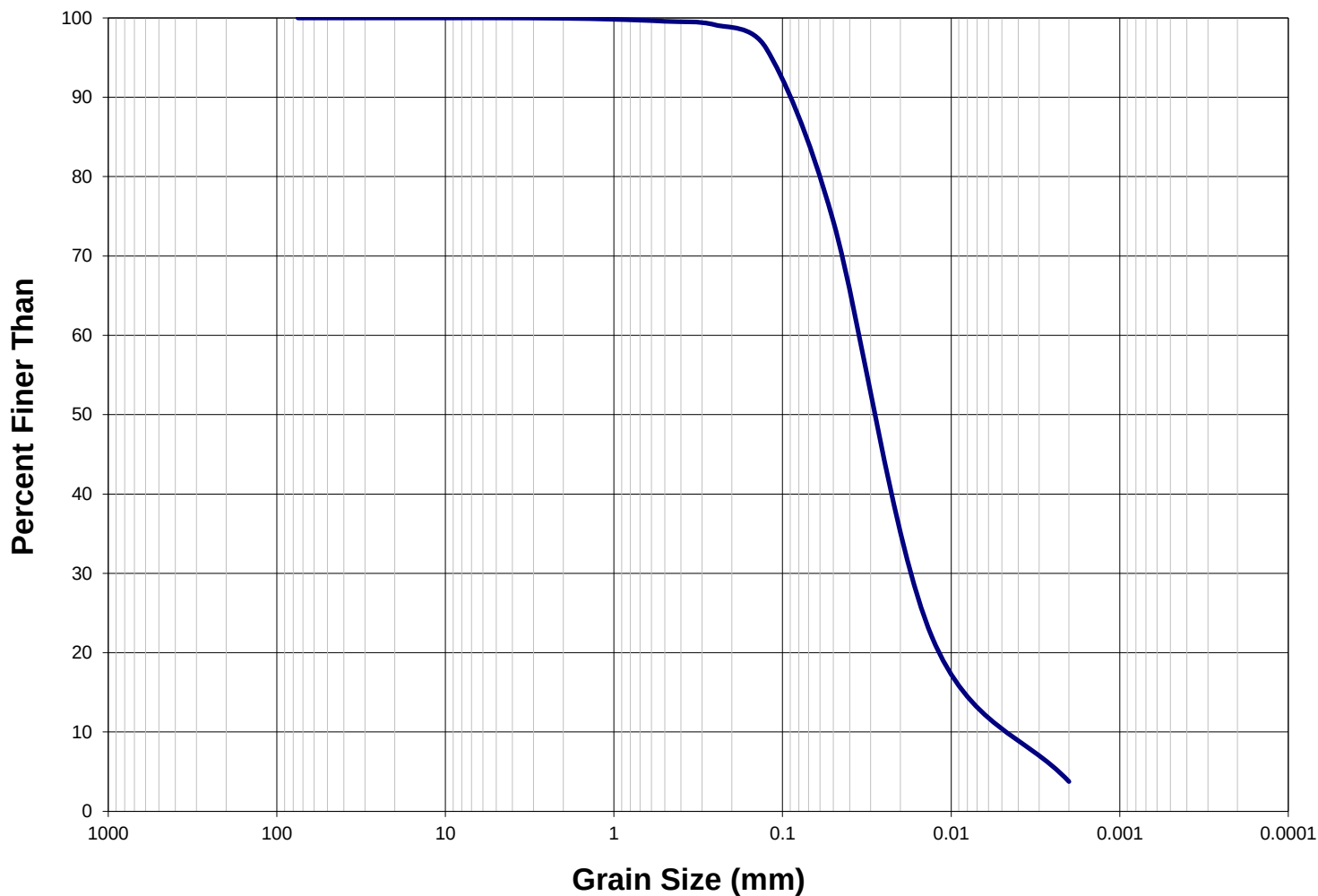
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.29    | Clay  |
| 64 - 4          | 0.03    | Pebble         |            |         |       |
| 4 - 2           | 0.09    | Granule        |            |         |       |
| 2 - 1           | 0.19    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.20    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.44    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 2.54    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 17.42   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 30.03   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 21.52   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 13.13   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 7.12    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



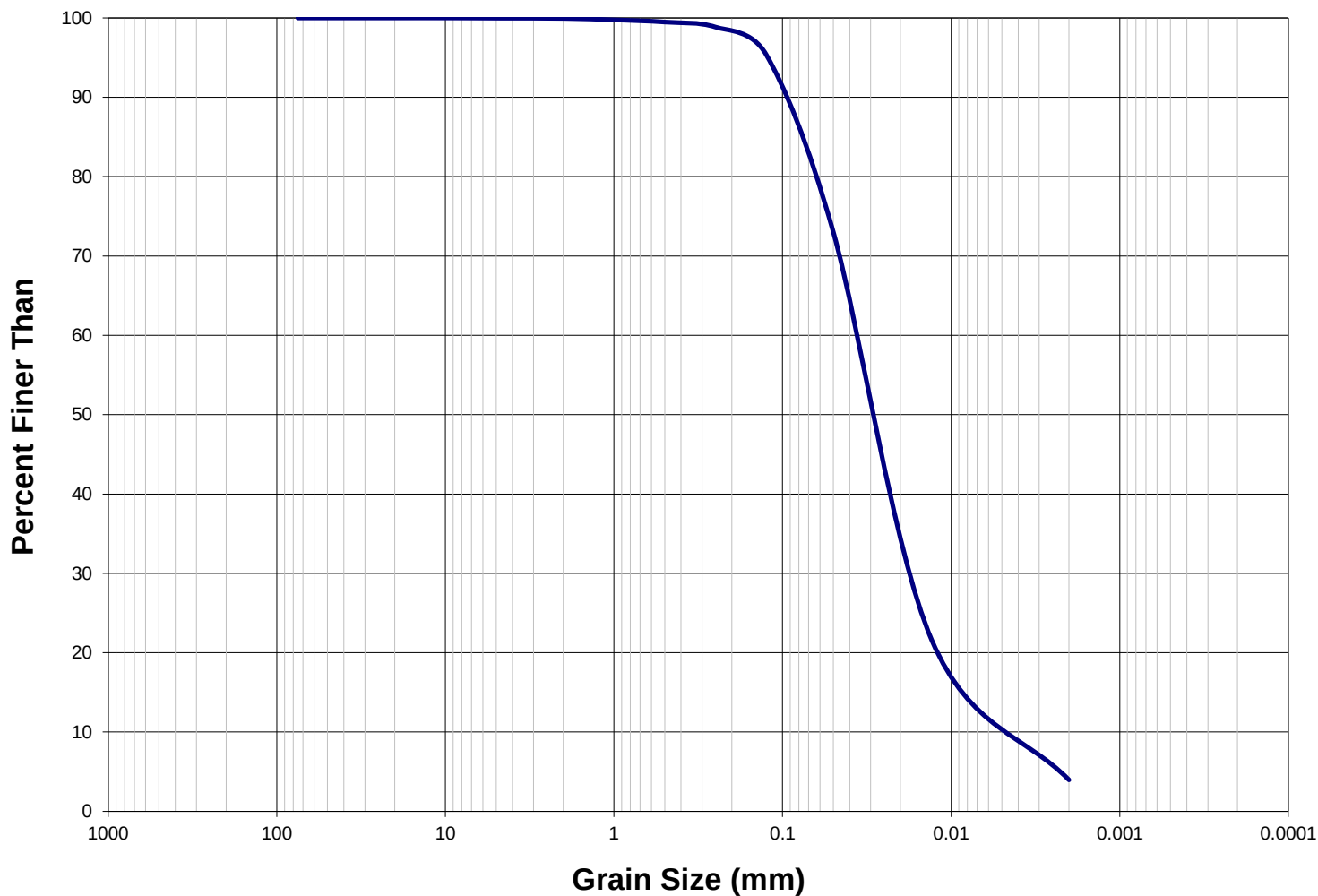
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 6.91    | Clay  |
| 64 - 4          | 0.01    | Pebble         |            |         |       |
| 4 - 2           | 0.03    | Granule        |            |         |       |
| 2 - 1           | 0.13    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.25    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.47    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 2.95    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 18.15   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 30.53   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 21.80   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 12.30   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.47    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



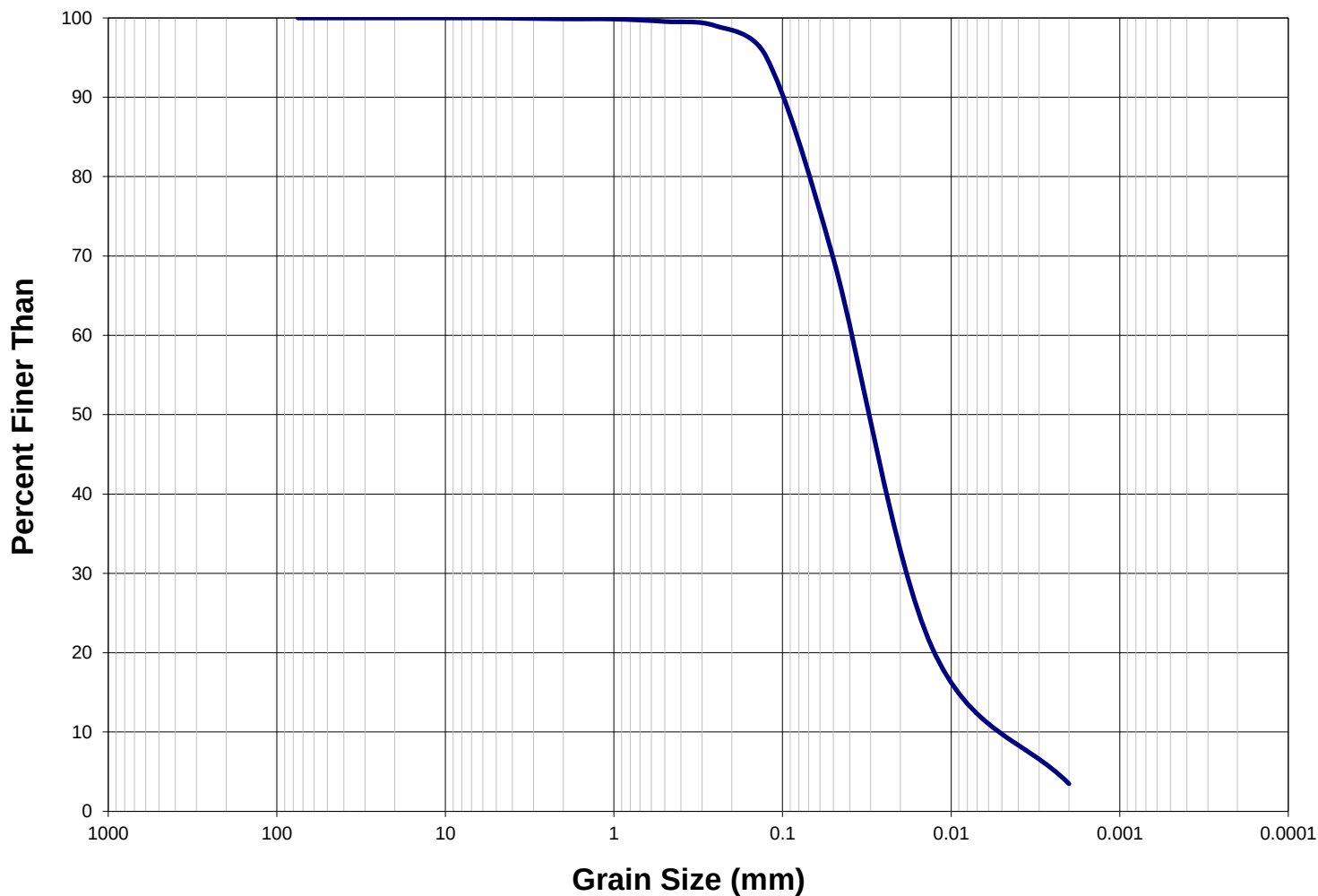
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.00    | Clay  |
| 64 - 4          | 0.04    | Pebble         |            |         |       |
| 4 - 2           | 0.02    | Granule        |            |         |       |
| 2 - 1           | 0.18    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.28    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.63    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 3.47    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 18.63   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 30.16   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 21.43   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 11.92   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.23    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



### Particle Size Distribution

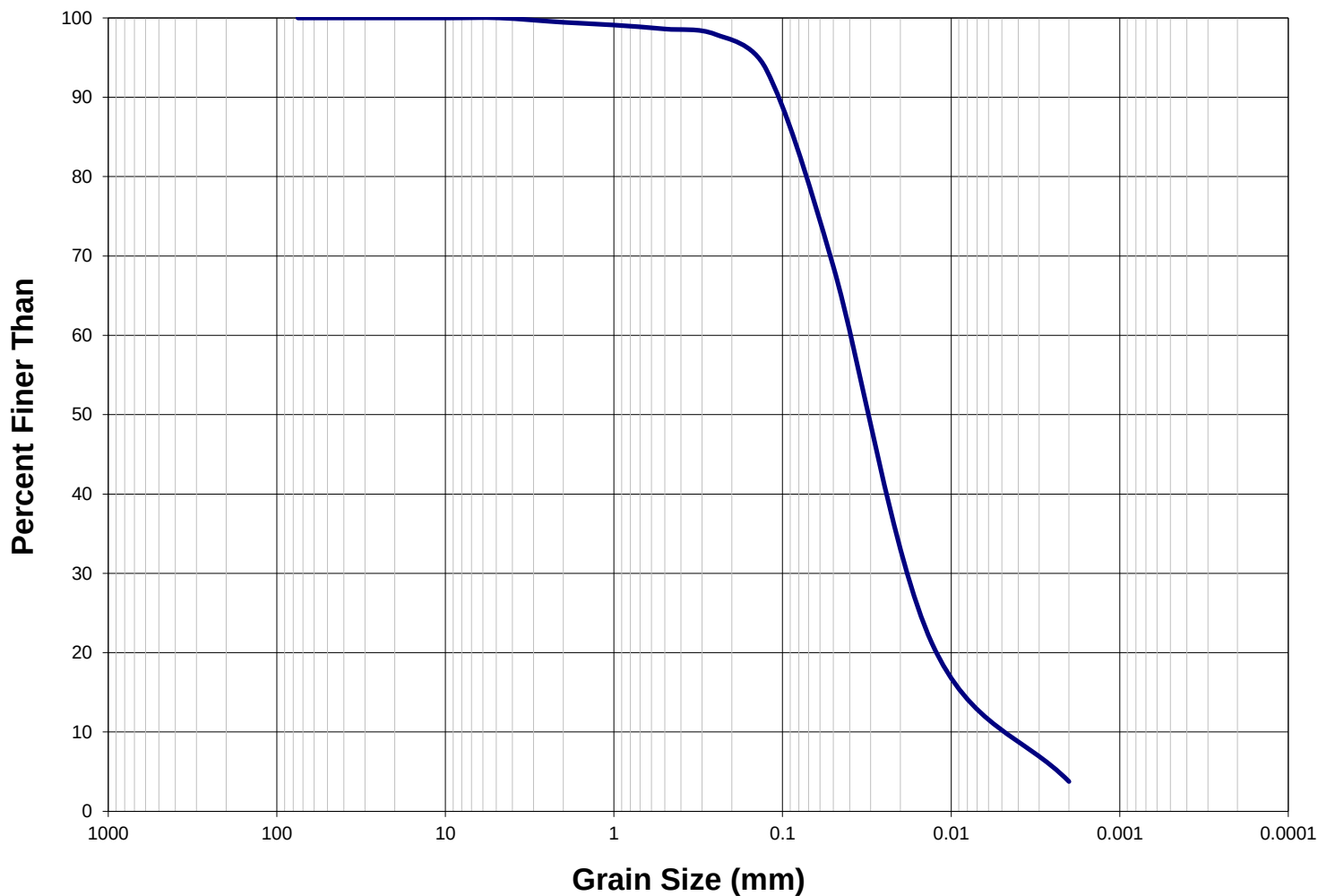
| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 6.46    | Clay  |
| 64 - 4          | 0.05    | Pebble         |            |         |       |
| 4 - 2           | 0.07    | Granule        |            |         |       |
| 2 - 1           | 0.02    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.31    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.55    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 3.89    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 21.18   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 29.40   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 20.40   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 11.57   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.10    | Very fine silt |            |         |       |

Texture: Silt loam





## Particle Size Distribution Curve



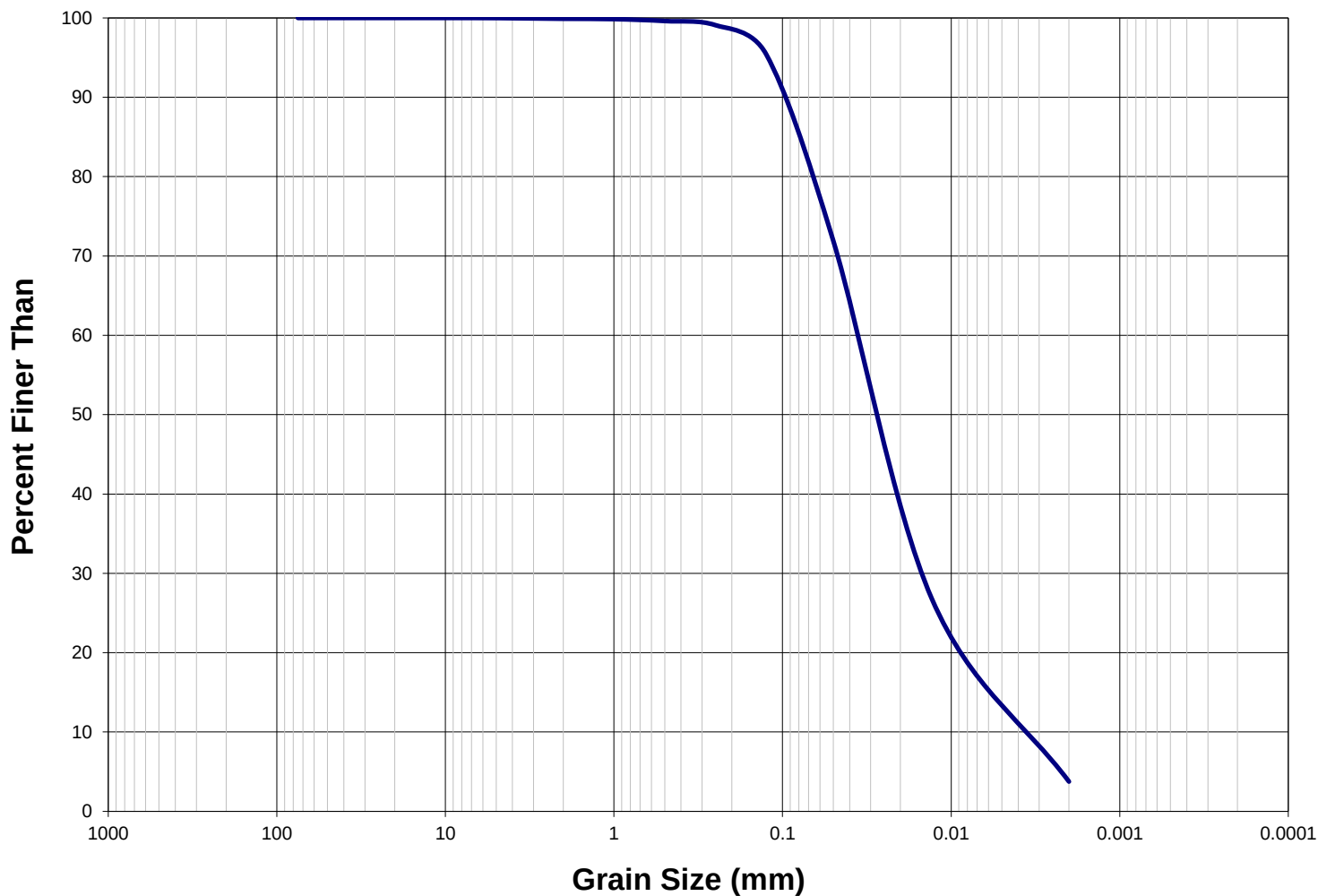
### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 6.77    | Clay  |
| 64 - 4          | 0.15    | Pebble         |            |         |       |
| 4 - 2           | 0.40    | Granule        |            |         |       |
| 2 - 1           | 0.35    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.49    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.68    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 4.41    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 20.69   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 28.53   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 19.77   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 11.58   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 6.18    | Very fine silt |            |         |       |

Texture: Silt loam



## Particle Size Distribution Curve



### Particle Size Distribution

| Range (mm)      | Wt. (%) | Class          | Range (mm) | Wt. (%) | Class |
|-----------------|---------|----------------|------------|---------|-------|
| > 64            | 0.00    | Cobble         | <0.0039    | 7.73    | Clay  |
| 64 - 4          | 0.04    | Pebble         |            |         |       |
| 4 - 2           | 0.06    | Granule        |            |         |       |
| 2 - 1           | 0.04    | Very coarse s  |            |         |       |
| 1 - 0.5         | 0.24    | Coarse sand    |            |         |       |
| 0.5 - 0.25      | 0.52    | Medium sand    |            |         |       |
| 0.25 - 0.125    | 3.68    | Fine sand      |            |         |       |
| 0.125 - 0.0625  | 19.59   | Very fine san  |            |         |       |
| 0.0625 - 0.031  | 27.10   | Coarse silt    |            |         |       |
| 0.031 - 0.0156  | 18.79   | Medium silt    |            |         |       |
| 0.0156 - 0.0078 | 14.05   | Fine silt      |            |         |       |
| 0.0078 - 0.0039 | 8.16    | Very fine silt |            |         |       |

Texture: Silt loam



**ALS Environmental**

www.alsglobal.com

# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2170896-COFC

COC Number: 14 - 452766

Page 1 of 3

| <b>Report To</b>                                                                                                     |                                                                                          | <b>Report Format / Distribution</b>                                                                                                 |                        | <b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>                                                                                                                                                                                                                                                                                                                                                                                               |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------|-----------------|----------------------|------------------------|-----------------|-----------------|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Company: <u>Agnico Eagle Mines</u>                                                                                   |                                                                                          | Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) |                        | R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3pm)                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Contact: <u>Jennifer Brown</u>                                                                                       |                                                                                          | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                         |                        | P <input type="checkbox"/> Priority (2-4 business days if received by 3pm)                                                                                                                                                                                                                                                                                                                                                                                                                  |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Address: <u>Meliadine, Rankin Inlet, NU X0C 0A5</u>                                                                  |                                                                                          | <input type="checkbox"/> Criteria on Report - provide details below if box checked                                                  |                        | E <input type="checkbox"/> Emergency (1-2 business days if received by 3pm)                                                                                                                                                                                                                                                                                                                                                                                                                 |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Phone: <u>1-819-759-7555 ext 4603946</u>                                                                             |                                                                                          | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX           |                        | E2 <input type="checkbox"/> Same day or weekend emergency if received by 10am - contact ALS for surcharge.                                                                                                                                                                                                                                                                                                                                                                                  |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          | Email 1 or Fax: <u>arman-ospan@golder.com</u>                                                                                       |                        | Specify Date Required for E2, E or P:                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          | Email 2: <u>erichard@golder.com</u>                                                                                                 |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Invoice To</b>                                                                                                    |                                                                                          | <b>Invoice Distribution</b>                                                                                                         |                        | <b>Analysis Request</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                |                                                                                          | Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX   |                        | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                                                                                                                                                                                                                                                                                                                                                                                                                  |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                      |                                                                                          | Email 1 or Fax: <u>invoices.Meliadine@agnico.eagle.com</u>                                                                          |                        | <table border="1"> <tr> <th>TOC</th> <th>Total Metals</th> <th>Diss. Metals</th> <th>Total + Diss Nutrients</th> <th>Total + Diss Hg</th> <th>PSA (Westworth)</th> <th rowspan="5">Number of Containers</th> </tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> |                                           | TOC             | Total Metals    | Diss. Metals         | Total + Diss Nutrients | Total + Diss Hg | PSA (Westworth) | Number of Containers |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TOC                                                                                                                  | Total Metals                                                                             | Diss. Metals                                                                                                                        | Total + Diss Nutrients |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           | Total + Diss Hg | PSA (Westworth) | Number of Containers |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Company: <u>Agnico Eagle &amp; Golder</u>                                                                            |                                                                                          | Email 2: <u>carolina-lesaigneur@golder.com</u>                                                                                      |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Contact:                                                                                                             |                                                                                          | Oil and Gas Required Fields (client use)                                                                                            |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Project Information</b>                                                                                           |                                                                                          | Approver ID:                                                                                                                        |                        | Cost Center:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ALS Quote #: <u>Q 69808</u>                                                                                          |                                                                                          | GL Account:                                                                                                                         |                        | Routing Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Job #:                                                                                                               |                                                                                          | Activity Code:                                                                                                                      |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PO / AFE:                                                                                                            |                                                                                          | Location:                                                                                                                           |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LSD:                                                                                                                 |                                                                                          | ALS Contact:                                                                                                                        |                        | Sampler:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ALS Lab Work Order # (lab use only)                                                                                  |                                                                                          |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ALS Sample #<br>(lab use only)                                                                                       | Sample Identification and/or Coordinates<br>(This description will appear on the report) | Date<br>(dd-mm-yy)                                                                                                                  | Time<br>(hh:mm)        | Sample Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-1 Rep1                                                                               | 13-Sep-18                                                                                                                           | 17:00                  | marine sediment                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-1 Rep2                                                                               |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-1 Rep3                                                                               |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-2 Rep1                                                                               |                                                                                                                                     | 16:00                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-2 Rep2                                                                               |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-2 Rep3                                                                               |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-3 Rep1                                                                               | 13-Sep-18                                                                                                                           | 15:00                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-3 Rep2                                                                               |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-3 Rep3                                                                               |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-4 Rep1                                                                               | 13-Sep-2018                                                                                                                         | 14:00                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-4 Rep2                                                                               |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | WBE-4 Rep3                                                                               |                                                                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | X                                         |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Drinking Water (DW) Samples (client use)</b>                                                                      |                                                                                          | <b>Special Instructions / Specify Criteria to add on report (client use)</b>                                                        |                        | <b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                          | CCME criteria; contact: <u>erichard@golder.com</u><br>Report to: <u>agnico-equis@golder.com</u>                                     |                        | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                   |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |                                                                                          |                                                                                                                                     |                        | Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                  |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |                                                                                                                                     |                        | Cooling Initiated <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |                                                                                                                                     |                        | INITIAL COOLER TEMPERATURES °C                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |                                                                                                                                     |                        | FINAL COOLER TEMPERATURES °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                          |                                                                                                                                     |                        | 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>SHIPMENT RELEASE (client use)</b>                                                                                 |                                                                                          | <b>INITIAL SHIPMENT RECEPTION (lab use only)</b>                                                                                    |                        | <b>FINAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                           |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Released by: <u>Andrew Rippington</u>                                                                                | Date: <u>Sept 20/18</u> Time: <u>20:00</u>                                               | Received by:                                                                                                                        | Date:                  | Received by: <u>JC</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Date: <u>SEP 26 2018</u> Time: <u>9Am</u> |                 |                 |                      |                        |                 |                 |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-4326a-v06 From 03 October 2013

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.

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



L2170896-COFC

COC Number: 14 - 452767

Page 2 of 3

|                                                                                                                      |                                                                                       |           |                                                                                                                                     |              |             |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|--|--|--|--|--|--|--|--|-----|--------------|-----------|------------------|----------------------|--|--|--|--|--|--|--|--|--|--|--|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <b>Report To</b>                                                                                                     |                                                                                       |           | <b>Report Format / Distribution</b>                                                                                                 |              |             | <b>Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)</b>                                                                                                                                                                                                                                                                           |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Company: <u>Agnico Eagle Mines</u>                                                                                   |                                                                                       |           | Select Report Format: <input checked="" type="checkbox"/> PDF <input type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL) |              |             | R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3pm)                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Contact: <u>Jennifer Brown</u>                                                                                       |                                                                                       |           | Quality Control (QC) Report with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                         |              |             | P <input type="checkbox"/> Priority (2-4 business days if received by 3pm)                                                                                                                                                                                                                                                                                              |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Address: <u>Meliadine, Rankin Inlet, NV, 00068</u>                                                                   |                                                                                       |           | <input type="checkbox"/> Criteria on Report - provide details below if box checked                                                  |              |             | E <input type="checkbox"/> Emergency (1-2 business days if received by 3pm)                                                                                                                                                                                                                                                                                             |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Phone: <u>1-819-759-7555 ext. 4603996</u>                                                                            |                                                                                       |           | Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX           |              |             | E2 <input type="checkbox"/> Same day or weekend emergency if received by 10am - contact ALS for surcharge.                                                                                                                                                                                                                                                              |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Email 1 or Fax: <u>arman-osp9m@golder.com</u>                                                                        |                                                                                       |           | Email 2: <u>erichard@golder.com</u>                                                                                                 |              |             | Specify Date Required for E2, E or P:                                                                                                                                                                                                                                                                                                                                   |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Invoice To: Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                    |                                                                                       |           | <b>Invoice Distribution</b>                                                                                                         |              |             | <b>Analysis Request</b>                                                                                                                                                                                                                                                                                                                                                 |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Copy of invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                      |                                                                                       |           | Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX   |              |             | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below                                                                                                                                                                                                                                                                                              |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Company: <u>Agnico Eagle-Golder</u>                                                                                  |                                                                                       |           | Email 1 or Fax: <u>invoices.meliadine@agnico.eagle.com</u>                                                                          |              |             | <table border="1"> <tr> <td rowspan="5">TOC</td> <td rowspan="5">Total Metals</td> <td rowspan="5">Nutrients</td> <td rowspan="5">PSA (waterworks)</td> <td colspan="12"></td> <td rowspan="5">Number of Containers</td> </tr> <tr><td colspan="12"></td></tr> <tr><td colspan="12"></td></tr> <tr><td colspan="12"></td></tr> <tr><td colspan="12"></td></tr> </table> |   |   |   |  |  |  |  |  |  |  |  | TOC | Total Metals | Nutrients | PSA (waterworks) |                      |  |  |  |  |  |  |  |  |  |  |  | Number of Containers |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TOC                                                                                                                  | Total Metals                                                                          | Nutrients | PSA (waterworks)                                                                                                                    |              |             |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  | Number of Containers |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                       |           |                                                                                                                                     |              |             |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                       |           |                                                                                                                                     |              |             |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                       |           |                                                                                                                                     |              |             |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                       |           |                                                                                                                                     |              |             |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Contact: <u>Caroling-leseigneur@torres@golder.com</u>                                                                |                                                                                       |           | Email 2: <u>Caroling-leseigneur@torres@golder.com</u>                                                                               |              |             |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Project Information</b>                                                                                           |                                                                                       |           | <b>Oil and Gas Required Fields (client use)</b>                                                                                     |              |             |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ALS Quote #: <u>Q 69808</u>                                                                                          |                                                                                       |           | Approver ID:                                                                                                                        |              |             | Cost Center:                                                                                                                                                                                                                                                                                                                                                            |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Job #:                                                                                                               |                                                                                       |           | GL Account:                                                                                                                         |              |             | Routing Code:                                                                                                                                                                                                                                                                                                                                                           |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PO / AFE:                                                                                                            |                                                                                       |           | Activity Code:                                                                                                                      |              |             |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LSD:                                                                                                                 |                                                                                       |           | Location:                                                                                                                           |              |             |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ALS Lab Work Order # (lab use only)                                                                                  |                                                                                       |           | ALS Contact:                                                                                                                        |              |             | Sampler:                                                                                                                                                                                                                                                                                                                                                                |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ALS Sample # (lab use only)                                                                                          | Sample Identification and/or Coordinates (This description will appear on the report) |           | Date (dd-mmm-yy)                                                                                                                    | Time (hh:mm) | Sample Type |                                                                                                                                                                                                                                                                                                                                                                         |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MBE-5 Rep1                                                                            |           | 13-Sep-18                                                                                                                           | 12:20        | Marine      | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MBE-5 Rep2                                                                            |           |                                                                                                                                     |              | Sediment    | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MBE-5 Rep3                                                                            |           |                                                                                                                                     |              |             | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MB Rep A1 Rep1                                                                        |           | 19-Sep-18                                                                                                                           | 08:30        |             | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MB Rep A1 Rep2                                                                        |           |                                                                                                                                     |              |             | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MB Rep A1 Rep3                                                                        |           |                                                                                                                                     |              |             | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MB Rep A2 Rep1                                                                        |           | 19-Sep-18                                                                                                                           | 09:30        |             | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MB Rep A2 Rep2                                                                        |           |                                                                                                                                     |              |             | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MB Rep A2 Rep3                                                                        |           |                                                                                                                                     |              |             | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MB Rep A3 Rep1                                                                        |           | 19-Sep-18                                                                                                                           | 12:00        |             | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MB Rep A3 Rep2                                                                        |           |                                                                                                                                     |              |             | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      | MB Rep A3 Rep3                                                                        |           |                                                                                                                                     |              |             | X                                                                                                                                                                                                                                                                                                                                                                       | X | X | X |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Drinking Water (DW) Samples (client use)                                                                             |                                                                                       |           | Special Instructions / Specify Criteria to add on report (client use)                                                               |              |             | <b>SAMPLE CONDITION AS RECEIVED (lab use only)</b>                                                                                                                                                                                                                                                                                                                      |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Are samples taken from a Regulated DW System?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |                                                                                       |           | CCME: criteria: contact erichard@golder.com<br>Report to: agnico-equis@golder.com                                                   |              |             | Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/>                                                                                                                                                                                                                                                               |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Are samples for human drinking water use?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No     |                                                                                       |           |                                                                                                                                     |              |             | Ice packs Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/>                                                                                                                                                                                                              |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                       |           |                                                                                                                                     |              |             | Cooling Initiated <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                              |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                                                      |                                                                                       |           |                                                                                                                                     |              |             | INITIAL COOLER TEMPERATURES °C: FINAL COOLER TEMPERATURES °C: 16                                                                                                                                                                                                                                                                                                        |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>SHIPMENT RELEASE (client use)</b>                                                                                 |                                                                                       |           | <b>INITIAL SHIPMENT RECEPTION (lab use only)</b>                                                                                    |              |             | <b>FINAL SHIPMENT RECEPTION (lab use only)</b>                                                                                                                                                                                                                                                                                                                          |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Released by: <u>Andrew Ruppington</u> Date: <u>Sept 24/18</u> Time: <u>10:00</u>                                     |                                                                                       |           | Received by: _____ Date: _____ Time: _____                                                                                          |              |             | Received by: <u>JC</u> Date: <u>SEP 26 2018</u> Time: <u>9am</u>                                                                                                                                                                                                                                                                                                        |   |   |   |  |  |  |  |  |  |  |  |     |              |           |                  |                      |  |  |  |  |  |  |  |  |  |  |  |                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

REFER TO BACK PAGE FOR ALLOCATIONS AND SAMPLING INFORMATION

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NA-FM-0325a V08 Printed October 2013

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.

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



**Appendix G-2. Sediment Quality QA/QC results**

| Sample ID                              |                           |       | MBE-1<br>REP 3 | DUP A     | RPD (%) |
|----------------------------------------|---------------------------|-------|----------------|-----------|---------|
| Parameter                              | Lowest<br>Detection Limit | Units | Sediments      | Sediments |         |
| Leachable Anions & Nutrients (Soil)    |                           |       |                |           |         |
| Total Kjeldahl Nitrogen                | 0.020                     | %     | 0.057          | 0.058     | <DL*5   |
| Organic / Inorganic Carbon (Soil)      |                           |       |                |           |         |
| Inorganic Carbon                       | 0.050                     | %     | 0.097          | 0.089     | <DL*5   |
| Inorganic Carbon (as CaCO3 Equivalent) | 0.40                      | %     | 0.81           | 0.74      | <DL*5   |
| Total Carbon by Combustion             | 0.05                      | %     | 0.63           | 0.64      | 1.6     |
| Total Organic Carbon                   | 0.050                     | %     | 0.53           | 0.551     | 3.9     |
|                                        |                           |       |                |           |         |
| Metals (Soil)                          |                           |       |                |           |         |
| Aluminum (Al)                          | 50                        | mg/kg | 7250           | 7380      | 1.8     |
| Antimony (Sb)                          | 0.10                      | mg/kg | <0.10          | <0.10     | <DL*5   |
| Arsenic (As)                           | 0.10                      | mg/kg | 4.99           | 4.70      | 6.0     |
| Barium (Ba)                            | 0.50                      | mg/kg | 45.8           | 40.1      | 13.3    |
| Beryllium (Be)                         | 0.10                      | mg/kg | 0.15           | 0.15      | <DL*5   |
| Bismuth (Bi)                           | 0.20                      | mg/kg | <0.20          | <0.20     | <DL*5   |
| Boron (B)                              | 5.0                       | mg/kg | 14.3           | 14.9      | <DL*5   |
| Cadmium (Cd)                           | 0.020                     | mg/kg | <0.020         | <0.020    | <DL*5   |
| Calcium (Ca)                           | 50                        | mg/kg | 5490           | 6140      | 11.2    |
| Chromium (Cr)                          | 0.50                      | mg/kg | 57.0           | 36.9      | 42.8    |
| Cobalt (Co)                            | 0.10                      | mg/kg | 4.40           | 4.11      | 6.8     |
| Copper (Cu)                            | 0.50                      | mg/kg | 9.08           | 7.77      | 15.5    |
| Iron (Fe)                              | 50                        | mg/kg | 13200          | 12200     | 7.9     |
| Lead (Pb)                              | 0.50                      | mg/kg | 3.10           | 3.51      | 12.4    |
| Lithium (Li)                           | 2.0                       | mg/kg | 11.6           | 10.5      | 10.0    |
| Magnesium (Mg)                         | 20                        | mg/kg | 7010           | 6500      | 7.5     |
| Manganese (Mn)                         | 1.0                       | mg/kg | 146            | 139       | 4.9     |
| Mercury (Hg)                           | 0.0050                    | mg/kg | 0.0095         | 0.0109    | <DL*5   |
| Molybdenum (Mo)                        | 0.10                      | mg/kg | 2.19           | 0.63      | 110.6   |
| Nickel (Ni)                            | 0.50                      | mg/kg | 26.3           | 15.1      | 54.1    |
| Phosphorus (P)                         | 50                        | mg/kg | 815            | 765       | 6.3     |
| Potassium (K)                          | 100                       | mg/kg | 2110           | 1960      | 7.4     |
| Selenium (Se)                          | 0.20                      | mg/kg | <0.20          | <0.20     | <DL*5   |
| Silver (Ag)                            | 0.10                      | mg/kg | <0.10          | <0.10     | <DL*5   |
| Sodium (Na)                            | 50                        | mg/kg | 6000           | 5920      | 1.3     |
| Strontium (Sr)                         | 0.50                      | mg/kg | 25.4           | 27.4      | 7.6     |
| Sulfur (S)                             | 1000                      | mg/kg | <1000          | <1000     | <DL*5   |
| Thallium (Tl)                          | 0.050                     | mg/kg | 0.086          | 0.089     | <DL*5   |
| Tin (Sn)                               | 1.0                       | mg/kg | <1.0           | <1.0      | <DL*5   |
| Titanium (Ti)                          | 1.0                       | mg/kg | 559            | 500       | 11.1    |
| Tungsten (W)                           | 0.50                      | mg/kg | <0.50          | <0.50     | <DL*5   |
| Uranium (U)                            | 0.050                     | mg/kg | 0.743          | 0.838     | 12.0    |
| Vanadium (V)                           | 0.20                      | mg/kg | 31.1           | 28.8      | 7.7     |
| Zinc (Zn)                              | 2.0                       | mg/kg | 24.4           | 22.9      | 6.3     |
| Zirconium (Zr)                         | 1.0                       | mg/kg | 4.2            | 4.6       | <DL*5   |

## Notes:

RPD - relative percent difference

&lt;DL\*5 - values are less than 5 times detection limit (DL)

**Bold values** - indicate RPDs greater than 50%

**APPENDIX H**

## Benthic Infauna Laboratory Analysis Data

Total abundance data in matrix format, including total taxa (species richness) for Golder Rankin Inlet 2018.

| Biologica Sample ID |         |            |              |              |                  |                  |                                     | 18-105-001  | 18-105-002 | 18-105-003 | 18-105-004 | 18-105-005 | 18-105-006 | 18-105-007 | 18-105-008 | 18-105-009 | 18-105-010 | 18-105-011 | 18-105-012 | 18-105-013 | 18-105-014 | 18-105-015 | 18-105-016 | 18-105-017 | 18-105-018 | 18-105-019 | 18-105-020 | 18-105-021 | 18-105-022 | 18-105-023 | 18-105-024 |    |   |
|---------------------|---------|------------|--------------|--------------|------------------|------------------|-------------------------------------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|----|---|
| Site                |         |            |              |              |                  |                  |                                     | MB E-1      | MB E-1     | MB E-1     | MB E-2     | MB E-2     | MB E-2     | MB E-3     | MB E-3     | MB E-3     | MB E-4     | MB E-4     | MB E-4     | MB E-5     | MB E-5     | MB E-5     | MB REF A-1 | MB REF A-1 | MB REF A-1 | MB REF A-2 | MB REF A-2 | MB REF A-2 | MB REF A-3 | MB REF A-3 | MB REF A-3 |    |   |
| Replicate           |         |            |              |              |                  |                  |                                     | 1           | 2          | 3          | 1          | 2          | 3          | 1          | 2          | 3          | 1          | 2          | 3          | 1          | 2          | 3          | 1          | 2          | 3          | 1          | 2          | 3          | 1          | 2          | 3          |    |   |
| Date Sampled        |         |            |              |              |                  |                  |                                     | 15-Sep-18   | 15-Sep-18  | 15-Sep-18  | 16-Sep-18  | 16-Sep-18  | 16-Sep-18  | 14-Sep-18  | 14-Sep-18  | 14-Sep-18  | 14-Sep-18  | 14-Sep-18  | 14-Sep-18  | 14-Sep-18  | 14-Sep-18  | 14-Sep-18  | 14-Sep-18  | 16-Sep-18  | 16-Sep-18  | 16-Sep-18  | 16-Sep-18  | 16-Sep-18  | 19-Sep-18  | 19-Sep-18  | 19-Sep-18  |    |   |
| taxcode             | grpcode | Phylum     | Class        | Order        | Family           | Subfamily        | Taxon Name                          | Grand Total |            | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  | Abundance  |    |   |
|                     |         |            |              |              |                  |                  |                                     | Unique Taxa | Abundance  |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POER    | Anneliida  | Polychaeta   | Eunicida     | Lumbrineridae    |                  | Scoletoma fragilis                  | 1           | 81         | 3          | 3          | 1          | 3          | 7          | 4          | 4          | 2          | 3          | 3          | 1          | 4          | 4          | 8          | 2          | 5          | 1          | 4          | 4          | 5          | 5          | 1          | 1  | 3 |
| ANNE                | POER    | Anneliida  | Polychaeta   | Eunicida     | Lumbrineridae    |                  | Scoletoma sp.                       |             | 15         | 2          | 1          | 1          | 2          | 1          |            |            |            |            | 1          | 1          | 1          |            |            |            |            |            |            |            |            | 1          | 2          | 2  |   |
| ANNE                | POER    | Anneliida  | Polychaeta   | Phyllodocida | Nephtyidae       |                  | Bipalponephtys cornuta              | 1           | 124        | 9          | 3          | 2          |            | 3          | 2          | 2          | 4          | 3          | 6          | 2          | 3          | 4          | 14         | 6          | 11         | 3          | 5          | 13         | 2          | 4          | 14         | 6  | 3 |
| ANNE                | POER    | Anneliida  | Polychaeta   | Phyllodocida | Pholoidae        |                  | Pholoe minuta                       | 1           | 5          |            |            | 1          |            |            |            |            |            |            |            | 1          |            |            |            |            |            |            |            |            | 2          |            |            |    |   |
| ANNE                | POER    | Anneliida  | Polychaeta   | Phyllodocida | Phyllodocidae    | Eteoninae        | Eteone longa complex                | 1           | 6          |            |            |            |            | 1          |            |            | 1          | 2          |            |            |            |            | 1          |            |            |            |            |            |            | 1          |            |    |   |
| ANNE                | POER    | Anneliida  | Polychaeta   | Phyllodocida | Phyllodocidae    | Eteoninae        | Eteone sp.                          |             | 9          | 1          | 1          | 2          |            | 1          |            |            |            |            |            | 1          |            |            |            |            | 1          |            |            |            |            |            | 1          | 1  |   |
| ANNE                | POER    | Anneliida  | Polychaeta   | Phyllodocida | Polynoidae       | Polynoinae       | Gattyana cirrhosa                   | 1           | 1          |            |            |            |            |            |            |            |            |            |            | 1          |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Sabellida    | Sabellidae       | Sabellinae       | Euchone incolor                     | 1           | 2          |            |            |            |            |            |            |            |            |            |            |            | 1          |            |            |            |            |            |            | 1          |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Sabellida    | Sabellidae       | Sabellinae       | Euchone rubrocincta                 | 1           | 3          |            |            |            | 1          | 2          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Sabellida    | Sabellidae       |                  | Sabellidae indet.                   |             | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            | 1          |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Spionida     | Spionidae        |                  | Prionospio (Prionospio) steenstrupi | 1           | 142        | 5          | 4          | 1          | 7          | 2          | 4          | 3          | 1          | 7          | 5          | 5          | 3          | 5          | 13         | 14         | 9          | 2          | 1          | 5          | 9          | 10         | 10         | 15 | 2 |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Terebellida  | Ampharetidae     | Ampharetinae     | Ampharete acutifrons                | 1           | 3          |            |            |            |            |            | 1          |            |            | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            | 1  |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Terebellida  | Ampharetidae     | Ampharetinae     | Ampharete sp.                       |             | 3          | 1          |            |            | 1          |            |            |            |            | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Terebellida  | Ampharetidae     |                  | Ampharetidae indet.                 |             | 1          |            |            |            |            |            |            |            |            |            |            |            |            | 1          |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Terebellida  | Cirratulidae     |                  | Chaetozone sp.                      | 1           | 163        | 5          | 9          | 2          | 9          | 8          | 6          | 11         | 7          | 4          | 7          | 6          | 8          | 9          | 11         | 13         | 9          | 3          | 3          | 7          | 9          | 6          | 4          | 5  | 2 |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Terebellida  | Cirratulidae     |                  | Cirratulidae indet.                 |             | 6          |            |            |            | 1          |            |            | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Terebellida  | Terebellidae     | Terebellinae     | Artacama proboscidea                | 1           | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Terebellida  | Terebellidae     |                  | Lysilla sp.                         | 1           | 1          |            |            |            |            |            |            |            | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Terebellida  | Trichobranchidae | Trichobranchinae | Terebellides sp.                    |             | 3          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   | Terebellida  | Trichobranchidae | Trichobranchinae | Terebellides stroemi                | 1           | 14         | 1          | 1          |            | 1          | 1          | 1          | 2          |            |            | 1          |            | 1          | 1          |            |            |            |            |            |            | 1          | 1          |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   |              | Capitellidae     |                  | Mediomastus sp.                     | 1           | 2          | 1          |            |            |            | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   |              | Cossuridae       |                  | Cossura sp.                         | 1           | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   |              | Maldanidae       | Euclymeninae     | Axiothella sp.                      | 1           | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   |              | Maldanidae       | Euclymeninae     | Euclymeninae indet.                 |             | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   |              | Ophelidae        | Ophelininae      | Ophelina acuminata                  | 1           | 40         |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   |              | Ophelidae        | Ophelininae      | Ophelina breviata                   | 1           | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   |              | Orbinidae        |                  | Leitoscoloplos sp.                  | 1           | 181        | 17         | 8          | 1          | 6          | 9          | 8          | 5          | 6          | 10         | 10         | 3          | 10         | 12         | 11         | 7          | 4          | 6          | 6          | 10         | 9          | 5          | 5          | 5  | 8 |
| ANNE                | POSE    | Anneliida  | Polychaeta   |              | Orbinidae        |                  | Scoloplos armiger                   | 1           | 51         |            | 1          |            | 1          | 1          | 1          | 1          |            | 1          | 1          | 1          | 1          | 3          | 2          | 1          | 4          |            | 5          | 2          | 6          | 5          | 8          | 7  |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   |              | Orbinidae        |                  | Scoloplos sp.                       |             | 3          |            | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ANNE                | POSE    | Anneliida  | Polychaeta   |              | Scalibregmatidae |                  | Scalibregma inflatum                | 1           | 23         | 2          | 2          | 1          | 3          |            | 4          |            | 1          | 1          |            | 1          | 1          |            |            | 2          |            |            | 1          |            |            | 2          | 1          | 1  |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Ampeliscaidae    |                  | Ampelisca sp.                       | 1           | 3          |            |            |            |            | 1          |            |            |            |            | 1          |            |            |            | 1          |            |            |            |            |            |            |            |            |    |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Ampeliscaidae    |                  | Ampeliscaidae indet.                |             | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Dulichidae       |                  | Dulichia sp.                        | 1           | 1          |            |            | 1          |            |            |            |            |            |            |            |            | 1          |            |            |            |            |            |            |            |            |            |            |    |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Isaeidae         |                  | Protomedeia sp.                     | 1           | 338        |            | 1          |            | 17         | 10         | 4          | 12         | 11         | 16         | 26         | 20         | 17         | 14         | 45         | 47         | 4          | 1          |            | 11         | 16         | 9          | 8          | 46 | 3 |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Lysianassidae    |                  | Hippomedon propinquus               | 1           | 2          |            |            |            | 2          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Lysianassidae    |                  | Hippomedon serratus                 | 1           | 7          |            |            |            |            |            |            |            |            |            |            |            | 7          |            |            |            |            |            |            |            |            |            |            |    |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Lysianassidae    |                  | Hippomedon sp.                      |             | 5          |            |            |            | 1          |            |            |            |            |            |            |            |            | 1          |            |            |            |            |            |            |            |            |            | 2  |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Lysianassidae    |                  | Lysianassidae indet.                |             | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Lysianassidae    |                  | Orchomenella sp.                    | 1           | 1          |            |            |            |            | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |    |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Melitidae        |                  | Megamoera dentata                   | 1           | 3          | 1          | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            | 1  |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Melitidae        |                  | Melita dentata                      | 1           | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            | 1          |            |            |            |            |            |            |            |            |    |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Oedicerotidae    |                  | Aceroides sp.                       | 1           | 1          |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            |            | 1  |   |
| ARTH                | CRAM    | Arthropoda | Malacostraca | Amphipoda    | Oedicerotidae    |                  | Bathymedon obtusifrons              | 1           | 10         |            |            |            |            |            | 1          |            |            |            |            | 1          | 2          |            |            |            |            |            |            |            |            |            |            |    |   |



Abbreviations & Definitions

Worksheets:

1. Abbrevi Glossary of terms and outline of report.
2. Data - IV Total abundance data in matrix format, including total taxa count per sample and total abundance per sample.
3. Data - L Raw abundance data in long format.
4. QC-QA I Results of sorting efficiency.

Life Stages:

|      |                                                                        |
|------|------------------------------------------------------------------------|
| A    | Adult                                                                  |
| Int  | Intermediate - has adult features but not of typical reproductive size |
| J    | Juvenile                                                               |
| L    | Larvae                                                                 |
| N    | Nymph                                                                  |
| P    | Pupa                                                                   |
| Col  | Colony                                                                 |
| Deut | Deutonymph                                                             |

MEMO      Incidental taxa/fragments not included in data, or whose abundance is not generally captured accurately by 1.0mm screen.

Total Num      Number of unique taxa (=species richness), not including higher-order taxa for which there exists a lower-order identification (e.g. not including *Lumbrineris* sp. if there exists *Lumbrineris cruzensis* in the data)

Total Num      Total Abundance, not including incidental taxa

Biologica Coding

Major Taxonomic Groups:

Miscellaneous

|      |                   |
|------|-------------------|
| BRAC | Brachiopoda       |
| BRYO | Bryozoa           |
| CNAN | Cnidaria Anthozoa |
| CNHY | Cnidaria Hydrozoa |
| CNXX | Cnidaria          |
| ENTO | Entoprocta        |
| EURA | Echiura           |
| HEMI | Hemichordata      |
| KINO | Kinorhyncha       |
| NTEA | Nemertea          |
| PHOR | Phoronida         |
| PIXX | Pisces            |
| PLTY | Platyhelminthes   |
| PORI | Porifera          |
| PRIA | Priapulida        |
| SIPN | Sipuncula         |
| TARD | Tardigrada        |
| URAS | Ascidacea         |

Annelida

|      |                       |
|------|-----------------------|
| ANHI | Annelida Hirudinea    |
| ANOL | Annelida Oligochaeta  |
| POER | Polychaeta Errantia   |
| POSE | Polychaeta Sedentaria |
| POLY | Polychaeta            |
| POXX | Polychaeta indet.     |

Arthropoda

|      |                         |
|------|-------------------------|
| CHPY | Chelicerata Pycnogonida |
| CHAC | Chelicerata Arachnida   |
| CRAM | Crustacea Amphipoda     |
| CRCI | Crustacea Cirripedia    |
| CRCO | Crustacea Copepoda      |
| CRCU | Crustacea Cumacea       |
| CRDE | Crustacea Decapoda      |
| CRIS | Crustacea Isopoda       |
| CRLE | Crustacea Leptostraca   |
| CRMY | Crustacea Mysidacea     |
| CROS | Crustacea Ostracoda     |
| CRTA | Crustacea Tanaidacea    |
| CRXX | Crustacea               |

Echinodermata

|      |                             |
|------|-----------------------------|
| ECAS | Echinodermata Asteroidea    |
| ECCR | Echinodermata Crinoidea     |
| ECEC | Echinodermata Echinoidea    |
| ECHO | Echinodermata Holothuroidea |
| ECOP | Echinodermata Ophiuroidea   |

Mollusca

|      |                         |
|------|-------------------------|
| MOAP | Mollusca Aplacophora    |
| MOBI | Mollusca Bivalvia       |
| MOCE | Mollusca Cephalopoda    |
| MOGA | Mollusca Gastropoda     |
| MOPO | Mollusca Polyplacophora |
| MOSC | Mollusca Scaphopoda     |



Taxonomic Family Codes:

| Group | Family             | Family code | Group | Family           | Family code |
|-------|--------------------|-------------|-------|------------------|-------------|
| ANHI  | Piscicolidae       | 1138        | KINO  | Echinoderidae    | 1148        |
| ANOL  | Enchytraeidae      | 1133        | KINO  | Neocentrophyidae | 1150        |
| ANOL  | Naididae           | 1134        | KINO  | Pycnophyidae     | 1152        |
| ANOL  | Tubificidae        | 1136        | KINO  | Semnoderidae     | 1154        |
| BRAC  | Frieleidae         | 0951        | MOAP  | Chaetodermatidae | 0338        |
| BRAC  | Cancellothyrididae | 0952        | MOAP  | Limifossoridae   | 0340        |
| BRAC  | Craniidae          | 0953        | MOBI  | Anomiidae        | 0348        |
| BRAC  | Laqueidae          | 0954        | MOBI  | Aricidae         | 0350        |
| BRAC  | Platidiidae        | 0955        | MOBI  | Astartidae       | 0352        |
| BRAC  | Lingulidae         | 0956        | MOBI  | Cardiidae        | 0354        |
| BRAC  | Dallinidae         | 0957        | MOBI  | Carditidae       | 0356        |
| BRAC  | Terebrataliidae    | 0958        | MOBI  | Chamidae         | 0358        |
| BRYO  | Aeteidae           | 0961        | MOBI  | Corbiculidae     | 0360        |
| BRYO  | Alcyonidiidae      | 0962        | MOBI  | Corbulidae       | 0362        |
| BRYO  | Annectocymidae     | 0964        | MOBI  | Crassatellidae   | 0364        |
| BRYO  | Arachnidiidae      | 0966        | MOBI  | Cuspidariidae    | 0366        |
| BRYO  | Bugulidae          | 0968        | MOBI  | Dimyidae         | 0368        |
| BRYO  | Bitectiporidae     | 0969        | MOBI  | Donacidae        | 0370        |
| BRYO  | Calloporidae       | 0970        | MOBI  | Galeommatidae    | 0372        |
| BRYO  | Candidae           | 0972        | MOBI  | Gastrochaenidae  | 0374        |
| BRYO  | Cellariidae        | 0974        | MOBI  | Glycymerididae   | 0376        |
| BRYO  | Celleporidae       | 0976        | MOBI  | Hiatellidae      | 0378        |
| BRYO  | Chapperiidae       | 0980        | MOBI  | Isognomonidae    | 0380        |
| BRYO  | Cheiloporinidae    | 0981        | MOBI  | Kelliellidae     | 0382        |
| BRYO  | Clavoporidae       | 0982        | MOBI  | Lasaeidae        | 0384        |
| BRYO  | Cribrilinidae      | 0983        | MOBI  | Laternulidae     | 0386        |
| BRYO  | Crisiidae          | 0984        | MOBI  | Limidae          | 0388        |
| BRYO  | Diastoporidae      | 0985        | MOBI  | Limopsidae       | 0390        |
| BRYO  | Epistomiidae       | 0986        | MOBI  | Lucinidae        | 0392        |
| BRYO  | Escharellidae      | 0987        | MOBI  | Lyonsiidae       | 0394        |
| BRYO  | Entalophoridae     | 0988        | MOBI  | Mactridae        | 0396        |
| BRYO  | Diaperoeciidae     | 0989        | MOBI  | Malletiidae      | 0398        |
| BRYO  | Electridae         | 0990        | MOBI  | Manzanellidae    | 0400        |
| BRYO  | Eucrateidae        | 0993        | MOBI  | Modiolatus       | 0401        |
| BRYO  | Hincksinidae       | 0988        | MOBI  | Myidae           | 0402        |
| BRYO  | Hippoporinidae     | 0989        | MOBI  | Mytilidae        | 0404        |
| BRYO  | Hippothoidae       | 0990        | MOBI  | Neilonellidae    | 0406        |
| BRYO  | Lichenoporidae     | 0991        | MOBI  | Neoleptonidae    | 0408        |
| BRYO  | Lunulariidae       | 0992        | MOBI  | Noetilldae       | 0410        |
| BRYO  | Membraniporidae    | 0994        | MOBI  | Nuculanidae      | 0412        |
| BRYO  | Microporellidae    | 0996        | MOBI  | Nuculidae        | 0414        |
| BRYO  | Microporidae       | 0998        | MOBI  | Ostreidae        | 0416        |
| BRYO  | Mucronellidae      | 0999        | MOBI  | Pandoridae       | 0418        |
| BRYO  | Myriaporidae       | 1000        | MOBI  | Pectinidae       | 0420        |
| BRYO  | Oncousoeciidae     | 1001        | MOBI  | Periplomatidae   | 0422        |
| BRYO  | Phylactellidae     | 1002        | MOBI  | Petricolidae     | 0424        |
| BRYO  | Reteporidae        | 1001        | MOBI  | Pharidae         | 0426        |
| BRYO  | Rhamphostomellidae | 1004        | MOBI  | Philobryidae     | 0428        |
| BRYO  | Schizoporellidae   | 1006        | MOBI  | Pholadidae       | 0430        |
| BRYO  | Smittinidae        | 1008        | MOBI  | Pinnidae         | 0432        |
| BRYO  | Stomachetosellidae | 1009        | MOBI  | Poromyidae       | 0434        |
| BRYO  | Thalamoporellidae  | 1010        | MOBI  | Pristiglomidae   | 0436        |
| BRYO  | Triticellidae      | 1012        | MOBI  | Propeamussiidae  | 0438        |
| BRYO  | Tubuliporidae      | 1014        | MOBI  | Psammobiidae     | 0440        |
| BRYO  | Umbonulidae        | 1015        | MOBI  | Pteriidae        | 0442        |
| BRYO  | Vesiculariidae     | 1016        | MOBI  | Saccella         | 0443        |
| BRYO  | Victorellidae      | 1017        | MOBI  | Semelidae        | 0444        |
| CHAC  | Halacaridae        | 0673        | MOBI  | Siliculidae      | 0446        |
| CHPY  | Ammotheidae        | 0662        | MOBI  | Solecurtidae     | 0448        |
| CHPY  | Callipallenidae    | 0664        | MOBI  | Solemyidae       | 0450        |
| CHPY  | Nymphonidae        | 0666        | MOBI  | Solenidae        | 0452        |
| CHPY  | Phoxichilidiidae   | 0668        | MOBI  | Spheniopsidae    | 0454        |
| CHPY  | Pycnogonidae       | 0670        | MOBI  | Tellinidae       | 0456        |
| CHPY  | Tanystylidae       | 0672        | MOBI  | Teredinidae      | 0458        |
| CNAN  | Actiniidae         | 0040        | MOBI  | Thraciidae       | 0460        |
| CNAN  | Actinostolidae     | 0041        | MOBI  | Thyasiridae      | 0462        |
| CNAN  | Anthothelidae      | 0043        | MOBI  | Tindariidae      | 0464        |
| CNAN  | Caryophylliidae    | 0042        | MOBI  | Trapezidae       | 0466        |
| CNAN  | Cerianthidae       | 0044        | MOBI  | Turtoniidae      | 0468        |
| CNAN  | Clavulariidae      | 0046        | MOBI  | Ungulinidae      | 0470        |
| CNAN  | Corallimorphidae   | 0048        | MOBI  | Veneridae        | 0472        |
| CNAN  | Dendrophylliidae   | 0049        | MOBI  | Verticordiidae   | 0474        |
| CNAN  | Diadumenidae       | 0050        | MOBI  | Vesicomyiidae    | 0476        |
| CNAN  | Edwardsiidae       | 0052        | MOBI  | Yoldiidae        | 0478        |
| CNAN  | Epizoanthidae      | 0054        | MOCE  | Histioteuthidae  | 0652        |
| CNAN  | Gorgoniidae        | 0056        | MOCE  | Loliginiidae     | 0654        |
| CNAN  | Halcampidae        | 0058        | MOCE  | Octopodidae      | 0656        |
| CNAN  | Halcampoididae     | 0060        | MOCE  | Opisthoteuthidae | 0658        |
| CNAN  | Haloclavidae       | 0062        | MOCE  | Sepiolidae       | 0660        |
| CNAN  | Hormanthiidae      | 0064        | MOGA  | Acmaeidae        | 0480        |
| CNAN  | Isanthidae         | 0066        | MOGA  | Acteonidae       | 0482        |
| CNAN  | Limnactiniidae     | 0068        | MOGA  | Adeorbidae       | 0484        |
| CNAN  | Metridiidae        | 0070        | MOGA  | Aeolidiidae      | 0486        |
| CNAN  | Muriceidae         | 0072        | MOGA  | Aglajidae        | 0488        |



Taxonomic Family Codes:

| Group | Family             | Family code | Group | Family            | Family code |
|-------|--------------------|-------------|-------|-------------------|-------------|
| CNAN  | Pennatulidae       | 0074        | MOGA  | Aplysiidae        | 0490        |
| CNAN  | Plexauridae        | 0076        | MOGA  | Archidorididae    | 0492        |
| CNAN  | Protoptilidae      | 0077        | MOGA  | Arminidae         | 0494        |
| CNAN  | Renillidae         | 0078        | MOGA  | Barleeidae        | 0496        |
| CNAN  | Sagartiidae        | 0080        | MOGA  | Buccinidae        | 0498        |
| CNAN  | Virgulariidae      | 0082        | MOGA  | Bullidae          | 0500        |
| CNHY  | Aequoreidae        | 0083        | MOGA  | Bursidae          | 0502        |
| CNHY  | Aglaopheniidae     | 0084        | MOGA  | Cadlinidae        | 0504        |
| CNHY  | Cladonematidae     | 0085        | MOGA  | Caecidae          | 0506        |
| CNHY  | Alcycellidae       | 0086        | MOGA  | Calliostomatidae  | 0507        |
| CNHY  | Bonneviellidae     | 0087        | MOGA  | Calyptraeidae     | 0508        |
| CNHY  | Bougainvilliidae   | 0088        | MOGA  | Cancellariidae    | 0510        |
| CNHY  | Calycopsidae       | 0089        | MOGA  | Cerithiidae       | 0512        |
| CNHY  | Campanulariidae    | 0090        | MOGA  | Cerithiopsidae    | 0514        |
| CNHY  | Eirenidae          | 0091        | MOGA  | Colloniidae       | 0515        |
| CNHY  | Campanulinidae     | 0092        | MOGA  | Columbellidae     | 0516        |
| CNHY  | Clavidae           | 0093        | MOGA  | Mangeliidae       | 0518        |
| CNHY  | Corymorphidae      | 0094        | MOGA  | Conidae           | 0519        |
| CNHY  | Corynidae          | 0095        | MOGA  | Conualeviidae     | 0520        |
| CNHY  | Eudendriidae       | 0096        | MOGA  | Coralliophilidae  | 0522        |
| CNHY  | Haleciidae         | 0097        | MOGA  | Corambidae        | 0524        |
| CNHY  | Hebellidae         | 0098        | MOGA  | Cumanotidae       | 0526        |
| CNHY  | Halimedesidae      | 0099        | MOGA  | Cylichnidae       | 0528        |
| CNHY  | Hydractiniidae     | 0100        | MOGA  | Cymatiidae        | 0529        |
| CNHY  | Laodiceidae        |             | MOGA  | Dendrodorididae   | 0530        |
| CNHY  | Lafoeidae          | 0101        | MOGA  | Dendronotidae     | 0532        |
| CNHY  | Lovenellidae       | 0102        | MOGA  | Diaphanidae       | 0534        |
| CNHY  | Mitrocomidae       | 0103        | MOGA  | Dironidae         | 0536        |
| CNHY  | Olindiasidae       | 0104        | MOGA  | Discodorididae    | 0538        |
| CNHY  | Pandidae           | 0105        | MOGA  | Dorididae         | 0539        |
| CNHY  | Pennariidae        | 0106        | MOGA  | Dotoidae          | 0540        |
| CNHY  | Euphysidae         | 0107        | MOGA  | Epitoniidae       | 0542        |
| CNHY  | Plumulariidae      | 0108        | MOGA  | Eulimidae         | 0544        |
| CNHY  | Proboscidactylidae | 0109        | MOGA  | Facelinidae       | 0546        |
| CNHY  | Protohydridae      |             | MOGA  | Fascioliariidae   | 0548        |
| CNHY  | Rathkeidae         |             | MOGA  | Fissurellidae     | 0550        |
| CNHY  | Rhodaliidae        | 0110        | MOGA  | Flabellinidae     | 0552        |
| CNHY  | Rhysiidae          | 0111        | MOGA  | Gastropteridae    | 0554        |
| CNHY  | Sertulariidae      | 0112        | MOGA  | Goniodorididae    | 0556        |
| CNHY  | Tiarannidae        | 0113        | MOGA  | Haminoeidae       | 0558        |
| CNHY  | Trichydridae       |             | MOGA  | Hermaeidae        | 0560        |
| CNHY  | Tubulariidae       | 0114        | MOGA  | Hipponicidae      | 0562        |
| CNHY  | Velellidae         | 0115        | MOGA  | Aplustridae       | 0564        |
| CNHY  | Cordylophoridae    | 0116        | MOGA  | Littorinidae      | 0566        |
| CNHY  | Calycellidae       | 0117        | MOGA  | Lamellariidae     | 0568        |
| CRAM  | Iphimediidae       | 0760        | MOGA  | Lepetidae         | 0570        |
| CRAM  | Ampeliscidae       | 0762        | MOGA  | Litiopidae        | 0572        |
| CRAM  | Amphilochidae      | 0764        | MOGA  | Lottiidae         | 0574        |
| CRAM  | Ampithoidae        | 0766        | MOGA  | Cysticidae        | 0576        |
| CRAM  | Anisogammaridae    | 0767        | MOGA  | Mitridae          | 0578        |
| CRAM  | Anamixidae         | 0768        | MOGA  | Muricidae         | 0580        |
| CRAM  | Aoridae            | 0770        | MOGA  | Nassariidae       | 0582        |
| CRAM  | Argissidae         | 0772        | MOGA  | Naticidae         | 0584        |
| CRAM  | Astyridae          | 0774        | MOGA  | Notodorididae     | 0586        |
| CRAM  | Bateidae           | 0776        | MOGA  | Nucellidae        | 0587        |
| CRAM  | Beaudettiidae      | 0778        | MOGA  | Oleidae           | 0588        |
| CRAM  | Calliopiidae       | 0780        | MOGA  | Olividae          | 0590        |
| CRAM  | Caprellidae        | 0782        | MOGA  | Onchidorididae    | 0592        |
| CRAM  | Cheluridae         | 0784        | MOGA  | Ovulidae          | 0594        |
| CRAM  | Colomastigidae     | 0786        | MOGA  | Philinidae        | 0596        |
| CRAM  | Corophiidae        | 0788        | MOGA  | Platydorididae    | 0598        |
| CRAM  | Cressidae          | 0790        | MOGA  | Pleurobranchidae  | 0600        |
| CRAM  | Dexaminidae        | 0792        | MOGA  | Polyceratidae     | 0602        |
| CRAM  | Dogielinotidae     | 0794        | MOGA  | Potamididae       | 0603        |
| CRAM  | Eophliantidae      | 0796        | MOGA  | Pseudomelatomidae | 0604        |
| CRAM  | Eusiridae          | 0798        | MOGA  | Pyramidellidae    | 0606        |
| CRAM  | Gammaridae         | 0800        | MOGA  | Retusidae         | 0608        |
| CRAM  | Haustoriidae       | 0802        | MOGA  | Rissoidae         | 0610        |
| CRAM  | Hyalidae           | 0804        | MOGA  | Scaphandridae     | 0612        |
| CRAM  | Hyatellidae        | 0806        | MOGA  | Sciddurellidae    | 0614        |
| CRAM  | Hyperlopsidae      | 0808        | MOGA  | Stiligeridae      | 0615        |
| CRAM  | Isaeidae           | 0810        | MOGA  | Terebridae        | 0616        |
| CRAM  | Ischyroceridae     | 0812        | MOGA  | Tergipedidae      | 0618        |
| CRAM  | Kuriidae           | 0814        | MOGA  | Tethyidae         | 0620        |
| CRAM  | Lafystiidae        | 0816        | MOGA  | Trichotropididae  | 0621        |
| CRAM  | Laphystiopsidae    | 0818        | MOGA  | Tritoniidae       | 0622        |
| CRAM  | Lepechinellidae    | 0820        | MOGA  | Triviidae         | 0624        |
| CRAM  | Leucothoidae       | 0822        | MOGA  | Trochidae         | 0626        |
| CRAM  | Liljeborgiidae     | 0824        | MOGA  | Truncatellidae    | 0628        |
| CRAM  | Lysianassidae      | 0826        | MOGA  | Turbinidae        | 0630        |
| CRAM  | Megaluropidae      | 0827        | MOGA  | Turbinellidae     | 0632        |
| CRAM  | Melphidippidae     | 0828        | MOGA  | Turridae          | 0634        |
| CRAM  | Melitidae          | 0829        | MOGA  | Turritellidae     | 0636        |
| CRAM  | Ochlesidae         | 0830        | MOGA  | Vanikoridae       | 0638        |



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| Group | Family           | Family code | Group | Family              | Family code |
|-------|------------------|-------------|-------|---------------------|-------------|
| CRAM  | Maeridae         | 0831        | MOGA  | Velutinidae         | 0471        |
| CRAM  | Oedicerotidae    | 0832        | MOGA  | Vermetidae          | 0640        |
| CRAM  | Opisidae         | 0833        | MOGA  | Vitrinellidae       | 0642        |
| CRAM  | Pagetinidae      | 0834        | MOPO  | Callistoplacidae    | 0341        |
| CRAM  | Odiidae          | 0835        | MOPO  | Ischnochitonidae    | 0342        |
| CRAM  | Parampithoidae   | 0836        | MOPO  | Protochitonidae     | 0343        |
| CRAM  | Pardaliscidae    | 0838        | MOPO  | Leptochitonidae     | 0344        |
| CRAM  | Pariambidae      | 0840        | MOPO  | Tonicellidae        | 0345        |
| CRAM  | Philiantidae     | 0842        | MOPO  | Mopaliidae          | 0346        |
| CRAM  | Phoxocephalidae  | 0844        | MOPO  | Schizoplacidae      | 0347        |
| CRAM  | Phtiscidae       | 0846        | MOPO  | Lepidochitonidae    | 0348        |
| CRAM  | Pleustidae       | 0848        | MOSC  | Dentaliidae         | 0644        |
| CRAM  | Podoceridae      | 0850        | MOSC  | Gadilidae           | 0646        |
| CRAM  | Pontogeneiidae   | 0851        | MOSC  | Pulsellidae         | 0647        |
| CRAM  | Prophliantidae   | 0852        | MOSC  | Rhabdidae           | 0648        |
| CRAM  | Pontoporeiidae   | 0853        | MOSC  | Siphonodentaliidae  | 0650        |
| CRAM  | Protellidae      | 0854        | NTEA  | Amphiporidae        | 0140        |
| CRAM  | Sebidae          | 0856        | NTEA  | Carinomidae         | 0142        |
| CRAM  | Stegocephalidae  | 0858        | NTEA  | Cephalothricidae    | 0144        |
| CRAM  | Stenothoidae     | 0859        | NTEA  | Emplectonematidae   | 0146        |
| CRAM  | Stilipedidae     | 0860        | NTEA  | Lineidae            | 0148        |
| CRAM  | Synopiidae       | 0862        | NTEA  | Cratenemertidae     | 0149        |
| CRAM  | Talitridae       | 0864        | NTEA  | Ototyphlonemertidae | 0150        |
| CRAM  | Thaumatelsonidae | 0866        | NTEA  | Prosorhochmidae     | 0152        |
| CRAM  | Urothoidae       | 0865        | NTEA  | Tetrastemmatidae    | 0154        |
| CRAM  | Vitjazianidae    | 0868        | NTEA  | Tubulanidae         | 0156        |
| CRCO  | Clytemnestridae  | 1300        | NTEA  | Valenciniidae       | 0158        |
| CRCO  | Harpacticidae    | 1301        | PHOR  | Phoronidae          | 0950        |
| CRCO  | Mytilicolidae    | 1302        | PIXX  | Anarhichadidae      | 1190        |
| CRCO  | Chondracanthidae | 1303        | PIXX  | Ammodytidae         | 1195        |
| CRCO  | Caligidae        | 1304        | PIXX  | Cryptacanthodidae   | 1200        |
| CRCO  | Tisbidae         | 1305        | PIXX  | Stichaeidae         | 1210        |
| CRCO  | Ectinosomatidae  | 1306        | PIXX  | Bathylagidae        | 1220        |
| CRCI  | Archaeobalanidae | 0688        | PIXX  | Batrachoididae      | 1230        |
| CRCI  | Balanidae        | 0690        | PIXX  | Gobiidae            | 1240        |
| CRCI  | Chthamalidae     | 0691        | PIXX  | Liparidae           | 1250        |
| CRCI  | Pollicipedidae   | 0693        | PIXX  | Agonidae            | 1255        |
| CRCI  | Scalpellidae     | 0692        | PIXX  | Zoarcidae           | 1260        |
| CRCU  | Bodotriidae      | 0698        | PIXX  | Scorpaenidae        | 1270        |
| CRCU  | Diastylidae      | 0700        | PIXX  | Pholidae            | 1271        |
| CRCU  | Lampropidae      | 0702        | PLTY  | Callioplanidae      | 0116        |
| CRCU  | Leuconidae       | 0704        | PLTY  | Cryptocelididae     | 0118        |
| CRCU  | Nannastacidae    | 0706        | PLTY  | Emprostopharyngidae | 0120        |
| CRDE  | Albuneidae       | 0870        | PLTY  | Euryleptidae        | 0122        |
| CRDE  | Alpheidae        | 0872        | PLTY  | Holoplanidae        | 0124        |
| CRDE  | Aristeidae       | 0874        | PLTY  | Latocestidae        | 0126        |
| CRDE  | Atelecyclidae    | 0875        | PLTY  | Leptoplanidae       | 0128        |
| CRDE  | Axiidae          | 0876        | PLTY  | Planoceridae        | 0130        |
| CRDE  | Calappidae       | 0878        | PLTY  | Pleioplanidae       | 0131        |
| CRDE  | Callianassidae   | 0880        | PLTY  | Plehniidae          | 0132        |
| CRDE  | Cancridae        | 0882        | PLTY  | Promesostomidae     | 0133        |
| CRDE  | Crangonidae      | 0884        | PLTY  | Prostiomidae        | 0134        |
| CRDE  | Cyclodorippidae  | 0886        | PLTY  | Pseudocerotidae     | 0136        |
| CRDE  | Diogenidae       | 0888        | PLTY  | Stylochidae         | 0138        |
| CRDE  | Dromiidae        | 0890        | POER  | Aceotidae           | 0160        |
| CRDE  | Galatheididae    | 0892        | POER  | Alciopidae          | 0162        |
| CRDE  | Grapsidae        | 0894        | POER  | Amphinomidae        | 0164        |
| CRDE  | Hippidae         | 0896        | POER  | Aphroditidae        | 0166        |
| CRDE  | Hippolytidae     | 0898        | POER  | Chrysopetalidae     | 0168        |
| CRDE  | Homolidae        | 0900        | POER  | Diurodrilidae       | 0170        |
| CRDE  | Laomediidae      | 0902        | POER  | Dorvilleidae        | 0172        |
| CRDE  | Leucosiidae      | 0904        | POER  | Eulepethidae        | 0174        |
| CRDE  | Lithodidae       | 0906        | POER  | Eunicidae           | 0176        |
| CRDE  | Majidae          | 0908        | POER  | Euphosinidae        | 0178        |
| CRDE  | Ogyrididae       | 0910        | POER  | Glyceridae          | 0180        |
| CRDE  | Oplophoridae     | 0912        | POER  | Goniadidae          | 0182        |
| CRDE  | Oregoniidae      | 0913        | POER  | Hartmaniellidae     | 0184        |
| CRDE  | Paguridae        | 0914        | POER  | Hesionidae          | 0186        |
| CRDE  | Palaemonidae     | 0916        | POER  | Histriobdellidae    | 0188        |
| CRDE  | Palicidae        | 0918        | POER  | Ichthyotomidae      | 0190        |
| CRDE  | Palinuridae      | 0920        | POER  | Iospilidae          | 0192        |
| CRDE  | Pandalidae       | 0922        | POER  | Lacydoniidae        | 0194        |
| CRDE  | Parapaguridae    | 0924        | POER  | Lopadorhynchidae    | 0196        |
| CRDE  | Parthenopidae    | 0926        | POER  | Lumbrineridae       | 0198        |
| CRDE  | Pasiphaeidae     | 0928        | POER  | Nautiliniellidae    | 0200        |
| CRDE  | Penaeidae        | 0930        | POER  | Nephtyidae          | 0202        |
| CRDE  | Pinnotheridae    | 0932        | POER  | Nereididae          | 0204        |
| CRDE  | Porcellanidae    | 0934        | POER  | Oenonidae           | 0206        |
| CRDE  | Portunidae       | 0936        | POER  | Onuphidae           | 0208        |
| CRDE  | Processidae      | 0938        | POER  | Paralacydoniidae    | 0210        |
| CRDE  | Sergestidae      | 0940        | POER  | Pholoidae           | 0212        |
| CRDE  | Sicyoniidae      | 0942        | POER  | Phyllodocidae       | 0214        |
| CRDE  | Solenoceridae    | 0944        | POER  | Pilargidae          | 0216        |
| CRDE  | Upogebiidae      | 0946        | POER  | Pisionidae          | 0218        |

Taxonomic Family Codes:

| Group | Family               | Family code | Group | Family           | Family code |
|-------|----------------------|-------------|-------|------------------|-------------|
| CRDE  | Xanthidae            | 0948        | POER  | Polynoidae       | 0220        |
| CRIS  | Aegidae              | 0720        | POER  | Pontodoridae     | 0222        |
| CRIS  | Ancinidae            | 0722        | POER  | Sigalionidae     | 0224        |
| CRIS  | Anthuridae           | 0724        | POER  | Sphaerodoridae   | 0226        |
| CRIS  | Arcturidae           | 0726        | POER  | Syllidae         | 0228        |
| CRIS  | Bopyridae            | 0728        | POER  | Tomopteridae     | 0230        |
| CRIS  | Cirolanidae          | 0730        | POER  | Typhloscolecidae | 0232        |
| CRIS  | Corallanidae         | 0732        | PORI  | Amphoriscidae    | 0002        |
| CRIS  | Cymothoidae          | 0734        | PORI  | Aphrocallistidae | 0004        |
| CRIS  | Desmosomatidae       | 0735        | PORI  | Aplysillidae     | 0005        |
| CRIS  | Gnathiidae           | 0736        | PORI  | Axinellidae      | 0006        |
| CRIS  | Idoteidae            | 0738        | PORI  | Coelosphaeridae  | 0007        |
| CRIS  | Janiridae            | 0740        | PORI  | Clathriidae      | 0008        |
| CRIS  | Joeropsididae        | 0742        | PORI  | Desmacellidae    | 0009        |
| CRIS  | Limnoriidae          | 0744        | PORI  | Clathrinidae     | 0010        |
| CRIS  | Munnidae             | 0746        | PORI  | "Clionidae"      | 0011        |
| CRIS  | Munnopsidae          | 0748        | PORI  | Cyamonidae       | 0012        |
| CRIS  | Paramunnidae         | 0750        | PORI  | Dysideidae       | 0013        |
| CRIS  | Paranthuridae        | 0752        | PORI  | Grantiidae       | 0014        |
| CRIS  | Scyphacidae          | 0753        | PORI  | Halichondriidae  | 0015        |
| CRIS  | Serolidae            | 0754        | PORI  | Haliclonidae     | 0016        |
| CRIS  | Sphaeromatidae       | 0756        | PORI  | Halisarcidae     | 0019        |
| CRIS  | Tridentellidae       | 0758        | PORI  | Hymedesmiidae    | 0021        |
| CRLE  | Nebaliidae           | 0694        | PORI  | Hymeniacidonidae | 0017        |
| CRMY  | Mysidae              | 0696        | PORI  | Leucosoleniidae  | 0018        |
| CROS  | Cylindroleberididae  | 0674        | PORI  | Microcionidae    | 0019        |
| CROS  | Cyprididae           | 0676        | PORI  | Mycalidae        | 0020        |
| CROS  | Cypridinidae         | 0678        | PORI  | Myxillidae       | 0022        |
| CROS  | Cytheridae           | 0677        | PORI  | Pachastrellidae  | 0024        |
| CROS  | Cytheruridae         | 0675        | PORI  | Plakinidae       | 0023        |
| CROS  | Loxoconchidae        | 0679        | PORI  | Polymastiidae    | 0025        |
| CROS  | Macrocyprididae      | 0680        | PORI  | Raspailiidae     | 0026        |
| CROS  | Paradoxostomatidae   | 0681        | PORI  | Rossellidae      | 0028        |
| CROS  | Philomedidae         | 0682        | PORI  | Spirastrellidae  | 0030        |
| CROS  | Pontocyprididae      | 0683        | PORI  | Stellettidae     | 0032        |
| CROS  | Rutidermatidae       | 0684        | PORI  | Suberitidae      | 0034        |
| CROS  | Sarsiellidae         | 0686        | PORI  | Sycettidae       | 0035        |
| CROS  | Trachyleberididae    | 0687        | PORI  | Tethyidae        | 0036        |
| CRTA  | Anarthruridae        | 0708        | PORI  | Tedaniidae       | 0037        |
| CRTA  | Akanthophoreidae     | 0709        | PORI  | Tetillidae       | 0038        |
| CRTA  | Leptocheiliidae      | 0710        | POSE  | Aberrantidae     | 0234        |
| CRTA  | Leptognathiidae      | 0711        | POSE  | Acrocirridae     | 0236        |
| CRTA  | Nototanaidae         | 0713        | POSE  | Aeolosomatidae   | 0238        |
| CRTA  | Paratanaidae         | 0712        | POSE  | Alvinellidae     | 0240        |
| CRTA  | Pseudotanaidae       | 0714        | POSE  | Ampharetidae     | 0242        |
| CRTA  | Tanaellidae          | 0715        | POSE  | Apistobranchidae | 0244        |
| CRTA  | Tanaidae             | 0716        | POSE  | Arenicolidae     | 0246        |
| CRTA  | Typhlotanaidae       | 0718        | POSE  | Capitellidae     | 0248        |
| ECAS  | Asteriidae           | 1020        | POSE  | Chaetopteridae   | 0250        |
| ECAS  | Asterinidae          | 1022        | POSE  | Cirratulidae     | 0252        |
| ECAS  | Asteropseidae        | 1024        | POSE  | Cossuridae       | 0254        |
| ECAS  | Astropectinidae      | 1026        | POSE  | Ctenodrilidae    | 0256        |
| ECAS  | Benthopectinidae     | 1028        | POSE  | Fabriciidae      | 0257        |
| ECAS  | Brisingidae          | 1030        | POSE  | Fauveliopsidae   | 0258        |
| ECAS  | Ctenodiscidae        | 1032        | POSE  | Flabelligeridae  | 0260        |
| ECAS  | Echinasteridae       | 1034        | POSE  | Longosomatidae   | 0262        |
| ECAS  | Freyellidae          | 1036        | POSE  | Magelonidae      | 0264        |
| ECAS  | Goniasteridae        | 1038        | POSE  | Maldanidae       | 0266        |
| ECAS  | Korethrasteridae     | 1040        | POSE  | Nerillidae       | 0268        |
| ECAS  | Labidiasteridae      | 1042        | POSE  | Opheliidae       | 0270        |
| ECAS  | Luididae             | 1044        | POSE  | Orbiniidae       | 0272        |
| ECAS  | Pedicellasteridae    | 1046        | POSE  | Oweniidae        | 0274        |
| ECAS  | Poraniidae           | 1048        | POSE  | Paraonidae       | 0276        |
| ECAS  | Porcellanasteridae   | 1050        | POSE  | Parergodrilidae  | 0278        |
| ECAS  | Pterasteridae        | 1052        | POSE  | Pectinariidae    | 0280        |
| ECAS  | Solasteridae         | 1054        | POSE  | Poecilochaetidae | 0282        |
| ECAS  | Zoroasteridae        | 1056        | POSE  | Poeobiidae       | 0284        |
| ECCR  | Antedonidae          | 1018        | POSE  | Polygordiidae    | 0286        |
| ECEC  | Brissidae            | 1076        | POSE  | Potamodrilidae   | 0288        |
| ECEC  | Dendrasteridae       | 1078        | POSE  | Protodrilidae    | 0290        |
| ECEC  | Loveniidae           | 1080        | POSE  | Protodriloididae | 0292        |
| ECEC  | Schizasteridae       | 1082        | POSE  | Psammodrilidae   | 0294        |
| ECEC  | Spatangidae          | 1084        | POSE  | Questidae        | 0296        |
| ECEC  | Strongylocentrotidae | 1086        | POSE  | Sabellariidae    | 0298        |
| ECEC  | Toxopneustidae       | 1088        | POSE  | Sabellidae       | 0300        |
| ECHO  | Caudinidae           | 1090        | POSE  | Saccocirridae    | 0302        |
| ECHO  | Chirodotidae         | 1092        | POSE  | Scalibregmatidae | 0304        |
| ECHO  | Cucumariidae         | 1094        | POSE  | Serpulidae       | 0306        |
| ECHO  | Molpadiidae          | 1096        | POSE  | Spintheridae     | 0308        |
| ECHO  | Phyllophoridae       | 1098        | POSE  | Spionidae        | 0310        |
| ECHO  | Psolidae             | 1100        | POSE  | Spirorbidae      | 0311        |
| ECHO  | Sclerodactylidae     | 1102        | POSE  | Sternaspidae     | 0312        |
| ECHO  | Stichopodidae        | 1104        | POSE  | Terebellidae     | 0314        |
| ECHO  | Synallactidae        | 1106        | POSE  | Trichobranchidae | 0316        |



Taxonomic Family Codes:

| Group | Family            | Family code | Group | Family            | Family code |
|-------|-------------------|-------------|-------|-------------------|-------------|
| ECHO  | Synaptidae        | 1108        | POSE  | Trochochaetidae   | 0318        |
| ECOP  | Amphiuridae       | 1058        | POSE  | Uncispionidae     | 0320        |
| ECOP  | Gorgonocephalidae | 1060        | PRIA  | Maccabeidae       | 1156        |
| ECOP  | Ophiacanthidae    | 1062        | PRIA  | Priapulidae       | 1158        |
| ECOP  | Ophiactidae       | 1064        | PRIA  | Tubiluchidae      | 1160        |
| ECOP  | Ophiocomidae      | 1066        | SIPN  | Aspidosiphonidae  | 0328        |
| ECOP  | Ophiodermatidae   | 1068        | SIPN  | Golfingiidae      | 0330        |
| ECOP  | Ophionereidae     | 1070        | SIPN  | Phascolionidae    | 0332        |
| ECOP  | Ophiotricidae     | 1072        | SIPN  | Themistidae       | 0333        |
| ECOP  | Ophiuridae        | 1074        | SIPN  | Phascolosomatidae | 0334        |
| ENTO  | Barentsiidae      | 0958        | SIPN  | Sipunculidae      | 0336        |
| ENTO  | Pedicellinidae    | 0959        | TARD  | Echiniscoididae   | 0661        |
| ENTO  | Loxosomatidae     | 0960        | URAS  | Agneziidae        | 1110        |
| EURA  | Bonelliidae       | 0322        | URAS  | Cionidae          | 1112        |
| EURA  | Echiuridae        | 0323        | URAS  | Clavelinidae      | 1113        |
| EURA  | Thalassematidae   | 0324        | URAS  | Corellidae        | 1114        |
| EURA  | Urechidae         | 0326        | URAS  | Didemnidae        | 1115        |
| HEMI  | Harrimaniidae     | 1126        | URAS  | Molgulidae        | 1116        |
| HEMI  | Ptychoderidae     | 1128        | URAS  | Polycitoridae     | 1118        |
| HEMI  | Spengeliidae      | 1130        | URAS  | Polyclinidae      | 1120        |
| KINO  | Campiloderidae    | 1140        | URAS  | Pyuridae          | 1122        |
| KINO  | Cateriidae        | 1142        | URAS  | Ritterellidae     | 1123        |
| KINO  | Centroderidae     | 1144        | URAS  | Styelidae         | 1124        |
| KINO  | Condyloderidae    | 1146        | URAS  | Asciidiidae       | 1132        |



## Marine Benthic Enumeration and Identification Methods

Client: Golder

Project: Rankin Inlet 2018

### Sample Inventory

Sample arrival: September 26, 2018

Number of samples: 24

Number of jars: 24

Screen size (lab): 500  $\mu$ m

Biologica project number: 18-105

The chain of custody documents were checked and approved with the client. Samples were transferred from formalin into 70% ethanol, and stained with Rose Bengal to aid in sorting. Each sample was provided a unique identification number and placed in the queue for analysis.

**Table 1.** Summary of benthic samples processed for Golder Rankin Inlet 2018.

| Client<br>Sample ID | Replicate | Date<br>Sampled | Biologica<br>Sample ID | Split | Organisms<br>Counted |
|---------------------|-----------|-----------------|------------------------|-------|----------------------|
| MB E-1              | 1         | 15-Sep-18       | 18-105-001             | Whole | 57                   |
| MB E-1              | 2         | 15-Sep-18       | 18-105-002             | Whole | 42                   |
| MB E-1              | 3         | 15-Sep-18       | 18-105-003             | Whole | 15                   |
| MB E-2              | 1         | 16-Sep-18       | 18-105-004             | Whole | 59                   |
| MB E-2              | 2         | 16-Sep-18       | 18-105-005             | Whole | 54                   |
| MB E-2              | 3         | 16-Sep-18       | 18-105-006             | Whole | 45                   |
| MB E-3              | 1         | 14-Sep-18       | 18-105-007             | Whole | 46                   |
| MB E-3              | 2         | 14-Sep-18       | 18-105-008             | Whole | 38                   |
| MB E-3              | 3         | 14-Sep-18       | 18-105-009             | Whole | 52                   |
| MB E-4              | 1         | 14-Sep-18       | 18-105-010             | Whole | 66                   |
| MB E-4              | 2         | 14-Sep-18       | 18-105-011             | Whole | 46                   |
| MB E-4              | 3         | 14-Sep-18       | 18-105-012             | Whole | 60                   |
| MB E-5              | 1         | 14-Sep-18       | 18-105-013             | Whole | 67                   |
| MB E-5              | 2         | 14-Sep-18       | 18-105-014             | Whole | 120                  |
| MB E-5              | 3         | 14-Sep-18       | 18-105-015             | Whole | 105                  |
| MB REF A-1          | 1         | 16-Sep-18       | 18-105-016             | Whole | 51                   |
| MB REF A-1          | 2         | 16-Sep-18       | 18-105-017             | Whole | 32                   |
| MB REF A-1          | 3         | 16-Sep-18       | 18-105-018             | Whole | 26                   |
| MB REF A-2          | 1         | 16-Sep-18       | 18-105-019             | Whole | 85                   |
| MB REF A-2          | 2         | 16-Sep-18       | 18-105-020             | Whole | 67                   |
| MB REF A-2          | 3         | 16-Sep-18       | 18-105-021             | Whole | 57                   |
| MB REF A-3          | 1         | 19-Sep-18       | 18-105-022             | Whole | 63                   |
| MB REF A-3          | 2         | 19-Sep-18       | 18-105-023             | Whole | 104                  |
| MB REF A-3          | 3         | 19-Sep-18       | 18-105-024             | Whole | 43                   |

## Sample Processing

### Sorting:

All samples were sorted using dissecting microscopes at 10–40x magnification by trained personnel. All debris in each sample was checked microscopically, including leaves, elutriated gravel, and other large debris. To minimize potential sorter bias, samples were distributed among technicians such that no one person sorted all the replicates of a given sample or station.

### Sorting QA/QC:

To ensure sorting efficiency was >95%, whole and/or partial sub-samples were re-sorted. Sorting efficiency was calculated using the following equation (where total count = final total number of organisms in sample):

Sorting efficiency =

$$[\text{total count} - (\text{organisms recovered in spot check and/or re-sort})] / \text{total count} \times 100\%$$

Due to low sample volumes all debris was sorted and rechecked during the identification process. All samples checked must meet or exceed 95% sorting efficiency. Any samples falling below 95% sorting efficiency were re-sorted in their entirety, and additional checks were undertaken as necessary. Refer to Table 2 for sorting efficiency results.

**Table 2.** Summary of sorting QA/QC results for Golder Rankin Inlet 2018.

| Client Sample ID | Replicate | Biological Sample ID | Sorting Efficiency QC |
|------------------|-----------|----------------------|-----------------------|
| MB E-1           | 1         | 18-105-001           | 100.00%               |
| MB E-1           | 2         | 18-105-002           | 100.00%               |
| MB E-1           | 3         | 18-105-003           | 100.00%               |
| MB E-2           | 1         | 18-105-004           | 100.00%               |
| MB E-2           | 2         | 18-105-005           | 100.00%               |
| MB E-2           | 3         | 18-105-006           | 100.00%               |
| MB E-3           | 1         | 18-105-007           | 100.00%               |
| MB E-3           | 2         | 18-105-008           | 100.00%               |
| MB E-3           | 3         | 18-105-009           | 100.00%               |
| MB E-4           | 1         | 18-105-010           | 100.00%               |
| MB E-4           | 2         | 18-105-011           | 100.00%               |
| MB E-4           | 3         | 18-105-012           | 100.00%               |
| MB E-5           | 1         | 18-105-013           | 100.00%               |
| MB E-5           | 2         | 18-105-014           | 100.00%               |
| MB E-5           | 3         | 18-105-015           | 100.00%               |
| MB REF A-1       | 1         | 18-105-016           | 100.00%               |
| MB REF A-1       | 2         | 18-105-017           | 100.00%               |
| MB REF A-1       | 3         | 18-105-018           | 100.00%               |
| MB REF A-2       | 1         | 18-105-019           | 100.00%               |
| MB REF A-2       | 2         | 18-105-020           | 100.00%               |
| MB REF A-2       | 3         | 18-105-021           | 100.00%               |
| MB REF A-3       | 1         | 18-105-022           | 100.00%               |



| Client Sample ID | Replicate | Biologica Sample ID | Sorting Efficiency QC |
|------------------|-----------|---------------------|-----------------------|
| MB REF A-3       | 2         | 18-105-023          | 100.00%               |
| MB REF A-3       | 3         | 18-105-024          | 100.00%               |
| Average:         |           |                     | 100.00%               |

#### Identification:

All organisms were identified using a combination of dissecting (10–40x) and compound microscopes (100–1000x) and standard taxonomic keys (see methodological and taxonomic references) to the lowest practicable level (species whenever possible). All specimens were archived in air-tight glass vials with glycerin and 70% ethanol for long-term storage. Taxonomic data were recorded in Biologica's custom database.

#### Data Management

All data were recorded in Biologica's custom database. Results were provided to the Golder project manager in Excel spreadsheets via email.

#### Selected Methodological and Taxonomic References

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**[golder.com](http://golder.com)**

**APPENDIX C – MODELLING ASSESSMENT OF GROUNDWATER DISCHARGE INTO MELVIN BAY 2019**

## TECHNICAL MEMORANDUM

**DATE** February 1, 2019 **Project No.** Doc718\_1773384 \_Rev0

**TO** Manon Turmel  
Agnico Eagle Mines Ltd.

**CC** Ryan Vanengen, Carolina Leseigneur Torres

**FROM** Shouhong Wu and Bruce Dean, Golder Associates Ltd. **EMAIL** bruce\_dean@golder.com

### MODELLING ASSESSMENT OF GROUNDWATER DISCHARGE INTO THE MELVIN BAY MARINE ENVIRONMENT, REV B

#### 1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by Agnico Eagle Mines Limited (Agnico Eagle) to undertake a modelling assessment of groundwater discharge into the marine environment near Rankin Inlet. This modelling assessment consisted of nearshore oceanographic modelling of the discharge. The study did not include geotechnical, structural or hydraulic engineering assessments of the outfall. This technical memorandum was updated to account for an additional modelling scenario and updated baseline data collected by Golder from Melvin Bay in September 2018 as well as to account for increased discharge velocity resulting from a change to the diffuser port size. This memorandum should be read in conjunction with "Important Information and Limitations of this Report".

#### 1.1 Scope of Work

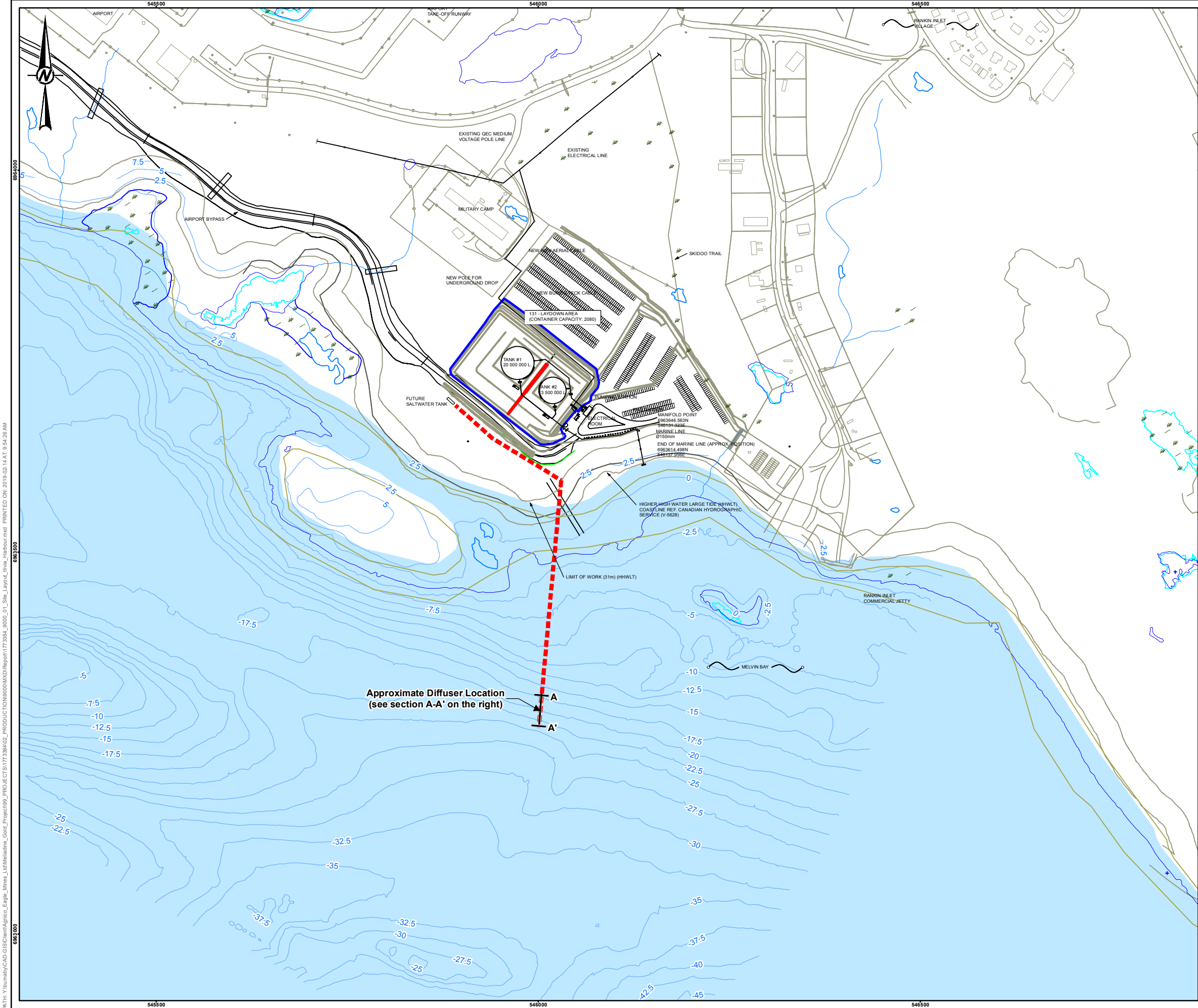
The objective of this work is to assess the near field mixing of the treated groundwater effluent disposal with respect to relevant environmental guidelines. The scope of the work includes:

- Near field modelling of dispersion of treated groundwater effluent plume using CORMIX (Doneker and Jirka 2007).
- Assess the plume dilution behavior.

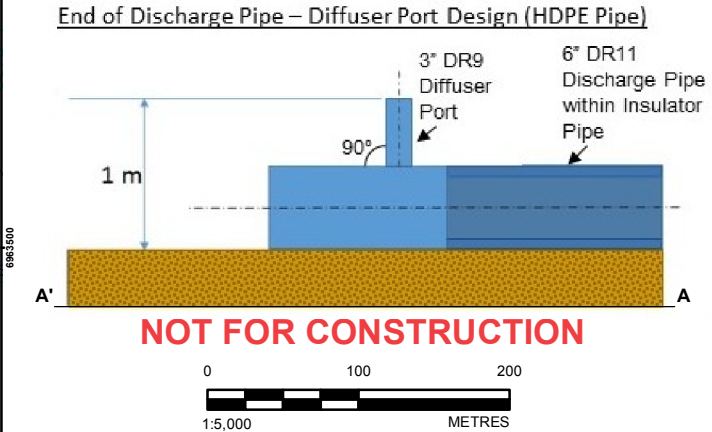
For the purpose of this scope of this work, it is assumed that the discharges will consists of only pumped water at quantities and qualities per the estimated underground inflow volumes (Golder 2016) and estimated groundwater inputs to surface storage for management (Agnico Eagle 2017). Section 2.1 describes the modelling conditions.

#### 1.2 Physical Setting

In September 2018, a field program was conducted by Golder in Melvin Bay. Field parameters measured included temperature, conductivity, pH, dissolved oxygen, salinity, and oxidation-reduction potential. The measurement depth ranged from 0.3 m to 26.7 m at three different locations in Melvin Bay (i.e., the exposure area and two new reference areas). The field measurement results are summarized in Appendix A. Nearshore bathymetry (Agnico Eagle 2017 data) and the approximate discharge location is shown in Figure 1, to the south of the Tank Farm at the Itivia Fuel Storage Facility. Based on the bathymetry of Melvin Bay at Itivia Harbour, the diffuser would be placed on the seabed at a depth of approximately 20 m, to ensure an unconstrained mixing zone and to avoid interference with use of Itivia Harbour by ships and boats at high and low tide.



- LEGEND**
- GENERAL AREA FOR THE DIFFUSER LOCATION
  - CROSS SECTION LOCATION
  - WATERCOURSE
  - WATERBODY
  - REEF



**REFERENCE(S)**  
BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED.  
DATUM: NAD 83 PROJECTION: UTM ZONE 15

**CLIENT**  
 **AGNICO EAGLE MINES LIMITED**

**AGNICO EAGLE**  
PROJECT  
**MELIADINE GOLD MINE  
NUNAVUT**

**TITLE**  
**SITE LAYOUT  
ITIVIA HARBOUR SITE**

|            |            |            |
|------------|------------|------------|
| CONSULTANT | YYYY-MM-DD | 2019-02-14 |
|            | DESIGNED   | CLT        |
|            | PREPARED   | CDB/MH     |
|            | REVIEWED   | BD         |
|            | APPROVED   | MT         |



PROJECT NO. 1773384 CONTROL 9000 REV. 0 FIGURE 1

## 2.0 NEAR FIELD MODELLING

The Cornell Mixing Zone Expert System (CORMIX; Doneker and Jirka 2007) was applied to calculate numerical simulations of the near-field mixing and dilution behavior of treated groundwater effluent entering the nearshore coastal receiving environment in Melvin Bay. CORMIX is one of the most extensively applied models for predicting near-field discharge plume mixing and dilution of both conservative and non-conservative substances in surface water bodies. CORMIX calculates plume boundary interactions to estimate plume fate in terms of dilution and geometry relative to mixing zone regulations (Doneker and Jirka 2007). Nearshore ambient and treated groundwater effluent characteristics required to implement the mixing model are presented in the sections that follow.

### 2.1 Conditions for Modelling

#### 2.1.1 Ambient Conditions

Assumptions made to characterize the ambient conditions of the receiving marine waters are as follows:

- Weak current: Ambient current velocity of 0.01 m/s and zero wind velocity were considered for this scenario which represented a slack tide condition during ice covered season.
- Mean current: Current speed of 0.2 m/s with no wind was used for this scenario.
- Open water condition: The water temperature and TDS (salinity) were considered to be 0°C (to account for the start and end of the open water season) and 33,300 mg/L, respectively.
- Water depth at discharge location is 20 m.

#### 2.1.2 Discharge Conditions

Following discharge conditions based on estimated underground inflows were used for the near field mixing analysis:

- Flow rate of 800 m<sup>3</sup>/d discharged over a 12 hour period (for an equivalent flow rate of 1,600 m<sup>3</sup>/day), with TDS of 39,600 mg/L.
- Treated groundwater effluent temperature: 0°C.
- Outfall length: 230 m from the shoreline as shown.
- A single nozzle for discharge which has inside diameter of 68.07 mm (standard 3.0 inch port, DR9 (PE 4710), 252 psi) was used.
- Nozzle elevation from seabed: 1 m.
- Direction of discharge is perpendicular to the bathymetry contour and 90° vertical angle (upward port).

#### 2.1.3 Modelling Scenarios

Table 1 lists the combination of effluent flow rate and ambient current speed in two simulation scenarios. Table 2 lists the CORMIX model input parameters. The target dilution at the edge of the near-field mixing zone is 11 as per analysis presented in Appendix B.



**Table 1: Modelling Scenarios**

| Parameter                                                          | Scenario |       |
|--------------------------------------------------------------------|----------|-------|
|                                                                    | 1        | 2     |
| Treated Groundwater Effluent Rate (m <sup>3</sup> /d) <sup>1</sup> | 1,600    | 1,600 |
| Ambient Current Speed (m/s)                                        | 0.01     | 0.20  |
| Discharge Velocity (m/s)                                           | 5.1      | 5.1   |

Note: 1. Daily flow rate is 800 m<sup>3</sup>/day but this volume will be discharged over 12 hours for an equivalent flow rate of 1,600 m<sup>3</sup>/day.

**Table 2: CORMIX Model Input Parameters**

| Parameter                     | Value                                            | Source                                                                                                              |
|-------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Depth at Discharge            | 20 m                                             | Based on 2017 bathymetry survey completed by Agnico Eagle                                                           |
| Coastal Current (Velocity)    | Low = 0.01 m/s<br>Mean = 0.2 m/s                 | Based on CCG (2008) and assumed                                                                                     |
| Roughness Value               | 0.020                                            | Assumed (equivalent to minimum roughness value of similar seabed). This value does not affect vertical jet results. |
| Wind Speed                    | 0 m/s                                            | Assumed                                                                                                             |
| Water Condition               | Saline, non-stratified                           | Based on Agnico Eagle (2014) and confirmed through Sep. 2018 sampling                                               |
| Ambient water temperature     | Open water season (start and end condition): 0°C | Conservative estimate to capture the start and end of the open water season for discharge                           |
| Effluent Flow Rate            | 1,600 m <sup>3</sup> /d <sup>1</sup>             | Per underground inflow and storage estimates (Agnico Eagle 2014; Golder 2016)                                       |
| Effluent Temperature          | 0°C                                              | Based on Diamond Drill Hole groundwater data (Agnico Eagle 2017)                                                    |
| Effluent Concentration        | 100%                                             | Assumed                                                                                                             |
| Discharge Type                | Single Port                                      | Assumed                                                                                                             |
| Distance from Nearest Bank    | 230 m                                            | Assumed                                                                                                             |
| Horizontal Angle of Discharge | Perpendicular to bathymetric contour             | Assumed                                                                                                             |
| Vertical Angle of Discharge   | 90°                                              | Assumed                                                                                                             |
| Port Height above Seabed      | 1.0 m                                            | Assumed                                                                                                             |
| Port Diameter                 | 0.0681 m                                         | Assumed (3.0" port, DR 9, 252 psi)                                                                                  |

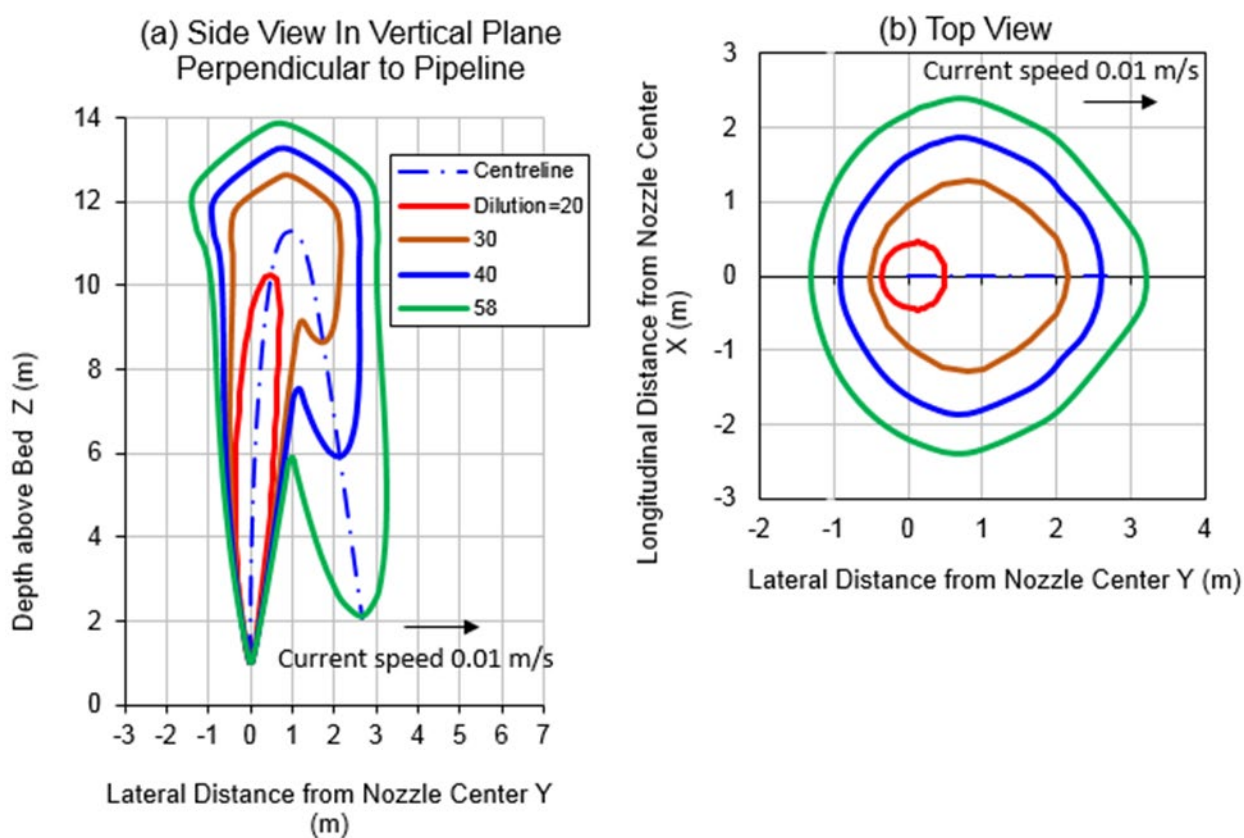
Note: 1. Daily flow rate is 800 m<sup>3</sup>/day but this volume will be discharged over 12 hours for an equivalent flow rate of 1,600 m<sup>3</sup>/day.

### 3.0 RESULTS

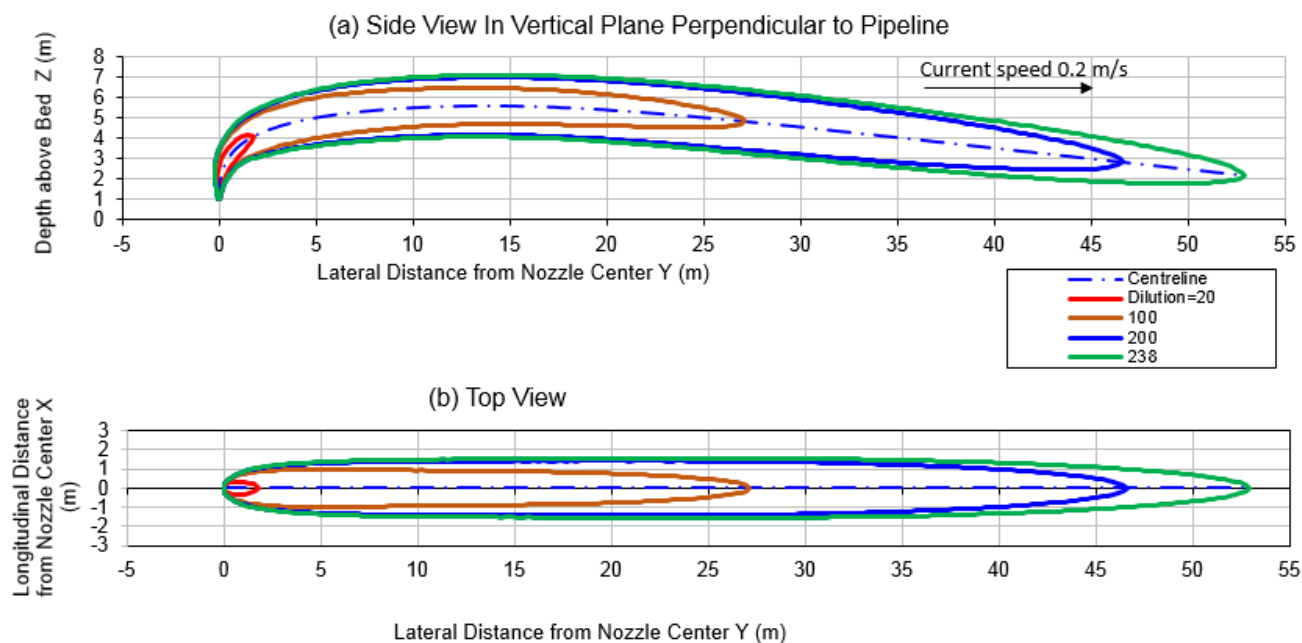
Figures 2 and 3 present the near-field treated groundwater effluent plume dilution for a discharge of 800 m<sup>3</sup>/day (an effective effluent rate of 1,600 m<sup>3</sup>/d) in weak and mean ambient current conditions respectively, via the diffuser. For weak ambient current conditions, the maximum plume (centreline) height is 11.1 m from the seabed. For mean current conditions, the maximum plume (centreline) height is 5.6 m above the seabed. After reaching the maximum height, the negatively buoyant plumes settle towards the bottom as gravity starts to dominate over the initial jet momentum, and this is illustrated by the plume centrelines of Figures 2 and 3. For both scenarios, the plume centreline dilution factor reaches 11 within 1 m horizontal distance and 6 m vertical distance above the port. At

100 m distance from the diffuser, the dilution factors are 70 and 470 for scenarios 1 and 2 respectively, which are much higher than the required dilution of 11.

Figure 4 shows the changes in chloride concentration along the centrelines of the plumes, illustrating that at less than 5 m distance from the diffuser, the chloride concentration meets the required criteria. Figure 5 shows the changes in TDS concentration along the centrelines of the plumes, illustrating that at less than 1 m distance from the diffuser, the TDS concentration meets the required criteria.



**Figure 2: Dilution contours for a flow rate of 800 m<sup>3</sup>/day (effective effluent flow rate of 1,600 m<sup>3</sup>/d) in weak ambient current**



**Figure 3: Dilution contours for a flow rate of 800 m<sup>3</sup>/day (effective effluent flow rate of 1,600 m<sup>3</sup>/d) in mean ambient current**

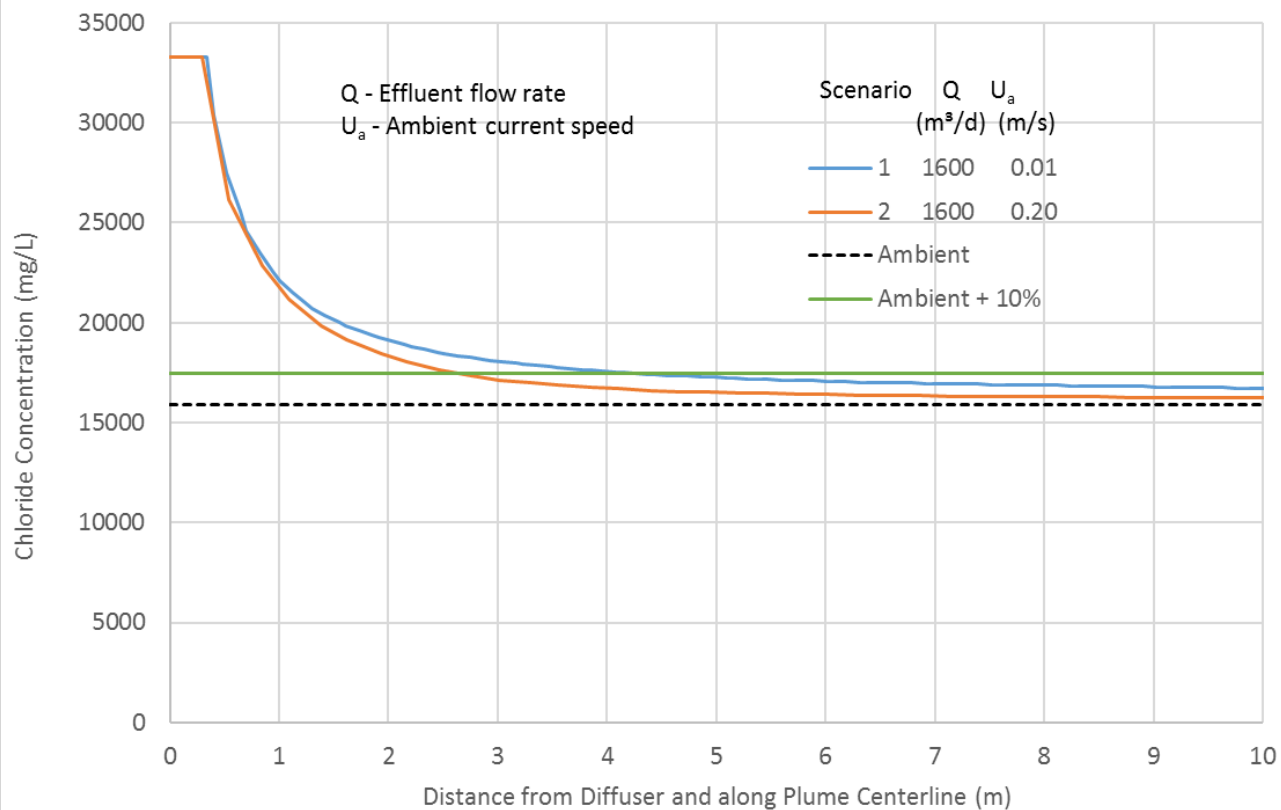


Figure 4: Chloride concentration along the plume centreline for both scenarios

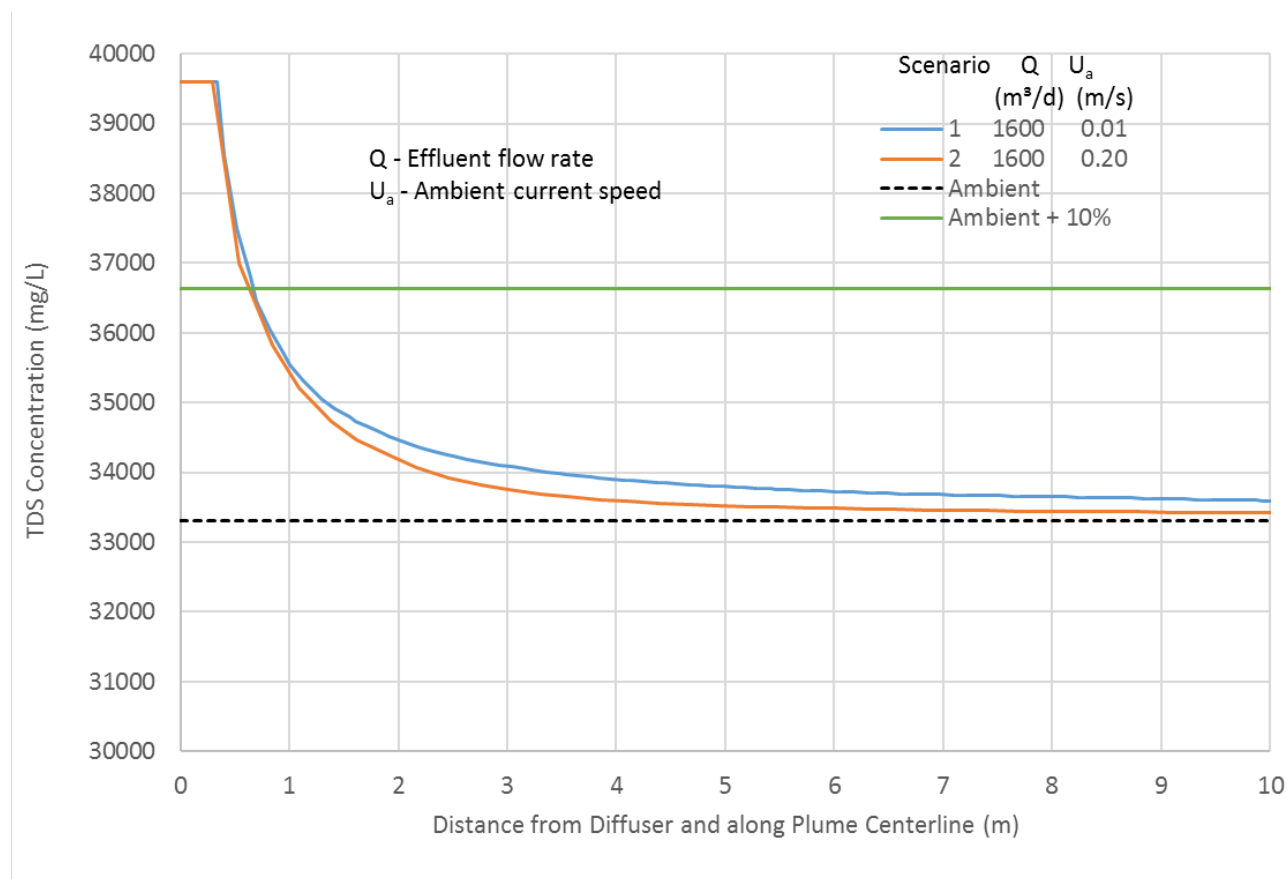


Figure 5: TDS concentration along the plume centreline for both scenarios

### 3.1 Temperature Sensitivity Analysis

For the simulated scenarios (800 m<sup>3</sup>/day discharged over 12 hours for an effective flow rate of 1,600 m<sup>3</sup>/day under weak and mean ambient current conditions), a sensitivity analysis simulation was conducted to review the effect of effluent and ambient temperature changes. The simulation conditions were otherwise identical to those for scenarios 1 and 2 except that the effluent temperature was increased to 20°C, and the ambient water temperature was increased to 8.5°C. The 20°C effluent temperature is understood to be the highest (though not expected) possible effluent temperature, as communicated by Agnico Eagle in November 2018. The 8.5°C was the water temperature measured in August 2011 at depth of 13 m below water surface (Stantec 2012).

The effluent temperature change results in effluent density change from 1031.85 kg/m<sup>3</sup> to 1028.30 kg/m<sup>3</sup>, and the ambient water temperature change results in ambient water density change from 1026.76 kg/m<sup>3</sup> to 1025.89 kg/m<sup>3</sup>. The temperature changes result in a slight change of the density difference between effluent and ambient water from 5.09 kg/m<sup>3</sup> to 2.41 kg/m<sup>3</sup>. The plumes remain negatively buoyant with this temperature change, but not as strongly negative as under the original temperature assumptions for the ambient and effluent temperatures (both 0°C).

Table 3 summarizes the simulation results for sensitivity analysis on temperature change for the two scenarios. This table illustrates the following:

- The plumes rise to higher elevations than the plumes with the originally assumed temperature of 0°C due to reduced negative buoyancy.
- Similar to the original discharge plumes, the required dilution is met at less than 1 m distance from the diffuser.
- At an effective flow rate of 1,600 m<sup>3</sup>/day, the dilution factors at 100 m from the diffuser are increased due to accelerated plume mixing.

**Table 3: Summary of simulation results for effluent temperatures of 20°C and ambient temperature of 8.5°C**

| Parameter                                                                  | Scenario |       |
|----------------------------------------------------------------------------|----------|-------|
|                                                                            | 1        | 2     |
| Effluent flow rate (m <sup>3</sup> /d) <sup>1</sup>                        | 1,600    | 1,600 |
| Ambient current velocity (m/s)                                             | 0.01     | 0.2   |
| Horizontal distance (m) from diffuser where required dilution of 11 is met | <1       | <1    |
| Maximum plume (centerline) height (m)                                      | 16.2     | 6.3   |
| Dilution factor at 100 m from diffuser                                     | 163      | 563   |
| <b>Simulation results for originally assumed temperatures of 0°C</b>       |          |       |
| Maximum plume (centerline) height (m)                                      | 11.1     | 5.6   |
| Dilution factor at 100 m from diffuser                                     | 70       | 470   |

Note: 1. Daily flow rate is 800 m<sup>3</sup>/day but this volume will be discharged over 12 hours for an equivalent flow rate of 1,600 m<sup>3</sup>/day.

## 4.0 CONCLUSIONS

Mixing analysis was conducted for a diffuser designed for Melvin Bay, Rankin Inlet NWT. The simulation results show the following:

- 1) Dilution of the treated groundwater effluent plume is achieved within 5 m of the diffuser under the assumed conditions for the ambient and discharge conditions tested under assumed and increased temperatures.
- 2) After initial mixing, the plume migrates along the seabed under gravity and achieves further dilution and mixing with ambient water; concentrations within the 100 m regulatory mixing zone will thus meet discharge criteria per regulatory requirements and/or background concentrations for non-regulated parameters per the modelled conditions.
- 3) The results are valid for placement of the diffuser in Melvin Bay in water depths of at least 20 m.
- 4) Sensitivity analysis was performed for increased effluent and ambient temperatures. The required dilution of 11 is met within 1 m of the diffuser and dilution factors at 100 m from the diffuser were increased from the base case.

## **CLOSURE**

Should you require any further information, please contact the undersigned.

Golder Associates Ltd.

### **APEGA PERMIT TO PRACTICE #05122**

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**APPENDIX A**

# Field Measurements

**Table A1: Results for September 2018 Measurements**

| Parameter                                | Minimum | Maximum | Average |
|------------------------------------------|---------|---------|---------|
| pH (pH)                                  | 7.96    | 7.98    | 7.97    |
| Salinity (psu)                           | 29.7    | 30.5    | 30.0    |
| TSS (mg/L)                               | <2      | 3.8     | 2.4     |
| TDS (mg/L)                               | 33,300  | 36,000  | 34,727  |
| Hardness (as (CaCO <sub>3</sub> ) (mg/L) | 4,890   | 5,180   | 5,000   |
| Conductivity (uS/cm)                     | 45,400  | 46,500  | 45,782  |
| Temperature (°C)                         | 5.80    | 6.13    | 5.92    |
| Chloride (mg/L)                          | 15,900  | 17,400  | 16,655  |

Source: Golder (2018)

**APPENDIX B**

# Environmental Guidelines

The intention of the treated groundwater effluent discharge objectives is to set the allowable effluent concentrations at the end-of-pipe and edge of a regulatory mixing zone. These allowable concentrations can then be used to design the diffuser to achieve the required dilution within the mixing zone. There is no specific definition for size of a mixing zone for discharges to Canadian coastal and estuarine waters. However, a radius of 100 m from the point of discharge is widely used for environmental compliance assessments. For example, the Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories (NWT 1992) provide guidance that the limits of initial mixing zone are 100 m from all points of discharge. For the current study, a 100 m regulatory mixing zone was applied.

Final effluent quality included in the model and assessment was based on measured groundwater quality from the borehole samples (see Section 3.4.2, Table 3 of the FEIS Addendum) and constrained by various regulations and guidelines to achieve non-acutely lethal effluent that will meet chronic guidelines or background concentrations at the edge of the regulatory mixing zone. The regulations and guidelines considered included:

- The proposed Metal and Diamond Mining Effluent Regulations (MDMER; GC 2017).
- Acute water quality guidelines for protection of marine aquatic life (CCME 2003; BC MOE 2017a, b).
- Fisheries and Oceans Canada Measures to Avoid Causing Harm to Fish and Fish Habitat (DFO 2013).

**Table B1: Meliadine Mine – Assumed Treated Groundwater Effluent Discharge Criteria**

| Parameter                              | Units    | Discharge Criteria            |                        |
|----------------------------------------|----------|-------------------------------|------------------------|
|                                        |          | Standard Based <sup>(1)</sup> | 95 UCLM <sup>(2)</sup> |
| pH (pH units)                          | pH units | -                             | 7.634                  |
| Alkalinity (as CaCO <sub>3</sub> )     | mg/L     | -                             | 71.35                  |
| Total Hardness (as CaCO <sub>3</sub> ) | mg/L     | -                             | 14101                  |
| Turbidity                              | NTU      | -                             | 90.54                  |
| Total Dissolved Solids (TDS)           | mg/L     | -                             | 58,165                 |
| Total Suspended Solids (TSS)           | mg/L     | 15                            | 159.4                  |
| Aluminium                              | mg/L     | -                             | 1.832                  |
| Ammonia (as N)                         | mg/L     | 5.91                          | 35.47                  |
| Antimony                               | mg/L     | -                             | 0.0047                 |
| Arsenic                                | mg/L     | 0.0125                        | 0.0193                 |
| Barium                                 | mg/L     | -                             | 0.299                  |
| Beryllium                              | mg/L     | -                             | 0.00165                |
| Bicarbonate (as CaCO <sub>3</sub> )    | mg/L     | -                             | 69.09                  |
| Boron                                  | mg/L     | -                             | 2.389                  |
| Total Organic Carbon (TOC)             | mg/L     | -                             | 6.448                  |
| Dissolved Organic Carbon (DOC)         | mg/L     | -                             | 5.69                   |
| Cadmium                                | mg/L     | -                             | 5.83E-04               |
| Calcium                                | mg/L     | -                             | 2164                   |
| Chloride (dissolved)                   | mg/L     | -                             | 33274                  |
| Chromium                               | mg/L     | -                             | <0.1 <sup>(3)</sup>    |
| Copper                                 | mg/L     | 0.003                         | 0.113                  |

**Table B1: Meliadine Mine – Assumed Treated Groundwater Effluent Discharge Criteria**

| Parameter                     | Units | Discharge Criteria            |                        |
|-------------------------------|-------|-------------------------------|------------------------|
|                               |       | Standard Based <sup>(1)</sup> | 95 UCLM <sup>(2)</sup> |
| Cyanide (free)                | mg/L  | 0.001                         | 0.0494                 |
| Iron                          | mg/L  | -                             | 13.37                  |
| Lead                          | mg/L  | 0.14                          | 0.00369                |
| Lithium                       | mg/L  | -                             | 3.33                   |
| Magnesium                     | mg/L  | -                             | 2129                   |
| Manganese                     | mg/L  | -                             | 1.076                  |
| Mercury                       | mg/L  | -                             | 4.01E-05               |
| Molybdenum                    | mg/L  | -                             | 0.0181                 |
| Nickel                        | mg/L  | 0.5                           | 0.0208                 |
| Nitrate (as N)                | mg/L  | 1500                          | 35.65                  |
| Nitrite (as N)                | mg/L  | -                             | 2.156                  |
| Total Kjeldahl Nitrogen (TKN) | mg/L  | -                             | 55.4                   |
| Phosphorus                    | mg/L  | -                             | 0.069                  |
| Potassium                     | mg/L  | -                             | 514.2                  |
| Radium-226 (Ra 226)           | Bq/L  | 0.37                          | 2.498                  |
| Selenium                      | mg/L  | -                             | 0.0457                 |
| Silica (reactive)             | mg/L  | -                             | 19.77                  |
| Silver                        | mg/L  | 0.003                         | 8.10E-04               |
| Sodium                        | mg/L  | -                             | 14784                  |
| Strontium                     | mg/L  | -                             | 65.21                  |
| Sulfate                       | mg/L  | -                             | 3160                   |
| Thallium                      | mg/L  | -                             | 3.57E-04               |
| Tin                           | mg/L  | -                             | <0.5 <sup>(3)</sup>    |
| Titanium                      | mg/L  | -                             | 0.187                  |
| Uranium                       | mg/L  | -                             | 0.00168                |
| Vanadium                      | mg/L  | -                             | <0.5 <sup>(3)</sup>    |
| Zinc                          | mg/L  | 0.055                         | 0.133                  |

Notes:

"<" Concentration is below the reported detection limit (RDL).

- End of pipe discharge criteria is based on the minimum of the following (refer to Tables 8 and 9 of the FEIS Addendum):  
Amended Metal and Diamond Mining Effluent Regulations (MDMER; GC 2017) Schedule 4 Authorized Limits of Deleterious Substances - Maximum Authorized Monthly Mean Concentration.  
Canadian Council of Ministers of the Environment (CCME 2003) Short-term Water Quality Guidelines (WQG) for the Protection of Aquatic Life - Marine.  
British Columbia Ministry of Environment (BC MOE 2017a) Approved Water Quality Guidelines for Marine Aquatic Life (Short-Term).  
BC MOE Working Water Quality Guidelines for Marine Aquatic Life (BC MOE 2017b).
- 95% Upper Confidence Level of the Mean (UCLM) of the August 2016 to September 2017 diamond drillhole groundwater data provided by Agnico Eagle. 95% UCLM calculated using the US EPA ProUCL Version 5.1 software. Agnico Eagle will monitor groundwater quality and criteria will be updated as necessary based on observed changes.
- A 95% UCLM could not be calculated due to low detection rates within the dataset. The maximum concentration has been used for conservative purposes.

In addition to the above and since chloride ions mainly constitute the salt content in the marine water and ultimately the treated groundwater effluent plume, chloride guidelines are used to assess the near-field mixing zone. No local or federal guideline was available for chloride discharges in the marine environment, and therefore, the guideline published by the BC MOE (2017a) was used for the analysis. The guideline states:

*“Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth”.*

This indicates that the chloride concentration at the mixing zone boundary should not exceed the ambient chloride concentration of 15,900 mg/L by 1,590 mg/L (10%). The behavior of the discharge in the marine environment is influenced by density. For the purposes of this assessment, it is assumed that treatment of the groundwater will be such as to achieve a TDS concentration of the treated groundwater effluent that is +/- 10% (in line with the BC MOE 2017a guideline) of the maximum TDS concentration of 36,000 mg/L measured in September 2018 at Melvin Bay. Therefore, the assumed effluent TDS concentration will be up to approximately 39,600 mg/L. It is conservatively assumed that the chloride concentration of 33,300 mg/L remains unchanged in the treated groundwater effluent.

To reach a chloride concentration difference of no more than 10% at the edge of regulatory mixing zone, the required plume dilution factor via the diffuser is 11, per the equation below:

$$S = \frac{C_{eff} - C_a}{C_{edg} - C_a} = \frac{C_{eff} - C_a}{110\%C_a - C_a} = \frac{33,300 - 15,900}{110\% \times 15,900 - 15,900} = 11$$

where  $S$  is required dilution factor,  $C_{eff}$  is effluent chloride concentration (33,300 mg/L),  $C_a$  is ambient chloride concentration (15,900 mg/L), and  $C_{edg}$  is chloride concentration at the edge of regulatory mixing zone. Per the BC MOE (2017a) guideline, the upper bound of  $C_{edg}$  is 10% greater than ambient chloride concentration.

There are also no federal or provincial specific criteria for mixing zone discharges regarding thermal changes to the marine environment. However, per the BC MOE (2017a) guideline:

*“Temperature at the mixing zone boundary should not change by more or less than 1°C from natural ambient background temperatures, and the hourly rate of change should not exceed 0.5°C.”*

This is taken into consideration for the model, which conservatively assumes treated groundwater effluent discharge and ambient ocean temperatures of 0°C, to account for start and end of temperatures for the open water season.