

**FINAL REPORT**

## Chapter 2.0 Marine Water Quality

*2021 Marine Environmental Effects Monitoring Program (MEEMP) and Non-Indigenous Species / Aquatic Invasive Species (NIS/AIS) Monitoring Program*

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## ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definition
ALS	ALS Canada Ltd.
BC	British Columbia
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CALA	Canadian Association for Laboratory Accreditation Inc.
CCME	Canadian Council of Ministers of the Environment
DL	Detection limit
DQOs	Data Quality Objectives
ERP	Early Revenue Phase
FEIS	Final Environmental Impact Statement
HEPH	Heavy Extractable Petroleum Hydrocarbons
LEPH	Light Extractable Petroleum Hydrocarbons
MEEMP	Marine Environmental Effects Monitoring Program
MDL	Method Detection Limit
PAHs	Polycyclic aromatic hydrocarbons
PC	Project Certificate
PSU	Practical Salinity Unit
QA/QC	Quality Assurance / Quality Control
QC	Quality Control
RPD	Relative Percent Difference
TSS	Total Suspended Solids
UTM	Universal Transverse Mercator
WQGs	Water Quality Guidelines



## 2.0 WATER QUALITY

### 2.1 Introduction

This chapter presents the results of the marine water quality monitoring program, a component of the larger Marine Environmental Effects Monitoring Program (MEEMP) conducted at Milne Port and in Milne Inlet during the 2021 open-water season. This component was developed in consideration of the potential Project-related impacts to the marine environment as identified in the 2012 Final Environmental Impact Statement (FEIS) and subsequent addendums, as well as monitoring requirements outlined in the Project Certificate (PC) Conditions described in Chapter 1.0, Table 1-2 (i.e., PC Conditions No. 76, 87, 89 and 99(a)).

#### 2.1.1 Objectives

The MEEMP objectives are outlined in Section 1.3 of Chapter 1.0 (Program Overview). The objectives specific to the 2021 marine water quality program were as follows:

- Ensure that water entering the marine receiving environment from site discharges MP-05 and MP-06 meets the requirements of the Water License.
- Compare water quality parameters of samples collected at discharge locations against water quality guidelines or measurements from previous years to assess potential for effects to marine biota.

### 2.2 Study Design

The marine water quality study is designed to ensure that water discharged from site is compliant with requirements outlined in BIM's Type "A", Water Licence No. 2AM-MRY1325. Discharge occurs from two locations, MP-05 and MP-06, which store run-off from the iron ore stockpiles. The MP-05 discharge is permitted from the Milne Port Ore Stockpile Sedimentation Pond (East) and the MP-06 discharge is permitted from the Milne Port Ore Stockpile Sedimentation Pond (West). The marine receiving environment for the MP-05 primary discharge has been monitored annually since 2015, with monitoring at a second discharge point (MP-06) added in 2020. It should be noted that monitoring of effluent quality is not within the scope of the MEEMP; rather, treated effluent is monitored monthly during each intermittent discharge period by the Mine, and reported elsewhere.

Water quality samples were collected at four sampling stations that have been monitored annually from 2015 to 2020<sup>1</sup> near the primary site discharge (MP-05). One station was situated downstream from the marine discharge point for treated effluent and collected site drainage (i.e., Source-1), while the remaining three stations were located approximately 250 m offshore from the outfall location to the northwest (WNE-1), north (North-1), and northeast (ENE-1), respectively (Figure 2-1, Table 2-1). The same sampling plan was applied to MP-06 in 2020 and so four water quality stations were monitored in 2020 and again in 2021 downstream from the discharge (Source-2) and 250 m offshore in different directions (WNE-2, North-2, ENE-2) (Figure 2-1, Table 2-1). Similar to previous years, effort was made to collect water quality samples during active effluent discharge periods, given that the site effluent discharges were intermittent during the 2021 open-water season.

The present sampling design has been applied to identify and characterize adverse effects on marine water quality in Milne Port from the two treated site discharges, to evaluate the current effectiveness of existing mitigation measures, and to inform the need for further mitigation and/or alterations to Project activities.

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<sup>1</sup> SEM 2016; SEM 2017; Golder 2018, Golder 2019, Golder 2020, Golder 2021

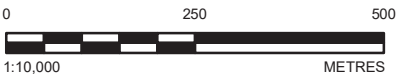




LEGEND

DISCRETE WATER QUALITY SAMPLES

- MP-05
- MP-06



REFERENCE(S)

BATHYMETRY CREATED BY GOLDER FROM MULTIPLE DATA SOURCES. FREIGHT DOCK DATA PROVIDED BY HATCH, MARCH 4, 2020. ADDITIONAL MILNE PORT INFRASTRUCTURE DATA OBTAINED FROM CLIENT, MAY 2, 2020 AND MAY 28, 2018. HYDROGRAPHY DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. MILNE PORT IMAGERY CAPTURED AUGUST 2020 © 2020 DIGITAL GLOBE, INC. ADDITIONAL IMAGERY COPYRIGHT © 20190802 ESRI AND ITS LICENSORS. SOURCE: MAXAR VIVID. USED UNDER LICENSE, ALL RIGHTS RESERVED.

PROJECTION: UTM ZONE 17 DATUM: NAD 83

CLIENT

BAFFINLAND IRON MINES CORPORATION

PROJECT

MARY RIVER PROJECT

TITLE

WATER QUALITY SAMPLING STATIONS FOR THE MP-05 AND MP-06 MILNE PORT SITE DISCHARGES, MEEMP 2021

CONSULTANT	YYYY-MM-DD	2022-06-30
	DESIGNED	EI
	PREPARED	AJA
	REVIEWED	EI
	APPROVED	PR



PROJECT NO.	CONTROL	REV.	FIGURE
1663724	44000-04	0	2-1



**Table 2-1: 2021 Marine Water Quality Sampling Locations at MP-05 and MP-06.**

Site Discharge Location	Station Name	UTM Zone	Easting (m)	Northing (m)
<b>MP-05</b> (Milne Port Ore Stockpile Sedimentation Pond [East])	ENE-1	17W	503874	7976517
	North-1	17W	503725	7976612
	WNW-1	17W	503540	7976599
	Source-1	17W	503662	7976403
<b>MP-06</b> (Milne Port Ore Stockpile Sedimentation Pond [West])	ENE-2	17W	503114	7976665
	North-2	17W	502943	7976619
	WNW-2	17W	502828	7976474
	Source-2	17W	503038	7976416

**Notes:** UTM = Universal Transverse Mercator; m = meter.

## 2.2.1 Indicators and Thresholds

Indicators and thresholds selected for the MEEMP program are described in Section 1.4.2. For marine water quality, a number of parameters are measured, including physical parameters, nutrients, metals, and hydrocarbons. A sub-set of these parameters (i.e., metals, total suspended solids [TSS], nutrients, and hydrocarbons) were identified as water quality indicators to assess for potential effluent discharge effects on the receiving environment. To provide early warning of environmental effects from the Project, applicable water quality guidelines (WQGs) are used as a threshold where these exist (i.e., Canadian Council of Ministers of the Environment [CCME] WQGs for the protection of aquatic life in marine environments [CCME 2021]). For indicators with no associated WQG, such as iron, concentrations were compared to the data range from previous years (2015-2020). If either of these thresholds were exceeded, then the treated effluent data from the discharge were reviewed to determine if the observed increase in these parameters was related to effluent discharges from MP-05 and MP-06.

## 2.3 Materials and Methods

### 2.3.1 Field Methodology

Water quality samples were collected during five sampling events scheduled between 2 August and 19 August 2021. Samples were typically collected weekly over this period; however, some flexibility was built into the sampling program to facilitate the collection of samples from the same discharge period to allow for direct comparisons.

Water samples were collected from just below the surface (1 to 2 m) or mid-water column depth from the deeper sample MP-06 locations (MP-06-WNW, MP-06-North, and MP-06-ENE) from a zodiac vessel using a 2.0 L vertically oriented Kemmerer bottle sampler. The sampler was washed with laboratory-grade detergent and then rinsed with site-water prior to sample collection at each station. Samples were preserved in the field according to laboratory instructions and kept refrigerated until they were shipped (within 48 h of sample collection) on ice in coolers to ALS Canada Ltd. (ALS), a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited

analytical laboratory. To further limit the time between sample collection and preservation, dissolved metals and mercury samples were field filtered and preserved, rather than being filtered by the analytical laboratory upon sample receipt. Samples were analyzed for routine parameters, TSS, nutrients, major ions, total and dissolved metals (including mercury), benzene, toluene, ethylbenzene, xylenes, hydrocarbons and PAHs. A full list of field water quality parameters is provided in Appendix 2A in the field data sheets, while a full chemistry parameter list is provided in the analytical reports in Appendix 2B. A total of three field duplicates and three field blank quality control (QC) samples were collected during the field program for Quality Assurance / Quality Control (QA/QC) purposes as discussed in Section 2.3.3.

The sampling effort for hydrocarbons (Petroleum hydrocarbons [BTX/F1]; Hydrocarbons [LEPH/HEPH], F2-F4, Polycyclic Aromatic Hydrocarbons [PAHs]) was lowered in 2021 because these organic constituents have not been detected in water samples collected since 2015. As such, for each of the five sampling events, hydrocarbons were sampled at two of the four stations at each discharge, for a total of ten samples or five samples per discharge. Fecal coliform bacteria were not detected in the 2020 samples collected downstream of both discharges, which was consistent with either low or non-detectable bacteria counts measured in water samples collected from Milne Inlet since 2017. These multi-year data confirmed that MP-05 and MP-06 are not sources of fecal coliforms to Milne Inlet and monitoring of bacteria in receiving waters around each discharge was therefore discontinued.

### 2.3.2 Data Analysis

Descriptive summary statistics (i.e., mean, minimum, maximum) were calculated for each sampling station over the five sampling events. For statistical calculations, the value of the reported detection limit (DL)<sup>2</sup> was conservatively used for measurements reported to be below the DL. The 2021 summary statistics were screened against the CCME WQGs for the protection of aquatic life in marine environments (CCME 2021). For parameters of interest without an applicable CCME WQG (e.g., iron), concentrations were qualitatively compared to the range of water concentrations reported in previous years (i.e., annually from 2015 to 2020). Baffinland was responsible for summarizing the 2021 effluent data from MP-05 and MP-06 as per their Type A Water Licence requirements and are reported elsewhere.

The application of CCME WQGs to total concentrations measured in the environment can be conservative, especially when those metals are part of the mineral matrix that makes up the particle. This is because total metal concentrations reflect both the proportion of metals associated with particles and that are dissolved in the water column. Dissolved concentrations tend to provide a more realistic indication of the bioavailable concentration for direct uptake from the water, particularly in turbid receiving environments (Chapman and Wang 2000). However, the measure of “dissolved” metals is an operational definition based on whether the metal passes through a small (0.45 micrometre [µm]) filter (BC MWLAP 2003). Water quality guidelines for the protection of aquatic life are generally applied to total concentrations but are derived from laboratory-based toxicity tests. In these tests, exposure concentrations are based on metals in solution from metal salts and the laboratory test water has a low level of suspended matter (typically clear water). Typically, these toxicity tests involve exposure of test species to more bioavailable dissolved metal concentrations, and not the total concentrations usually reported as the exposure concentrations, thus contributing to conservatism in the derivation of water quality guidelines.

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<sup>2</sup> The lowest concentration at which individual measurement results for a specific analyte are statistically different from a blank (that may be zero) with a specified confidence level for a given method and representative matrix.

### 2.3.3 Quality Management

The overall goal of the water quality sampling program was to collect quality data, which was achieved through the consistent application of QA/QC measures. These quality management procedures were applied to the field collection, data analysis, and reporting tasks for the water quality program to verify that the data presented were valid and of acceptable quality to address MEEMP objectives.

#### 2.3.3.1 Field QA/QC

Field staff were trained to be proficient in standardized sampling procedures, data recording using standard forms, and equipment operations applicable to the monitoring program. Field work was conducted according to specified instructions and established technical procedures for standard sample collection, preservation, handling, storage, and shipping procedures.

General QA/QC tasks applicable to the water quality program included, but were not limited to, the following:

- Preparing geo-referenced field maps for use during the surveys to accurately document sampling locations and project-specific data collection forms to standardize the field data collection process.
- Regular communications between the Project Manager and field staff.
- Collection of Quality Control samples in the field (i.e., field duplicates and blanks).
- Accredited laboratories were 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 was used to track sample shipments to the individual subcontractor laboratories.
- Samples were packaged and shipped to the laboratory in accordance with required holding times and storage conditions.

Field blanks were collected to identify potential sources of contamination during field sampling. Field blank sample containers were filled with de-ionized water in the laboratory and then processed in the field in the same manner as water samples from each station (i.e., uncapped, treated with preservative, re-capped). Three field duplicates and three field blanks were collected over the five sampling events.

#### 2.3.3.2 Laboratory and Data Analysis QA/QC

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

The analysis of field QC samples involved a review of field blank results. Notable results were defined as those greater than five times the respective DL detected in the field blanks, in accordance with the BC Field Sampling Manual (BC MWLAP 2003). To assess variability between field duplicates, the Relative Percent Difference (RPD) was calculated as follows:

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

In accordance with the BC Field Sampling Manual (BC MWLAP 2003), an RPD value of >20% was used to identify differences between original and duplicate samples. Values less than five times the Method Detection Limit (MDL) were not 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.

## 2.4 Results

### 2.4.1 QA/QC Results

The 2021 marine water quality data were considered valid based on the results of the QA/QC assessment provided in Appendix 2C for the following reasons:

- Most chemical analyses on surface water samples were completed within the sample hold time requirements. Although exceedances of sample hold time requirements have been documented, the hold times for the parameters in question are relatively short. Given the remote location of the site, such exceedances were unavoidable. The data should still be comparable to previous yearly measurements as similar issues with hold time exceedances of a similar length of time have been encountered.
- Sample temperature was within laboratory thresholds (< 10°C), with the exception of a single exceedance observed for VA21B6250 with measured sample temperatures of between 19 and 20°C, which did not affect interpretation of the data.
- Data reported by the laboratory were considered reliable according to the accredited laboratory QA/QC assessment.
- Measured concentrations in the field blanks were all less than the analytical detection limit.
- Parent samples and their respective duplicates were not substantially different (low variability and thus high precision in sampling).

Overall, the QA/QC results in Appendix 2D indicate that the water chemistry data collected during the 2021 MEEMP are of acceptable quality to address the objectives stated in Section 2.1.1.

### 2.4.2 Marine Water Quality Results

Field water quality measurements are documented in Appendix 2A and water quality laboratory reports are provided in Appendix 2B. The field measurements and laboratory raw data for each station sampled in 2021 are summarized in Appendix 2C. Summary statistics (mean, maximum, and minimum) for the 2021 water quality program calculated from these data are presented in Table 2-2. Summary statistics for parameters of interest for the six monitoring years between 2015 and 2021 are provided in Appendix 2E – Table 1.

### 2.4.2.1 Conventional Parameters

The pH in water samples collected in 2021 downstream of both discharge points ranged from 7.9 to 8.1 (Table 2-2) and were within the CCME WQGs range for marine waters (7.0 to 8.7) and within pH ranges (7.0 – 8.1) reported in previous years (Appendix 2E – Table 1). Total suspended solids were low, with most samples <2 mg/L (30 of 40 collected samples) and a maximum concentration of 7.9 mg/L in a sample collected from the MP-06 ENE location on 14 August 2021. Turbidity levels were similarly low (<0.1 NTU to 1.7 NTU) and both TSS and turbidity levels in 2021 were below CCME WQGs and within previously observed annual ranges (Appendix 2E – Table 1). Salinity ranged from 1,700 mg/L to 31,000 mg/L in 2021, reflective of an estuarine environment (i.e., one that fluctuates between brackish and fully saline) and dissolved oxygen levels at all stations were indicative of well-oxygenated conditions (Table 2-2).

### 2.4.2.2 Nutrients

Nutrients were mostly not detectable over the five 2021 sampling events and where detected, concentrations were low and below applicable CCME WQGs. Nitrate concentrations downstream of both discharges in 2021 were below CCME guidelines and were mostly below the detection limit (<0.01 mg-N/L) except for samples collected from the MP-05 discharge, MP-05 ENE, MP-05 WNW, MP-06 discharge and MP-06 North station locations. Overall, nitrate concentrations are consistent with those reported in 2020 for the MP-05 and MP-06 discharge (Table 2-2; Appendix 2E – Table 1). Ammonia (<0.005 mg-N/L) and nitrite (<0.01 mg-N/L) concentrations were below detection in 2021 (Table 2-2; Appendix 2C). No CCME marine WQGs are available for ammonia and nitrite.

### 2.4.2.3 Metals

Measured metal concentrations downstream of both discharges were lower than applicable CCME WQGs over the five 2021 sampling events (Table 2-2). A number of total metals were measured below detection limits<sup>3</sup> in each of the 2021 samples (Appendix 2C). Several total concentrations of metals were detected, and of those, some were mostly present in particulate form because most dissolved concentrations were below detection (i.e., aluminum, iron, nickel, and zinc).

Iron is the metal of primary interest for the MEEMP. A CCME marine WQG for iron is not available and, as such, the 2021 iron data were compared to the detected concentration range measured between 2015 and 2020 downstream from the MP-05 and MP-06<sup>4</sup> discharges (Table 2-2, Appendix 2E – Table 1). Analytical improvements in the ability to detect iron were made in 2017, which reduced the detection limit to <10 µg/L from the DL of 500 µg/L reported in the 2015 and 2016 MEEMP programs. Differences in the sensitivity of DL precludes comparison of the 2021 data to pre-2017 data.

<sup>3</sup> Total antimony, beryllium, bismuth, caesium, chromium, cobalt, gallium, iron, lead, mercury, rhenium, selenium, silicon, silver, tellurium, thallium, thorium-232, tin, titanium, tungsten, yttrium, and zirconium.

<sup>4</sup> Receiving water quality data for the MP-06 discharge are only available from 2020.

Concentrations detected downstream of both discharges in 2021 are well within the range measured from 2017 to 2020, which ranged from <10 to 286<sup>5</sup> mg/L (Appendix 2E – Table 1). The temporal trend in iron concentrations for the MP-05 and MP-06 sampling locations from 2017 onwards is shown in Figure 2-2 and Figure 2-3. These plots demonstrate that total iron water concentrations have not been increasing in the receiving environment, despite increases in production since 2017, and have remained fairly stable. Furthermore, dissolved iron concentrations were <10 µg/L in each of the samples collected in 2021 (Table 2-2), indicating that for most samples, a substantial portion of the reported total concentration was present in particulate form, and therefore likely less bioavailable for uptake by aquatic biota.

In addition to iron, several other metals of interest do not have CCME marine WQGs. In these cases, comparisons of 2021 concentrations were made to the 2015 to 2020 MEEMP water quality dataset (Appendix 2E – Table 1). These comparisons indicate that all measurements downstream from the primary site discharges MP-05 and MP-06 in 2021 were within the detected concentration range at MP-05 from previous years. There was some variability in the concentrations of some of these metals between 2021 and 2020 at MP-06, but all concentrations were within the range previously measured at MP-05.

The maximum concentration of 83.7 µg/L total zinc measured at the MP-05 Source Station (Appendix 2D – Table 1) was 3.3 times higher than the previous maximum of 25.0 µg/L measured in 2016 at the MP-05 North Station (SEM 2017). This measurement was the only detected concentration measured at any of the water quality stations sampled in 2021, and less than 3% of the total concentration was present in the dissolved phase (2.2 µg/L). These data therefore suggest that more than 97% of the reported total concentration was present in particulate form, meaning it is not as bioavailable for uptake by aquatic biota, and therefore is not expected to adversely affect aquatic life. Moreover, the MP-05 effluent would not have been expected to be a source of zinc at the time of water quality sampling because zinc was not detected in the effluent sampled at approximately the same time as the 83.7 µg/L measurement at MP-05.

#### 2.4.2.4 Hydrocarbons

Hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) were below the analytical DLs in each of the samples collected during the 2021 MEEMP. Hydrocarbons have consistently been less than DLs since sampling was initiated in 2015 (SEM 2016; SEM 2017; Golder 2018; Golder 2019; Golder 2020).

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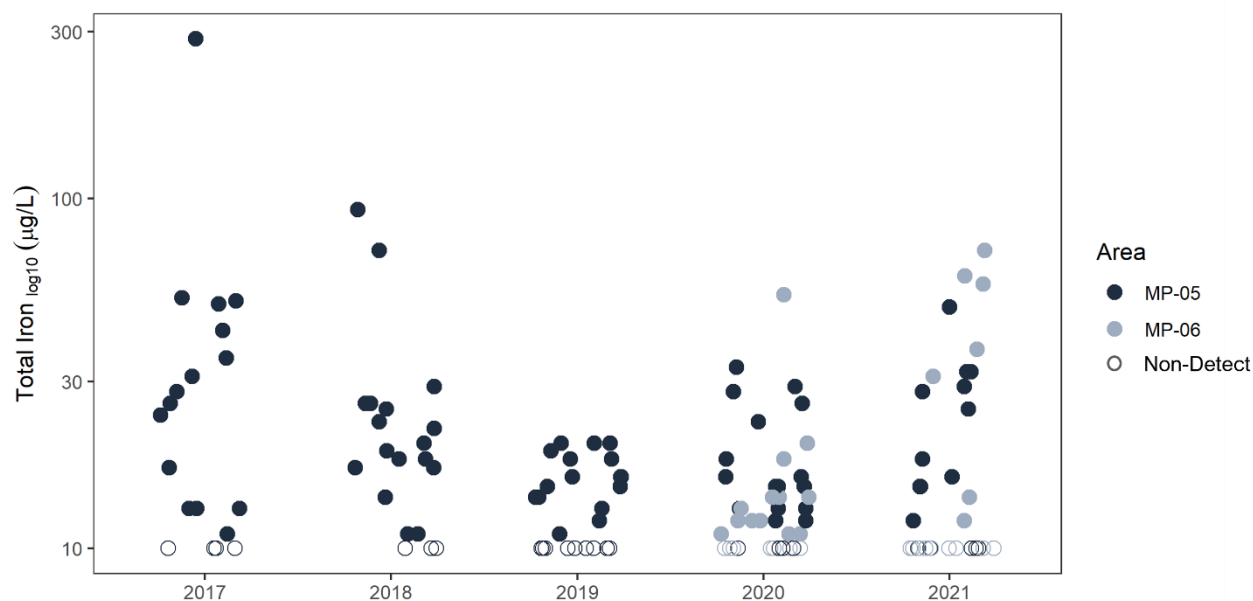
<sup>5</sup> Note that the highest concentration of total iron recorded (286 µg/L) was measured during a September 2017 storm event when TSS was elevated.



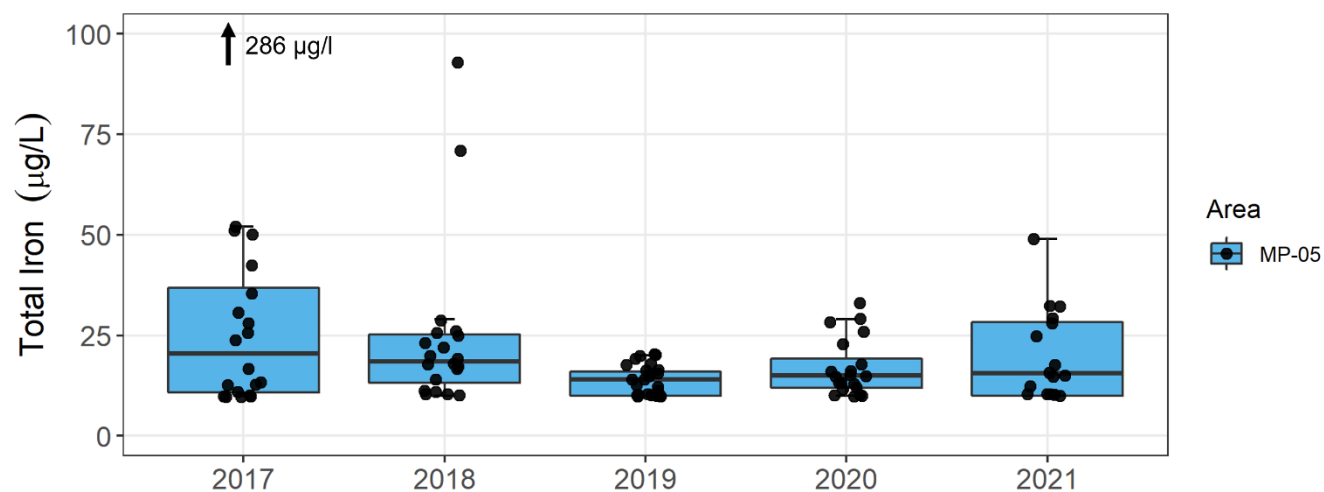
**Table 2-2: Marine Water Quality – Receiving Environment Summary Statistics for the MP-05 and MP-06 Milne Port Site Discharges over the Five Sampling Events in 2021.**

Parameter	CCME Marine WQG for Protection of Aquatic Life <sup>(a)</sup>		MP-05			MP-06			MP-05			MP-06			MP-05			MP-06			MP-05			MP-06		
			Source 1			Source 2			WNW 1			WNW 2			North 1			North 2			ENE 1			ENE 2		
	Short Term	Long Term	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
<b>Physical</b>																										
pH	—	7.0-8.7	8.0	8.0	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	7.9	8.0
Salinity (mg/L) <sup>b</sup>	—	—	10220	5200	24400	11660	1700	24400	14400	6200	23800	21120	7700	27600	13280	6200	24100	22900	7900	30800	14740	5400	25500	23100	13200	30200
TSS (mg/L)	<25 mg/L above background	<5 mg/L above background	2.1	< 2.0	2.7	2.6	< 2.0	4.7	2.5	< 2.0	4.7	2.1	< 2.0	2.7	2.5	< 2.0	4.6	2.3	< 2.0	3.5	2.4	< 2.0	4.0	3.2	< 2.0	7.9
Turbidity (NTU)	<8 NTU above background	<2 NTU above background	0.75	0.13	1.7	0.57	< 0.10	1.1	0.41	0.16	0.87	0.48	0.15	1.0	0.46	0.31	0.69	0.3	0.13	0.52	0.54	< 0.10	0.99	0.47	0.14	1.3
<b>Nutrients (µg/L)</b>																										
Nitrate (as N)	339,000	45,000	62	< 10	210	10	< 10	11	<10	< 10	12	< 10	< 10	< 10	< 10	< 10	< 10	13	< 10	26	24	< 10	43	< 10	< 10	< 10
<b>Total Metals (µg/L)</b>																										
Aluminum	—	—	20.2	7.6	37.4	19.7	7.6	34.8	14.9	6.4	29.3	14.8	5.0	33.4	16.2	7.0	23.6	10.8	5.0	25	15.1	5.6	24.7	14.8	5.0	38.3
Arsenic	—	12.5	0.61	< 0.40	1.31	0.75	< 0.40	1.41	0.77	< 0.40	1.28	1.07	0.43	1.55	0.74	< 0.40	1.38	1.13	0.43	1.62	0.83	< 0.40	1.45	1.16	0.69	1.67
Cadmium	—	0.12	0.015	< 0.010	0.031	0.018	< 0.010	0.037	0.017	< 0.010	0.026	0.030	0.014	0.045	0.019	< 0.010	0.035	0.031	0.013	0.044	0.020	< 0.010	0.031	0.030	0.020	0.041
Chromium	—	1.5 (Cr(VI))	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Copper	—	—	0.80	< 0.50	2.0	0.87	< 0.50	2.1	0.62	< 0.50	1.1	0.53	< 0.50	0.66	0.81	< 0.50	1.9	0.52	< 0.50	0.58	0.81	< 0.50	1.9	0.61	< 0.50	1.0
Iron	—	—	23.6	< 10	49	25.0	10	60	16.4	10.0	32.0	20.8	< 10	57	18.6	< 10	28	15.6	< 10	37	19.2	< 10	32	22.4	< 10	71
Mercury	—	0.016	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silver	7.5	—	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
<b>PAHs (µg/L)</b>																										
Naphthalene	—	1.4	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

Notes: (a) = Guidelines taken from CMME Marine WQG for the protection of Aquatic Life (<http://cegg-rcqe.ccme.ca/download/en/221>); (b) Salinity reported as PSU by ALS and converted to mg/L for the purpose of this table. Bold Font = max exceeding a short term guideline or mean exceeding a long term guideline; CCME = Canadian Council of Ministers of the Environment; WQG = water quality guidelines; Min = minimum; Max = maximum; — = no guideline available; NR = not recorded; PSU = practical salinity unit; TSS = total suspended solid; mg/L = milligrams per liter; < = less than; N = Nitrogen; CFU = colony forming unit; Cr(VI) = hexavalent chromium; PAH = polycyclic aromatic hydrocarbon; µg/L = micrograms per liter; mL = milliliter.



**Figure 2-2: Receiving Environment Total Iron Concentrations in Milne Inlet for the MP-05 and MP-06 Milne Port Site Discharges, (2017-2021)**



**Figure 2-3: Receiving Environment Total Iron Concentrations in Milne Inlet for the MP-05 Milne Port Site Discharges, (2017-2021)**

## 2.5 Discussion

The collection of marine water samples was added to the MEEMP in 2015 to monitor compliance of site discharges with permit requirements. Since 2015, samples have been collected close to the primary site discharge (MP-05) location and at three downstream locations 250 m offshore from MP-05. Sampling has typically involved five separate sampling events at each of the four stations between August and October, depending on the year and discharge schedule. In 2020, a second discharge location (MP-06) was added and marine water quality was monitored under a similar design as that for MP-05.

Concentrations of conventional water quality parameters, major ions, nutrients, metals were often not detected in the water samples and applicable CCME WQGs were not exceeded downstream from either discharge. Where guidelines are not available, comparisons are made the 2015 to 2020 MEEMP water quality dataset; 2021 concentrations were all within the range of what has been recorded previously. For both discharges, hydrocarbons and PAHs were not detected in downstream water samples, consistent with results from previous sampling years.

Monitoring results remain within original FEIS predictions (see Table 1-1), which forecasted no significant residual effects on water quality but indicated the potential for minor localized increases in TSS, nutrient, metal, and hydrocarbon concentrations. Water quality monitoring in 2021 shows that iron concentrations in marine water samples collected in 2021 remained within the range measured in previous years and have not increased despite increases in production over the same time period. These results show no evidence of compromised water quality because of iron ore deposition. Further, it should be noted that for iron to be biologically available to phytoplankton and other marine biota, it generally needs to be in a dissolved form so that it can effectively cross biological membranes. Because iron ore particulates stored at the Site are in mineral form, they would be expected to predominantly settle in marine sediments where they would be biologically inert. Environmental conditions in the receiving environment, such as pH, dissolved oxygen concentrations and redox potential, can influence the proportion of biologically available iron that can be released from particulates into surrounding waters. According to Millero (1998) and Lis et al. (2015), in circumneutral pH and well oxygenated environments, similar to those observed in Milne Inlet, iron tends to be poorly soluble. As a result, many open ocean waters and some freshwater systems are characterized by low dissolved iron concentrations (Johnson et al 1997; McKay et al 2004). Accordingly, iron deposition from the Project, at both present levels and in its current form, are not expected to adversely effect aquatic life.

## 2.6 Conclusions and Recommendations

Site discharge from the ore pad settling ponds into the marine environment does not appear to have resulted in adverse effects on marine water quality. Water quality measurements demonstrated compliance with Water License requirements and measured concentrations in downstream waters were low and/or undetectable, below applicable guidelines, and/or consistent with previous years' measurements. With respect to iron, which is of primary concern for the Project, no increasing trend has been detected in sampling conducted between 2015 and 2021. For water quality in general, monitoring results remain within original FEIS predictions, which forecasted no significant residual effects on water quality but indicated the potential for minor localized increases in TSS, nutrient, metal, and hydrocarbon concentrations.

These results confirm that mitigation measures are functioning as intended and that Project activities are being managed in a way that ensures site discharges are compliant with Water License requirements. Moving forward, continued monitoring of site discharge is recommended to maintain compliance with project permits and to ensure concentrations of potential contaminants of concern remain below thresholds that could harm marine biota.

## 2.7 Closure

We trust the information contained in this report is sufficient for your present needs. Should you have any additional questions regarding the Project, please do not hesitate to contact the undersigned.

### Golder Associates Ltd.



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Reviewed by:



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*Senior Environmental Scientist*

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## 2.8 References

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**APPENDIX 2A**

# Marine Water Quality - Field Data Sheets

Water Quality Field Log Project #: 1663724-44000 Project title: Baffinlands MEEMP

Date: 2 Aug 2021

Sampled By: NOB, JC, ACK

Discharge: start @ MP-05 @ 13:30  
start @ MP-06 @ 15:10

Weather: Partly Sunny, 10°C

Wind Spd/Dir:

Tide: 0.7 m

Station	Sample Name	Depth	# of Jars	Time	pH	DO	Cond.	Temp	Turb	Comments
MP05	MP05 Source	1m	10	15:50	7.6	11.2	16,500	7.1	2.4	Salinity: 9.61 PSU
MP05	MP05 ENE	1m	10	16:37	7.8	11.6	29,250	5.9	2.2	Salinity: 17.5 PSU
	MP05 North	1m	10	16:46	7.9	11.4	25,446	6.3	6.74	Salinity: 14.90 PSU
	MP05 WNW	1m	10	17:01	7.9	10.9	22,747	6.91	0.54	" 12.86 "
	MP06 Source	1m	10	17:17	8.0	11.73	23,129	5.51	0.33	" 13.86 "
	MP06 ENE	1m	10	17:40		11.88	24,952	6.07		18.68
	MP06 North	1m	10	17:22	8.04	11.58	22,686	6.32	0.55	Salinity: 16.61 PSU
	MP06 WNW	1m	10	17:30	8.02	11.79	22,809	5.4	0.45	18.20
	DUPA	1m	10							MP-05 Source
	MP-05-WNW-BLANK	1m	10							

Date:

Sampled By:

Weather:

Wind Spd/Dir:

Tide:

Station	Sample Name	Depth	# of Jars	Time	pH	DO	Cond.	Temp	Turb	Comments

\* Switch labels on WNW & North.



**Project title: Baffinlands MEEMP**

Tide: 15:00 (1.3m) 16:00 (1.1m)

[illegible]



[illegible]







09:17 start.  
11:08 End

Water Quality Field Log Project #: 1663724-4000 Project title: Baffinlands MEEMP

Date: 19 Aug 2021

Sampled By: JC, KW, RK

Weather: Overcast

Wind Spd/Dir: NE

15653 Tide: Flood (1.1m)

Station	Sample Name	Depth	# of Jars	Time	pH	DO	Cond.	Temp	Turb	Comments
MP-051	Source	1m	10	9:12	/	15.0	9.970	7.42	0.21	Salinity 9.12
MP-05	ENE	1m	6	9:37	/	13.16	15.529	6.37	0.0	Salinity 9.98
MP-05	North	1m	10	9:54	/	13.23	13.372	6.15	0.0	Salinity 7.33
MP-05	WNW	1m	6	10:15	/	13.24	12.024	6.44	0.0	Salinity 6.59

Date: 19 Aug 2021

Sampled By: JC, KW, RK

Weather: Overcast

Wind Spd/Dir: NE

Tide: Flood (1.2m)

Station	Sample Name	Depth	# of Jars	Time	pH	DO	Cond.	Temp	Turb	Comments
MP-06	Source	1m	10	10:31	/	13.29	13.957	6.46	0.0	Salinity 8.10
MP-06	ENE	17m	10	10:46	/	14.93	49.798	0.65	0.0	Salinity 30.49
MP-06	North	20m	6	10:58	/	15.21	51.005	0.22	0.0	Salinity 30.92
MP-06	WNW	13m	6	11:08	/	14.00	47.005	1.91	0.0	Salinity 28.63

\* No discharge immediately prior to sampling for either stations.  
\* Filter MP-05 North Disposed Mercury in office.

**APPENDIX 2B**

**Marine Water Quality - 2021  
Analytical Reports**

## CERTIFICATE OF ANALYSIS

**Work Order** : **YL2101029**  
**Client** : **Golder Associates Ltd.**  
**Contact** : Elaine Irving  
**Address** : 200-2920 Virtual Way  
                   Vancouver BC Canada V5M 0C4  
**Telephone** : ----  
**Project** : 1663724-44000-03  
**PO** : ----  
**C-O-C number** : 20-920781  
**Sampler** : ----  
**Site** : ----  
**Quote number** : Q84262  
**No. of samples received** : 9  
**No. of samples analysed** : 9

**Page** : 1 of 14  
**Laboratory** : Yellowknife - Environmental  
**Account Manager** : Amber Springer  
**Address** : 314 Old Airport Road, Unit 116  
                   Yellowknife NT Canada X1A 3T3  
**Telephone** : +1 867 873 5593  
**Date Samples Received** : 16-Aug-2021 08:45  
**Date Analysis Commenced** : 18-Aug-2021  
**Issue Date** : 26-Aug-2021 15:01

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Saron Kim	Analyst	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia





## General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances  
LOR: Limit of Reporting (detection limit).

Unit	Description
-	No Unit
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

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

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

Client sampling date / time					MP-06-North FBlank-2	MP-06-North	MP-06-WNW	MP-06-Source	MP-06-ENE
					14-Aug-2021 11:15	14-Aug-2021 11:10	14-Aug-2021 10:55	14-Aug-2021 11:25	14-Aug-2021 11:40
Analyte	CAS Number	Method	LOR	Unit	YL2101029-001	YL2101029-002	YL2101029-003	YL2101029-004	YL2101029-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	<1.0	94.0	92.9	92.6	91.2
conductivity	----	E100S	2.0	µS/cm	<2.0	27000	28000	28200	28000
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	<1.00	2870	3210	3040	3050
pH	----	E108	0.10	pH units	6.37	7.96	7.96	7.96	7.96
salinity	----	EC100S	1.0	psu	<1.0	16.5	17.2	17.3	17.2
solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	16100	17000	16900	17200
solids, total suspended [TSS]	----	E160S	2.0	mg/L	<2.0	<2.0	2.7	4.7	7.9
turbidity	----	E121	0.10	NTU	<0.10	0.52	1.02	0.86	1.26
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
bromide	24959-67-9	E235S.Br	5.0	mg/L	<5.0	32.8	34.2	35.1	33.6
chloride	16887-00-6	E235S.Cl	50	mg/L	<50	9960	10400	10600	10200
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	0.50	0.53	0.54	0.53
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	<0.050	0.085	<0.050	<0.050	<0.050
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	<0.0040	0.0183	0.0164	0.0146	0.0156
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	<3.0	1330	1400	1400	1380
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	<0.50	1.11	1.21	1.05	1.09
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	<0.50	0.99	1.02	1.00	1.05
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	<0.0050	0.0250	0.0334	0.0348	0.0383
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, total	7440-38-2	E468S	0.00040	mg/L	<0.00040	0.00083	0.00082	0.00087	0.00082
barium, total	7440-39-3	E468S	0.0010	mg/L	<0.0010	0.0062	0.0063	0.0064	0.0062
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, total	7440-42-8	E468S	0.30	mg/L	<0.30	1.98	2.04	2.05	2.06
cadmium, total	7440-43-9	E468S	0.000010	mg/L	<0.000010	0.000015	0.000026	0.000018	0.000022



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06-North FBlank-2	MP-06-North	MP-06-WNW	MP-06-Source	MP-06-ENE
Client sampling date / time					14-Aug-2021 11:15	14-Aug-2021 11:10	14-Aug-2021 10:55	14-Aug-2021 11:25	14-Aug-2021 11:40
Analyte	CAS Number	Method	LOR	Unit	YL2101029-001	YL2101029-002	YL2101029-003	YL2101029-004	YL2101029-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
calcium, total	7440-70-2	E468S	1.0	mg/L	<1.0	207	212	213	213
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	0.000050	<0.000050	0.000059
copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	0.00058	0.00066	0.00070	0.00054
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, total	7439-89-6	E468S	0.010	mg/L	<0.010	0.037	0.057	0.060	0.071
lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	0.000050	0.000078	0.000075	0.000106
lithium, total	7439-93-2	E468S	0.020	mg/L	<0.020	0.084	0.088	0.089	0.086
magnesium, total	7439-95-4	E468S	1.0	mg/L	<1.0	607	628	627	620
manganese, total	7439-96-5	E468S	0.00020	mg/L	<0.00020	0.00148	0.00188	0.00199	0.00264
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	<0.00010	0.00536	0.00564	0.00540	0.00559
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E468S	1.0	mg/L	<1.0	208	219	210	214
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, total	7440-17-7	E468S	0.0050	mg/L	<0.0050	0.0569	0.0595	0.0575	0.0576
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	5120	5230	5500	5210
strontium, total	7440-24-6	E468S	0.010	mg/L	<0.010	3.81	3.88	3.93	4.03
sulfur, total	7704-34-9	E468S	5.0	mg/L	<5.0	496	523	549	517
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, total	7440-61-1	E468S	0.000050	mg/L	<0.000050	0.00212	0.00204	0.00206	0.00246



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)					MP-06-North FBlank-2	MP-06-North	MP-06-WNW	MP-06-Source	MP-06-ENE
Client sampling date / time					14-Aug-2021 11:15	14-Aug-2021 11:10	14-Aug-2021 10:55	14-Aug-2021 11:25	14-Aug-2021 11:40
Analyte	CAS Number	Method	LOR	Unit	YL2101029-001	YL2101029-002	YL2101029-003	YL2101029-004	YL2101029-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	0.00084	0.00087	0.00088	0.00093
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
<b>Dissolved Metals</b>									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	0.00081	0.00091	0.00087	0.00084
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	<0.0010	0.0062	0.0066	0.0064	0.0065
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, dissolved	7440-42-8	E469S	0.30	mg/L	<0.30	2.10	2.20	2.12	2.13
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	<0.000010	0.000018	0.000022	0.000024	0.000024
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	<1.0	206	217	207	214
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	<0.00020	0.00052	0.00039	0.00035	0.00039
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	<0.020	0.088	0.090	0.089	0.088
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	<1.0	572	647	614	610
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	<0.00010	0.00075	0.00077	0.00077	0.00084
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	<0.00010	0.00537	0.00573	0.00550	0.00548
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	<1.0	192	214	210	211
rhenium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	<0.0050	0.0574	0.0619	0.0617	0.0605



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06-North FBlank-2	MP-06-North	MP-06-WNW	MP-06-Source	MP-06-ENE
Client sampling date / time					14-Aug-2021 11:15	14-Aug-2021 11:10	14-Aug-2021 10:55	14-Aug-2021 11:25	14-Aug-2021 11:40
Analyte	CAS Number	Method	LOR	Unit	YL2101029-001	YL2101029-002	YL2101029-003	YL2101029-004	YL2101029-005
					Result	Result	Result	Result	Result
<b>Dissolved Metals</b>									
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	<2.5	4830	5230	5150	5210
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	<0.010	3.55	3.83	3.72	3.75
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	<5.0	460	521	526	500
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	<0.000050	0.00214	0.00188	0.00188	0.00231
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	0.00071	0.00079	0.00073	0.00070
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	Field	Field
<b>Volatile Organic Compounds [Fuels]</b>									
benzene	71-43-2	E611A	0.50	µg/L	----	----	----	<0.50	<0.50
ethylbenzene	100-41-4	E611A	0.50	µg/L	----	----	----	<0.50	<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	----	----	----	<0.50	<0.50
styrene	100-42-5	E611A	0.50	µg/L	----	----	----	<0.50	<0.50
toluene	108-88-3	E611A	0.50	µg/L	----	----	----	<0.50	<0.50
xylene, m+p-	179601-23-1	E611A	0.40	µg/L	----	----	----	<0.40	<0.40
xylene, o-	95-47-6	E611A	0.30	µg/L	----	----	----	<0.30	<0.30
xylenes, total	1330-20-7	E611A	0.50	µg/L	----	----	----	<0.50	<0.50
<b>Volatile Organic Compounds Surrogates</b>									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	----	----	----	90.0	94.9
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	----	----	----	118	120



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06-North FBlank-2	MP-06-North	MP-06-WNW	MP-06-Source	MP-06-ENE
Client sampling date / time					14-Aug-2021 11:15	14-Aug-2021 11:10	14-Aug-2021 10:55	14-Aug-2021 11:25	14-Aug-2021 11:40
Analyte	CAS Number	Method	LOR	Unit	YL2101029-001	YL2101029-002	YL2101029-003	YL2101029-004	YL2101029-005
					Result	Result	Result	Result	Result
<b>Hydrocarbons</b>									
F2 (C10-C16)	----	E601	100	µg/L	----	----	----	<100	<100
F3 (C16-C34)	----	E601	250	µg/L	----	----	----	<250	<250
F4 (C34-C50)	----	E601	250	µg/L	----	----	----	<250	<250
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	----	----	----	<100	<100
F1-BTEX	----	EC580	100	µg/L	----	----	----	<100	<100
VPW	----	EC580A	100	µg/L	----	----	----	<100	<100
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	----	----	----	<100	<100
<b>Hydrocarbons Surrogates</b>									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	E601	1.0	%	----	----	----	76.0	76.3
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	----	----	----	88.9	114
<b>Polycyclic Aromatic Hydrocarbons</b>									
acenaphthene	83-32-9	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
acenaphthylene	208-96-8	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
acridine	260-94-6	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
anthracene	120-12-7	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	----	----	----	<0.0050	<0.0050
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	----	----	----	<0.015	<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
chrysene	218-01-9	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	----	----	----	<0.0050	<0.0050
fluoranthene	206-44-0	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
fluorene	86-73-7	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
methylnaphthalene, 1+2-	----	E641A	0.015	µg/L	----	----	----	<0.015	<0.015
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	----	----	----	<0.010	<0.010
naphthalene	91-20-3	E641A	0.050	µg/L	----	----	----	<0.050	<0.050
phenanthrene	85-01-8	E641A	0.020	µg/L	----	----	----	<0.020	<0.020



## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

					Client sample ID	MP-06-North FBlank-2	MP-06-North	MP-06-WNW	MP-06-Source	MP-06-ENE
					Client sampling date / time	14-Aug-2021 11:15	14-Aug-2021 11:10	14-Aug-2021 10:55	14-Aug-2021 11:25	14-Aug-2021 11:40
Analyte	CAS Number	Method	LOR	Unit	YL2101029-001	YL2101029-002	YL2101029-003	YL2101029-004	YL2101029-005	
					Result	Result	Result	Result	Result	
<b>Polycyclic Aromatic Hydrocarbons</b>										
pyrene	129-00-0	E641A	0.010	µg/L	----	----	----	----	<0.010	<0.010
quinoline	6027-02-7	E641A	0.050	µg/L	----	----	----	----	<0.050	<0.050
B(a)P total potency equivalents [B(a)P TPE]	----	E641A	0.010	µg/L	----	----	----	----	<0.010	<0.010
PAHs, high molecular weight (BC AWQ)	----	E641A	0.030	µg/L	----	----	----	----	<0.030	<0.030
PAHs, low molecular weight (BC AWQ)	----	E641A	0.060	µg/L	----	----	----	----	<0.060	<0.060
PAHs, total (EPA 16)	----	E641A	0.065	µg/L	----	----	----	----	<0.065	<0.065
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>										
chrysene-d12	1719-03-5	E641A	0.1	%	----	----	----	----	76.6	69.1
naphthalene-d8	1146-65-2	E641A	0.1	%	----	----	----	----	87.2	79.5
phenanthrene-d10	1517-22-2	E641A	0.1	%	----	----	----	----	101	92.4

Please refer to the General Comments section for an explanation of any qualifiers detected.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05-Source	MP-05-WNW	MP-05-North	MP-05-ENE	----
Client sampling date / time					14-Aug-2021 09:55	14-Aug-2021 09:40	14-Aug-2021 08:41	14-Aug-2021 09:30	----
Analyte	CAS Number	Method	LOR	Unit	YL2101029-006	YL2101029-007	YL2101029-008	YL2101029-009	-----
					Result	Result	Result	Result	----
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	88.1	95.9	93.1	102	----
conductivity	----	E100S	2.0	µS/cm	12100	37100	31500	40100	----
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	1140	4220	3240	4640	----
pH	----	E108	0.10	pH units	8.02	7.95	7.96	7.96	----
salinity	----	EC100S	1.0	psu	6.9	23.4	19.5	25.5	----
solids, total dissolved [TDS]	----	E162S	10	mg/L	7000	23000	21400	26000	----
solids, total suspended [TSS]	----	E160S	2.0	mg/L	2.7	4.7	<2.0	<2.0	----
turbidity	----	E121	0.10	NTU	1.68	0.16	0.44	0.10	----
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
bromide	24959-67-9	E235S.Br	5.0	mg/L	13.2	48.4	<5.0	39.9	----
chloride	16887-00-6	E235S.Cl	50	mg/L	4090	14300	<50	12000	----
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.25	0.70	0.62	0.76	----
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0095	0.0163	0.0133	0.0178	----
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	570	1900	1600	2080	----
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.04	0.99	0.97	1.03	----
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.98	0.97	0.94	0.96	----
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0374	0.0107	0.0171	0.0088	----
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
arsenic, total	7440-38-2	E468S	0.00040	mg/L	0.00042	0.00111	0.00092	0.00111	----
barium, total	7440-39-3	E468S	0.0010	mg/L	0.0046	0.0071	0.0064	0.0070	----
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
boron, total	7440-42-8	E468S	0.30	mg/L	0.97	2.75	2.29	2.80	----
cadmium, total	7440-43-9	E468S	0.000010	mg/L	<0.000010	0.000025	0.000024	0.000031	----
calcium, total	7440-70-2	E468S	1.0	mg/L	102	281	233	303	----





## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05-Source	MP-05-WNW	MP-05-North	MP-05-ENE	----
Client sampling date / time					14-Aug-2021 09:55	14-Aug-2021 09:40	14-Aug-2021 08:41	14-Aug-2021 09:30	----
Analyte	CAS Number	Method	LOR	Unit	YL2101029-006	YL2101029-007	YL2101029-008	YL2101029-009	-----
					Result	Result	Result	Result	----
<b>Total Metals</b>									
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	0.00112	<0.00050	0.00068	----
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
iron, total	7439-89-6	E468S	0.010	mg/L	0.049	0.012	0.025	<0.010	----
lead, total	7439-92-1	E468S	0.000050	mg/L	0.000066	<0.000050	<0.000050	<0.000050	----
lithium, total	7439-93-2	E468S	0.020	mg/L	0.038	0.121	0.099	0.122	----
magnesium, total	7439-95-4	E468S	1.0	mg/L	268	860	713	907	----
manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00179	0.00107	0.00132	0.00093	----
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00239	0.00750	0.00647	0.00828	----
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
potassium, total	7440-09-7	E468S	1.0	mg/L	85.7	296	243	321	----
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0236	0.0808	0.0661	0.0863	----
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	2210	7140	5940	7890	----
strontium, total	7440-24-6	E468S	0.010	mg/L	1.64	5.31	4.42	5.84	----
sulfur, total	7704-34-9	E468S	5.0	mg/L	209	743	621	837	----
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00155	0.00219	0.00201	0.00223	----
vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	0.00105	0.00092	0.00113	----



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05-Source	MP-05-WNW	MP-05-North	MP-05-ENE	----
Client sampling date / time					14-Aug-2021 09:55	14-Aug-2021 09:40	14-Aug-2021 08:41	14-Aug-2021 09:30	----
Analyte	CAS Number	Method	LOR	Unit	YL2101029-006	YL2101029-007	YL2101029-008	YL2101029-009	-----
					Result	Result	Result	Result	----
<b>Total Metals</b>									
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	----
zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
<b>Dissolved Metals</b>									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	0.00120	0.00096	0.00137	----
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0045	0.0076	0.0065	0.0076	----
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
boron, dissolved	7440-42-8	E469S	0.30	mg/L	0.84	2.84	2.22	3.10	----
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	0.000012	0.000025	0.000019	0.000026	----
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	93.6	284	224	306	----
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00027	0.00051	0.00028	0.00072	----
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	0.032	0.118	0.089	0.124	----
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	220	853	650	940	----
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00049	0.00074	0.00072	0.00070	----
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00221	0.00760	0.00591	0.00792	----
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	74.9	298	220	332	----
rhenium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0216	0.0833	0.0640	0.0904	----
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----

Sub-Matrix: Seawater (Matrix: Water)					Client sample ID	MP-05-Source	MP-05-WNW	MP-05-North	MP-05-ENE	----
Client sampling date / time					14-Aug-2021 09:55	14-Aug-2021 09:40	14-Aug-2021 08:41	14-Aug-2021 09:30	----	
Analyte	CAS Number	Method	LOR	Unit	YL2101029-006	YL2101029-007	YL2101029-008	YL2101029-009	-----	
					Result	Result	Result	Result	----	
Dissolved Metals										
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----	
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----	
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	2010	6930	5410	7300	----	
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	1.46	5.22	4.07	5.46	----	
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	194	725	540	790	----	
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----	
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----	
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----	
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----	
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00130	0.00205	0.00183	0.00218	----	
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	0.00098	0.00076	0.00114	----	
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	<0.0010	<0.0010	0.0011	<0.0010	----	
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	Field	----	
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	Field	----	
Volatile Organic Compounds [Fuels]										
benzene	71-43-2	E611A	0.50	µg/L	<0.50	----	<0.50	----	----	
ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	----	<0.50	----	----	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	----	<0.50	----	----	
styrene	100-42-5	E611A	0.50	µg/L	<0.50	----	<0.50	----	----	
toluene	108-88-3	E611A	0.50	µg/L	<0.50	----	<0.50	----	----	
xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	----	<0.40	----	----	
xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	----	<0.30	----	----	
xylenes, total	1330-20-7	E611A	0.50	µg/L	<0.50	----	<0.50	----	----	
Volatile Organic Compounds Surrogates										
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	95.7	----	91.4	----	----	
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	123	----	83.2	----	----	
Hydrocarbons										



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05-Source	MP-05-WNW	MP-05-North	MP-05-ENE	----
Client sampling date / time					14-Aug-2021 09:55	14-Aug-2021 09:40	14-Aug-2021 08:41	14-Aug-2021 09:30	----
Analyte	CAS Number	Method	LOR	Unit	YL2101029-006	YL2101029-007	YL2101029-008	YL2101029-009	-----
					Result	Result	Result	Result	----
<b>Hydrocarbons</b>									
F2 (C10-C16)	----	E601	100	µg/L	<100	----	<100	----	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----	<250	----	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----	<250	----	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	<100	----	----
F1-BTEX	----	EC580	100	µg/L	<100	----	<100	----	----
VPW	----	EC580A	100	µg/L	<100	----	<100	----	----
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	<100	----	----
<b>Hydrocarbons Surrogates</b>									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	E601	1.0	%	71.2	----	72.0	----	----
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	116	----	101	----	----
<b>Polycyclic Aromatic Hydrocarbons</b>									
acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
acridine	260-94-6	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
anthracene	120-12-7	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	----	<0.0050	----	----
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	<0.015	----	<0.015	----	----
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
chrysene	218-01-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	----	<0.0050	----	----
fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
fluorene	86-73-7	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	----
methylnaphthalene, 1+2-	----	E641A	0.015	µg/L	<0.015	----	<0.015	----	----
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	0.013	----	<0.010	----	----
naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	----	<0.050	----	----
phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	----	<0.020	----	----



## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

					Client sample ID	MP-05-Source	MP-05-WNW	MP-05-North	MP-05-ENE	---
					Client sampling date / time	14-Aug-2021 09:55	14-Aug-2021 09:40	14-Aug-2021 08:41	14-Aug-2021 09:30	---
Analyte	CAS Number	Method	LOR	Unit	YL2101029-006	YL2101029-007	YL2101029-008	YL2101029-009	-----	---
					Result	Result	Result	Result	---	---
<b>Polycyclic Aromatic Hydrocarbons</b>										
pyrene	129-00-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	----	----
quinoline	6027-02-7	E641A	0.050	µg/L	<0.050	----	<0.050	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A	0.010	µg/L	<0.010	----	<0.010	----	----	----
PAHs, high molecular weight (BC AWQ)	----	E641A	0.030	µg/L	<0.030	----	<0.030	----	----	----
PAHs, low molecular weight (BC AWQ)	----	E641A	0.060	µg/L	<0.060	----	<0.060	----	----	----
PAHs, total (EPA 16)	----	E641A	0.065	µg/L	<0.065	----	<0.065	----	----	----
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>										
chrysene-d12	1719-03-5	E641A	0.1	%	71.3	----	72.0	----	----	----
naphthalene-d8	1146-65-2	E641A	0.1	%	82.4	----	84.2	----	----	----
phenanthrene-d10	1517-22-2	E641A	0.1	%	96.8	----	98.1	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

## QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: YL2101029	Page	: 1 of 34
Client	: Golder Associates Ltd.	Laboratory	: Yellowknife - Environmental
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 200-2920 Virtual Way Vancouver BC Canada V5M 0C4	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: +1 867 873 5593
Project	: 1663724-44000-03	Date Samples Received	: 16-Aug-2021 08:45
PO	: ----	Issue Date	: 26-Aug-2021 15:01
C-O-C number	: 20-920781		
Sampler	: ----		
Site	: ----		
Quote number	: Q84262		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

### Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

## Summary of Outliers

### Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

### Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

### Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

### Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05-ENE	E298	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05-North	E298	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05-Source	E298	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05-WNW	E298	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06-ENE	E298	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06-North	E298	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06-North FBlank-2	E298	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06-Source	E298	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06-WNW	E298	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05-ENE	E235S.Br	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05-North	E235S.Br	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05-Source	E235S.Br	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05-WNW	E235S.Br	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06-ENE	E235S.Br	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06-North	E235S.Br	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06-North FBlank-2	E235S.Br	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓





Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06-Source	E235S.Br	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06-WNW	E235S.Br	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05-ENE	E235S.Cl	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05-North	E235S.Cl	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05-Source	E235S.Cl	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05-WNW	E235S.Cl	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06-ENE	E235S.Cl	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06-North	E235S.Cl	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06-North FBlank-2	E235S.Cl	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06-Source	E235S.Cl	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✔
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06-WNW	E235S.Cl	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✔
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05-ENE	E235S.F-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✔
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05-North	E235S.F-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✔
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05-Source	E235S.F-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✔
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05-WNW	E235S.F-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✔
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06-ENE	E235S.F-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✔
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06-North	E235S.F-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✔
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06-North FBlank-2	E235S.F-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✔



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06-Source	E235S.F-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06-WNW	E235S.F-L	14-Aug-2021	----	----	----		24-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05-ENE	E235S.NO3-T	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05-North	E235S.NO3-T	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05-Source	E235S.NO3-T	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05-WNW	E235S.NO3-T	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06-ENE	E235S.NO3-T	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06-North	E235S.NO3-T	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06-North FBlank-2	E235S.NO3-T	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06-Source	E235S.NO3-T	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06-WNW	E235S.NO3-T	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-ENE	E235S.NO2-L	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-North	E235S.NO2-L	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-Source	E235S.NO2-L	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-WNW	E235S.NO2-L	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-ENE	E235S.NO2-L	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-North	E235S.NO2-L	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-North FBlank-2	E235S.NO2-L	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	✖ EHT



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-Source	E235S.NO2-L	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	* EHT
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-WNW	E235S.NO2-L	14-Aug-2021	----	----	----		24-Aug-2021	3 days	10 days	* EHT
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05-ENE	E235S.SO4-L	14-Aug-2021	----	----	----		24-Aug-2021	----	10 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05-North	E235S.SO4-L	14-Aug-2021	----	----	----		24-Aug-2021	----	10 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05-Source	E235S.SO4-L	14-Aug-2021	----	----	----		24-Aug-2021	----	10 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05-WNW	E235S.SO4-L	14-Aug-2021	----	----	----		24-Aug-2021	----	10 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06-ENE	E235S.SO4-L	14-Aug-2021	----	----	----		24-Aug-2021	----	10 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06-North	E235S.SO4-L	14-Aug-2021	----	----	----		24-Aug-2021	----	10 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06-North FBlank-2	E235S.SO4-L	14-Aug-2021	----	----	----		24-Aug-2021	----	10 days	



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06-Source	E235S.S04-L	14-Aug-2021	----	----	----		24-Aug-2021	----	10 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06-WNW	E235S.S04-L	14-Aug-2021	----	----	----		24-Aug-2021	----	10 days	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05-ENE	E318S	14-Aug-2021	19-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05-Source	E318S	14-Aug-2021	19-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05-WNW	E318S	14-Aug-2021	19-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06-ENE	E318S	14-Aug-2021	19-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06-North	E318S	14-Aug-2021	19-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06-North FBlank-2	E318S	14-Aug-2021	19-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06-Source	E318S	14-Aug-2021	19-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06-WNW	E318S	14-Aug-2021	19-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05-North	E318S	14-Aug-2021	19-Aug-2021	----	----		20-Aug-2021	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05-ENE	E372S	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05-North	E372S	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05-Source	E372S	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05-WNW	E372S	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06-ENE	E372S	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06-North	E372S	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06-North FBlank-2	E372S	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓





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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06-Source	E372S	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06-WNW	E372S	14-Aug-2021	23-Aug-2021	----	----		23-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05-ENE	E509S	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05-North	E509S	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05-Source	E509S	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05-WNW	E509S	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06-ENE	E509S	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06-North	E509S	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06-North FBlank-2	E509S	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓





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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06-Source	E509S	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06-WNW	E509S	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE - dissolved (lab preserved) MP-05-ENE	E469S	14-Aug-2021	18-Aug-2021	----	----		18-Aug-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE - dissolved (lab preserved) MP-05-North	E469S	14-Aug-2021	18-Aug-2021	----	----		18-Aug-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE - dissolved (lab preserved) MP-05-Source	E469S	14-Aug-2021	18-Aug-2021	----	----		18-Aug-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE - dissolved (lab preserved) MP-05-WNW	E469S	14-Aug-2021	18-Aug-2021	----	----		18-Aug-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE - dissolved (lab preserved) MP-06-ENE	E469S	14-Aug-2021	18-Aug-2021	----	----		18-Aug-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE - dissolved (lab preserved) MP-06-North	E469S	14-Aug-2021	18-Aug-2021	----	----		18-Aug-2021	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE - dissolved (lab preserved) MP-06-North FBlank-2	E469S	14-Aug-2021	18-Aug-2021	----	----		18-Aug-2021	180 days	4 days	✓



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE - dissolved (lab preserved) MP-06-Source	E469S	14-Aug-2021	18-Aug-2021	----	----		18-Aug-2021	180 days	4 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE - dissolved (lab preserved) MP-06-WNW	E469S	14-Aug-2021	18-Aug-2021	----	----		18-Aug-2021	180 days	4 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - dissolved (lab preserved) MP-05-ENE	E469S.NaSi	14-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	11 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - dissolved (lab preserved) MP-05-Source	E469S.NaSi	14-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	11 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - dissolved (lab preserved) MP-05-WNW	E469S.NaSi	14-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	11 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - dissolved (lab preserved) MP-06-ENE	E469S.NaSi	14-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	11 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - dissolved (lab preserved) MP-06-North	E469S.NaSi	14-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	11 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - dissolved (lab preserved) MP-06-North FBlank-2	E469S.NaSi	14-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	11 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - dissolved (lab preserved) MP-06-Source	E469S.NaSi	14-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	11 days	✔



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - dissolved (lab preserved) MP-06-WNW	E469S.NaSi	14-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - dissolved (lab preserved) MP-05-North	E469S.NaSi	14-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	12 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-North	E601	14-Aug-2021	18-Aug-2021	14 days	4 days	✓	19-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-Source	E601	14-Aug-2021	18-Aug-2021	14 days	4 days	✓	19-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-ENE	E601	14-Aug-2021	18-Aug-2021	14 days	4 days	✓	19-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-Source	E601	14-Aug-2021	18-Aug-2021	14 days	4 days	✓	19-Aug-2021	40 days	1 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05-North	E581.VH+F1	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05-Source	E581.VH+F1	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06-ENE	E581.VH+F1	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	14 days	7 days	✓



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06-Source	E581.VH+F1	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	14 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
HDPE MP-05-ENE	E358-L	14-Aug-2021	24-Aug-2021	3 days	10 days	✖ EHT	24-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
HDPE MP-05-North	E358-L	14-Aug-2021	24-Aug-2021	3 days	10 days	✖ EHT	24-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
HDPE MP-05-Source	E358-L	14-Aug-2021	24-Aug-2021	3 days	10 days	✖ EHT	24-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
HDPE MP-05-WNW	E358-L	14-Aug-2021	24-Aug-2021	3 days	10 days	✖ EHT	24-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
HDPE MP-06-ENE	E358-L	14-Aug-2021	24-Aug-2021	3 days	10 days	✖ EHT	24-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
HDPE MP-06-North	E358-L	14-Aug-2021	24-Aug-2021	3 days	10 days	✖ EHT	24-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
HDPE MP-06-North FBlank-2	E358-L	14-Aug-2021	24-Aug-2021	3 days	10 days	✖ EHT	24-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
HDPE MP-06-Source	E358-L	14-Aug-2021	24-Aug-2021	3 days	10 days	✖ EHT	24-Aug-2021	28 days	0 days	✓



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
HDPE MP-06-WNW	E358-L	14-Aug-2021	24-Aug-2021	3 days	10 days	* EHT	24-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05-ENE	E355-L	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05-North	E355-L	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05-Source	E355-L	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05-WNW	E355-L	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06-ENE	E355-L	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06-North	E355-L	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06-North FBlank-2	E355-L	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06-Source	E355-L	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06-WNW	E355-L	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	28 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05-ENE	E290	14-Aug-2021	----	----	----		19-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05-North	E290	14-Aug-2021	----	----	----		19-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05-Source	E290	14-Aug-2021	----	----	----		19-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05-WNW	E290	14-Aug-2021	----	----	----		19-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-ENE	E290	14-Aug-2021	----	----	----		19-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-North	E290	14-Aug-2021	----	----	----		19-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-North FBlank-2	E290	14-Aug-2021	----	----	----		19-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-Source	E290	14-Aug-2021	----	----	----		19-Aug-2021	14 days	5 days	✓





Matrix: **Water** Evaluation: **✖** = Holding time exceedance ; **✔** = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-WNW	E290	14-Aug-2021	----	----	----		19-Aug-2021	14 days	5 days	✔
Physical Tests : Conductivity in Seawater										
HDPE MP-05-ENE	E100S	14-Aug-2021	----	----	----		19-Aug-2021	28 days	5 days	✔
Physical Tests : Conductivity in Seawater										
HDPE MP-05-North	E100S	14-Aug-2021	----	----	----		19-Aug-2021	28 days	5 days	✔
Physical Tests : Conductivity in Seawater										
HDPE MP-05-Source	E100S	14-Aug-2021	----	----	----		19-Aug-2021	28 days	5 days	✔
Physical Tests : Conductivity in Seawater										
HDPE MP-05-WNW	E100S	14-Aug-2021	----	----	----		19-Aug-2021	28 days	5 days	✔
Physical Tests : Conductivity in Seawater										
HDPE MP-06-ENE	E100S	14-Aug-2021	----	----	----		19-Aug-2021	28 days	5 days	✔
Physical Tests : Conductivity in Seawater										
HDPE MP-06-North	E100S	14-Aug-2021	----	----	----		19-Aug-2021	28 days	5 days	✔
Physical Tests : Conductivity in Seawater										
HDPE MP-06-North FBlank-2	E100S	14-Aug-2021	----	----	----		19-Aug-2021	28 days	5 days	✔
Physical Tests : Conductivity in Seawater										
HDPE MP-06-Source	E100S	14-Aug-2021	----	----	----		19-Aug-2021	28 days	5 days	✔



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Seawater										
HDPE MP-06-WNW	E100S	14-Aug-2021	----	----	----		19-Aug-2021	28 days	5 days	✓
Physical Tests : pH by Meter										
HDPE MP-06-ENE	E108	14-Aug-2021	----	----	----		19-Aug-2021	0.25 hrs	115 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06-Source	E108	14-Aug-2021	----	----	----		19-Aug-2021	0.25 hrs	115 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06-North	E108	14-Aug-2021	----	----	----		19-Aug-2021	0.25 hrs	116 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06-North FBlank-2	E108	14-Aug-2021	----	----	----		19-Aug-2021	0.25 hrs	116 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06-WNW	E108	14-Aug-2021	----	----	----		19-Aug-2021	0.25 hrs	116 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05-ENE	E108	14-Aug-2021	----	----	----		19-Aug-2021	0.25 hrs	117 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05-Source	E108	14-Aug-2021	----	----	----		19-Aug-2021	0.25 hrs	117 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05-WNW	E108	14-Aug-2021	----	----	----		19-Aug-2021	0.25 hrs	117 hrs	✖ EHTR-FM



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE MP-05-North	E108	14-Aug-2021	----	----	----		19-Aug-2021	0.25 hrs	118 hrs	* EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05-ENE	E162S	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05-North	E162S	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05-Source	E162S	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05-WNW	E162S	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06-ENE	E162S	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06-North	E162S	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06-North FBlank-2	E162S	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06-Source	E162S	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	* EHT



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06-WNW	E162S	14-Aug-2021	----	----	----		23-Aug-2021	7 days	9 days	* EHT
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05-ENE	E160S	14-Aug-2021	----	----	----		20-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05-North	E160S	14-Aug-2021	----	----	----		20-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05-Source	E160S	14-Aug-2021	----	----	----		20-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05-WNW	E160S	14-Aug-2021	----	----	----		20-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06-ENE	E160S	14-Aug-2021	----	----	----		20-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06-North	E160S	14-Aug-2021	----	----	----		20-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06-North FBlank-2	E160S	14-Aug-2021	----	----	----		20-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06-Source	E160S	14-Aug-2021	----	----	----		20-Aug-2021	7 days	6 days	✓



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06-WNW	E160S	14-Aug-2021	----	----	----		20-Aug-2021	7 days	6 days	✔
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-ENE	E121	14-Aug-2021	----	----	----		18-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-North	E121	14-Aug-2021	----	----	----		18-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-Source	E121	14-Aug-2021	----	----	----		18-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-WNW	E121	14-Aug-2021	----	----	----		18-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-ENE	E121	14-Aug-2021	----	----	----		18-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-North	E121	14-Aug-2021	----	----	----		18-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-North FBlank-2	E121	14-Aug-2021	----	----	----		18-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-Source	E121	14-Aug-2021	----	----	----		18-Aug-2021	3 days	4 days	✖



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-WNW	E121	14-Aug-2021	----	----	----		18-Aug-2021	3 days	4 days	✖
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-North	E641A	14-Aug-2021	18-Aug-2021	14 days	4 days	✓	18-Aug-2021	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-Source	E641A	14-Aug-2021	18-Aug-2021	14 days	4 days	✓	18-Aug-2021	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-ENE	E641A	14-Aug-2021	18-Aug-2021	14 days	4 days	✓	18-Aug-2021	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-Source	E641A	14-Aug-2021	18-Aug-2021	14 days	4 days	✓	18-Aug-2021	40 days	0 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05-ENE	E508S	14-Aug-2021	----	----	----		21-Aug-2021	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05-North	E508S	14-Aug-2021	----	----	----		21-Aug-2021	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05-Source	E508S	14-Aug-2021	----	----	----		21-Aug-2021	28 days	7 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05-WNW	E508S	14-Aug-2021	----	----	----		21-Aug-2021	28 days	7 days	✓





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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06-ENE	E508S	14-Aug-2021	----	----	----		21-Aug-2021	28 days	7 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06-North	E508S	14-Aug-2021	----	----	----		21-Aug-2021	28 days	7 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06-North FBlank-2	E508S	14-Aug-2021	----	----	----		21-Aug-2021	28 days	7 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06-Source	E508S	14-Aug-2021	----	----	----		21-Aug-2021	28 days	7 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06-WNW	E508S	14-Aug-2021	----	----	----		21-Aug-2021	28 days	7 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE - total (lab preserved) MP-05-ENE	E468S	14-Aug-2021	----	----	----		25-Aug-2021	180 days	11 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE - total (lab preserved) MP-05-North	E468S	14-Aug-2021	----	----	----		25-Aug-2021	180 days	11 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE - total (lab preserved) MP-05-Source	E468S	14-Aug-2021	----	----	----		25-Aug-2021	180 days	11 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE - total (lab preserved) MP-05-WNW	E468S	14-Aug-2021	----	----	----		25-Aug-2021	180 days	11 days	✔



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE - total (lab preserved) MP-06-ENE	E468S	14-Aug-2021	----	----	----		25-Aug-2021	180 days	11 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE - total (lab preserved) MP-06-North	E468S	14-Aug-2021	----	----	----		25-Aug-2021	180 days	11 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE - total (lab preserved) MP-06-North FBlank-2	E468S	14-Aug-2021	----	----	----		25-Aug-2021	180 days	11 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE - total (lab preserved) MP-06-Source	E468S	14-Aug-2021	----	----	----		25-Aug-2021	180 days	11 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE - total (lab preserved) MP-06-WNW	E468S	14-Aug-2021	----	----	----		25-Aug-2021	180 days	11 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - total (lab preserved) MP-05-ENE	E468S.NaSi	14-Aug-2021	----	----	----		26-Aug-2021	180 days	12 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - total (lab preserved) MP-05-North	E468S.NaSi	14-Aug-2021	----	----	----		26-Aug-2021	180 days	12 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - total (lab preserved) MP-05-Source	E468S.NaSi	14-Aug-2021	----	----	----		26-Aug-2021	180 days	12 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - total (lab preserved) MP-05-WNW	E468S.NaSi	14-Aug-2021	----	----	----		26-Aug-2021	180 days	12 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - total (lab preserved) MP-06-ENE	E468S.NaSi	14-Aug-2021	----	----	----		26-Aug-2021	180 days	12 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - total (lab preserved) MP-06-North	E468S.NaSi	14-Aug-2021	----	----	----		26-Aug-2021	180 days	12 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - total (lab preserved) MP-06-North FBlank-2	E468S.NaSi	14-Aug-2021	----	----	----		26-Aug-2021	180 days	12 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - total (lab preserved) MP-06-Source	E468S.NaSi	14-Aug-2021	----	----	----		26-Aug-2021	180 days	12 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE - total (lab preserved) MP-06-WNW	E468S.NaSi	14-Aug-2021	----	----	----		26-Aug-2021	180 days	12 days	✔
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05-North	E611A	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	14 days	7 days	✔
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05-Source	E611A	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	14 days	7 days	✔
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-06-ENE	E611A	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	14 days	7 days	✔
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-06-Source	E611A	14-Aug-2021	20-Aug-2021	----	----		20-Aug-2021	14 days	7 days	✔

**Legend & Qualifier Definitions**

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

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Project : 1663724-44000-03

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EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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## Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	270497	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	273986	1	9	11.1	5.0	✓
Bromide in Seawater by IC	E235S.Br	274514	1	18	5.5	5.0	✓
BTEX by Headspace GC-MS	E611A	271810	1	20	5.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	274515	1	18	5.5	5.0	✓
Conductivity in Seawater	E100S	270498	1	9	11.1	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	272423	1	9	11.1	5.0	✓
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	269840	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	274733	1	9	11.1	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	276152	1	9	11.1	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	274516	1	18	5.5	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	274517	1	18	5.5	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	274518	1	18	5.5	5.0	✓
pH by Meter	E108	270495	1	19	5.2	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	274519	1	18	5.5	5.0	✓
TDS by Gravimetry (Seawater)	E162S	273892	1	18	5.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence	E318S	271604	1	9	11.1	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	272764	1	10	10.0	5.0	✓
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	269825	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	271969	1	16	6.2	5.0	✓
Total Phosphorus in Seawater by Colourimetry	E372S	273987	1	9	11.1	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	276162	1	9	11.1	5.0	✓
Turbidity by Nephelometry	E121	269478	2	26	7.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	271809	1	16	6.2	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	270497	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	273986	1	9	11.1	5.0	✓
Bromide in Seawater by IC	E235S.Br	274514	1	18	5.5	5.0	✓
BTEX by Headspace GC-MS	E611A	271810	1	20	5.0	5.0	✓
CCME PHC - F2-F4 by GC-FID	E601	269387	1	4	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	274515	1	18	5.5	5.0	✓
Conductivity in Seawater	E100S	270498	1	9	11.1	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	272423	1	9	11.1	5.0	✓
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	269840	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	274733	1	9	11.1	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	276152	1	9	11.1	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	274516	1	18	5.5	5.0	✓



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	274517	1	18	5.5	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	274518	1	18	5.5	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	269384	1	11	9.0	5.0	✔
pH by Meter	E108	270495	1	19	5.2	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	274519	1	18	5.5	5.0	✔
TDS by Gravimetry (Seawater)	E162S	273892	1	18	5.5	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	271604	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	272764	1	10	10.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	269825	1	20	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	271969	1	16	6.2	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	273987	1	9	11.1	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	276162	1	9	11.1	5.0	✔
TSS by Gravimetry (Seawater)	E160S	272077	1	14	7.1	5.0	✔
Turbidity by Nephelometry	E121	269478	2	26	7.6	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	271809	1	16	6.2	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	270497	1	19	5.2	5.0	✔
Ammonia by Fluorescence	E298	273986	1	9	11.1	5.0	✔
Bromide in Seawater by IC	E235S.Br	274514	1	18	5.5	5.0	✔
BTEX by Headspace GC-MS	E611A	271810	1	20	5.0	5.0	✔
CCME PHC - F2-F4 by GC-FID	E601	269387	1	4	25.0	5.0	✔
Chloride in Seawater by IC	E235S.Cl	274515	1	18	5.5	5.0	✔
Conductivity in Seawater	E100S	270498	1	9	11.1	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	272423	1	9	11.1	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	269840	1	9	11.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	274733	1	9	11.1	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	276152	1	9	11.1	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	274516	1	18	5.5	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	274517	1	18	5.5	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	274518	1	18	5.5	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	269384	1	11	9.0	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	274519	1	18	5.5	5.0	✔
TDS by Gravimetry (Seawater)	E162S	273892	1	18	5.5	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	271604	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	272764	1	10	10.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	269825	1	20	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	271969	1	16	6.2	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	273987	1	9	11.1	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	276162	1	9	11.1	5.0	✔
TSS by Gravimetry (Seawater)	E160S	272077	1	14	7.1	5.0	✔
Turbidity by Nephelometry	E121	269478	2	26	7.6	5.0	✔





Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
VH and F1 by Headspace GC-FID	E581.VH+F1	271809	1	16	6.2	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	273986	1	9	11.1	5.0	✔
Bromide in Seawater by IC	E235S.Br	274514	1	18	5.5	5.0	✔
BTEX by Headspace GC-MS	E611A	271810	1	20	5.0	5.0	✔
Chloride in Seawater by IC	E235S.Cl	274515	1	18	5.5	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	272423	1	9	11.1	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	269840	1	9	11.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	274733	1	9	11.1	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	276152	1	9	11.1	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	274516	1	18	5.5	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	274517	1	18	5.5	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	274518	1	18	5.5	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	274519	1	18	5.5	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	271604	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	272764	1	10	10.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	269825	1	20	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	271969	1	16	6.2	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	273987	1	9	11.1	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	276162	1	9	11.1	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	271809	1	16	6.2	5.0	✔



## Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108  Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121  Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S  Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry (Seawater)	E162S  Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290  Vancouver - Environmental	Water	APHA 2320 B (mod)	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.
Ammonia by Fluorescence	E298  Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthalaldehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence	E318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry	E372S  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Seawater by CRC ICPMS (HMI)	E468S  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode). This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S  Vancouver - Environmental	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S  Vancouver - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1  Vancouver - Environmental	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
CCME PHC - F2-F4 by GC-FID	E601  Vancouver - Environmental	Water	CCME PHC in Soil - Tier 1	CCME Fractions 2-4 (F2-F4) are analyzed by GC-FID.
BTEX by Headspace GC-MS	E611A  Vancouver - Environmental	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A  Vancouver - Environmental	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100  Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO <sub>3</sub> ), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Salinity in Seawater (calculation)	EC100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580  Vancouver - Environmental	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A  Vancouver - Environmental	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298  Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent and H2SO4.
Preparation for Total Organic Carbon by Combustion	EP355  Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358  Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421  Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509  Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581  Vancouver - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601  Vancouver - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

## QUALITY CONTROL REPORT

**Work Order** : **YL2101029**

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**Client** : Golder Associates Ltd.  
**Contact** : Elaine Irving  
**Address** : 200-2920 Virtual Way  
 Vancouver BC Canada V5M 0C4  
**Telephone** : ----  
**Project** : 1663724-44000-03  
**PO** : ----  
**C-O-C number** : 20-920781  
**Sampler** : ----  
**Site** : ----  
**Quote number** : Q84262  
**No. of samples received** : 9  
**No. of samples analysed** : 9

**Laboratory** : Yellowknife - Environmental  
**Account Manager** : Amber Springer  
**Address** : 314 Old Airport Road, Unit 116  
 Yellowknife, Northwest Territories Canada X1A 3T3  
**Telephone** : +1 867 873 5593  
**Date Samples Received** : 16-Aug-2021 08:45  
**Date Analysis Commenced** : 18-Aug-2021  
**Issue Date** : 26-Aug-2021 15:01

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
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Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia





## General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

### Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

# = Indicates a QC result that did not meet the ALS DQO.



## Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: <b>Water</b>					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Physical Tests (QC Lot: 269478)</b>											
FJ2100721-016	Anonymous	turbidity	----	E121	0.10	NTU	0.29	0.32	0.04	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 269479)</b>											
YL2101029-004	MP-06-Source	turbidity	----	E121	0.10	NTU	0.86	0.92	0.07	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 270495)</b>											
KS2102583-001	Anonymous	pH	----	E108	0.10	pH units	8.27	8.25	0.242%	4%	----
<b>Physical Tests (QC Lot: 270497)</b>											
KS2102583-001	Anonymous	alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	190	191	0.158%	20%	----
<b>Physical Tests (QC Lot: 270498)</b>											
YL2101029-001	MP-06-North FBlank-2	conductivity	----	E100S	2.0	µS/cm	<2.0	<2.0	0	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 273892)</b>											
VA21B7539-001	Anonymous	solids, total dissolved [TDS]	----	E162S	40	mg/L	3450	3220	6.93%	20%	----
<b>Anions and Nutrients (QC Lot: 271604)</b>											
YL2101029-001	MP-06-North FBlank-2	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 273986)</b>											
YL2101029-001	MP-06-North FBlank-2	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 273987)</b>											
YL2101029-001	MP-06-North FBlank-2	phosphorus, total	7723-14-0	E372S	0.0040	mg/L	<0.0040	<0.0040	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274514)</b>											
VA21B7539-001	Anonymous	bromide	24959-67-9	E235S.Br	5.0	mg/L	5.1	5.0	0.04	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274515)</b>											
VA21B7539-001	Anonymous	chloride	16887-00-6	E235S.Cl	50	mg/L	1660	1660	0.254%	20%	----
<b>Anions and Nutrients (QC Lot: 274516)</b>											
VA21B7539-001	Anonymous	fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274517)</b>											
VA21B7539-001	Anonymous	nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274518)</b>											
VA21B7539-001	Anonymous	nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274519)</b>											
VA21B7539-001	Anonymous	sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	233	234	0.429%	20%	----
<b>Organic / Inorganic Carbon (QC Lot: 271969)</b>											
YL2101029-001	MP-06-North FBlank-2	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Organic / Inorganic Carbon (QC Lot: 274733)											
YL2101029-001	MP-06-North FBlank-2	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Total Metals (QC Lot: 269825)											
VA21B7069-061	Anonymous	aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0535	0.0532	0.657%	20%	----
		antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E468S	0.00040	mg/L	0.00161	0.00161	0.000003	Diff <2x LOR	----
		barium, total	7440-39-3	E468S	0.0010	mg/L	0.0089	0.0088	0.0001	Diff <2x LOR	----
		beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E468S	0.30	mg/L	3.70	3.54	4.58%	20%	----
		cadmium, total	7440-43-9	E468S	0.000010	mg/L	0.000077	0.000078	0.0000003	Diff <2x LOR	----
		calcium, total	7440-70-2	E468S	1.0	mg/L	370	362	1.93%	20%	----
		cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, total	7439-89-6	E468S	0.010	mg/L	0.076	0.076	0.0006	Diff <2x LOR	----
		lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, total	7439-93-2	E468S	0.020	mg/L	0.162	0.148	0.014	Diff <2x LOR	----
		magnesium, total	7439-95-4	E468S	1.0	mg/L	1150	1120	2.67%	20%	----
		manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00599	0.00590	1.49%	20%	----
		molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00998	0.00981	1.67%	20%	----
		nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E468S	0.050	mg/L	0.096	0.102	0.005	Diff <2x LOR	----
		potassium, total	7440-09-7	E468S	1.0	mg/L	395	395	0.127%	20%	----
		rhenum, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.106	0.107	0.830%	20%	----
		selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		strontium, total	7440-24-6	E468S	0.010	mg/L	6.94	6.93	0.146%	20%	----
		sulfur, total	7704-34-9	E468S	5.0	mg/L	991	974	1.74%	20%	----
		tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 269825) - continued											
VA21B7069-061	Anonymous	titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00276	0.00260	5.74%	20%	----
		vanadium, total	7440-62-2	E468S	0.00050	mg/L	0.00190	0.00192	0.00002	Diff <2x LOR	----
		yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Total Metals (QC Lot: 272764)											
VA21B7655-001	Anonymous	mercury, total	7439-97-6	E508S	0.0000050	mg/L	0.0000165	0.0000161	0.0000004	Diff <2x LOR	----
Total Metals (QC Lot: 276162)											
YL2101029-001	MP-06-North FBlank-2	silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	<2.5	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 269840)											
YL2101029-001	MP-06-North FBlank-2	aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E469S	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E469S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E469S	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E469S	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----



Sub-Matrix: **Water**

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 269840) - continued											
YL2101029-001	MP-06-North FBlank-2	potassium, dissolved	7440-09-7	E469S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		rhenum, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		strontium, dissolved	7440-24-6	E469S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 272423)											
YL2101029-001	MP-06-North FBlank-2	mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 276152)											
YL2101029-001	MP-06-North FBlank-2	silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	<2.5	<2.5	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 271810)											
VA21B7110-002	Anonymous	benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		xylene, m+p-	179601-23-1	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 271809)											
VA21B7110-002	Anonymous	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----



## Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Physical Tests (QCLot: 269478)</b>						
turbidity	----	E121	0.1	NTU	<0.10	----
<b>Physical Tests (QCLot: 269479)</b>						
turbidity	----	E121	0.1	NTU	<0.10	----
<b>Physical Tests (QCLot: 270497)</b>						
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1	mg/L	1.4	----
<b>Physical Tests (QCLot: 270498)</b>						
conductivity	----	E100S	2	µS/cm	<2.0	----
<b>Physical Tests (QCLot: 272077)</b>						
solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
<b>Physical Tests (QCLot: 273892)</b>						
solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
<b>Anions and Nutrients (QCLot: 271604)</b>						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
<b>Anions and Nutrients (QCLot: 273986)</b>						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
<b>Anions and Nutrients (QCLot: 273987)</b>						
phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0040	----
<b>Anions and Nutrients (QCLot: 274514)</b>						
bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
<b>Anions and Nutrients (QCLot: 274515)</b>						
chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
<b>Anions and Nutrients (QCLot: 274516)</b>						
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
<b>Anions and Nutrients (QCLot: 274517)</b>						
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 274518)</b>						
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 274519)</b>						
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
<b>Organic / Inorganic Carbon (QCLot: 271969)</b>						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
<b>Organic / Inorganic Carbon (QCLot: 274733)</b>						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----





Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 269825)</b>						
aluminum, total	7429-90-5	E468S	0.005	mg/L	<0.0050	----
antimony, total	7440-36-0	E468S	0.001	mg/L	<0.0010	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	<0.00040	----
barium, total	7440-39-3	E468S	0.001	mg/L	<0.0010	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	<0.00050	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	<0.00050	----
boron, total	7440-42-8	E468S	0.3	mg/L	<0.30	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	<0.000010	----
calcium, total	7440-70-2	E468S	1	mg/L	<1.0	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	<0.00050	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	<0.000050	----
copper, total	7440-50-8	E468S	0.0005	mg/L	<0.00050	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E468S	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E468S	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E468S	0.02	mg/L	<0.020	----
magnesium, total	7439-95-4	E468S	1	mg/L	<1.0	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	<0.00020	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	<0.00010	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E468S	1	mg/L	<1.0	----
rhodium, total	7440-15-5	E468S	0.0005	mg/L	<0.00050	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	<0.0050	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	<0.00050	----
silver, total	7440-22-4	E468S	0.0001	mg/L	<0.00010	----
strontium, total	7440-24-6	E468S	0.01	mg/L	<0.010	----
sulfur, total	7704-34-9	E468S	5	mg/L	<5.0	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	<0.00050	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	<0.000050	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	<0.00050	----
tin, total	7440-31-5	E468S	0.001	mg/L	<0.0010	----
titanium, total	7440-32-6	E468S	0.005	mg/L	<0.0050	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	<0.0010	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	<0.000050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 269825) - continued</b>						
vanadium, total	7440-62-2	E468S	0.0005	mg/L	<0.00050	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E468S	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	<0.00050	----
<b>Total Metals (QCLot: 272764)</b>						
mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
<b>Total Metals (QCLot: 276162)</b>						
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	----
<b>Dissolved Metals (QCLot: 269840)</b>						
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	<0.0050	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	<0.0010	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	<0.00040	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	<0.0010	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	<0.00050	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	<0.00050	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	<0.30	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	<0.000010	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	<1.0	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	<0.00050	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	<0.000050	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	<0.00020	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	<0.00050	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	<0.020	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	<1.0	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	<0.00010	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E469S	1	mg/L	<1.0	----
rhenium, dissolved	7440-15-5	E469S	0.0005	mg/L	<0.00050	----
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	<0.0050	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	<0.00050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Dissolved Metals (QCLot: 269840) - continued</b>						
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	<0.00010	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	<0.010	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	<5.0	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	<0.00050	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	<0.000050	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	<0.00050	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	<0.0010	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	<0.0050	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	<0.0010	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	<0.000050	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	<0.00050	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	<0.00050	----
<b>Dissolved Metals (QCLot: 272423)</b>						
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
<b>Dissolved Metals (QCLot: 276152)</b>						
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	<2.5	----
<b>Volatile Organic Compounds (QCLot: 271810)</b>						
benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
<b>Hydrocarbons (QCLot: 269387)</b>						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
<b>Hydrocarbons (QCLot: 271809)</b>						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
<b>Polycyclic Aromatic Hydrocarbons (QCLot: 269384)</b>						
acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Polycyclic Aromatic Hydrocarbons (QCLot: 269384) - continued</b>						
acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	<0.010	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
quinoline	6027-02-7	E641A	0.05	µg/L	<0.050	----



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 269478)									
turbidity	----	E121	0.1	NTU	200 NTU	98.5	85.0	115	----
Physical Tests (QCLot: 269479)									
turbidity	----	E121	0.1	NTU	200 NTU	98.5	85.0	115	----
Physical Tests (QCLot: 270495)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 270497)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	98.6	85.0	115	----
Physical Tests (QCLot: 270498)									
conductivity	----	E100S	2	µS/cm	146.9 µS/cm	98.6	80.0	120	----
Physical Tests (QCLot: 272077)									
solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	104	85.0	115	----
Physical Tests (QCLot: 273892)									
solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	97.0	85.0	115	----
Anions and Nutrients (QCLot: 271604)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	93.7	75.0	125	----
Anions and Nutrients (QCLot: 273986)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	95.2	85.0	115	----
Anions and Nutrients (QCLot: 273987)									
phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	101	80.0	120	----
Anions and Nutrients (QCLot: 274514)									
bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	97.9	85.0	115	----
Anions and Nutrients (QCLot: 274515)									
chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 274516)									
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	95.8	90.0	110	----
Anions and Nutrients (QCLot: 274517)									
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 274518)									
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	96.0	90.0	110	----
Anions and Nutrients (QCLot: 274519)									
sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	101	90.0	110	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 271969)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	98.2	80.0	120	----
Organic / Inorganic Carbon (QCLot: 274733)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	96.6	80.0	120	----
Total Metals (QCLot: 269825)									
aluminum, total	7429-90-5	E468S	0.005	mg/L	2 mg/L	103	80.0	120	----
antimony, total	7440-36-0	E468S	0.001	mg/L	1 mg/L	105	80.0	120	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	1 mg/L	101	80.0	120	----
barium, total	7440-39-3	E468S	0.001	mg/L	0.25 mg/L	102	80.0	120	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	1 mg/L	107	80.0	120	----
boron, total	7440-42-8	E468S	0.3	mg/L	10 mg/L	96.5	80.0	120	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	0.1 mg/L	107	80.0	120	----
calcium, total	7440-70-2	E468S	1	mg/L	50 mg/L	101	80.0	120	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	0.05 mg/L	103	80.0	120	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	0.25 mg/L	99.7	80.0	120	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	0.25 mg/L	108	80.0	120	----
copper, total	7440-50-8	E468S	0.0005	mg/L	0.25 mg/L	105	80.0	120	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
iron, total	7439-89-6	E468S	0.01	mg/L	1 mg/L	108	80.0	120	----
lead, total	7439-92-1	E468S	0.00005	mg/L	0.5 mg/L	107	80.0	120	----
lithium, total	7439-93-2	E468S	0.02	mg/L	0.25 mg/L	100	80.0	120	----
magnesium, total	7439-95-4	E468S	1	mg/L	50 mg/L	102	80.0	120	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	0.25 mg/L	104	80.0	120	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	0.25 mg/L	98.1	80.0	120	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	10 mg/L	106	80.0	120	----
potassium, total	7440-09-7	E468S	1	mg/L	50 mg/L	101	80.0	120	----
rhenium, total	7440-15-5	E468S	0.0005	mg/L	0.1 mg/L	103	80.0	120	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	0.1 mg/L	106	80.0	120	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	1 mg/L	110	80.0	120	----
silver, total	7440-22-4	E468S	0.0001	mg/L	0.1 mg/L	104	80.0	120	----
strontium, total	7440-24-6	E468S	0.01	mg/L	0.25 mg/L	106	80.0	120	----
sulfur, total	7704-34-9	E468S	5	mg/L	50 mg/L	93.4	80.0	120	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	0.1 mg/L	111	80.0	120	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	1 mg/L	108	80.0	120	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	0.1 mg/L	93.6	80.0	120	----





Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 269825) - continued									
tin, total	7440-31-5	E468S	0.001	mg/L	0.5 mg/L	102	80.0	120	----
titanium, total	7440-32-6	E468S	0.005	mg/L	0.25 mg/L	95.6	80.0	120	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	0.1 mg/L	100.0	80.0	120	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	0.005 mg/L	96.2	80.0	120	----
vanadium, total	7440-62-2	E468S	0.0005	mg/L	0.5 mg/L	98.0	80.0	120	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
zinc, total	7440-66-6	E468S	0.003	mg/L	0.5 mg/L	107	80.0	120	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	0.1 mg/L	96.1	80.0	120	----
Total Metals (QCLot: 272764)									
mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	96.7	80.0	120	----
Total Metals (QCLot: 276162)									
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	100	80.0	120	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	50 mg/L	104	80.0	120	----
Dissolved Metals (QCLot: 269840)									
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	2 mg/L	108	80.0	120	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	1 mg/L	100	80.0	120	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	1 mg/L	100	80.0	120	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	0.25 mg/L	108	80.0	120	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	0.1 mg/L	97.5	80.0	120	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	1 mg/L	109	80.0	120	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	10 mg/L	94.6	80.0	120	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	50 mg/L	99.8	80.0	120	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	0.05 mg/L	98.6	80.0	120	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	0.25 mg/L	105	80.0	120	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	0.25 mg/L	111	80.0	120	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	1 mg/L	103	80.0	120	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	0.5 mg/L	106	80.0	120	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	0.25 mg/L	98.3	80.0	120	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	50 mg/L	101	80.0	120	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	0.25 mg/L	98.5	80.0	120	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	0.5 mg/L	107	80.0	120	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	10 mg/L	105	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 269840) - continued									
potassium, dissolved	7440-09-7	E469S	1	mg/L	50 mg/L	107	80.0	120	----
rhenium, dissolved	7440-15-5	E469S	0.0005	mg/L	0.1 mg/L	103	80.0	120	----
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	0.1 mg/L	112	80.0	120	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	1 mg/L	107	80.0	120	----
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	0.25 mg/L	96.0	80.0	120	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	50 mg/L	85.9	80.0	120	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	0.1 mg/L	112	80.0	120	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	1 mg/L	108	80.0	120	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	0.1 mg/L	88.8	80.0	120	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	0.5 mg/L	101	80.0	120	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	0.25 mg/L	100	80.0	120	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	0.1 mg/L	98.7	80.0	120	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	0.005 mg/L	96.2	80.0	120	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	0.1 mg/L	97.1	80.0	120	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	0.5 mg/L	115	80.0	120	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	0.1 mg/L	91.8	80.0	120	----
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	101	80.0	120	----
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	95.5	80.0	120	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	50 mg/L	97.5	80.0	120	----
Volatile Organic Compounds (QCLot: 271810)									
benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	116	70.0	130	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	120	70.0	130	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	112	70.0	130	----
styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	106	70.0	130	----
toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	108	70.0	130	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	110	70.0	130	----
xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	116	70.0	130	----
Hydrocarbons (QCLot: 269387)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	102	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	94.8	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	95.0	70.0	130	----
Hydrocarbons (QCLot: 271809)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	82.6	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	72.9	70.0	130	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 269384)									
acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	117	60.0	130	----
acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	118	60.0	130	----
anthracene	120-12-7	E641A	0.01	µg/L	0.701 µg/L	92.8	60.0	130	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.743 µg/L	92.6	60.0	130	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	121	60.0	130	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	0.5 µg/L	91.6	60.0	130	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	114	60.0	130	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	102	60.0	130	----
chrysene	218-01-9	E641A	0.01	µg/L	0.705 µg/L	88.6	60.0	130	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.685 µg/L	92.5	60.0	130	----
fluoranthene	206-44-0	E641A	0.01	µg/L	0.681 µg/L	90.7	60.0	130	----
fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	122	60.0	130	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.749 µg/L	100	60.0	130	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	109	60.0	130	----
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	100	50.0	130	----
phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	122	60.0	130	----
pyrene	129-00-0	E641A	0.01	µg/L	0.705 µg/L	90.0	60.0	130	----
quinoline	6027-02-7	E641A	0.05	µg/L	0.5 µg/L	111	60.0	130	----



## Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level  $\geq 1 \times$  spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
<b>Anions and Nutrients (QCLot: 271604)</b>										
YL2101029-002	MP-06-North	Kjeldahl nitrogen, total [TKN]	----	E318S	2.75 mg/L	2.5 mg/L	110	70.0	130	----
<b>Anions and Nutrients (QCLot: 273986)</b>										
YL2101029-002	MP-06-North	ammonia, total (as N)	7664-41-7	E298	0.106 mg/L	0.1 mg/L	106	75.0	125	----
<b>Anions and Nutrients (QCLot: 273987)</b>										
YL2101029-002	MP-06-North	phosphorus, total	7723-14-0	E372S	0.0863 mg/L	0.1 mg/L	86.3	70.0	130	----
<b>Anions and Nutrients (QCLot: 274514)</b>										
VA21B7539-002	Anonymous	bromide	24959-67-9	E235S.Br	ND mg/L	50 mg/L	ND	75.0	125	----
<b>Anions and Nutrients (QCLot: 274515)</b>										
VA21B7539-002	Anonymous	chloride	16887-00-6	E235S.Cl	ND mg/L	10000 mg/L	ND	75.0	125	----
<b>Anions and Nutrients (QCLot: 274516)</b>										
VA21B7539-002	Anonymous	fluoride	16984-48-8	E235S.F-L	8.20 mg/L	10 mg/L	82.0	75.0	125	----
<b>Anions and Nutrients (QCLot: 274517)</b>										
VA21B7539-002	Anonymous	nitrate (as N)	14797-55-8	E235S.NO3-T	7.50 mg/L	7.5 mg/L	100	75.0	125	----
<b>Anions and Nutrients (QCLot: 274518)</b>										
VA21B7539-002	Anonymous	nitrite (as N)	14797-65-0	E235S.NO2-L	1.43 mg/L	1.5 mg/L	95.1	75.0	125	----
<b>Anions and Nutrients (QCLot: 274519)</b>										
VA21B7539-002	Anonymous	sulfate (as SO4)	14808-79-8	E235S.SO4-L	ND mg/L	1000 mg/L	ND	75.0	125	----
<b>Organic / Inorganic Carbon (QCLot: 271969)</b>										
YL2101029-002	MP-06-North	carbon, total organic [TOC]	----	E355-L	5.09 mg/L	5 mg/L	102	70.0	130	----
<b>Organic / Inorganic Carbon (QCLot: 274733)</b>										
YL2101029-002	MP-06-North	carbon, dissolved organic [DOC]	----	E358-L	5.34 mg/L	5 mg/L	107	70.0	130	----
<b>Total Metals (QCLot: 269825)</b>										
VA21B7069-062	Anonymous	aluminum, total	7429-90-5	E468S	0.430 mg/L	0.4 mg/L	108	70.0	130	----
		antimony, total	7440-36-0	E468S	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		arsenic, total	7440-38-2	E468S	0.0359 mg/L	0.04 mg/L	89.7	70.0	130	----
		barium, total	7440-39-3	E468S	0.0369 mg/L	0.04 mg/L	92.2	70.0	130	----
		beryllium, total	7440-41-7	E468S	0.0776 mg/L	0.08 mg/L	97.1	70.0	130	----
		bismuth, total	7440-69-9	E468S	0.0164 mg/L	0.02 mg/L	81.8	70.0	130	----



Sub-Matrix: **Water**

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 269825) - continued										
VA21B7069-062	Anonymous	boron, total	7440-42-8	E468S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, total	7440-43-9	E468S	0.00707 mg/L	0.008 mg/L	88.4	70.0	130	----
		calcium, total	7440-70-2	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E468S	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	----
		chromium, total	7440-47-3	E468S	0.0775 mg/L	0.08 mg/L	96.9	70.0	130	----
		cobalt, total	7440-48-4	E468S	0.0375 mg/L	0.04 mg/L	93.9	70.0	130	----
		copper, total	7440-50-8	E468S	0.0331 mg/L	0.04 mg/L	82.7	70.0	130	----
		gallium, total	7440-55-3	E468S	0.00507 mg/L	0.005 mg/L	101	70.0	130	----
		iron, total	7439-89-6	E468S	3.91 mg/L	4 mg/L	97.8	70.0	130	----
		lead, total	7439-92-1	E468S	0.0339 mg/L	0.04 mg/L	84.7	70.0	130	----
		lithium, total	7439-93-2	E468S	0.180 mg/L	0.2 mg/L	89.9	70.0	130	----
		magnesium, total	7439-95-4	E468S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E468S	0.0407 mg/L	0.04 mg/L	102	70.0	130	----
		molybdenum, total	7439-98-7	E468S	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----
		nickel, total	7440-02-0	E468S	0.0686 mg/L	0.08 mg/L	85.8	70.0	130	----
		phosphorus, total	7723-14-0	E468S	21.8 mg/L	20 mg/L	109	70.0	130	----
		potassium, total	7440-09-7	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenium, total	7440-15-5	E468S	0.00440 mg/L	0.005 mg/L	88.0	70.0	130	----
		rubidium, total	7440-17-7	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		selenium, total	7782-49-2	E468S	0.0739 mg/L	0.08 mg/L	92.4	70.0	130	----
		silver, total	7440-22-4	E468S	0.00695 mg/L	0.008 mg/L	86.9	70.0	130	----
		strontium, total	7440-24-6	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E468S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, total	13494-80-9	E468S	0.0685 mg/L	0.08 mg/L	85.6	70.0	130	----
		thallium, total	7440-28-0	E468S	0.00719 mg/L	0.008 mg/L	89.8	70.0	130	----
		thorium, total	7440-29-1	E468S	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		tin, total	7440-31-5	E468S	0.0372 mg/L	0.04 mg/L	92.9	70.0	130	----
		titanium, total	7440-32-6	E468S	0.0847 mg/L	0.08 mg/L	106	70.0	130	----
		tungsten, total	7440-33-7	E468S	0.0372 mg/L	0.04 mg/L	93.0	70.0	130	----
		uranium, total	7440-61-1	E468S	0.00689 mg/L	0.008 mg/L	86.1	70.0	130	----
		vanadium, total	7440-62-2	E468S	0.203 mg/L	0.2 mg/L	102	70.0	130	----
		yttrium, total	7440-65-5	E468S	0.00558 mg/L	0.005 mg/L	112	70.0	130	----
		zinc, total	7440-66-6	E468S	0.668 mg/L	0.8 mg/L	83.5	70.0	130	----
		zirconium, total	7440-67-7	E468S	0.0810 mg/L	0.08 mg/L	101	70.0	130	----
Total Metals (QCLot: 272764)										
YL2101029-001	MP-06-North FBlank-2	mercury, total	7439-97-6	E508S	0.0000988 mg/L	0.0001 mg/L	98.8	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 276162)										
YL2101029-002	MP-06-North	silicon, total	7440-21-3	E468S.NaSi	464 mg/L	500 mg/L	92.8	70.0	130	----
		sodium, total	17341-25-2	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 269840)										
YL2101029-002	MP-06-North	aluminum, dissolved	7429-90-5	E469S	0.432 mg/L	0.4 mg/L	108	70.0	130	----
		antimony, dissolved	7440-36-0	E469S	0.0363 mg/L	0.04 mg/L	90.8	70.0	130	----
		arsenic, dissolved	7440-38-2	E469S	0.0383 mg/L	0.04 mg/L	95.7	70.0	130	----
		barium, dissolved	7440-39-3	E469S	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		beryllium, dissolved	7440-41-7	E469S	0.0769 mg/L	0.08 mg/L	96.1	70.0	130	----
		bismuth, dissolved	7440-69-9	E469S	0.0166 mg/L	0.02 mg/L	83.3	70.0	130	----
		boron, dissolved	7440-42-8	E469S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, dissolved	7440-43-9	E469S	0.00761 mg/L	0.008 mg/L	95.2	70.0	130	----
		calcium, dissolved	7440-70-2	E469S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, dissolved	7440-46-2	E469S	0.0186 mg/L	0.02 mg/L	92.9	70.0	130	----
		chromium, dissolved	7440-47-3	E469S	0.0837 mg/L	0.08 mg/L	104	70.0	130	----
		cobalt, dissolved	7440-48-4	E469S	0.0394 mg/L	0.04 mg/L	98.4	70.0	130	----
		copper, dissolved	7440-50-8	E469S	0.0367 mg/L	0.04 mg/L	91.8	70.0	130	----
		gallium, dissolved	7440-55-3	E469S	0.00510 mg/L	0.005 mg/L	102	70.0	130	----
		iron, dissolved	7439-89-6	E469S	4.15 mg/L	4 mg/L	104	70.0	130	----
		lead, dissolved	7439-92-1	E469S	0.0342 mg/L	0.04 mg/L	85.5	70.0	130	----
		lithium, dissolved	7439-93-2	E469S	0.180 mg/L	0.2 mg/L	89.8	70.0	130	----
		magnesium, dissolved	7439-95-4	E469S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E469S	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		molybdenum, dissolved	7439-98-7	E469S	0.0385 mg/L	0.04 mg/L	96.3	70.0	130	----
		nickel, dissolved	7440-02-0	E469S	0.0752 mg/L	0.08 mg/L	94.0	70.0	130	----
		phosphorus, dissolved	7723-14-0	E469S	22.0 mg/L	20 mg/L	110	70.0	130	----
		potassium, dissolved	7440-09-7	E469S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenium, dissolved	7440-15-5	E469S	0.00503 mg/L	0.005 mg/L	101	70.0	130	----
		rubidium, dissolved	7440-17-7	E469S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		selenium, dissolved	7782-49-2	E469S	0.0807 mg/L	0.08 mg/L	101	70.0	130	----
		silver, dissolved	7440-22-4	E469S	0.00709 mg/L	0.008 mg/L	88.6	70.0	130	----
		strontium, dissolved	7440-24-6	E469S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E469S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, dissolved	13494-80-9	E469S	0.0736 mg/L	0.08 mg/L	92.1	70.0	130	----
		thallium, dissolved	7440-28-0	E469S	0.00702 mg/L	0.008 mg/L	87.7	70.0	130	----
		thorium, dissolved	7440-29-1	E469S	0.0359 mg/L	0.04 mg/L	89.9	70.0	130	----
		tin, dissolved	7440-31-5	E469S	0.0367 mg/L	0.04 mg/L	91.8	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 269840) - continued										
YL2101029-002	MP-06-North	titanium, dissolved	7440-32-6	E469S	0.0857 mg/L	0.08 mg/L	107	70.0	130	----
		tungsten, dissolved	7440-33-7	E469S	0.0363 mg/L	0.04 mg/L	90.7	70.0	130	----
		uranium, dissolved	7440-61-1	E469S	0.00662 mg/L	0.008 mg/L	82.8	70.0	130	----
		vanadium, dissolved	7440-62-2	E469S	0.212 mg/L	0.2 mg/L	106	70.0	130	----
		yttrium, dissolved	7440-65-5	E469S	0.00606 mg/L	0.005 mg/L	121	70.0	130	----
		zinc, dissolved	7440-66-6	E469S	0.775 mg/L	0.8 mg/L	96.9	70.0	130	----
		zirconium, dissolved	7440-67-7	E469S	0.0794 mg/L	0.08 mg/L	99.3	70.0	130	----
Dissolved Metals (QCLot: 272423)										
YL2101029-002	MP-06-North	mercury, dissolved	7439-97-6	E509S	0.0000986 mg/L	0.0001 mg/L	98.6	70.0	130	----
Dissolved Metals (QCLot: 276152)										
YL2101029-002	MP-06-North	silicon, dissolved	7440-21-3	E469S.NaSi	468 mg/L	500 mg/L	93.5	70.0	130	----
		sodium, dissolved	17341-25-2	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Volatile Organic Compounds (QCLot: 271810)										
VA21B7173-002	Anonymous	benzene	71-43-2	E611A	114 µg/L	100 µg/L	114	60.0	140	----
		ethylbenzene	100-41-4	E611A	122 µg/L	100 µg/L	122	60.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	114 µg/L	100 µg/L	114	60.0	140	----
		styrene	100-42-5	E611A	108 µg/L	100 µg/L	108	60.0	140	----
		toluene	108-88-3	E611A	108 µg/L	100 µg/L	108	60.0	140	----
		xylene, m+p-	179601-23-1	E611A	224 µg/L	200 µg/L	112	60.0	140	----
		xylene, o-	95-47-6	E611A	118 µg/L	100 µg/L	118	60.0	140	----
Hydrocarbons (QCLot: 271809)										
VA21B7173-001	Anonymous	F1 (C6-C10)	----	E581.VH+F1	6240 µg/L	6310 µg/L	98.9	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	5500 µg/L	6310 µg/L	87.2	60.0	140	----





COC Number: 20 - 920781

Page 10

Report To		Contact and company name below will appear on the final report		
Contact:	Golder Associates Ltd.	Select Report Format:	<input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDO (DIGITAL)	
Contact:	Trish Tomlins / Elaine Irving	Merge QC/QCI Reports with COA	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A	
Phone:	250-881-7372	<input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked		
Company address below will appear on the final report		Select Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX	
Street:	200-2920 Virtual Way	Email 1 or Fax:	Patricia-Tomlinse@golder.com	
City/Province:	Vancouver BC	Email 2:	Elaine-IRVING@gholder.com	
Postal Code:	V5M 0C4	Email 3:		
Invoice To:	Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Invoice Recipients		
Company:	Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Select Invoice Distribution:	<input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX	
Contact:		Email 1 or Fax:		
		Email 2:		
Project Information		Oil and Gas Required Fields (client use)		
ALS Account # / Quote #:	Q84262	A/E/Cost Center:	PO#	
Job #:	1663724-44000-03	Major/Minor Code:	Routing Code:	
PO / AFE:		Requisitioner:		
LSD:		Location:		
ALS Lab Work Order # (ALS use only): YL2101029		ALS Contact:	Sampler:	
ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type
	MP-06-North-FBlank-Z	14-Aug-21	11:15	Seawater
	MP-06-North	14-Aug-21	11:10	Seawater
	MP-06-WNW	14-Aug-21	10:55	Seawater
	MP-06-Source	14-Aug-21	11:25	Seawater
	MP-06-ENE	14-Aug-21	11:40	Seawater
	MP-05-Source	14-Aug-21	09:55	Seawater
	MP-05-WNW	14-Aug-21	09:40	Seawater
	MP-05-North	14-Aug-21	08:41	Seawater
	MP-05-ENE	14-Aug-21	09:30	Seawater
Drinking Water (DW) Samples¹ (client use)		Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)		
Are samples taken from a Regulated DW System? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
Are samples for human consumption/ use? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Received by:	Date:	
			16-AUG-21	

Environmental Division  
Yellowknife  
Work Order Reference  
**YL2101029**

Telephone : + 1 867 873 5593

Environmental Division  
Yellowknife  
Work Order Reference  
**YL2101029**



Telephone : - 1 867 873 5593

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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**.

WHITE - LABORATORY COPY      YELLOW - CLIENT COPY

AUG 2020 FROM



## GENERAL TERMS AND CONDITIONS:

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

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



www.alsglobal.com

## Chain of Custody (COC) / Analytical Request Form

COC Number: 20-920781

Canada Toll Free: 1 800 668 9878

Page 1 of 1

Contact and company name below will appear on the final report

Reports / Recipients

Turnaround Time (TAT) Requested

Affix ALS Barcode Label Here (ALS use only)

Company:

Golder Associates Ltd.

Select Report Format:

☒ PDF ☒ EXCEL ☐ EOD (DIGITAL)

Contact:

Tish Tomlinson / Elaine Leving

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

Phone:

250-881-7372

☐ Compare Results to Criteria on Report - provide details below if box checked

Street:

200-2920 Virtual Way

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

City/Province:

Vancouver, BC

Email 1 or Fax: Patricia.Tomlinson@golder.com

Postal Code:

V5M 0C4

Email 2: Elaine - ELAINE@polder.com

Invoice To:

Same as Report To

Email 3:

Company:

Copy of Invoice with Report ☐ YES ☒ NO

Invoice Recipients

Contact:

Project Information

ALS Account # / Quote #:

084262

Oil and Gas Required Fields (client use)

Job #:

1663721-44000-03

AFE/Cost Center:

PO / A/E:

Major/Minor Code:

Routing Code:

LSD:

Requisitioner:

ALS Lab Work Order # (ALS use only):

YL2101029

ALS Contact:

ALS Sample # (ALS use only):

YL2101029

Sampler:

Sample Identification and/or Coordinates (This description will appear on the report)

NP-06-North-Blank-2

Date

14-Aug-21

Time

11:15

Sample Type

Seawater

NP-06-North

14-Aug-21

11:10

Seawater

NP-06-WNW

14-Aug-21

10:55

Seawater

NP-06-Source

14-Aug-21

11:25

Seawater

NP-06-ENE

14-Aug-21

11:40

Seawater

NP-05-Source

14-Aug-21

09:55

Seawater

NP-05-WNW

14-Aug-21

09:46

Seawater

NP-05-North

14-Aug-21

08:44

Seawater

NP-05-ENE

14-Aug-21

09:30

Seawater

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Drinking Water (DW) Samples (client use)

Are samples taken from a Regulated DW System?

Are samples for human consumption use?

Released by:

Date:

Time:

Received by:

Date:

Time:

SHIPMENT RELEASE (client use)

Date:

Time:

Received by:

Date:

Time:

SHIPMENT RELEASE (client use)

Date:

Time:

Received by:

Date:

Time:

SHIPMENT RELEASE (client use)

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SHIPMENT RELEASE (client use)

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Time:

Received by:

Date:

Time:



**Environmental**

## CERTIFICATE OF ANALYSIS

**Work Order** : **VA21B6250**

**Amendment** : **1**

**Client** : **Golder Associates Ltd.**

**Contact** : Elaine Irving

**Address** : 200-2920 Virtual Way  
Vancouver BC Canada V5M 0C4

**Telephone** : ----

**Project** : ----

**PO** : ----

**C-O-C number** : 20-920773

**Sampler** : ----

**Site** : ----

**Quote number** : Q84262

**No. of samples received** : 10

**No. of samples analysed** : 10

**Page** : 1 of 15

**Laboratory** : Vancouver - Environmental

**Account Manager** : Amber Springer

**Address** : 8081 Lougheed Highway  
Burnaby BC Canada V5A 1W9

**Telephone** : +1 604 253 4188

**Date Samples Received** : 05-Aug-2021 10:30

**Date Analysis Commenced** : 06-Aug-2021

**Issue Date** : 02-Sep-2021 16:25

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Aaron Yu	Laboratory Analyst	Inorganics, Burnaby, British Columbia
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Courtney Cox	Analyst	Inorganics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Metals, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia





## General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances  
LOR: Limit of Reporting (detection limit).

Unit	Description
-	No Unit
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

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

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

## Qualifiers

Qualifier	Description
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
RRV	Reported result verified by repeat analysis.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05- WNW-FBLANK- 1	MP-05 ENE	MP-05 North	MP-05 WNW	MP-05 Source
Client sampling date / time					02-Aug-2021 17:00	02-Aug-2021 16:35	02-Aug-2021 16:45	02-Aug-2021 17:00	02-Aug-2021 15:55
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-001	VA21B6250-002	VA21B6250-003	VA21B6250-004	VA21B6250-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	<1.0	91.8	85.7	88.8	86.8
conductivity	----	E100S	2.0	µS/cm	<2.0	21900	16800	19600	15900
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	<1.00	2640	1990	2300	1830
pH	----	E108	0.10	pH units	5.35	7.96	7.96	7.98	7.98
salinity	----	EC100S	1.0	psu	<1.0	13.2	9.9	11.7	9.3
solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	14100	10700	12400	10500
solids, total suspended [TSS]	----	E160S	2.0	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0
turbidity	----	E121	0.10	NTU	<0.10	0.49	0.31	0.26	0.37
hardness (as CaCO <sub>3</sub> ), from total Ca/Mg	----	EC100A	0.60	mg/L	<1.00	2770	2020	2410	1930
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
bromide	24959-67-9	E235S.Br	5.0	mg/L	<5.0	25.5	18.8	20.9	18.2
chloride	16887-00-6	E235S.Cl	50	mg/L	<50	7700	5470	6050	5320
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	0.32	0.26	0.29	0.24
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	<0.050	0.096	0.080	0.085	0.085
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	<0.010	0.012	0.053
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	<0.0040	0.0107	0.0166	0.0109	0.0133
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	<3.0	1060	779	912	738
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	<0.50	1.38 <sup>HTD</sup>	<0.50 <sup>HTD</sup>	1.15 <sup>HTD</sup>	1.15 <sup>HTD</sup>
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	<0.50	0.97	0.93	0.89	1.04
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	<0.0050	0.0201	0.0115	0.0100	0.0153
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, total	7440-38-2	E468S	0.00040	mg/L	<0.00040	0.00072	0.00059	0.00064	0.00051
barium, total	7440-39-3	E468S	0.0010	mg/L	<0.0010	0.0055	0.0050	0.0053	0.0050
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050





## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

Client sample ID

					MP-05- WNW-FBLANK- 1	MP-05 ENE	MP-05 North	MP-05 WNW	MP-05 Source
Client sampling date / time					02-Aug-2021 17:00	02-Aug-2021 16:35	02-Aug-2021 16:45	02-Aug-2021 17:00	02-Aug-2021 15:55
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-001	VA21B6250-002	VA21B6250-003	VA21B6250-004	VA21B6250-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
boron, total	7440-42-8	E468S	0.30	mg/L	<0.30	1.86	1.38	1.65	1.37
cadmium, total	7440-43-9	E468S	0.000010	mg/L	<0.000010	0.000019	0.000016	0.000013	0.000016
calcium, total	7440-70-2	E468S	1.0	mg/L	<1.0	187	141	165	137
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00202
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, total	7439-89-6	E468S	0.010	mg/L	<0.010	0.029	0.012	0.012	0.015
lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000080
lithium, total	7439-93-2	E468S	0.020	mg/L	<0.020	0.084	0.061	0.073	0.057
magnesium, total	7439-95-4	E468S	1.0	mg/L	<1.0	560	404	486	386
manganese, total	7439-96-5	E468S	0.00020	mg/L	<0.00020	0.00107	0.00079	0.00083	0.00088
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	<0.00010	0.00455	0.00333	0.00386	0.00307
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00147
phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E468S	1.0	mg/L	<1.0	175	125	150	119
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, total	7440-17-7	E468S	0.0050	mg/L	<0.0050	0.0490	0.0351	0.0422	0.0345
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	4140	3080	3650	2910
strontium, total	7440-24-6	E468S	0.010	mg/L	<0.010	3.07	2.26	2.68	2.15
sulfur, total	7704-34-9	E468S	5.0	mg/L	<5.0	409	288	354	278
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010



Analytical Results

Sub-Matrix: Seawater  
(Matrix: Water)

Client sample ID

					MP-05- WNW-FBLANK- 1	MP-05 ENE	MP-05 North	MP-05 WNW	MP-05 Source
Client sampling date / time					02-Aug-2021 17:00	02-Aug-2021 16:35	02-Aug-2021 16:45	02-Aug-2021 17:00	02-Aug-2021 15:55
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-001	VA21B6250-002	VA21B6250-003	VA21B6250-004	VA21B6250-005
					Result	Result	Result	Result	Result
Total Metals									
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, total	7440-61-1	E468S	0.000050	mg/L	<0.000050	0.00178	0.00161	0.00166	0.00162
vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	0.00074	0.00052	0.00061	0.00050
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	0.0837
zirconium, total	7440-67-7	E468S	0.00050	mg/L	0.00065 <sup>RRV</sup>	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Metals									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	0.00067	0.00045	0.00054	0.00048
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	<0.0010	0.0054	0.0048	0.0050	0.0047
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, dissolved	7440-42-8	E469S	0.30	mg/L	<0.30	1.75	1.29	1.52	1.21
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	<0.000010	0.000019	0.000015	0.000014	0.000016
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	<1.0	183	139	159	131
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	<0.00020	0.00031	0.00038	0.00035	0.00057
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	<0.020	0.074	0.052	0.063	0.048
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	<1.0	530	398	463	366
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	<0.00010	0.00060	0.00057	0.00057	0.00058
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	<0.00010	0.00440	0.00319	0.00371	0.00300
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05- WNW-FBLANK- 1	MP-05 ENE	MP-05 North	MP-05 WNW	MP-05 Source
Client sampling date / time					02-Aug-2021 17:00	02-Aug-2021 16:35	02-Aug-2021 16:45	02-Aug-2021 17:00	02-Aug-2021 15:55
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-001	VA21B6250-002	VA21B6250-003	VA21B6250-004	VA21B6250-005
					Result	Result	Result	Result	Result
<b>Dissolved Metals</b>									
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	<1.0	165	121	144	113
rhodium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	<0.0050	0.0430	0.0321	0.0376	0.0301
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	<2.5	4440	3060	3760	3240
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	<0.010	2.95	2.19	2.57	2.09
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	<5.0	398	282	337	262
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	<0.000050	0.00149	0.00137	0.00145	0.00137
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	0.00057	<0.00050	0.00051	<0.00050
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0022
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	Field	Field
<b>Volatile Organic Compounds [Fuels]</b>									
benzene	71-43-2	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
styrene	100-42-5	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
toluene	108-88-3	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	----	<0.40	----	<0.40



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05- WNW-FBLANK- 1	MP-05 ENE	MP-05 North	MP-05 WNW	MP-05 Source
Client sampling date / time					02-Aug-2021 17:00	02-Aug-2021 16:35	02-Aug-2021 16:45	02-Aug-2021 17:00	02-Aug-2021 15:55
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-001	VA21B6250-002	VA21B6250-003	VA21B6250-004	VA21B6250-005
					Result	Result	Result	Result	Result
<b>Volatile Organic Compounds [Fuels]</b>									
xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	----	<0.30	----	<0.30
xylenes, total	1330-20-7	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
BTEX, total	----	E611A	1.0	µg/L	<1.0	----	<1.0	----	<1.0
<b>Volatile Organic Compounds Surrogates</b>									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	93.8	----	93.6	----	95.6
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	122	----	87.2	----	111
<b>Hydrocarbons</b>									
F2 (C10-C16)	----	E601	100	µg/L	<100	----	<100	----	<100
F3 (C16-C34)	----	E601	250	µg/L	<250	----	<250	----	<250
F4 (C34-C50)	----	E601	250	µg/L	<250	----	<250	----	<250
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	<100	----	<100
<b>Hydrocarbons Surrogates</b>									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	E601	1.0	%	70.4	----	69.6	----	76.9
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	72.9	----	98.4	----	83.2
<b>Polycyclic Aromatic Hydrocarbons</b>									
acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
acridine	260-94-6	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
anthracene	120-12-7	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	----	<0.0050	----	<0.0050
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	<0.015	----	<0.015	----	<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
chrysene	218-01-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	----	<0.0050	----	<0.0050
fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
fluorene	86-73-7	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010



## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

Client sample ID

					MP-05- WNW-FBLANK- 1	MP-05 ENE	MP-05 North	MP-05 WNW	MP-05 Source
Client sampling date / time					02-Aug-2021 17:00	02-Aug-2021 16:35	02-Aug-2021 16:45	02-Aug-2021 17:00	02-Aug-2021 15:55
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-001	VA21B6250-002	VA21B6250-003	VA21B6250-004	VA21B6250-005
					Result	Result	Result	Result	Result
<b>Polycyclic Aromatic Hydrocarbons</b>									
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	----	<0.050	----	<0.050
phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	----	<0.020	----	<0.020
pyrene	129-00-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
quinoline	6027-02-7	E641A	0.050	µg/L	<0.050	----	<0.050	----	<0.050
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>									
chrysene-d12	1719-03-5	E641A	0.1	%	73.2	----	83.5	----	81.7
naphthalene-d8	1146-65-2	E641A	0.1	%	77.2	----	86.3	----	91.8
phenanthrene-d10	1517-22-2	E641A	0.1	%	97.8	----	111	----	112

Please refer to the General Comments section for an explanation of any qualifiers detected.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					DUP-A	MP-06 ENE	MP-06 North	MP-06 WNW	MP-06 Source
Client sampling date / time					02-Aug-2021	02-Aug-2021 17:45	02-Aug-2021 17:25	02-Aug-2021 17:35	02-Aug-2021 17:15
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-006	VA21B6250-007	VA21B6250-008	VA21B6250-009	VA21B6250-010
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	88.0	89.7	84.5	84.8	89.0
conductivity	----	E100S	2.0	µS/cm	16000	21900	13700	13300	20100
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	1860	2630	1560	1530	2250
pH	----	E108	0.10	pH units	7.98	7.96	7.99	8.00	7.98
salinity	----	EC100S	1.0	psu	9.4	13.2	7.9	7.7	12.0
solids, total dissolved [TDS]	----	E162S	10	mg/L	9250	13800	8450	7740	12200
solids, total suspended [TSS]	----	E160S	2.0	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0
turbidity	----	E121	0.10	NTU	0.38	0.20	0.22	0.19	0.20
hardness (as CaCO <sub>3</sub> ), from total Ca/Mg	----	EC100A	0.60	mg/L	1980	2740	1590	1600	2420
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
bromide	24959-67-9	E235S.Br	5.0	mg/L	18.5	26.4	15.4	14.7	24.0
chloride	16887-00-6	E235S.Cl	50	mg/L	5440	7730	4520	4300	6980
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.25	0.34	0.22	0.20	0.30
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.092	0.090	0.084	0.084	0.084
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	0.053	<0.010	<0.010	<0.010	0.010
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0136	0.0098	0.0088	0.0060	0.0069
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	739	1060	630	618	943
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.01 <sup>HTD</sup>	1.12 <sup>HTD</sup>	0.95 <sup>HTD</sup>	1.19 <sup>HTD</sup>	1.02 <sup>HTD</sup>
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.96	0.95	0.94	0.86	0.97
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0082	0.0104	0.0087	0.0096	0.0092
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, total	7440-38-2	E468S	0.00040	mg/L	0.00053	0.00069	0.00043	0.00043	0.00065
barium, total	7440-39-3	E468S	0.0010	mg/L	0.0050	0.0056	0.0045	0.0045	0.0053
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, total	7440-42-8	E468S	0.30	mg/L	1.41	1.91	1.09	1.13	1.67
cadmium, total	7440-43-9	E468S	0.000010	mg/L	0.000019	0.000020	0.000013	0.000014	0.000014



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					DUP-A	MP-06 ENE	MP-06 North	MP-06 WNW	MP-06 Source
Client sampling date / time					02-Aug-2021	02-Aug-2021 17:45	02-Aug-2021 17:25	02-Aug-2021 17:35	02-Aug-2021 17:15
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-006	VA21B6250-007	VA21B6250-008	VA21B6250-009	VA21B6250-010
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
calcium, total	7440-70-2	E468S	1.0	mg/L	140	190	118	118	169
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, total	7439-89-6	E468S	0.010	mg/L	<0.010	0.011	0.011	0.013	0.012
lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, total	7439-93-2	E468S	0.020	mg/L	0.060	0.084	0.045	0.046	0.072
magnesium, total	7439-95-4	E468S	1.0	mg/L	395	550	314	316	486
manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00064	0.00080	0.00074	0.00075	0.00091
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00339	0.00467	0.00254	0.00267	0.00412
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E468S	1.0	mg/L	122	174	97.1	97.5	149
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0348	0.0485	0.0286	0.0282	0.0424
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	3000	4250	2430	2480	3630
strontium, total	7440-24-6	E468S	0.010	mg/L	2.24	3.19	1.76	1.82	2.74
sulfur, total	7704-34-9	E468S	5.0	mg/L	283	433	230	230	350
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00163	0.00172	0.00136	0.00136	0.00388





## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					DUP-A	MP-06 ENE	MP-06 North	MP-06 WNW	MP-06 Source
Client sampling date / time					02-Aug-2021	02-Aug-2021 17:45	02-Aug-2021 17:25	02-Aug-2021 17:35	02-Aug-2021 17:15
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-006	VA21B6250-007	VA21B6250-008	VA21B6250-009	VA21B6250-010
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	0.00068	<0.00050	<0.00050	0.00059
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
<b>Dissolved Metals</b>									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	0.00047	0.00058	<0.00040	<0.00040	0.00058
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0048	0.0052	0.0045	0.0044	0.0051
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, dissolved	7440-42-8	E469S	0.30	mg/L	1.30	1.72	1.06	1.02	1.50
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	0.000017	0.000017	<0.000010	0.000012	0.000012
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	137	183	117	112	158
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00056	0.00033	0.00036	0.00033	0.00042
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	0.053	0.076	0.042	0.041	0.063
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	369	528	309	304	451
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00058	0.00057	0.00049	0.00050	0.00063
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00329	0.00425	0.00251	0.00249	0.00378
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	116	164	94.0	94.2	142
rhenium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0306	0.0432	0.0252	0.0258	0.0378



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					DUP-A	MP-06 ENE	MP-06 North	MP-06 WNW	MP-06 Source
Client sampling date / time					02-Aug-2021	02-Aug-2021 17:45	02-Aug-2021 17:25	02-Aug-2021 17:35	02-Aug-2021 17:15
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-006	VA21B6250-007	VA21B6250-008	VA21B6250-009	VA21B6250-010
					Result	Result	Result	Result	Result
<b>Dissolved Metals</b>									
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	3110	4560	2650	2700	3860
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	2.21	2.96	1.72	1.76	2.57
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	273	394	217	223	324
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00147	0.00148	0.00118	0.00117	0.00341
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	0.00058	<0.00050	<0.00050	<0.00050
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	0.0027	<0.0010	<0.0010	<0.0010	0.0016
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	Field	Field
<b>Volatile Organic Compounds [Fuels]</b>									
benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	----	----	<0.40
xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	----	----	<0.30
xylenes, total	1330-20-7	E611A	0.50	µg/L	<0.50	<0.50	----	----	<0.50
BTEX, total	----	E611A	1.0	µg/L	<1.0	<1.0	----	----	<1.0
<b>Volatile Organic Compounds Surrogates</b>									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	95.8	98.6	----	----	97.9



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					DUP-A	MP-06 ENE	MP-06 North	MP-06 WNW	MP-06 Source
Client sampling date / time					02-Aug-2021	02-Aug-2021 17:45	02-Aug-2021 17:25	02-Aug-2021 17:35	02-Aug-2021 17:15
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-006	VA21B6250-007	VA21B6250-008	VA21B6250-009	VA21B6250-010
					Result	Result	Result	Result	Result
<b>Volatile Organic Compounds Surrogates</b>									
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	88.0	126	----	----	123
<b>Hydrocarbons</b>									
F2 (C10-C16)	----	E601	100	µg/L	<100	<100	----	----	<100
F3 (C16-C34)	----	E601	250	µg/L	<250	<250	----	----	<250
F4 (C34-C50)	----	E601	250	µg/L	<250	<250	----	----	<250
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	----	----	<100
<b>Hydrocarbons Surrogates</b>									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	E601	1.0	%	77.7	62.4	----	----	77.7
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	100	93.2	----	----	80.8
<b>Polycyclic Aromatic Hydrocarbons</b>									
acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
acridine	260-94-6	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
anthracene	120-12-7	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	<0.0050	----	----	<0.0050
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	<0.015	<0.015	----	----	<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
chrysene	218-01-9	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	<0.0050	----	----	<0.0050
fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
fluorene	86-73-7	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	<0.050	----	----	<0.050
phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	<0.020	----	----	<0.020
pyrene	129-00-0	E641A	0.010	µg/L	<0.010	<0.010	----	----	<0.010
quinoline	6027-02-7	E641A	0.050	µg/L	<0.050	<0.050	----	----	<0.050



## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

Sub-Matrix: Seawater					Client sample ID	DUP-A	MP-06 ENE	MP-06 North	MP-06 WNW	MP-06 Source
(Matrix: Water)										
					Client sampling date / time	02-Aug-2021	02-Aug-2021 17:45	02-Aug-2021 17:25	02-Aug-2021 17:35	02-Aug-2021 17:15
Analyte	CAS Number	Method	LOR	Unit	VA21B6250-006	VA21B6250-007	VA21B6250-008	VA21B6250-009	VA21B6250-010	
					Result	Result	Result	Result	Result	
Polycyclic Aromatic Hydrocarbons Surrogates										
chrysene-d12	1719-03-5	E641A	0.1	%	78.3	79.7	----	----	79.2	
naphthalene-d8	1146-65-2	E641A	0.1	%	86.8	84.5	----	----	88.5	
phenanthrene-d10	1517-22-2	E641A	0.1	%	104	110	----	----	108	

Please refer to the General Comments section for an explanation of any qualifiers detected.

## QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: <b>VA21B6250</b>	Page	: 1 of 38
Amendment	: <b>1</b>		
Client	: <b>Golder Associates Ltd.</b>	Laboratory	: Vancouver - Environmental
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 200-2920 Virtual Way Vancouver BC Canada V5M 0C4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 05-Aug-2021 10:30
PO	: ----	Issue Date	: 02-Sep-2021 16:25
C-O-C number	: 20-920773		
Sampler	: ----		
Site	: ----		
Quote number	: Q84262		
No. of samples received	: 10		
No. of samples analysed	: 10		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

### Key

**Anonymous:** Refers to samples which are not part of this work order, but which formed part of the QC process lot.

**CAS Number:** Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

**DQO:** Data Quality Objective.

**LOR:** Limit of Reporting (detection limit).

**RPD:** Relative Percent Difference.

## Summary of Outliers

### Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Matrix Spike outliers occur.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

### Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

### Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

### Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



**Outliers : Quality Control Samples**  
*Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes*

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Laboratory Control Sample (LCS) Recoveries								
Total Metals	QC-MRG2-2602450 02	----	tellurium, total	13494-80-9	E468S	124 % <sup>MES</sup>	80.0-120%	Recovery greater than upper control limit

**Result Qualifiers**

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUP-A	E298	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 ENE	E298	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 North	E298	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 Source	E298	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 WNW	E298	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05- WNW-FBLANK-1	E298	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 ENE	E298	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓





Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 North	E298	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 Source	E298	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 WNW	E298	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE DUP-A	E235S.Br	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 ENE	E235S.Br	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 North	E235S.Br	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 Source	E235S.Br	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 WNW	E235S.Br	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05- WNW-FBLANK-1	E235S.Br	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 ENE	E235S.Br	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 North	E235S.Br	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 Source	E235S.Br	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 WNW	E235S.Br	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE DUP-A	E235S.Cl	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 ENE	E235S.Cl	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 North	E235S.Cl	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 Source	E235S.Cl	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 WNW	E235S.Cl	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05- WNW-FBLANK-1	E235S.Cl	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 ENE	E235S.Cl	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 North	E235S.Cl	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 Source	E235S.Cl	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 WNW	E235S.Cl	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE DUP-A	E235S.F-L	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 ENE	E235S.F-L	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 North	E235S.F-L	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 Source	E235S.F-L	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 WNW	E235S.F-L	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05- WNW-FBLANK-1	E235S.F-L	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 ENE	E235S.F-L	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 North	E235S.F-L	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 Source	E235S.F-L	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 WNW	E235S.F-L	02-Aug-2021	----	----	----		23-Aug-2021	28 days	21 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE DUP-A	E235S.NO3-T	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 ENE	E235S.NO3-T	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 North	E235S.NO3-T	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	✖ EHTL



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 Source	E235S.NO3-T	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	* EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 WNW	E235S.NO3-T	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	* EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05- WNW-FBLANK-1	E235S.NO3-T	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	* EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 ENE	E235S.NO3-T	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	* EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 North	E235S.NO3-T	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	* EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 Source	E235S.NO3-T	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	* EHT
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 WNW	E235S.NO3-T	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	* EHT
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE DUP-A	E235S.NO2-L	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	* EHTL
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 ENE	E235S.NO2-L	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	* EHTL



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 North	E235S.NO2-L	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 Source	E235S.NO2-L	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 WNW	E235S.NO2-L	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	<div>✖ EHT</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05- WNW-FBLANK-1	E235S.NO2-L	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	<div>✖ EHT</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 ENE	E235S.NO2-L	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	<div>✖ EHT</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 North	E235S.NO2-L	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	<div>✖ EHT</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 Source	E235S.NO2-L	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	<div>✖ EHT</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 WNW	E235S.NO2-L	02-Aug-2021	----	----	----		23-Aug-2021	3 days	21 days	<div>✖ EHT</div>
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE DUP-A	E235S.SO4-L	02-Aug-2021	----	----	----		23-Aug-2021	----	21 days	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 ENE	E235S.S04-L	02-Aug-2021	----	----	----		23-Aug-2021	----	21 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 North	E235S.S04-L	02-Aug-2021	----	----	----		23-Aug-2021	----	21 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 Source	E235S.S04-L	02-Aug-2021	----	----	----		23-Aug-2021	----	21 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 WNW	E235S.S04-L	02-Aug-2021	----	----	----		23-Aug-2021	----	21 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05- WNW-FBLANK-1	E235S.S04-L	02-Aug-2021	----	----	----		23-Aug-2021	----	21 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 ENE	E235S.S04-L	02-Aug-2021	----	----	----		23-Aug-2021	----	21 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 North	E235S.S04-L	02-Aug-2021	----	----	----		23-Aug-2021	----	21 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 Source	E235S.S04-L	02-Aug-2021	----	----	----		23-Aug-2021	----	21 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 WNW	E235S.S04-L	02-Aug-2021	----	----	----		23-Aug-2021	----	21 days	





Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) DUP-A	E318S	02-Aug-2021	10-Aug-2021	----	----		12-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 ENE	E318S	02-Aug-2021	10-Aug-2021	----	----		12-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 North	E318S	02-Aug-2021	10-Aug-2021	----	----		12-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 Source	E318S	02-Aug-2021	10-Aug-2021	----	----		12-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 WNW	E318S	02-Aug-2021	10-Aug-2021	----	----		12-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05- WNW-FBLANK-1	E318S	02-Aug-2021	10-Aug-2021	----	----		12-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 ENE	E318S	02-Aug-2021	10-Aug-2021	----	----		12-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 North	E318S	02-Aug-2021	10-Aug-2021	----	----		12-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
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				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 WNW	E318S	02-Aug-2021	10-Aug-2021	----	----		12-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) DUP-A	E372S	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 ENE	E372S	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 North	E372S	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 Source	E372S	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 WNW	E372S	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05- WNW-FBLANK-1	E372S	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 ENE	E372S	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 North	E372S	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 Source	E372S	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✔
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 WNW	E372S	02-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	20 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) DUP-A	E509S	02-Aug-2021	11-Aug-2021	----	----		11-Aug-2021	28 days	9 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 ENE	E509S	02-Aug-2021	11-Aug-2021	----	----		11-Aug-2021	28 days	9 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 North	E509S	02-Aug-2021	11-Aug-2021	----	----		11-Aug-2021	28 days	9 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 Source	E509S	02-Aug-2021	11-Aug-2021	----	----		11-Aug-2021	28 days	9 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 WNW	E509S	02-Aug-2021	11-Aug-2021	----	----		11-Aug-2021	28 days	9 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05- WNW-FBLANK-1	E509S	02-Aug-2021	11-Aug-2021	----	----		11-Aug-2021	28 days	9 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 ENE	E509S	02-Aug-2021	11-Aug-2021	----	----		11-Aug-2021	28 days	9 days	✔



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 North	E509S	02-Aug-2021	11-Aug-2021	----	----		11-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 Source	E509S	02-Aug-2021	11-Aug-2021	----	----		11-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 WNW	E509S	02-Aug-2021	11-Aug-2021	----	----		11-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) DUP-A	E469S	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 ENE	E469S	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 North	E469S	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 Source	E469S	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 WNW	E469S	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05- WNW-FBLANK-1	E469S	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 ENE	E469S	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 North	E469S	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 Source	E469S	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 WNW	E469S	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) DUP-A	E469S.NaSi	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 ENE	E469S.NaSi	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 North	E469S.NaSi	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 Source	E469S.NaSi	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 WNW	E469S.NaSi	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05- WNW-FBLANK-1	E469S.NaSi	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 ENE	E469S.NaSi	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 North	E469S.NaSi	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 Source	E469S.NaSi	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 WNW	E469S.NaSi	02-Aug-2021	06-Aug-2021	----	----		09-Aug-2021	180 days	7 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) DUP-A	E601	02-Aug-2021	10-Aug-2021	14 days	8 days	✓	11-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 North	E601	02-Aug-2021	10-Aug-2021	14 days	8 days	✓	11-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 Source	E601	02-Aug-2021	10-Aug-2021	14 days	8 days	✓	11-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05- WNW-FBLANK-1	E601	02-Aug-2021	10-Aug-2021	14 days	8 days	✓	11-Aug-2021	40 days	1 days	✓





Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 ENE	E601	02-Aug-2021	10-Aug-2021	14 days	8 days	✓	11-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 Source	E601	02-Aug-2021	10-Aug-2021	14 days	8 days	✓	11-Aug-2021	40 days	1 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) DUP-A	E581.VH+F1	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05 North	E581.VH+F1	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05 Source	E581.VH+F1	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05- WNW-FBLANK-1	E581.VH+F1	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06 ENE	E581.VH+F1	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06 Source	E581.VH+F1	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) DUP-A	E358-L	02-Aug-2021	21-Aug-2021	3 days	19 days	✖ EHTL	22-Aug-2021	28 days	1 days	✓





Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 ENE	E358-L	02-Aug-2021	21-Aug-2021	3 days	19 days	* EHTL	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 North	E358-L	02-Aug-2021	21-Aug-2021	3 days	19 days	* EHTL	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 Source	E358-L	02-Aug-2021	21-Aug-2021	3 days	19 days	* EHTL	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 WNW	E358-L	02-Aug-2021	21-Aug-2021	3 days	19 days	* EHT	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05- WNW-FBLANK-1	E358-L	02-Aug-2021	21-Aug-2021	3 days	19 days	* EHT	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 ENE	E358-L	02-Aug-2021	21-Aug-2021	3 days	19 days	* EHT	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 North	E358-L	02-Aug-2021	21-Aug-2021	3 days	19 days	* EHT	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 Source	E358-L	02-Aug-2021	21-Aug-2021	3 days	19 days	* EHT	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 WNW	E358-L	02-Aug-2021	21-Aug-2021	3 days	19 days	* EHT	22-Aug-2021	28 days	1 days	✓



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) DUP-A	E355-L	02-Aug-2021	10-Aug-2021	----	----		10-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 ENE	E355-L	02-Aug-2021	10-Aug-2021	----	----		10-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 North	E355-L	02-Aug-2021	10-Aug-2021	----	----		10-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 Source	E355-L	02-Aug-2021	10-Aug-2021	----	----		10-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 WNW	E355-L	02-Aug-2021	10-Aug-2021	----	----		10-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05- WNW-FBLANK-1	E355-L	02-Aug-2021	10-Aug-2021	----	----		10-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 ENE	E355-L	02-Aug-2021	10-Aug-2021	----	----		10-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 North	E355-L	02-Aug-2021	10-Aug-2021	----	----		10-Aug-2021	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 Source	E355-L	02-Aug-2021	10-Aug-2021	----	----		10-Aug-2021	28 days	7 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 WNW	E355-L	02-Aug-2021	10-Aug-2021	----	----		10-Aug-2021	28 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE DUP-A	E290	02-Aug-2021	----	----	----		07-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 ENE	E290	02-Aug-2021	----	----	----		07-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 North	E290	02-Aug-2021	----	----	----		07-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 Source	E290	02-Aug-2021	----	----	----		07-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 WNW	E290	02-Aug-2021	----	----	----		07-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05- WNW-FBLANK-1	E290	02-Aug-2021	----	----	----		07-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 ENE	E290	02-Aug-2021	----	----	----		07-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 North	E290	02-Aug-2021	----	----	----		07-Aug-2021	14 days	5 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 Source	E290	02-Aug-2021	----	----	----		07-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 WNW	E290	02-Aug-2021	----	----	----		07-Aug-2021	14 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE DUP-A	E100S	02-Aug-2021	----	----	----		07-Aug-2021	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 ENE	E100S	02-Aug-2021	----	----	----		07-Aug-2021	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 North	E100S	02-Aug-2021	----	----	----		07-Aug-2021	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 Source	E100S	02-Aug-2021	----	----	----		07-Aug-2021	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 WNW	E100S	02-Aug-2021	----	----	----		07-Aug-2021	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05- WNW-FBLANK-1	E100S	02-Aug-2021	----	----	----		07-Aug-2021	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06 ENE	E100S	02-Aug-2021	----	----	----		07-Aug-2021	28 days	5 days	✓



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Seawater										
HDPE MP-06 North	E100S	02-Aug-2021	----	----	----		07-Aug-2021	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06 Source	E100S	02-Aug-2021	----	----	----		07-Aug-2021	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06 WNW	E100S	02-Aug-2021	----	----	----		07-Aug-2021	28 days	5 days	✓
Physical Tests : pH by Meter										
HDPE MP-06 ENE	E108	02-Aug-2021	----	----	----		07-Aug-2021	0.25 hrs	117 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06 North	E108	02-Aug-2021	----	----	----		07-Aug-2021	0.25 hrs	117 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06 WNW	E108	02-Aug-2021	----	----	----		07-Aug-2021	0.25 hrs	117 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05 ENE	E108	02-Aug-2021	----	----	----		07-Aug-2021	0.25 hrs	118 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05 North	E108	02-Aug-2021	----	----	----		07-Aug-2021	0.25 hrs	118 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05 WNW	E108	02-Aug-2021	----	----	----		07-Aug-2021	0.25 hrs	118 hrs	✖ EHTR-FM



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE MP-05- WNW-FBLANK-1	E108	02-Aug-2021	----	----	----		07-Aug-2021	0.25 hrs	118 hrs	<div>✖ EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE MP-06 Source	E108	02-Aug-2021	----	----	----		07-Aug-2021	0.25 hrs	118 hrs	<div>✖ EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE MP-05 Source	E108	02-Aug-2021	----	----	----		07-Aug-2021	0.25 hrs	119 hrs	<div>✖ EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE DUP-A	E108	02-Aug-2021	----	----	----		07-Aug-2021	0.25 hrs	120 hrs	<div>✖ EHTR-FM</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE DUP-A	E162S	02-Aug-2021	----	----	----		21-Aug-2021	7 days	19 days	<div>✖ EHT</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 ENE	E162S	02-Aug-2021	----	----	----		21-Aug-2021	7 days	19 days	<div>✖ EHT</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 North	E162S	02-Aug-2021	----	----	----		21-Aug-2021	7 days	19 days	<div>✖ EHT</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 Source	E162S	02-Aug-2021	----	----	----		21-Aug-2021	7 days	19 days	<div>✖ EHT</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 WNW	E162S	02-Aug-2021	----	----	----		21-Aug-2021	7 days	19 days	<div>✖ EHT</div>



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05- WNW-FBLANK-1	E162S	02-Aug-2021	----	----	----		21-Aug-2021	7 days	19 days	✖ EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 ENE	E162S	02-Aug-2021	----	----	----		21-Aug-2021	7 days	19 days	✖ EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 North	E162S	02-Aug-2021	----	----	----		21-Aug-2021	7 days	19 days	✖ EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 Source	E162S	02-Aug-2021	----	----	----		21-Aug-2021	7 days	19 days	✖ EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 WNW	E162S	02-Aug-2021	----	----	----		21-Aug-2021	7 days	19 days	✖ EHT
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE DUP-A	E160S	02-Aug-2021	----	----	----		08-Aug-2021	7 days	6 days	✔
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 ENE	E160S	02-Aug-2021	----	----	----		08-Aug-2021	7 days	6 days	✔
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 North	E160S	02-Aug-2021	----	----	----		08-Aug-2021	7 days	6 days	✔
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 Source	E160S	02-Aug-2021	----	----	----		08-Aug-2021	7 days	6 days	✔





Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 WNW	E160S	02-Aug-2021	----	----	----		08-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05- WNW-FBLANK-1	E160S	02-Aug-2021	----	----	----		08-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 ENE	E160S	02-Aug-2021	----	----	----		08-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 North	E160S	02-Aug-2021	----	----	----		08-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 Source	E160S	02-Aug-2021	----	----	----		08-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 WNW	E160S	02-Aug-2021	----	----	----		08-Aug-2021	7 days	6 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE DUP-A	E121	02-Aug-2021	----	----	----		06-Aug-2021	3 days	4 days	✗
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 ENE	E121	02-Aug-2021	----	----	----		06-Aug-2021	3 days	4 days	✗
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 North	E121	02-Aug-2021	----	----	----		06-Aug-2021	3 days	4 days	✗



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 Source	E121	02-Aug-2021	----	----	----		06-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 WNW	E121	02-Aug-2021	----	----	----		06-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05- WNW-FBLANK-1	E121	02-Aug-2021	----	----	----		06-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 ENE	E121	02-Aug-2021	----	----	----		06-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 North	E121	02-Aug-2021	----	----	----		06-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 Source	E121	02-Aug-2021	----	----	----		06-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 WNW	E121	02-Aug-2021	----	----	----		06-Aug-2021	3 days	4 days	✖
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) DUP-A	E641A	02-Aug-2021	10-Aug-2021	14 days	8 days	✔	11-Aug-2021	40 days	1 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 North	E641A	02-Aug-2021	10-Aug-2021	14 days	8 days	✔	11-Aug-2021	40 days	1 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 Source	E641A	02-Aug-2021	10-Aug-2021	14 days	8 days	✓	11-Aug-2021	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05- WNW-FBLANK-1	E641A	02-Aug-2021	10-Aug-2021	14 days	8 days	✓	11-Aug-2021	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 ENE	E641A	02-Aug-2021	10-Aug-2021	14 days	8 days	✓	11-Aug-2021	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 Source	E641A	02-Aug-2021	10-Aug-2021	14 days	8 days	✓	11-Aug-2021	40 days	1 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) DUP-A	E508S	02-Aug-2021	----	----	----		12-Aug-2021	28 days	10 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 Source	E508S	02-Aug-2021	----	----	----		12-Aug-2021	28 days	10 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 ENE	E508S	02-Aug-2021	----	----	----		12-Aug-2021	28 days	9 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 North	E508S	02-Aug-2021	----	----	----		12-Aug-2021	28 days	9 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 WNW	E508S	02-Aug-2021	----	----	----		12-Aug-2021	28 days	9 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05- WNW-FBLANK-1	E508S	02-Aug-2021	----	----	----		12-Aug-2021	28 days	9 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 ENE	E508S	02-Aug-2021	----	----	----		12-Aug-2021	28 days	9 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 North	E508S	02-Aug-2021	----	----	----		12-Aug-2021	28 days	9 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 Source	E508S	02-Aug-2021	----	----	----		12-Aug-2021	28 days	9 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 WNW	E508S	02-Aug-2021	----	----	----		12-Aug-2021	28 days	9 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) DUP-A	E468S	02-Aug-2021	----	----	----		15-Aug-2021	180 days	13 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 ENE	E468S	02-Aug-2021	----	----	----		15-Aug-2021	180 days	13 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 North	E468S	02-Aug-2021	----	----	----		15-Aug-2021	180 days	13 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 Source	E468S	02-Aug-2021	----	----	----		15-Aug-2021	180 days	13 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 WNW	E468S	02-Aug-2021	----	----	----		15-Aug-2021	180 days	13 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05- WNW-FBLANK-1	E468S	02-Aug-2021	----	----	----		15-Aug-2021	180 days	13 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 ENE	E468S	02-Aug-2021	----	----	----		15-Aug-2021	180 days	13 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 North	E468S	02-Aug-2021	----	----	----		15-Aug-2021	180 days	13 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 Source	E468S	02-Aug-2021	----	----	----		15-Aug-2021	180 days	13 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 WNW	E468S	02-Aug-2021	----	----	----		15-Aug-2021	180 days	13 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) DUP-A	E468S.NaSi	02-Aug-2021	----	----	----		16-Aug-2021	180 days	14 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 ENE	E468S.NaSi	02-Aug-2021	----	----	----		16-Aug-2021	180 days	14 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 North	E468S.NaSi	02-Aug-2021	----	----	----		16-Aug-2021	180 days	14 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 Source	E468S.NaSi	02-Aug-2021	----	----	----		16-Aug-2021	180 days	14 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 WNW	E468S.NaSi	02-Aug-2021	----	----	----		16-Aug-2021	180 days	14 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05- WNW-FBLANK-1	E468S.NaSi	02-Aug-2021	----	----	----		16-Aug-2021	180 days	14 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 ENE	E468S.NaSi	02-Aug-2021	----	----	----		16-Aug-2021	180 days	14 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 North	E468S.NaSi	02-Aug-2021	----	----	----		16-Aug-2021	180 days	14 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 Source	E468S.NaSi	02-Aug-2021	----	----	----		16-Aug-2021	180 days	14 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 WNW	E468S.NaSi	02-Aug-2021	----	----	----		16-Aug-2021	180 days	14 days	✔
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) DUP-A	E611A	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✔
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05 North	E611A	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05 Source	E611A	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05- WNW-FBLANK-1	E611A	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-06 ENE	E611A	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-06 Source	E611A	02-Aug-2021	11-Aug-2021	----	----		12-Aug-2021	14 days	10 days	✓

**Legend & Qualifier Definitions**

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

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).





## Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	261255	1	10	10.0	5.0	✔
Ammonia by Fluorescence	E298	273052	1	20	5.0	5.0	✔
Bromide in Seawater by IC	E235S.Br	272957	1	19	5.2	5.0	✔
BTEX by Headspace GC-MS	E611A	263791	1	20	5.0	5.0	✔
Chloride in Seawater by IC	E235S.Cl	272958	1	19	5.2	5.0	✔
Conductivity in Seawater	E100S	261254	1	10	10.0	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	263871	1	10	10.0	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	260359	1	19	5.2	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	272964	1	19	5.2	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	260358	1	19	5.2	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272959	1	19	5.2	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272960	1	19	5.2	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272961	1	19	5.2	5.0	✔
pH by Meter	E108	261256	1	18	5.5	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272962	1	19	5.2	5.0	✔
TDS by Gravimetry (Seawater)	E162S	273148	1	20	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	262405	1	10	10.0	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	264851	1	10	10.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	260246	2	16	12.5	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	262404	1	16	6.2	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	273053	1	19	5.2	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	260245	1	16	6.2	5.0	✔
Turbidity by Nephelometry	E121	260384	1	10	10.0	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	263792	1	18	5.5	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	261255	1	10	10.0	5.0	✔
Ammonia by Fluorescence	E298	273052	1	20	5.0	5.0	✔
Bromide in Seawater by IC	E235S.Br	272957	1	19	5.2	5.0	✔
BTEX by Headspace GC-MS	E611A	263791	1	20	5.0	5.0	✔
CCME PHC - F2-F4 by GC-FID	E601	263155	1	14	7.1	5.0	✔
Chloride in Seawater by IC	E235S.Cl	272958	1	19	5.2	5.0	✔
Conductivity in Seawater	E100S	261254	1	10	10.0	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	263871	1	10	10.0	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	260359	1	19	5.2	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	272964	1	19	5.2	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	260358	1	19	5.2	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272959	1	19	5.2	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272960	1	19	5.2	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272961	1	19	5.2	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	263156	1	9	11.1	5.0	✔
pH by Meter	E108	261256	1	18	5.5	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272962	1	19	5.2	5.0	✔
TDS by Gravimetry (Seawater)	E162S	273148	1	20	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	262405	1	10	10.0	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	264851	1	10	10.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	260246	1	16	6.2	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	262404	1	16	6.2	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	273053	1	19	5.2	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	260245	1	16	6.2	5.0	✔
TSS by Gravimetry (Seawater)	E160S	261380	1	14	7.1	5.0	✔
Turbidity by Nephelometry	E121	260384	1	10	10.0	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	263792	1	18	5.5	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	261255	1	10	10.0	5.0	✔
Ammonia by Fluorescence	E298	273052	1	20	5.0	5.0	✔
Bromide in Seawater by IC	E235S.Br	272957	1	19	5.2	5.0	✔
BTEX by Headspace GC-MS	E611A	263791	1	20	5.0	5.0	✔
CCME PHC - F2-F4 by GC-FID	E601	263155	1	14	7.1	5.0	✔
Chloride in Seawater by IC	E235S.Cl	272958	1	19	5.2	5.0	✔
Conductivity in Seawater	E100S	261254	1	10	10.0	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	263871	1	10	10.0	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	260359	1	19	5.2	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	272964	1	19	5.2	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	260358	1	19	5.2	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272959	1	19	5.2	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272960	1	19	5.2	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272961	1	19	5.2	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	263156	1	9	11.1	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272962	1	19	5.2	5.0	✔
TDS by Gravimetry (Seawater)	E162S	273148	1	20	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	262405	1	10	10.0	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	264851	1	10	10.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	260246	1	16	6.2	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	262404	1	16	6.2	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	273053	1	19	5.2	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	260245	1	16	6.2	5.0	✔
TSS by Gravimetry (Seawater)	E160S	261380	1	14	7.1	5.0	✔
Turbidity by Nephelometry	E121	260384	1	10	10.0	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
VH and F1 by Headspace GC-FID	E581.VH+F1	263792	1	18	5.5	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	273052	1	20	5.0	5.0	✔
Bromide in Seawater by IC	E235S.Br	272957	1	19	5.2	5.0	✔
BTEX by Headspace GC-MS	E611A	263791	1	20	5.0	5.0	✔
Chloride in Seawater by IC	E235S.Cl	272958	1	19	5.2	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	263871	1	10	10.0	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	260359	1	19	5.2	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	272964	1	19	5.2	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	260358	2	19	10.5	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272959	1	19	5.2	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272960	1	19	5.2	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272961	1	19	5.2	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272962	1	19	5.2	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	262405	1	10	10.0	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	264851	1	10	10.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	260246	1	16	6.2	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	262404	1	16	6.2	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	273053	1	19	5.2	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	260245	1	16	6.2	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	263792	1	18	5.5	5.0	✔



## Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108  Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121  Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S  Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry (Seawater)	E162S  Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290  Vancouver - Environmental	Water	APHA 2320 B (mod)	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.
Ammonia by Fluorescence	E298  Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthalaldehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence	E318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry	E372S  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Seawater by CRC ICPMS (HMI)	E468S  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode). This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S  Vancouver - Environmental	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S  Vancouver - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1  Vancouver - Environmental	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
CCME PHC - F2-F4 by GC-FID	E601  Vancouver - Environmental	Water	CCME PHC in Soil - Tier 1	CCME Fractions 2-4 (F2-F4) are analyzed by GC-FID.
BTEX by Headspace GC-MS	E611A  Vancouver - Environmental	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A  Vancouver - Environmental	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100  Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO <sub>3</sub> ), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A  Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO <sub>3</sub> ), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Salinity in Seawater (calculation)	EC100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298  Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent and H2SO4.
Preparation for Total Organic Carbon by Combustion	EP355  Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358  Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421  Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509  Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581  Vancouver - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601  Vancouver - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.





## QUALITY CONTROL REPORT

Work Order : **VA21B6250**

Page : 1 of 20

Amendment : **1**

Client : Golder Associates Ltd.  
Contact : Elaine Irving  
Address : 200-2920 Virtual Way  
Vancouver BC Canada V5M 0C4  
Telephone : ----  
Project : ----  
PO : ----  
C-O-C number : 20-920773  
Sampler : ----  
Site : ----  
Quote number : Q84262  
No. of samples received : 10  
No. of samples analysed : 10

Laboratory : Vancouver - Environmental  
Account Manager : Amber Springer  
Address : 8081 Lougheed Highway  
Burnaby, British Columbia Canada V5A 1W9  
Telephone : +1 604 253 4188  
Date Samples Received : 05-Aug-2021 10:30  
Date Analysis Commenced : 06-Aug-2021  
Issue Date : 02-Sep-2021 16:25

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department
Aaron Yu	Laboratory Analyst	Inorganics, Burnaby, British Columbia
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Courtney Cox	Analyst	Inorganics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Metals, Burnaby, British Columbia
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Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia



## General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

### Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

# = Indicates a QC result that did not meet the ALS DQO.



## Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: <b>Water</b>					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Physical Tests (QC Lot: 260384)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	turbidity	----	E121	0.10	NTU	<0.10	<0.10	0	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 261254)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	conductivity	----	E100S	2.0	µS/cm	<2.0	<2.0	0	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 261255)</b>											
VA21B6250-003	MP-05 North	alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	85.7	86.0	0.349%	20%	----
<b>Physical Tests (QC Lot: 261256)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	pH	----	E108	0.10	pH units	5.35	5.29	1.13%	4%	----
<b>Physical Tests (QC Lot: 273148)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	<10	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 262405)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272957)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	bromide	24959-67-9	E235S.Br	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272958)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	chloride	16887-00-6	E235S.Cl	50	mg/L	<50	<50	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272959)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272960)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272961)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272962)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 273052)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 273053)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	phosphorus, total	7723-14-0	E372S	0.0040	mg/L	<0.0040	<0.0040	0	Diff <2x LOR	----
<b>Organic / Inorganic Carbon (QC Lot: 262404)</b>											
VA21B6095-001	Anonymous	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.84	0.94	0.10	Diff <2x LOR	----
<b>Organic / Inorganic Carbon (QC Lot: 272964)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----



Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Total Metals (QC Lot: 260245)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	<2.5	0	Diff <2x LOR	----
<b>Total Metals (QC Lot: 260246)</b>											
VA21B6250-001	MP-05- WNW-FBLANK-1	aluminum, total	7429-90-5	E468S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		zirconium, total	7440-67-7	E468S	0.00050	mg/L	0.00065	0.00065	0.0000007	Diff <2x LOR	----
VA21B6250-001	MP-05- WNW-FBLANK-1	antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E468S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		barium, total	7440-39-3	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E468S	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		cadmium, total	7440-43-9	E468S	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		calcium, total	7440-70-2	E468S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, total	7439-89-6	E468S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, total	7439-93-2	E468S	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		magnesium, total	7439-95-4	E468S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		manganese, total	7439-96-5	E468S	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		molybdenum, total	7439-98-7	E468S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, total	7440-09-7	E468S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		rhodium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, total	7440-17-7	E468S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		strontium, total	7440-24-6	E468S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		sulfur, total	7704-34-9	E468S	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 260246) - continued											
VA21B6250-001	MP-05- WNW-FBLANK-1	thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
Total Metals (QC Lot: 264851)											
VA21B6250-001	MP-05- WNW-FBLANK-1	mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 260358)											
VA21B6112-002	Anonymous	silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	<2.5	2.5	0.004	Diff <2x LOR	----
Dissolved Metals (QC Lot: 260359)											
VA21B6112-002	Anonymous	aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E469S	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	0.000043	0.000038	0.000005	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E469S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E469S	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E469S	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 260359) - continued											
VA21B6112-002	Anonymous	phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E469S	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		rhenium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		strontium, dissolved	7440-24-6	E469S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	0.0014	0.0013	0.00002	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 263871)											
VA21B6250-001	MP-05- WNW-FBLANK-1	mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 263791)											
VA21B6224-001	Anonymous	benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 263792)											
VA21B6250-001	MP-05- WNW-FBLANK-1	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----



## Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

### Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Physical Tests (QCLot: 260384)</b>						
turbidity	----	E121	0.1	NTU	<0.10	----
<b>Physical Tests (QCLot: 261254)</b>						
conductivity	----	E100S	2	µS/cm	<2.0	----
<b>Physical Tests (QCLot: 261255)</b>						
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1	mg/L	<1.0	----
<b>Physical Tests (QCLot: 261380)</b>						
solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
<b>Physical Tests (QCLot: 273148)</b>						
solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
<b>Anions and Nutrients (QCLot: 262405)</b>						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
<b>Anions and Nutrients (QCLot: 272957)</b>						
bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
<b>Anions and Nutrients (QCLot: 272958)</b>						
chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
<b>Anions and Nutrients (QCLot: 272959)</b>						
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
<b>Anions and Nutrients (QCLot: 272960)</b>						
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 272961)</b>						
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 272962)</b>						
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
<b>Anions and Nutrients (QCLot: 273052)</b>						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
<b>Anions and Nutrients (QCLot: 273053)</b>						
phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0040	----
<b>Organic / Inorganic Carbon (QCLot: 262404)</b>						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
<b>Organic / Inorganic Carbon (QCLot: 272964)</b>						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
<b>Total Metals (QCLot: 260245)</b>						
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----





Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 260245) - continued</b>						
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	----
<b>Total Metals (QCLot: 260246)</b>						
aluminum, total	7429-90-5	E468S	0.005	mg/L	<0.0050	----
antimony, total	7440-36-0	E468S	0.001	mg/L	<0.0010	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	<0.00040	----
barium, total	7440-39-3	E468S	0.001	mg/L	<0.0010	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	<0.00050	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	<0.00050	----
boron, total	7440-42-8	E468S	0.3	mg/L	<0.30	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	<0.000010	----
calcium, total	7440-70-2	E468S	1	mg/L	<1.0	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	<0.00050	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	<0.000050	----
copper, total	7440-50-8	E468S	0.0005	mg/L	<0.00050	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E468S	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E468S	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E468S	0.02	mg/L	<0.020	----
magnesium, total	7439-95-4	E468S	1	mg/L	<1.0	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	<0.00020	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	<0.00010	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E468S	1	mg/L	<1.0	----
rhenium, total	7440-15-5	E468S	0.0005	mg/L	<0.00050	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	<0.0050	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	<0.00050	----
silver, total	7440-22-4	E468S	0.0001	mg/L	<0.00010	----
strontium, total	7440-24-6	E468S	0.01	mg/L	<0.010	----
sulfur, total	7704-34-9	E468S	5	mg/L	<5.0	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	<0.00050	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	<0.000050	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	<0.00050	----
tin, total	7440-31-5	E468S	0.001	mg/L	<0.0010	----
titanium, total	7440-32-6	E468S	0.005	mg/L	<0.0050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 260246) - continued</b>						
tungsten, total	7440-33-7	E468S	0.001	mg/L	<0.0010	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	<0.000050	----
vanadium, total	7440-62-2	E468S	0.0005	mg/L	<0.00050	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E468S	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	<0.00050	----
<b>Total Metals (QCLot: 264851)</b>						
mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
<b>Dissolved Metals (QCLot: 260358)</b>						
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	<2.5	----
<b>Dissolved Metals (QCLot: 260359)</b>						
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	<0.0050	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	<0.0010	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	<0.00040	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	<0.0010	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	<0.00050	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	<0.00050	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	<0.30	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	<0.000010	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	<1.0	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	<0.00050	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	<0.000050	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	<0.00020	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	<0.00050	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	<0.020	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	<1.0	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	<0.00010	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E469S	1	mg/L	<1.0	----
rhodium, dissolved	7440-15-5	E469S	0.0005	mg/L	<0.00050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Dissolved Metals (QCLot: 260359) - continued</b>						
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	<0.0050	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	<0.00050	----
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	<0.00010	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	<0.010	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	<5.0	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	<0.00050	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	<0.000050	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	<0.00050	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	<0.0010	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	<0.0050	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	<0.0010	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	<0.000050	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	<0.00050	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	<0.00050	----
<b>Dissolved Metals (QCLot: 263871)</b>						
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
<b>Volatile Organic Compounds (QCLot: 263791)</b>						
benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
<b>Hydrocarbons (QCLot: 263155)</b>						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
<b>Hydrocarbons (QCLot: 263792)</b>						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
<b>Polycyclic Aromatic Hydrocarbons (QCLot: 263156)</b>						
acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
acridine	260-94-6	E641A	0.01	µg/L	<0.010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Polycyclic Aromatic Hydrocarbons (QCLot: 263156) - continued</b>						
anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	<0.010	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
quinoline	6027-02-7	E641A	0.05	µg/L	<0.050	----



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 260384)									
turbidity	----	E121	0.1	NTU	200 NTU	97.3	85.0	115	----
Physical Tests (QCLot: 261254)									
conductivity	----	E100S	2	µS/cm	146.9 µS/cm	98.3	80.0	120	----
Physical Tests (QCLot: 261255)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	101	85.0	115	----
Physical Tests (QCLot: 261256)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 261380)									
solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	92.2	85.0	115	----
Physical Tests (QCLot: 273148)									
solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	98.5	85.0	115	----
Anions and Nutrients (QCLot: 262405)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	96.0	75.0	125	----
Anions and Nutrients (QCLot: 272957)									
bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	99.4	85.0	115	----
Anions and Nutrients (QCLot: 272958)									
chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	100.0	90.0	110	----
Anions and Nutrients (QCLot: 272959)									
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 272960)									
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 272961)									
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 272962)									
sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 273052)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.3	85.0	115	----
Anions and Nutrients (QCLot: 273053)									
phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	93.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 262404)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	99.7	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 272964)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	92.4	80.0	120	----
Total Metals (QCLot: 260245)									
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	100	80.0	120	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	50 mg/L	100	80.0	120	----
Total Metals (QCLot: 260246)									
aluminum, total	7429-90-5	E468S	0.005	mg/L	2 mg/L	102	80.0	120	----
antimony, total	7440-36-0	E468S	0.001	mg/L	1 mg/L	114	80.0	120	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	1 mg/L	107	80.0	120	----
barium, total	7440-39-3	E468S	0.001	mg/L	0.25 mg/L	105	80.0	120	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	1 mg/L	110	80.0	120	----
boron, total	7440-42-8	E468S	0.3	mg/L	10 mg/L	89.6	80.0	120	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	0.1 mg/L	108	80.0	120	----
calcium, total	7440-70-2	E468S	1	mg/L	50 mg/L	100	80.0	120	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	0.05 mg/L	107	80.0	120	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	0.25 mg/L	105	80.0	120	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	0.25 mg/L	107	80.0	120	----
copper, total	7440-50-8	E468S	0.0005	mg/L	0.25 mg/L	108	80.0	120	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	0.25 mg/L	99.4	80.0	120	----
iron, total	7439-89-6	E468S	0.01	mg/L	1 mg/L	108	80.0	120	----
lead, total	7439-92-1	E468S	0.00005	mg/L	0.5 mg/L	109	80.0	120	----
lithium, total	7439-93-2	E468S	0.02	mg/L	0.25 mg/L	97.6	80.0	120	----
magnesium, total	7439-95-4	E468S	1	mg/L	50 mg/L	103	80.0	120	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	0.25 mg/L	105	80.0	120	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	0.5 mg/L	107	80.0	120	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	10 mg/L	114	80.0	120	----
potassium, total	7440-09-7	E468S	1	mg/L	50 mg/L	109	80.0	120	----
rhenium, total	7440-15-5	E468S	0.0005	mg/L	0.1 mg/L	103	80.0	120	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	0.1 mg/L	110	80.0	120	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	1 mg/L	120	80.0	120	----
silver, total	7440-22-4	E468S	0.0001	mg/L	0.1 mg/L	111	80.0	120	----
strontium, total	7440-24-6	E468S	0.01	mg/L	0.25 mg/L	104	80.0	120	----
sulfur, total	7704-34-9	E468S	5	mg/L	50 mg/L	84.1	80.0	120	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	0.1 mg/L	# 124	80.0	120	MES
thallium, total	7440-28-0	E468S	0.00005	mg/L	1 mg/L	112	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 260246) - continued									
thorium, total	7440-29-1	E468S	0.0005	mg/L	0.1 mg/L	97.5	80.0	120	----
tin, total	7440-31-5	E468S	0.001	mg/L	0.5 mg/L	104	80.0	120	----
titanium, total	7440-32-6	E468S	0.005	mg/L	0.25 mg/L	104	80.0	120	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	0.1 mg/L	102	80.0	120	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	0.005 mg/L	99.2	80.0	120	----
vanadium, total	7440-62-2	E468S	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
zinc, total	7440-66-6	E468S	0.003	mg/L	0.5 mg/L	114	80.0	120	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	0.1 mg/L	106	80.0	120	----
Total Metals (QCLot: 264851)									
mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	98.8	80.0	120	----
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	107	80.0	120	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	50 mg/L	103	80.0	120	----
Dissolved Metals (QCLot: 260359)									
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	2 mg/L	105	80.0	120	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	1 mg/L	102	80.0	120	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	1 mg/L	102	80.0	120	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	0.25 mg/L	106	80.0	120	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	1 mg/L	104	80.0	120	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	10 mg/L	97.8	80.0	120	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	0.1 mg/L	105	80.0	120	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	50 mg/L	100	80.0	120	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	0.05 mg/L	98.0	80.0	120	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	0.25 mg/L	110	80.0	120	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	0.25 mg/L	109	80.0	120	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	1 mg/L	98.9	80.0	120	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	0.5 mg/L	99.9	80.0	120	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	0.25 mg/L	96.6	80.0	120	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	50 mg/L	110	80.0	120	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	0.25 mg/L	97.0	80.0	120	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	0.5 mg/L	110	80.0	120	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	10 mg/L	103	80.0	120	----





Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 260359) - continued									
potassium, dissolved	7440-09-7	E469S	1	mg/L	50 mg/L	106	80.0	120	----
rhenium, dissolved	7440-15-5	E469S	0.0005	mg/L	0.1 mg/L	97.1	80.0	120	----
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	0.1 mg/L	106	80.0	120	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	1 mg/L	104	80.0	120	----
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	0.25 mg/L	96.2	80.0	120	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	50 mg/L	92.4	80.0	120	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	0.1 mg/L	107	80.0	120	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	1 mg/L	102	80.0	120	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	0.1 mg/L	85.6	80.0	120	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	0.5 mg/L	99.8	80.0	120	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	0.25 mg/L	101	80.0	120	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	0.1 mg/L	93.5	80.0	120	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	0.005 mg/L	89.1	80.0	120	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	0.5 mg/L	112	80.0	120	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	0.1 mg/L	94.0	80.0	120	----
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	100	80.0	120	----
Volatile Organic Compounds (QCLot: 263791)									
benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	96.5	70.0	130	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	108	70.0	130	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	108	70.0	130	----
styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	95.6	70.0	130	----
toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	95.8	70.0	130	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	94.6	70.0	130	----
xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	105	70.0	130	----
Hydrocarbons (QCLot: 263155)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	108	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	95.6	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	94.2	70.0	130	----
Hydrocarbons (QCLot: 263792)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	102	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 263156)									
acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	84.1	60.0	130	----



Sub-Matrix: Water

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 263156) - continued									
acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	98.2	60.0	130	----
acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	127	60.0	130	----
anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	125	60.0	130	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	126	60.0	130	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	108	60.0	130	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	0.5 µg/L	85.5	60.0	130	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	98.7	60.0	130	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	88.9	60.0	130	----
chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	116	60.0	130	----
fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	113	60.0	130	----
fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	99.3	60.0	130	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	119	60.0	130	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	76.9	60.0	130	----
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	73.7	60.0	130	----
naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	79.7	50.0	130	----
phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	109	60.0	130	----
pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	116	60.0	130	----
quinoline	6027-02-7	E641A	0.05	µg/L	0.5 µg/L	127	60.0	130	----

Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 262405)										
VA21B6250-002	MP-05 ENE	Kjeldahl nitrogen, total [TKN]	----	E318S	2.78 mg/L	2.5 mg/L	111	70.0	130	----
Anions and Nutrients (QCLot: 272957)										
VA21B6250-002	MP-05 ENE	bromide	24959-67-9	E235S.Br	48.2 mg/L	50 mg/L	96.5	75.0	125	----
Anions and Nutrients (QCLot: 272958)										
VA21B6250-002	MP-05 ENE	chloride	16887-00-6	E235S.Cl	9670 mg/L	10000 mg/L	96.7	75.0	125	----
Anions and Nutrients (QCLot: 272959)										
VA21B6250-002	MP-05 ENE	fluoride	16984-48-8	E235S.F-L	9.56 mg/L	10 mg/L	95.6	75.0	125	----
Anions and Nutrients (QCLot: 272960)										
VA21B6250-002	MP-05 ENE	nitrate (as N)	14797-55-8	E235S.NO3-T	7.36 mg/L	7.5 mg/L	98.1	75.0	125	----
Anions and Nutrients (QCLot: 272961)										
VA21B6250-002	MP-05 ENE	nitrite (as N)	14797-65-0	E235S.NO2-L	4.95 mg/L	5 mg/L	99.0	75.0	125	----
Anions and Nutrients (QCLot: 272962)										
VA21B6250-002	MP-05 ENE	sulfate (as SO4)	14808-79-8	E235S.SO4-L	ND mg/L	1000 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 273052)										
VA21B6250-002	MP-05 ENE	ammonia, total (as N)	7664-41-7	E298	0.0982 mg/L	0.1 mg/L	98.2	75.0	125	----
Anions and Nutrients (QCLot: 273053)										
VA21B6250-002	MP-05 ENE	phosphorus, total	7723-14-0	E372S	0.0917 mg/L	0.1 mg/L	91.7	70.0	130	----
Organic / Inorganic Carbon (QCLot: 262404)										
VA21B6095-002	Anonymous	carbon, total organic [TOC]	----	E355-L	5.11 mg/L	5 mg/L	102	70.0	130	----
Organic / Inorganic Carbon (QCLot: 272964)										
VA21B6250-002	MP-05 ENE	carbon, dissolved organic [DOC]	----	E358-L	4.50 mg/L	5 mg/L	89.9	70.0	130	----
Total Metals (QCLot: 260245)										
VA21B6250-002	MP-05 ENE	silicon, total	7440-21-3	E468S.NaSi	480 mg/L	500 mg/L	96.0	70.0	130	----
		sodium, total	17341-25-2	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 260246)										
VA21B6250-002	MP-05 ENE	aluminum, total	7429-90-5	E468S	0.422 mg/L	0.4 mg/L	106	70.0	130	----
		antimony, total	7440-36-0	E468S	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		arsenic, total	7440-38-2	E468S	0.0404 mg/L	0.04 mg/L	101	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 260246) - continued										
VA21B6250-002	MP-05 ENE	barium, total	7440-39-3	E468S	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		beryllium, total	7440-41-7	E468S	0.0893 mg/L	0.08 mg/L	112	70.0	130	----
		bismuth, total	7440-69-9	E468S	0.0183 mg/L	0.02 mg/L	91.4	70.0	130	----
		boron, total	7440-42-8	E468S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, total	7440-43-9	E468S	0.00738 mg/L	0.008 mg/L	92.2	70.0	130	----
		calcium, total	7440-70-2	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E468S	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		chromium, total	7440-47-3	E468S	0.0846 mg/L	0.08 mg/L	106	70.0	130	----
		cobalt, total	7440-48-4	E468S	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		copper, total	7440-50-8	E468S	0.0378 mg/L	0.04 mg/L	94.4	70.0	130	----
		gallium, total	7440-55-3	E468S	0.00536 mg/L	0.005 mg/L	107	70.0	130	----
		iron, total	7439-89-6	E468S	4.12 mg/L	4 mg/L	103	70.0	130	----
		lead, total	7439-92-1	E468S	0.0371 mg/L	0.04 mg/L	92.8	70.0	130	----
		lithium, total	7439-93-2	E468S	0.218 mg/L	0.2 mg/L	109	70.0	130	----
		magnesium, total	7439-95-4	E468S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E468S	0.0426 mg/L	0.04 mg/L	106	70.0	130	----
		molybdenum, total	7439-98-7	E468S	0.0400 mg/L	0.04 mg/L	99.9	70.0	130	----
		nickel, total	7440-02-0	E468S	0.0773 mg/L	0.08 mg/L	96.6	70.0	130	----
		phosphorus, total	7723-14-0	E468S	23.1 mg/L	20 mg/L	115	70.0	130	----
		potassium, total	7440-09-7	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenium, total	7440-15-5	E468S	0.00524 mg/L	0.005 mg/L	105	70.0	130	----
		rubidium, total	7440-17-7	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		selenium, total	7782-49-2	E468S	0.0811 mg/L	0.08 mg/L	101	70.0	130	----
		silver, total	7440-22-4	E468S	0.00753 mg/L	0.008 mg/L	94.2	70.0	130	----
		strontium, total	7440-24-6	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E468S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, total	13494-80-9	E468S	0.0712 mg/L	0.08 mg/L	89.0	70.0	130	----
		thallium, total	7440-28-0	E468S	0.00759 mg/L	0.008 mg/L	94.9	70.0	130	----
		thorium, total	7440-29-1	E468S	0.0415 mg/L	0.04 mg/L	104	70.0	130	----
		tin, total	7440-31-5	E468S	0.0390 mg/L	0.04 mg/L	97.4	70.0	130	----
		titanium, total	7440-32-6	E468S	0.0860 mg/L	0.08 mg/L	108	70.0	130	----
		tungsten, total	7440-33-7	E468S	0.0398 mg/L	0.04 mg/L	99.4	70.0	130	----
		uranium, total	7440-61-1	E468S	0.00777 mg/L	0.008 mg/L	97.2	70.0	130	----
		vanadium, total	7440-62-2	E468S	0.221 mg/L	0.2 mg/L	110	70.0	130	----
		yttrium, total	7440-65-5	E468S	0.00560 mg/L	0.005 mg/L	112	70.0	130	----
		zinc, total	7440-66-6	E468S	0.740 mg/L	0.8 mg/L	92.6	70.0	130	----
		zirconium, total	7440-67-7	E468S	0.0898 mg/L	0.08 mg/L	112	70.0	130	----



Sub-Matrix: <b>Water</b>					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 264851)										
VA21B6250-002	MP-05 ENE	mercury, total	7439-97-6	E508S	0.0000961 mg/L	0.0001 mg/L	96.1	70.0	130	----
Dissolved Metals (QCLot: 260358)										
VA21B6112-003	Anonymous	sodium, dissolved	17341-25-2	E469S.NaSi	99.0 mg/L	100 mg/L	99.0	70.0	130	----
VA21B6112-003	Anonymous	silicon, dissolved	7440-21-3	E469S.NaSi	484 mg/L	500 mg/L	96.9	70.0	130	----
Dissolved Metals (QCLot: 260359)										
VA21B6112-003	Anonymous	aluminum, dissolved	7429-90-5	E469S	0.390 mg/L	0.4 mg/L	97.6	70.0	130	----
		antimony, dissolved	7440-36-0	E469S	0.0373 mg/L	0.04 mg/L	93.4	70.0	130	----
		arsenic, dissolved	7440-38-2	E469S	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		barium, dissolved	7440-39-3	E469S	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		beryllium, dissolved	7440-41-7	E469S	0.0780 mg/L	0.08 mg/L	97.6	70.0	130	----
		bismuth, dissolved	7440-69-9	E469S	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		boron, dissolved	7440-42-8	E469S	0.17 mg/L	0.2 mg/L	84.0	70.0	130	----
		cadmium, dissolved	7440-43-9	E469S	0.00805 mg/L	0.008 mg/L	100	70.0	130	----
		calcium, dissolved	7440-70-2	E469S	7.5 mg/L	8 mg/L	93.7	70.0	130	----
		cesium, dissolved	7440-46-2	E469S	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		chromium, dissolved	7440-47-3	E469S	0.0799 mg/L	0.08 mg/L	99.9	70.0	130	----
		cobalt, dissolved	7440-48-4	E469S	0.0406 mg/L	0.04 mg/L	101	70.0	130	----
		copper, dissolved	7440-50-8	E469S	0.0417 mg/L	0.04 mg/L	104	70.0	130	----
		gallium, dissolved	7440-55-3	E469S	0.00525 mg/L	0.005 mg/L	105	70.0	130	----
		iron, dissolved	7439-89-6	E469S	3.99 mg/L	4 mg/L	99.8	70.0	130	----
		lead, dissolved	7439-92-1	E469S	0.0408 mg/L	0.04 mg/L	102	70.0	130	----
		lithium, dissolved	7439-93-2	E469S	0.192 mg/L	0.2 mg/L	95.9	70.0	130	----
		magnesium, dissolved	7439-95-4	E469S	2.0 mg/L	2 mg/L	99.2	70.0	130	----
		manganese, dissolved	7439-96-5	E469S	0.0407 mg/L	0.04 mg/L	102	70.0	130	----
		molybdenum, dissolved	7439-98-7	E469S	0.0361 mg/L	0.04 mg/L	90.3	70.0	130	----
		nickel, dissolved	7440-02-0	E469S	0.0838 mg/L	0.08 mg/L	105	70.0	130	----
		phosphorus, dissolved	7723-14-0	E469S	18.6 mg/L	20 mg/L	92.8	70.0	130	----
		potassium, dissolved	7440-09-7	E469S	8.0 mg/L	8 mg/L	100	70.0	130	----
		rhenium, dissolved	7440-15-5	E469S	0.00480 mg/L	0.005 mg/L	95.9	70.0	130	----
		rubidium, dissolved	7440-17-7	E469S	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		selenium, dissolved	7782-49-2	E469S	0.0864 mg/L	0.08 mg/L	108	70.0	130	----
		silver, dissolved	7440-22-4	E469S	0.00794 mg/L	0.008 mg/L	99.2	70.0	130	----
		strontium, dissolved	7440-24-6	E469S	0.039 mg/L	0.04 mg/L	96.5	70.0	130	----
		sulfur, dissolved	7704-34-9	E469S	35.4 mg/L	40 mg/L	88.6	70.0	130	----
		tellurium, dissolved	13494-80-9	E469S	0.0863 mg/L	0.08 mg/L	108	70.0	130	----
		thallium, dissolved	7440-28-0	E469S	0.00775 mg/L	0.008 mg/L	96.9	70.0	130	----

Page : 20 of 20  
 Work Order : VA21B6250 Amendment 1  
 Client : Golder Associates Ltd.  
 Project : ----



Sub-Matrix: **Water**

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 260359) - continued										
VA21B6112-003	Anonymous	thorium, dissolved	7440-29-1	E469S	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		tin, dissolved	7440-31-5	E469S	0.0375 mg/L	0.04 mg/L	93.7	70.0	130	----
		titanium, dissolved	7440-32-6	E469S	0.0771 mg/L	0.08 mg/L	96.3	70.0	130	----
		tungsten, dissolved	7440-33-7	E469S	0.0367 mg/L	0.04 mg/L	91.8	70.0	130	----
		uranium, dissolved	7440-61-1	E469S	0.00730 mg/L	0.008 mg/L	91.3	70.0	130	----
		vanadium, dissolved	7440-62-2	E469S	0.191 mg/L	0.2 mg/L	95.6	70.0	130	----
		yttrium, dissolved	7440-65-5	E469S	0.00500 mg/L	0.005 mg/L	100	70.0	130	----
		zinc, dissolved	7440-66-6	E469S	0.855 mg/L	0.8 mg/L	107	70.0	130	----
		zirconium, dissolved	7440-67-7	E469S	0.0736 mg/L	0.08 mg/L	92.0	70.0	130	----
Dissolved Metals (QCLot: 263871)										
VA21B6250-002	MP-05 ENE	mercury, dissolved	7439-97-6	E509S	0.000101 mg/L	0.0001 mg/L	101	70.0	130	----
Volatile Organic Compounds (QCLot: 263791)										
VA21B6224-002	Anonymous	benzene	71-43-2	E611A	99.9 µg/L	100 µg/L	99.9	60.0	140	----
		ethylbenzene	100-41-4	E611A	105 µg/L	100 µg/L	105	60.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	105 µg/L	100 µg/L	105	60.0	140	----
		styrene	100-42-5	E611A	90.8 µg/L	100 µg/L	90.8	60.0	140	----
		toluene	108-88-3	E611A	94.4 µg/L	100 µg/L	94.4	60.0	140	----
		xylene, m+p-	179601-23-1	E611A	185 µg/L	200 µg/L	92.7	60.0	140	----
		xylene, o-	95-47-6	E611A	102 µg/L	100 µg/L	102	60.0	140	----
Hydrocarbons (QCLot: 263792)										
VA21B6250-003	MP-05 North	F1 (C6-C10)	----	E581.VH+F1	4870 µg/L	6310 µg/L	77.1	60.0	140	----



www.alsglobal.com

# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

COC Number: 20 - 920773

Page of

Contact and company name below will appear on the final report

Reports / Recipients

Turnaround Time (TAT) Requested

dd-mm-yy hr:mm am/pm

Company: **Golder Associates Ltd.**

Select Report Format: ☒ PDF ☒ EXCEL ☐ BOD (DIGITAL)

☒ Routine (R) if received by 3pm M-F - no surcharges apply

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Contact: **Trish Tomlins/Eldene Irving**

Merge QC/QCI Reports with COA ☒ YES ☐ NO ☐ N/A

☐ 4 day (F4) if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day (F3) if received by 3pm M-F - 25% rush surcharge minimum

Phone: **(250) 881-7372**

☐ Compare Results to Criteria on Report - provide details below if not checked

☐ 2 day (F2) if received by 3pm M-F - 50% rush surcharge minimum

☐ 1 day (F1) if received by 3pm M-F - 100% rush surcharge minimum

Street: **200-2920 Victoria Way**

Email 1 or Fax **Rethina Tomlins@golder.com**

☐ Same day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

City/Province: **Vancouver, BC**

Email 2 **Eldene Irving@golder.com**

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

Postal Code: **V5M 0C4**

Email 3

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

Invoice To: **Same as Report To**

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

Company: **Copy of Invoice with Report**

Select Invoice Distribution: ☐ YES ☒ NO

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

Contact: **Project Information**

Email 1 or Fax

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

ALS Account # / Quote # **0842602**

Oil and Gas Required Fields (client use)

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

Job #: **1663724-44000-03**

AF/Coast Center: **PO#**

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

PO / AFE: **1663724-44000-03**

Major/Minor Code: **Routing Code:**

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

LSD: **Location:**

Requester:

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

ALS Lab Work Order # (ALS use only):

ALS Contact:

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

Sample Identification and/or Coordinates (This description will appear on the report)

Date (dd-mm-yy) Time (hh:mm) Sampler: Sample Type

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

MP-05 ENE

02-AUG-21 17:00 Seawater

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

MP-05 NORTH

02-AUG-21 16:35 Seawater

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

MP-05 LINW

02-AUG-21 16:45 Seawater

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

MP-05 SOURCE

02-AUG-21 17:00 Seawater

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

DUP-A

02-AUG-21 15:55 Seawater

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

MP-06 ENE

02-AUG-21 17:45 Seawater

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

MP-06 NORTH

02-AUG-21 17:25 Seawater

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

MP-06 LINW

02-AUG-21 17:35 Seawater

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

MP-06 SOURCE

02-AUG-21 17:15 Seawater

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

Drinking Water (DW) Samples (client use)

Notes / Specify Limits for test

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

Are samples taken from a Regulated DW System?

☐ YES ☒ NO

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

Are samples for human consumption use?

☐ YES ☒ NO

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

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Released by: **WJG** Date: **3 AUG 2021**

Time: **14:45** Received by: **WJG**

☐ 1 day (E) if received by 10am M-F - 200% rush surcharge. Additional fees may apply (rush) requests on weekends, statutory holidays and non-routine tests

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Refer to BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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 that the samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC.

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

Telephone: +1 804 253 4186

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EnvironmentaI Division

Vancouver Work Order Reference

VA21B6250

VA21B6250

SHIPPING RELEASE (client use)

Time: **14:45** Received by: **WJG**

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Released by: **WJG** Date: **3 AUG 2021**

Time: **14:45** Received by: **WJG**

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## CERTIFICATE OF ANALYSIS

**Work Order** : **VA21B6876**  
**Client** : **Golder Associates Ltd.**  
**Contact** : Elaine Irving  
**Address** : 200-2920 Virtual Way  
                   Vancouver BC Canada V5M 0C4  
**Telephone** : ----  
**Project** : ----  
**PO** : ----  
**C-O-C number** : 20-920779  
**Sampler** : ----  
**Site** : ----  
**Quote number** : Q84262  
**No. of samples received** : 9  
**No. of samples analysed** : 9

**Page** : 1 of 14  
**Laboratory** : Vancouver - Environmental  
**Account Manager** : Amber Springer  
**Address** : 8081 Lougheed Highway  
                   Burnaby BC Canada V5A 1W9  
**Telephone** : +1 604 253 4188  
**Date Samples Received** : 12-Aug-2021 09:20  
**Date Analysis Commenced** : 12-Aug-2021  
**Issue Date** : 30-Aug-2021 17:18

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Aaron Yu	Laboratory Analyst	Inorganics, Burnaby, British Columbia
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Courtney Cox	Analyst	Inorganics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Jay Jang	Lab Assistant	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



## General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances  
LOR: Limit of Reporting (detection limit).

Unit	Description
-	No Unit
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

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

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

## Qualifiers

Qualifier	Description
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

Client sampling date / time					MP-06-Source	MP-06-WNW	MP-06-North	MP-06-ENE	MP-05-ENE
					08-Aug-2021 15:10	08-Aug-2021 15:35	08-Aug-2021 15:55	08-Aug-2021 16:10	08-Aug-2021 17:10
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-001	VA21B6876-002	VA21B6876-003	VA21B6876-004	VA21B6876-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	92.9	105	111	108	85.6
conductivity	----	E100S	2.0	µS/cm	37300	41700	46000	45200	33500
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	4720	5490	6230	6080	4860
pH	----	E108	0.10	pH units	8.01	8.02	8.02	8.02	7.89
salinity	----	EC100S	1.0	psu	24.4	27.6	30.8	30.2	21.6
solids, total dissolved [TDS]	----	E162S	10	mg/L	27900	30300	33400	32400	24400
solids, total suspended [TSS]	----	E160S	2.0	mg/L	2.2	<2.0	3.5	<2.0	4.0
turbidity	----	E121	0.10	NTU	<0.10	0.35	0.13	0.14	0.51
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
bromide	24959-67-9	E235S.Br	5.0	mg/L	50.5	54.3	63.1	60.3	44.1
chloride	16887-00-6	E235S.Cl	50	mg/L	14500	15600	18100	17200	12600
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.60	0.69	0.77	0.76	0.63
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.087	0.092	0.093	0.102	0.094
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	0.027
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0172	0.0190	0.0248	0.0210	0.0177
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	1880	2130	2370	2320	1690
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	0.90 <sup>HTD</sup>	1.13 <sup>HTD</sup>	1.21 <sup>HTD</sup>	1.16 <sup>HTD</sup>	1.79 <sup>HTD</sup>
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.83	0.82	0.94	0.89	0.84
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0076	<0.0050	<0.0050	<0.0050	0.0056
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, total	7440-38-2	E468S	0.00040	mg/L	0.00141	0.00155	0.00162	0.00167	0.00145
barium, total	7440-39-3	E468S	0.0010	mg/L	0.0074	0.0058	0.0092	0.0073	0.0072
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, total	7440-42-8	E468S	0.30	mg/L	3.19	3.64	3.92	3.77	3.09
cadmium, total	7440-43-9	E468S	0.000010	mg/L	0.000037	0.000035	0.000044	0.000041	0.000027



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06-Source	MP-06-WNW	MP-06-North	MP-06-ENE	MP-05-ENE
Client sampling date / time					08-Aug-2021 15:10	08-Aug-2021 15:35	08-Aug-2021 15:55	08-Aug-2021 16:10	08-Aug-2021 17:10
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-001	VA21B6876-002	VA21B6876-003	VA21B6876-004	VA21B6876-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
calcium, total	7440-70-2	E468S	1.0	mg/L	308	360	391	384	312
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, total	7440-50-8	E468S	0.00050	mg/L	0.00052	<0.00050	<0.00050	0.00100	<0.00050
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, total	7439-89-6	E468S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
lead, total	7439-92-1	E468S	0.000050	mg/L	0.000070	<0.000050	<0.000050	<0.000050	<0.000050
lithium, total	7439-93-2	E468S	0.020	mg/L	0.132	0.146	0.149	0.148	0.124
magnesium, total	7439-95-4	E468S	1.0	mg/L	900	1010	1100	1110	900
manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00102	0.00084	0.00056	0.00069	0.00101
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00814	0.00913	0.00998	0.00974	0.00854
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E468S	1.0	mg/L	305	350	385	391	313
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0846	0.0957	0.104	0.104	0.0857
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	7740	8320	9020	9120	7560
strontium, total	7440-24-6	E468S	0.010	mg/L	5.54	6.30	7.01	6.76	5.79
sulfur, total	7704-34-9	E468S	5.0	mg/L	729	864	995	948	780
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00272	0.00235	0.00261	0.00248	0.00224



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06-Source	MP-06-WNW	MP-06-North	MP-06-ENE	MP-05-ENE
Client sampling date / time					08-Aug-2021 15:10	08-Aug-2021 15:35	08-Aug-2021 15:55	08-Aug-2021 16:10	08-Aug-2021 17:10
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-001	VA21B6876-002	VA21B6876-003	VA21B6876-004	VA21B6876-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
vanadium, total	7440-62-2	E468S	0.00050	mg/L	0.00108	0.00126	0.00135	0.00133	0.00113
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
<b>Dissolved Metals</b>									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	0.00115	0.00138	0.00150	0.00146	0.00124
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0068	0.0056	0.0078	0.0072	0.0070
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, dissolved	7440-42-8	E469S	0.30	mg/L	3.42	3.84	4.48	4.38	3.46
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	0.000034	0.000033	0.000038	0.000028	0.000030
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	321	367	417	408	335
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00045	0.00049	0.00031	0.00027	0.00040
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	0.149	0.174	0.198	0.190	0.152
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	951	1110	1260	1230	978
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00085	0.00083	0.00050	0.00061	0.00092
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00790	0.00918	0.0103	0.00994	0.00838
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	314	364	417	408	320
rhenium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0824	0.0961	0.109	0.107	0.0852



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06-Source	MP-06-WNW	MP-06-North	MP-06-ENE	MP-05-ENE
Client sampling date / time					08-Aug-2021 15:10	08-Aug-2021 15:35	08-Aug-2021 15:55	08-Aug-2021 16:10	08-Aug-2021 17:10
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-001	VA21B6876-002	VA21B6876-003	VA21B6876-004	VA21B6876-005
					Result	Result	Result	Result	Result
<b>Dissolved Metals</b>									
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	7160	8200	9240	9020	7400
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	5.49	6.36	7.26	6.99	5.78
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	773	897	1020	1020	800
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00493 <sup>DTG</sup>	0.00254	0.00267	0.00259	0.00230
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	0.00105	0.00130	0.00140	0.00140	0.00111
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	0.0013	<0.0010	0.0011	<0.0010	0.0012
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	Field	Field
<b>Volatile Organic Compounds [Fuels]</b>									
benzene	71-43-2	E611A	0.50	µg/L	<0.50	----	----	<0.50	----
ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	----	----	<0.50	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	----	----	<0.50	----
styrene	100-42-5	E611A	0.50	µg/L	<0.50	----	----	<0.50	----
toluene	108-88-3	E611A	0.50	µg/L	<0.50	----	----	<0.50	----
xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	----	----	<0.40	----
xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	----	----	<0.30	----
xylenes, total	1330-20-7	E611A	0.50	µg/L	<0.50	----	----	<0.50	----
<b>Volatile Organic Compounds Surrogates</b>									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	97.3	----	----	89.5	----
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	119	----	----	80.4	----



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06-Source	MP-06-WNW	MP-06-North	MP-06-ENE	MP-05-ENE
Client sampling date / time					08-Aug-2021 15:10	08-Aug-2021 15:35	08-Aug-2021 15:55	08-Aug-2021 16:10	08-Aug-2021 17:10
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-001	VA21B6876-002	VA21B6876-003	VA21B6876-004	VA21B6876-005
					Result	Result	Result	Result	Result
<b>Hydrocarbons</b>									
F2 (C10-C16)	----	E601	100	µg/L	<100	----	----	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----	----	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----	----	<250	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	----	<100	----
F1-BTEX	----	EC580	100	µg/L	<100	----	----	<100	----
VPW	----	EC580A	100	µg/L	<100	----	----	<100	----
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	----	<100	----
<b>Hydrocarbons Surrogates</b>									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	E601	1.0	%	79.2	----	----	78.1	----
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	122	----	----	94.4	----
<b>Polycyclic Aromatic Hydrocarbons</b>									
acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
acridine	260-94-6	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
anthracene	120-12-7	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	----	----	<0.0050	----
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	<0.015	----	----	<0.015	----
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
chrysene	218-01-9	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	----	----	<0.0050	----
fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
fluorene	86-73-7	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
methylnaphthalene, 1+2-	----	E641A	0.015	µg/L	<0.015	----	----	<0.015	----
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	0.013	----	----	<0.010	----
naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	----	----	<0.050	----
phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	----	----	<0.020	----





## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

					Client sample ID	MP-06-Source	MP-06-WNW	MP-06-North	MP-06-ENE	MP-05-ENE
					Client sampling date / time	08-Aug-2021 15:10	08-Aug-2021 15:35	08-Aug-2021 15:55	08-Aug-2021 16:10	08-Aug-2021 17:10
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-001	VA21B6876-002	VA21B6876-003	VA21B6876-004	VA21B6876-005	
					Result	Result	Result	Result	Result	Result
<b>Polycyclic Aromatic Hydrocarbons</b>										
pyrene	129-00-0	E641A	0.010	µg/L	<0.010	----	----	----	<0.010	----
quinoline	6027-02-7	E641A	0.050	µg/L	<0.050	----	----	----	<0.050	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A	0.010	µg/L	<0.010	----	----	----	<0.010	----
PAHs, high molecular weight (BC AWQ)	----	E641A	0.030	µg/L	<0.030	----	----	----	<0.030	----
PAHs, low molecular weight (BC AWQ)	----	E641A	0.060	µg/L	<0.060	----	----	----	<0.060	----
PAHs, total (EPA 16)	----	E641A	0.065	µg/L	<0.065	----	----	----	<0.065	----
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>										
chrysene-d12	1719-03-5	E641A	0.1	%	77.3	----	----	----	92.6	----
naphthalene-d8	1146-65-2	E641A	0.1	%	85.2	----	----	----	102	----
phenanthrene-d10	1517-22-2	E641A	0.1	%	98.2	----	----	----	88.8	----

Please refer to the General Comments section for an explanation of any qualifiers detected.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

					MP-05-Source	MP-05-North	MP-05-WNW	DUP-B	----
(Matrix: Water)									
Client sampling date / time					08-Aug-2021 17:16	08-Aug-2021 17:23	08-Aug-2021 17:32	08-Aug-2021	----
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-006	VA21B6876-007	VA21B6876-008	VA21B6876-009	-----
					Result	Result	Result	Result	----
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	92.7	91.6	91.9	92.9	----
conductivity	----	E100S	2.0	µS/cm	37300	37000	36600	37300	----
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	4730	4840	4630	4630	----
pH	----	E108	0.10	pH units	8.00	7.99	8.00	7.99	----
salinity	----	EC100S	1.0	psu	24.4	24.1	23.8	24.4	----
solids, total dissolved [TDS]	----	E162S	10	mg/L	25000	25000	25300	25800	----
solids, total suspended [TSS]	----	E160S	2.0	mg/L	<2.0	4.6	<2.0	<2.0	----
turbidity	----	E121	0.10	NTU	0.13	0.34	0.29	0.16	----
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
bromide	24959-67-9	E235S.Br	5.0	mg/L	47.9	49.5	49.8	49.1	----
chloride	16887-00-6	E235S.Cl	50	mg/L	13700	14200	14200	14200	----
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.65	0.66	0.66	0.68	----
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.106	0.084	0.089	0.084	----
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	0.212	<0.010	<0.010	<0.010	----
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0350	0.0169	0.0171	0.0167	----
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	1870	1840	1890	1950	----
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.27 <sup>HTD</sup>	1.34 <sup>HTD</sup>	1.06 <sup>HTD</sup>	1.18 <sup>HTD</sup>	----
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.79	0.78	0.86	0.92	----
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0076	0.0070	0.0064	0.0091	----
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
arsenic, total	7440-38-2	E468S	0.00040	mg/L	0.00131	0.00138	0.00128	0.00132	----
barium, total	7440-39-3	E468S	0.0010	mg/L	0.0072	0.0073	0.0074	0.0073	----
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
boron, total	7440-42-8	E468S	0.30	mg/L	3.06	3.05	3.06	3.08	----
cadmium, total	7440-43-9	E468S	0.000010	mg/L	0.000031	0.000035	0.000026	0.000027	----
calcium, total	7440-70-2	E468S	1.0	mg/L	308	306	312	311	----



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05-Source	MP-05-North	MP-05-WNW	DUP-B	----
Client sampling date / time					08-Aug-2021 17:16	08-Aug-2021 17:23	08-Aug-2021 17:32	08-Aug-2021	----
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-006	VA21B6876-007	VA21B6876-008	VA21B6876-009	-----
					Result	Result	Result	Result	----
<b>Total Metals</b>									
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	0.00059	<0.00050	0.00065	----
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
iron, total	7439-89-6	E468S	0.010	mg/L	0.010	<0.010	<0.010	<0.010	----
lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	0.000076	----
lithium, total	7439-93-2	E468S	0.020	mg/L	0.122	0.122	0.123	0.122	----
magnesium, total	7439-95-4	E468S	1.0	mg/L	874	896	866	878	----
manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00108	0.00094	0.00108	0.00100	----
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00817	0.00825	0.00814	0.00822	----
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
phosphorus, total	7723-14-0	E468S	0.050	mg/L	0.070	<0.050	<0.050	<0.050	----
potassium, total	7440-09-7	E468S	1.0	mg/L	307	320	310	308	----
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0820	0.0830	0.0823	0.0813	----
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	7480	7400	7410	7360	----
strontium, total	7440-24-6	E468S	0.010	mg/L	5.65	5.79	5.68	5.69	----
sulfur, total	7704-34-9	E468S	5.0	mg/L	759	761	742	745	----
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00216	0.00216	0.00223	0.00272	----
vanadium, total	7440-62-2	E468S	0.00050	mg/L	0.00107	0.00113	0.00111	0.00109	----



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05-Source	MP-05-North	MP-05-WNW	DUP-B	----
Client sampling date / time					08-Aug-2021 17:16	08-Aug-2021 17:23	08-Aug-2021 17:32	08-Aug-2021	----
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-006	VA21B6876-007	VA21B6876-008	VA21B6876-009	-----
					Result	Result	Result	Result	----
<b>Total Metals</b>									
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	----
zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
<b>Dissolved Metals</b>									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	0.00117	0.00116	0.00115	0.00122	----
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0069	0.0070	0.0068	0.0070	----
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
boron, dissolved	7440-42-8	E469S	0.30	mg/L	3.36	3.50	3.45	3.34	----
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	0.000024	0.000028	0.000028	0.000025	----
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	331	333	330	319	----
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00058	0.00048	0.00030	0.00046	----
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	0.151	0.152	0.150	0.148	----
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	948	974	925	931	----
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00095	0.00089	0.00095	0.00086	----
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00807	0.00832	0.00836	0.00823	----
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	316	322	309	303	----
rhenium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0832	0.0848	0.0806	0.0823	----
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----

Sub-Matrix: Seawater (Matrix: Water)					Client sample ID	MP-05-Source	MP-05-North	MP-05-WNW	DUP-B	----
Client sampling date / time					08-Aug-2021 17:16	08-Aug-2021 17:23	08-Aug-2021 17:32	08-Aug-2021	----	
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-006	VA21B6876-007	VA21B6876-008	VA21B6876-009	-----	
					Result	Result	Result	Result	----	
Dissolved Metals										
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----	
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----	
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	7310	7610	7260	7610	----	
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	5.61	5.82	5.72	5.61	----	
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	781	793	780	774	----	
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----	
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----	
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----	
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----	
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00223	0.00221	0.00238	0.00500 <sup>DTC</sup>	----	
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	0.00110	0.00109	0.00104	0.00104	----	
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	0.0014	0.0033	0.0023	0.0014	----	
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	Field	----	
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	Field	----	
Volatile Organic Compounds [Fuels]										
benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	----	<0.50	----	
ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	----	<0.50	----	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	----	<0.50	----	
styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	----	<0.50	----	
toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	----	<0.50	----	
xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	----	<0.40	----	
xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	----	<0.30	----	
xylenes, total	1330-20-7	E611A	0.50	µg/L	<0.50	<0.50	----	<0.50	----	
Volatile Organic Compounds Surrogates										
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	95.0	97.8	----	96.3	----	
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	84.3	122	----	118	----	
Hydrocarbons										



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05-Source	MP-05-North	MP-05-WNW	DUP-B	----
Client sampling date / time					08-Aug-2021 17:16	08-Aug-2021 17:23	08-Aug-2021 17:32	08-Aug-2021	----
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-006	VA21B6876-007	VA21B6876-008	VA21B6876-009	-----
					Result	Result	Result	Result	----
<b>Hydrocarbons</b>									
F2 (C10-C16)	----	E601	100	µg/L	<100	<100	----	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	<250	----	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	<250	----	<250	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	----	<100	----
F1-BTEX	----	EC580	100	µg/L	<100	<100	----	<100	----
VPWw	----	EC580A	100	µg/L	<100	<100	----	<100	----
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	----	<100	----
<b>Hydrocarbons Surrogates</b>									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	E601	1.0	%	80.8	78.4	----	81.8	----
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	114	85.9	----	77.8	----
<b>Polycyclic Aromatic Hydrocarbons</b>									
acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
acridine	260-94-6	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
anthracene	120-12-7	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	<0.0050	----	<0.0050	----
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	<0.015	<0.015	----	<0.015	----
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
chrysene	218-01-9	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	<0.0050	----	<0.0050	----
fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
fluorene	86-73-7	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----
methylnaphthalene, 1+2-	----	E641A	0.015	µg/L	<0.015	<0.015	----	0.018	----
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	<0.010	<0.010	----	0.018	----
naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	<0.050	----	<0.050	----
phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	<0.020	----	<0.020	----



## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

					Client sample ID	MP-05-Source	MP-05-North	MP-05-WNW	DUP-B	----
					Client sampling date / time	08-Aug-2021 17:16	08-Aug-2021 17:23	08-Aug-2021 17:32	08-Aug-2021	----
Analyte	CAS Number	Method	LOR	Unit	VA21B6876-006	VA21B6876-007	VA21B6876-008	VA21B6876-009	-----	----
					Result	Result	Result	Result	-----	----
<b>Polycyclic Aromatic Hydrocarbons</b>										
pyrene	129-00-0	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----	----
quinoline	6027-02-7	E641A	0.050	µg/L	<0.050	<0.050	----	<0.050	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A	0.010	µg/L	<0.010	<0.010	----	<0.010	----	----
PAHs, high molecular weight (BC AWQ)	----	E641A	0.030	µg/L	<0.030	<0.030	----	<0.030	----	----
PAHs, low molecular weight (BC AWQ)	----	E641A	0.060	µg/L	<0.060	<0.060	----	<0.060	----	----
PAHs, total (EPA 16)	----	E641A	0.065	µg/L	<0.065	<0.065	----	<0.065	----	----
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>										
chrysene-d12	1719-03-5	E641A	0.1	%	79.8	83.6	----	79.6	----	----
naphthalene-d8	1146-65-2	E641A	0.1	%	103	101	----	108	----	----
phenanthrene-d10	1517-22-2	E641A	0.1	%	90.1	89.2	----	90.3	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.



## QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: <b>VA21B6876</b>	Page	: 1 of 35
Client	: <b>Golder Associates Ltd.</b>	Laboratory	: Vancouver - Environmental
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 200-2920 Virtual Way Vancouver BC Canada V5M 0C4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: ----	Date Samples Received	: 12-Aug-2021 09:20
PO	: ----	Issue Date	: 30-Aug-2021 17:17
C-O-C number	: 20-920779		
Sampler	: ----		
Site	: ----		
Quote number	: Q84262		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

### Key

**Anonymous:** Refers to samples which are not part of this work order, but which formed part of the QC process lot.

**CAS Number:** Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

**DQO:** Data Quality Objective.

**LOR:** Limit of Reporting (detection limit).

**RPD:** Relative Percent Difference.

## Summary of Outliers

### Outliers : Quality Control Samples

- No Duplicate outliers occur.
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

### Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

### Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

### Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



## Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
<b>Method Blank (MB) Values</b>								
Physical Tests	QC-MRG2-2683890 01	----	alkalinity, total (as CaCO3)	----	E290	1.5 mg/L <sup>B</sup>	1.5 mg/L	Blank result exceeds permitted value

### Result Qualifiers

Qualifier Description

**B** Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.

### Laboratory Control Sample (LCS) Recoveries

Total Metals	QC-MRG2-2688180 02	----	tellurium, total	13494-80-9	E468S	123 % <sup>MES</sup>	80.0-120%	Recovery greater than upper control limit
Dissolved Metals	QC-MRG2-2667000 02	----	sulfur, dissolved	7704-34-9	E469S	76.8 % <sup>MES</sup>	80.0-120%	Recovery less than lower control limit

### Result Qualifiers

Qualifier Description

**MES** Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: **✖** = Holding time exceedance ; **✓** = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Holding and Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUP-B	E298	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06-Source	E298	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06-WNW	E298	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05-ENE	E298	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05-North	E298	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05-Source	E298	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05-WNW	E298	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06-ENE	E298	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06-North	E298	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE DUP-B	E235S.Br	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05-ENE	E235S.Br	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05-North	E235S.Br	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05-Source	E235S.Br	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05-WNW	E235S.Br	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06-ENE	E235S.Br	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06-North	E235S.Br	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06-Source	E235S.Br	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06-WNW	E235S.Br	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE DUP-B	E235S.Cl	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05-ENE	E235S.Cl	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05-North	E235S.Cl	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05-Source	E235S.Cl	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05-WNW	E235S.Cl	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06-ENE	E235S.Cl	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06-North	E235S.Cl	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06-Source	E235S.Cl	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06-WNW	E235S.Cl	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE DUP-B	E235S.F-L	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05-ENE	E235S.F-L	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05-North	E235S.F-L	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05-Source	E235S.F-L	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05-WNW	E235S.F-L	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06-ENE	E235S.F-L	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06-North	E235S.F-L	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06-Source	E235S.F-L	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06-WNW	E235S.F-L	08-Aug-2021	----	----	----		23-Aug-2021	28 days	15 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05-ENE	E235S.NO3-T	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05-North	E235S.NO3-T	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05-Source	E235S.NO3-T	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05-WNW	E235S.NO3-T	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE DUP-B	E235S.NO3-T	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	✖ EHTR
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06-ENE	E235S.NO3-T	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	✖ EHTR
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06-North	E235S.NO3-T	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	✖ EHTR





Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06-Source	E235S.NO3-T	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06-WNW	E235S.NO3-T	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-ENE	E235S.NO2-L	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-North	E235S.NO2-L	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-Source	E235S.NO2-L	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-WNW	E235S.NO2-L	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE DUP-B	E235S.NO2-L	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-ENE	E235S.NO2-L	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-North	E235S.NO2-L	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTR</div>



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-Source	E235S.NO2-L	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06-WNW	E235S.NO2-L	08-Aug-2021	----	----	----		23-Aug-2021	3 days	15 days	<div>✖ EHTR</div>
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE DUP-B	E235S.SO4-L	08-Aug-2021	----	----	----		23-Aug-2021	----	15 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05-ENE	E235S.SO4-L	08-Aug-2021	----	----	----		23-Aug-2021	----	15 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05-North	E235S.SO4-L	08-Aug-2021	----	----	----		23-Aug-2021	----	15 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05-Source	E235S.SO4-L	08-Aug-2021	----	----	----		23-Aug-2021	----	15 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05-WNW	E235S.SO4-L	08-Aug-2021	----	----	----		23-Aug-2021	----	15 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06-ENE	E235S.SO4-L	08-Aug-2021	----	----	----		23-Aug-2021	----	15 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06-North	E235S.SO4-L	08-Aug-2021	----	----	----		23-Aug-2021	----	15 days	



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06-Source	E235S.S04-L	08-Aug-2021	----	----	----		23-Aug-2021	----	15 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06-WNW	E235S.S04-L	08-Aug-2021	----	----	----		23-Aug-2021	----	15 days	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) DUP-B	E318S	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06-Source	E318S	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06-WNW	E318S	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05-ENE	E318S	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05-North	E318S	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓
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Amber glass total (sulfuric acid) MP-05-Source	E318S	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05-WNW	E318S	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06-ENE	E318S	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06-North	E318S	08-Aug-2021	17-Aug-2021	----	----		18-Aug-2021	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) DUP-B	E372S	08-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05-ENE	E372S	08-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05-North	E372S	08-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05-Source	E372S	08-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05-WNW	E372S	08-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06-ENE	E372S	08-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06-North	E372S	08-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	14 days	✓



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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06-Source	E372S	08-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06-WNW	E372S	08-Aug-2021	21-Aug-2021	----	----		22-Aug-2021	28 days	14 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) DUP-B	E509S	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05-ENE	E509S	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05-North	E509S	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05-Source	E509S	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05-WNW	E509S	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06-ENE	E509S	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06-North	E509S	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✓



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Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06-Source	E509S	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06-WNW	E509S	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) DUP-B	E469S	08-Aug-2021	13-Aug-2021	----	----		15-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05-ENE	E469S	08-Aug-2021	13-Aug-2021	----	----		15-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05-North	E469S	08-Aug-2021	13-Aug-2021	----	----		15-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05-Source	E469S	08-Aug-2021	13-Aug-2021	----	----		15-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05-WNW	E469S	08-Aug-2021	13-Aug-2021	----	----		15-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06-ENE	E469S	08-Aug-2021	13-Aug-2021	----	----		15-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06-North	E469S	08-Aug-2021	13-Aug-2021	----	----		15-Aug-2021	180 days	7 days	✔





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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06-Source	E469S	08-Aug-2021	13-Aug-2021	----	----		15-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06-WNW	E469S	08-Aug-2021	13-Aug-2021	----	----		15-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) DUP-B	E469S.NaSi	08-Aug-2021	13-Aug-2021	----	----		16-Aug-2021	180 days	8 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05-ENE	E469S.NaSi	08-Aug-2021	13-Aug-2021	----	----		16-Aug-2021	180 days	8 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05-North	E469S.NaSi	08-Aug-2021	13-Aug-2021	----	----		16-Aug-2021	180 days	8 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05-Source	E469S.NaSi	08-Aug-2021	13-Aug-2021	----	----		16-Aug-2021	180 days	8 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05-WNW	E469S.NaSi	08-Aug-2021	13-Aug-2021	----	----		16-Aug-2021	180 days	8 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06-ENE	E469S.NaSi	08-Aug-2021	13-Aug-2021	----	----		16-Aug-2021	180 days	8 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06-North	E469S.NaSi	08-Aug-2021	13-Aug-2021	----	----		16-Aug-2021	180 days	8 days	✔





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				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06-Source	E469S.NaSi	08-Aug-2021	13-Aug-2021	----	----		16-Aug-2021	180 days	8 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06-WNW	E469S.NaSi	08-Aug-2021	13-Aug-2021	----	----		16-Aug-2021	180 days	8 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-Source	E601	08-Aug-2021	16-Aug-2021	14 days	8 days	✓	19-Aug-2021	40 days	3 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) DUP-B	E601	08-Aug-2021	17-Aug-2021	14 days	9 days	✓	18-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-North	E601	08-Aug-2021	17-Aug-2021	14 days	9 days	✓	18-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-Source	E601	08-Aug-2021	17-Aug-2021	14 days	9 days	✓	18-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-ENE	E601	08-Aug-2021	17-Aug-2021	14 days	9 days	✓	18-Aug-2021	40 days	1 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) DUP-B	E581.VH+F1	08-Aug-2021	19-Aug-2021	----	----		19-Aug-2021	14 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05-North	E581.VH+F1	08-Aug-2021	19-Aug-2021	----	----		19-Aug-2021	14 days	11 days	✓



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Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05-Source	E581.VH+F1	08-Aug-2021	19-Aug-2021	----	----		19-Aug-2021	14 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06-ENE	E581.VH+F1	08-Aug-2021	19-Aug-2021	----	----		19-Aug-2021	14 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06-Source	E581.VH+F1	08-Aug-2021	19-Aug-2021	----	----		19-Aug-2021	14 days	11 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05-ENE	E358-L	08-Aug-2021	21-Aug-2021	3 days	13 days	✖ EHTL	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05-North	E358-L	08-Aug-2021	21-Aug-2021	3 days	13 days	✖ EHTL	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05-Source	E358-L	08-Aug-2021	21-Aug-2021	3 days	13 days	✖ EHTL	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05-WNW	E358-L	08-Aug-2021	21-Aug-2021	3 days	13 days	✖ EHTL	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) DUP-B	E358-L	08-Aug-2021	21-Aug-2021	3 days	13 days	✖ EHTR	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06-ENE	E358-L	08-Aug-2021	21-Aug-2021	3 days	13 days	✖ EHTR	22-Aug-2021	28 days	1 days	✓



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06-North	E358-L	08-Aug-2021	21-Aug-2021	3 days	13 days	✖ EHTR	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06-Source	E358-L	08-Aug-2021	21-Aug-2021	3 days	13 days	✖ EHTR	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06-WNW	E358-L	08-Aug-2021	21-Aug-2021	3 days	13 days	✖ EHTR	22-Aug-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05-ENE	E355-L	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05-North	E355-L	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05-Source	E355-L	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05-WNW	E355-L	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06-ENE	E355-L	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06-North	E355-L	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	8 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) DUP-B	E355-L	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06-Source	E355-L	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06-WNW	E355-L	08-Aug-2021	17-Aug-2021	----	----		17-Aug-2021	28 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE DUP-B	E290	08-Aug-2021	----	----	----		17-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05-ENE	E290	08-Aug-2021	----	----	----		17-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05-North	E290	08-Aug-2021	----	----	----		17-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05-Source	E290	08-Aug-2021	----	----	----		17-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05-WNW	E290	08-Aug-2021	----	----	----		17-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-ENE	E290	08-Aug-2021	----	----	----		17-Aug-2021	14 days	9 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-North	E290	08-Aug-2021	----	----	----		17-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-Source	E290	08-Aug-2021	----	----	----		17-Aug-2021	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06-WNW	E290	08-Aug-2021	----	----	----		17-Aug-2021	14 days	9 days	✓
Physical Tests : Conductivity in Seawater										
HDPE DUP-B	E100S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05-ENE	E100S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05-North	E100S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05-Source	E100S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05-WNW	E100S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06-ENE	E100S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✓



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Seawater										
HDPE MP-06-North	E100S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06-Source	E100S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06-WNW	E100S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✓
Physical Tests : pH by Meter										
HDPE MP-05-North	E108	08-Aug-2021	----	----	----		17-Aug-2021	0.25 hrs	217 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05-Source	E108	08-Aug-2021	----	----	----		17-Aug-2021	0.25 hrs	217 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05-WNW	E108	08-Aug-2021	----	----	----		17-Aug-2021	0.25 hrs	217 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05-ENE	E108	08-Aug-2021	----	----	----		17-Aug-2021	0.25 hrs	218 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06-ENE	E108	08-Aug-2021	----	----	----		17-Aug-2021	0.25 hrs	219 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06-North	E108	08-Aug-2021	----	----	----		17-Aug-2021	0.25 hrs	219 hrs	✖ EHTR-FM



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE MP-06-WNW	E108	08-Aug-2021	----	----	----		17-Aug-2021	0.25 hrs	219 hrs	* EHTR-FM
Physical Tests : pH by Meter										
HDPE DUP-B	E108	08-Aug-2021	----	----	----		17-Aug-2021	0.25 hrs	220 hrs	* EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06-Source	E108	08-Aug-2021	----	----	----		17-Aug-2021	0.25 hrs	220 hrs	* EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE DUP-B	E162S	08-Aug-2021	----	----	----		21-Aug-2021	7 days	13 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05-ENE	E162S	08-Aug-2021	----	----	----		21-Aug-2021	7 days	13 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05-North	E162S	08-Aug-2021	----	----	----		21-Aug-2021	7 days	13 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05-Source	E162S	08-Aug-2021	----	----	----		21-Aug-2021	7 days	13 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05-WNW	E162S	08-Aug-2021	----	----	----		21-Aug-2021	7 days	13 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06-ENE	E162S	08-Aug-2021	----	----	----		21-Aug-2021	7 days	13 days	* EHT





Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06-North	E162S	08-Aug-2021	----	----	----		21-Aug-2021	7 days	13 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06-Source	E162S	08-Aug-2021	----	----	----		21-Aug-2021	7 days	13 days	* EHT
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06-WNW	E162S	08-Aug-2021	----	----	----		21-Aug-2021	7 days	13 days	* EHT
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE DUP-B	E160S	08-Aug-2021	----	----	----		14-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05-ENE	E160S	08-Aug-2021	----	----	----		14-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05-North	E160S	08-Aug-2021	----	----	----		14-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05-Source	E160S	08-Aug-2021	----	----	----		14-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05-WNW	E160S	08-Aug-2021	----	----	----		14-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06-ENE	E160S	08-Aug-2021	----	----	----		14-Aug-2021	7 days	6 days	✓



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06-North	E160S	08-Aug-2021	----	----	----		14-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06-Source	E160S	08-Aug-2021	----	----	----		14-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06-WNW	E160S	08-Aug-2021	----	----	----		14-Aug-2021	7 days	6 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE DUP-B	E121	08-Aug-2021	----	----	----		12-Aug-2021	3 days	4 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-ENE	E121	08-Aug-2021	----	----	----		12-Aug-2021	3 days	4 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-North	E121	08-Aug-2021	----	----	----		12-Aug-2021	3 days	4 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-Source	E121	08-Aug-2021	----	----	----		12-Aug-2021	3 days	4 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06-WNW	E121	08-Aug-2021	----	----	----		12-Aug-2021	3 days	4 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-ENE	E121	08-Aug-2021	----	----	----		12-Aug-2021	3 days	4 days	✖



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-North	E121	08-Aug-2021	----	----	----		12-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-Source	E121	08-Aug-2021	----	----	----		12-Aug-2021	3 days	4 days	✖
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-WNW	E121	08-Aug-2021	----	----	----		12-Aug-2021	3 days	4 days	✖
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-Source	E641A	08-Aug-2021	16-Aug-2021	14 days	8 days	✔	18-Aug-2021	40 days	1 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) DUP-B	E641A	08-Aug-2021	17-Aug-2021	14 days	9 days	✔	17-Aug-2021	40 days	0 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-North	E641A	08-Aug-2021	17-Aug-2021	14 days	9 days	✔	17-Aug-2021	40 days	0 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-Source	E641A	08-Aug-2021	17-Aug-2021	14 days	9 days	✔	17-Aug-2021	40 days	0 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06-ENE	E641A	08-Aug-2021	17-Aug-2021	14 days	9 days	✔	17-Aug-2021	40 days	0 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) DUP-B	E508S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05-ENE	E508S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05-North	E508S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05-Source	E508S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05-WNW	E508S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06-ENE	E508S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06-North	E508S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06-Source	E508S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06-WNW	E508S	08-Aug-2021	----	----	----		17-Aug-2021	28 days	9 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) DUP-B	E468S	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✔



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05-ENE	E468S	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05-North	E468S	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05-Source	E468S	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05-WNW	E468S	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06-ENE	E468S	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06-North	E468S	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06-Source	E468S	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06-WNW	E468S	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) DUP-B	E468S.NaSi	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05-ENE	E468S.NaSi	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05-North	E468S.NaSi	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05-Source	E468S.NaSi	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05-WNW	E468S.NaSi	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06-ENE	E468S.NaSi	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06-North	E468S.NaSi	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06-Source	E468S.NaSi	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06-WNW	E468S.NaSi	08-Aug-2021	----	----	----		18-Aug-2021	180 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) DUP-B	E611A	08-Aug-2021	19-Aug-2021	----	----		19-Aug-2021	14 days	11 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05-North	E611A	08-Aug-2021	19-Aug-2021	----	----		19-Aug-2021	14 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05-Source	E611A	08-Aug-2021	19-Aug-2021	----	----		19-Aug-2021	14 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-06-ENE	E611A	08-Aug-2021	19-Aug-2021	----	----		19-Aug-2021	14 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-06-Source	E611A	08-Aug-2021	19-Aug-2021	----	----		19-Aug-2021	14 days	11 days	✓

**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).





## Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	268390	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	268403	1	18	5.5	5.0	✓
Bromide in Seawater by IC	E235S.Br	272957	1	19	5.2	5.0	✓
BTEX by Headspace GC-MS	E611A	271051	1	5	20.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	272958	1	19	5.2	5.0	✓
Conductivity in Seawater	E100S	268389	1	9	11.1	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	268973	1	9	11.1	5.0	✓
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	266700	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	272964	1	19	5.2	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	266701	1	18	5.5	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272959	1	19	5.2	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272960	1	19	5.2	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272961	1	19	5.2	5.0	✓
pH by Meter	E108	268391	1	9	11.1	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272962	1	19	5.2	5.0	✓
TDS by Gravimetry (Seawater)	E162S	273148	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence	E318S	268404	1	9	11.1	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	268622	1	10	10.0	5.0	✓
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	268818	1	18	5.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	268402	1	18	5.5	5.0	✓
Total Phosphorus in Seawater by Colourimetry	E372S	273053	1	19	5.2	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	268819	1	18	5.5	5.0	✓
Turbidity by Nephelometry	E121	265687	1	9	11.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	271050	1	5	20.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	268390	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	268403	1	18	5.5	5.0	✓
Bromide in Seawater by IC	E235S.Br	272957	1	19	5.2	5.0	✓
BTEX by Headspace GC-MS	E611A	271051	1	5	20.0	5.0	✓
CCME PHC - F2-F4 by GC-FID	E601	268261	2	8	25.0	5.0	✓
Chloride in Seawater by IC	E235S.Cl	272958	1	19	5.2	5.0	✓
Conductivity in Seawater	E100S	268389	1	9	11.1	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	268973	1	9	11.1	5.0	✓
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	266700	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	272964	1	19	5.2	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	266701	1	18	5.5	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272959	1	19	5.2	5.0	✓



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272960	1	19	5.2	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272961	1	19	5.2	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	268258	2	28	7.1	5.0	✔
pH by Meter	E108	268391	1	9	11.1	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272962	1	19	5.2	5.0	✔
TDS by Gravimetry (Seawater)	E162S	273148	1	20	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	268404	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	268622	1	10	10.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	268818	1	18	5.5	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	268402	1	18	5.5	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	273053	1	19	5.2	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	268819	1	18	5.5	5.0	✔
TSS by Gravimetry (Seawater)	E160S	267171	1	9	11.1	5.0	✔
Turbidity by Nephelometry	E121	265687	1	9	11.1	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	271050	1	5	20.0	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	268390	1	18	5.5	5.0	✔
Ammonia by Fluorescence	E298	268403	1	18	5.5	5.0	✔
Bromide in Seawater by IC	E235S.Br	272957	1	19	5.2	5.0	✔
BTEX by Headspace GC-MS	E611A	271051	1	5	20.0	5.0	✔
CCME PHC - F2-F4 by GC-FID	E601	268261	2	8	25.0	5.0	✔
Chloride in Seawater by IC	E235S.Cl	272958	1	19	5.2	5.0	✔
Conductivity in Seawater	E100S	268389	1	9	11.1	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	268973	1	9	11.1	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	266700	1	18	5.5	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	272964	1	19	5.2	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	266701	1	18	5.5	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272959	1	19	5.2	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272960	1	19	5.2	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272961	1	19	5.2	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	268258	2	28	7.1	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272962	1	19	5.2	5.0	✔
TDS by Gravimetry (Seawater)	E162S	273148	1	20	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	268404	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	268622	1	10	10.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	268818	1	18	5.5	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	268402	1	18	5.5	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	273053	1	19	5.2	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	268819	1	18	5.5	5.0	✔
TSS by Gravimetry (Seawater)	E160S	267171	1	9	11.1	5.0	✔
Turbidity by Nephelometry	E121	265687	1	9	11.1	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
VH and F1 by Headspace GC-FID	E581.VH+F1	271050	1	5	20.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	268403	1	18	5.5	5.0	✔
Bromide in Seawater by IC	E235S.Br	272957	1	19	5.2	5.0	✔
BTEX by Headspace GC-MS	E611A	271051	1	5	20.0	5.0	✔
Chloride in Seawater by IC	E235S.Cl	272958	1	19	5.2	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	268973	1	9	11.1	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	266700	2	18	11.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	272964	1	19	5.2	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	266701	1	18	5.5	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272959	1	19	5.2	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272960	1	19	5.2	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272961	1	19	5.2	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272962	1	19	5.2	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	268404	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	268622	1	10	10.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	268818	1	18	5.5	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	268402	1	18	5.5	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	273053	1	19	5.2	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	268819	1	18	5.5	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	271050	1	5	20.0	5.0	✔



## Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108  Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121  Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S  Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry (Seawater)	E162S  Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290  Vancouver - Environmental	Water	APHA 2320 B (mod)	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.
Ammonia by Fluorescence	E298  Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthalaldehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence	E318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry	E372S  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Seawater by CRC ICPMS (HMI)	E468S  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode). This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S  Vancouver - Environmental	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S  Vancouver - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1  Vancouver - Environmental	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
CCME PHC - F2-F4 by GC-FID	E601  Vancouver - Environmental	Water	CCME PHC in Soil - Tier 1	CCME Fractions 2-4 (F2-F4) are analyzed by GC-FID.
BTEX by Headspace GC-MS	E611A  Vancouver - Environmental	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A  Vancouver - Environmental	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100  Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO <sub>3</sub> ), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Salinity in Seawater (calculation)	EC100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580  Vancouver - Environmental	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A  Vancouver - Environmental	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298  Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent and H2SO4.
Preparation for Total Organic Carbon by Combustion	EP355  Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358  Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421  Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509  Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581  Vancouver - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601  Vancouver - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.





## QUALITY CONTROL REPORT

Work Order : **VA21B6876**

Page : 1 of 22

Client : Golder Associates Ltd.  
Contact : Elaine Irving  
Address : 200-2920 Virtual Way  
Vancouver BC Canada V5M 0C4  
Telephone : ----  
Project : ----  
PO : ----  
C-O-C number : 20-920779  
Sampler : ----  
Site : ----  
Quote number : Q84262  
No. of samples received : 9  
No. of samples analysed : 9

Laboratory : Vancouver - Environmental  
Account Manager : Amber Springer  
Address : 8081 Lougheed Highway  
Burnaby, British Columbia Canada V5A 1W9  
Telephone : +1 604 253 4188  
Date Samples Received : 12-Aug-2021 09:20  
Date Analysis Commenced : 12-Aug-2021  
Issue Date : 30-Aug-2021 17:18

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department
Aaron Yu	Laboratory Analyst	Inorganics, Burnaby, British Columbia
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Courtney Cox	Analyst	Inorganics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Jay Jang	Lab Assistant	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



## General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

### Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

# = Indicates a QC result that did not meet the ALS DQO.



## Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: <b>Water</b>					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Physical Tests (QC Lot: 265687)</b>											
VA21B6876-001	MP-06-Source	turbidity	----	E121	0.10	NTU	<0.10	0.10	0.001	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 268389)</b>											
VA21B6876-001	MP-06-Source	conductivity	----	E100S	2.0	µS/cm	37300	37100	0.538%	20%	----
<b>Physical Tests (QC Lot: 268390)</b>											
VA21B6876-001	MP-06-Source	alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	92.9	91.9	1.08%	20%	----
<b>Physical Tests (QC Lot: 268391)</b>											
VA21B6876-001	MP-06-Source	pH	----	E108	0.10	pH units	8.01	8.01	0.00%	4%	----
<b>Physical Tests (QC Lot: 273148)</b>											
VA21B6250-001	Anonymous	solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	<10	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 268403)</b>											
VA21B6876-001	MP-06-Source	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 268404)</b>											
VA21B6876-001	MP-06-Source	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.087	0.087	0.00008	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272957)</b>											
VA21B6250-001	Anonymous	bromide	24959-67-9	E235S.Br	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272958)</b>											
VA21B6250-001	Anonymous	chloride	16887-00-6	E235S.Cl	50	mg/L	<50	<50	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272959)</b>											
VA21B6250-001	Anonymous	fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272960)</b>											
VA21B6250-001	Anonymous	nitrate (as N)	14797-55-8	E235S.NO <sub>3</sub> -T	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272961)</b>											
VA21B6250-001	Anonymous	nitrite (as N)	14797-65-0	E235S.NO <sub>2</sub> -L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272962)</b>											
VA21B6250-001	Anonymous	sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO <sub>4</sub> -L	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 273053)</b>											
VA21B6250-001	Anonymous	phosphorus, total	7723-14-0	E372S	0.0040	mg/L	<0.0040	<0.0040	0	Diff <2x LOR	----
<b>Organic / Inorganic Carbon (QC Lot: 268402)</b>											
VA21B6876-001	MP-06-Source	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.83	0.90	0.07	Diff <2x LOR	----
<b>Organic / Inorganic Carbon (QC Lot: 272964)</b>											
VA21B6250-001	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----



Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Total Metals (QC Lot: 268622)</b>											
VA21B6817-001	Anonymous	mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
<b>Total Metals (QC Lot: 268818)</b>											
VA21B6817-001	Anonymous	aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.188	0.203	7.66%	20%	----
		antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E468S	0.00040	mg/L	0.00064	0.00055	0.00009	Diff <2x LOR	----
		barium, total	7440-39-3	E468S	0.0010	mg/L	0.122	0.124	2.08%	20%	----
		beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E468S	0.30	mg/L	1.76	1.83	0.07	Diff <2x LOR	----
		cadmium, total	7440-43-9	E468S	0.000010	mg/L	0.000436	0.000428	1.83%	20%	----
		calcium, total	7440-70-2	E468S	1.0	mg/L	204	213	4.26%	20%	----
		cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E468S	0.000050	mg/L	0.000271	0.000289	0.000018	Diff <2x LOR	----
		copper, total	7440-50-8	E468S	0.00050	mg/L	0.0130	0.0133	2.22%	20%	----
		gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, total	7439-89-6	E468S	0.010	mg/L	0.214	0.220	2.65%	20%	----
		lead, total	7439-92-1	E468S	0.000050	mg/L	0.000774	0.000764	1.35%	20%	----
		lithium, total	7439-93-2	E468S	0.020	mg/L	0.043	0.044	0.0008	Diff <2x LOR	----
		magnesium, total	7439-95-4	E468S	1.0	mg/L	535	543	1.49%	20%	----
		manganese, total	7439-96-5	E468S	0.00020	mg/L	0.0276	0.0279	1.16%	20%	----
		molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00510	0.00518	1.54%	20%	----
		nickel, total	7440-02-0	E468S	0.00050	mg/L	0.00076	0.00070	0.00006	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E468S	0.050	mg/L	0.060	<0.050	0.010	Diff <2x LOR	----
		potassium, total	7440-09-7	E468S	1.0	mg/L	174	175	0.564%	20%	----
		rhodium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0546	0.0546	0.0668%	20%	----
		selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, total	7440-22-4	E468S	0.00010	mg/L	0.00019	0.00018	0.000008	Diff <2x LOR	----
		strontium, total	7440-24-6	E468S	0.010	mg/L	3.64	3.70	1.47%	20%	----
		sulfur, total	7704-34-9	E468S	5.0	mg/L	428	446	4.14%	20%	----
		tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, total	7440-28-0	E468S	0.000050	mg/L	0.000070	<0.000050	0.000020	Diff <2x LOR	----
		thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 268818) - continued											
VA21B6817-001	Anonymous	titanium, total	7440-32-6	E468S	0.0050	mg/L	0.0063	0.0064	0.00008	Diff <2x LOR	----
		tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00137	0.00134	2.46%	20%	----
		vanadium, total	7440-62-2	E468S	0.00050	mg/L	0.00126	0.00124	0.00002	Diff <2x LOR	----
		yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E468S	0.0030	mg/L	0.0218	0.0209	0.0010	Diff <2x LOR	----
		zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Total Metals (QC Lot: 268819)											
VA21B6817-001	Anonymous	silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	3.2	3.3	0.2	Diff <2x LOR	----
		sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	4500	4480	0.471%	20%	----
Dissolved Metals (QC Lot: 266700)											
VA21B6817-001	Anonymous	aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	0.0249	0.0236	0.0012	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.111	0.113	1.12%	20%	----
		beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E469S	0.30	mg/L	1.80	1.81	0.003	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	0.000423	0.000394	6.89%	20%	----
		calcium, dissolved	7440-70-2	E469S	1.0	mg/L	215	213	0.887%	20%	----
		cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	0.000198	0.000196	0.000002	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.0104	0.0102	1.95%	20%	----
		gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E469S	0.010	mg/L	0.034	0.034	0.00006	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E469S	0.000050	mg/L	0.000147	0.000141	0.000006	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E469S	0.020	mg/L	0.045	0.046	0.0002	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	554	552	0.412%	20%	----
		manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.0254	0.0250	1.61%	20%	----
		molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00480	0.00492	2.41%	20%	----
		nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	0.00054	0.00055	0.000008	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E469S	1.0	mg/L	176	175	0.615%	20%	----
		rhodium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 266700) - continued											
VA21B6817-001	Anonymous	rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0546	0.0543	0.478%	20%	----
		selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, dissolved	7440-22-4	E469S	0.00010	mg/L	0.00015	0.00016	0.000007	Diff <2x LOR	----
		strontium, dissolved	7440-24-6	E469S	0.010	mg/L	3.56	3.56	0.0890%	20%	----
		sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	429	433	0.896%	20%	----
		tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00140	0.00134	4.30%	20%	----
		vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	0.00077	0.00076	0.000005	Diff <2x LOR	----
		yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	0.0193	0.0188	2.42%	20%	----
		zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 266701)											
VA21B6817-001	Anonymous	silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	3.1	3.0	0.07	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	4470	4320	3.36%	20%	----
Dissolved Metals (QC Lot: 268973)											
VA21B6876-001	MP-06-Source	mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 271051)											
VA21B6876-001	MP-06-Source	benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 271050)											
VA21B6876-001	MP-06-Source	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----



## Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Physical Tests (QCLot: 265687)</b>						
turbidity	----	E121	0.1	NTU	<0.10	----
<b>Physical Tests (QCLot: 267171)</b>						
solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
<b>Physical Tests (QCLot: 268389)</b>						
conductivity	----	E100S	2	µS/cm	<2.0	----
<b>Physical Tests (QCLot: 268390)</b>						
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1	mg/L	# 1.5	B
<b>Physical Tests (QCLot: 273148)</b>						
solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
<b>Anions and Nutrients (QCLot: 268403)</b>						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
<b>Anions and Nutrients (QCLot: 268404)</b>						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
<b>Anions and Nutrients (QCLot: 272957)</b>						
bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
<b>Anions and Nutrients (QCLot: 272958)</b>						
chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
<b>Anions and Nutrients (QCLot: 272959)</b>						
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
<b>Anions and Nutrients (QCLot: 272960)</b>						
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 272961)</b>						
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 272962)</b>						
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
<b>Anions and Nutrients (QCLot: 273053)</b>						
phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0040	----
<b>Organic / Inorganic Carbon (QCLot: 268402)</b>						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
<b>Organic / Inorganic Carbon (QCLot: 272964)</b>						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
<b>Total Metals (QCLot: 268622)</b>						
mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----





Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 268818)</b>						
aluminum, total	7429-90-5	E468S	0.005	mg/L	<0.0050	----
antimony, total	7440-36-0	E468S	0.001	mg/L	<0.0010	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	<0.00040	----
barium, total	7440-39-3	E468S	0.001	mg/L	<0.0010	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	<0.00050	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	<0.00050	----
boron, total	7440-42-8	E468S	0.3	mg/L	<0.30	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	<0.000010	----
calcium, total	7440-70-2	E468S	1	mg/L	<1.0	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	<0.00050	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	<0.000050	----
copper, total	7440-50-8	E468S	0.0005	mg/L	<0.00050	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E468S	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E468S	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E468S	0.02	mg/L	<0.020	----
magnesium, total	7439-95-4	E468S	1	mg/L	<1.0	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	<0.00020	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	<0.00010	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E468S	1	mg/L	<1.0	----
rhodium, total	7440-15-5	E468S	0.0005	mg/L	<0.00050	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	<0.0050	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	<0.00050	----
silver, total	7440-22-4	E468S	0.0001	mg/L	<0.00010	----
strontium, total	7440-24-6	E468S	0.01	mg/L	<0.010	----
sulfur, total	7704-34-9	E468S	5	mg/L	<5.0	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	<0.00050	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	<0.000050	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	<0.00050	----
tin, total	7440-31-5	E468S	0.001	mg/L	<0.0010	----
titanium, total	7440-32-6	E468S	0.005	mg/L	<0.0050	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	<0.0010	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	<0.000050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 268818) - continued</b>						
vanadium, total	7440-62-2	E468S	0.0005	mg/L	<0.00050	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E468S	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	<0.00050	----
<b>Total Metals (QCLot: 268819)</b>						
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	----
<b>Dissolved Metals (QCLot: 266700)</b>						
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	<0.0050	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	<0.0010	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	<0.00040	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	<0.0010	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	<0.00050	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	<0.00050	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	<0.30	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	<0.000010	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	<1.0	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	<0.00050	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	<0.000050	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	<0.00020	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	<0.00050	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	<0.020	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	<1.0	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	<0.00010	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E469S	1	mg/L	<1.0	----
rhodium, dissolved	7440-15-5	E469S	0.0005	mg/L	<0.00050	----
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	<0.0050	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	<0.00050	----
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	<0.00010	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	<0.010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Dissolved Metals (QCLot: 266700) - continued</b>						
sulfur, dissolved	7704-34-9	E469S	5	mg/L	<5.0	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	<0.00050	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	<0.000050	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	<0.00050	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	<0.0010	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	<0.0050	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	<0.0010	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	<0.000050	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	<0.00050	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	<0.00050	----
<b>Dissolved Metals (QCLot: 266701)</b>						
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	<2.5	----
<b>Dissolved Metals (QCLot: 268973)</b>						
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
<b>Volatile Organic Compounds (QCLot: 271051)</b>						
benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
<b>Hydrocarbons (QCLot: 268261)</b>						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
<b>Hydrocarbons (QCLot: 268299)</b>						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
<b>Hydrocarbons (QCLot: 271050)</b>						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Polycyclic Aromatic Hydrocarbons (QCLot: 268258)</b>						
acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	<0.010	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
quinoline	6027-02-7	E641A	0.05	µg/L	<0.050	----
<b>Polycyclic Aromatic Hydrocarbons (QCLot: 268298)</b>						
acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	<0.010	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 268298) - continued						
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
quinoline	6027-02-7	E641A	0.05	µg/L	<0.050	----

Qualifiers

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 265687)									
turbidity	----	E121	0.1	NTU	200 NTU	105	85.0	115	----
Physical Tests (QCLot: 267171)									
solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	103	85.0	115	----
Physical Tests (QCLot: 268389)									
conductivity	----	E100S	2	µS/cm	146.9 µS/cm	100	80.0	120	----
Physical Tests (QCLot: 268390)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	102	85.0	115	----
Physical Tests (QCLot: 268391)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 273148)									
solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	98.5	85.0	115	----
Anions and Nutrients (QCLot: 268403)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 268404)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 272957)									
bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	99.4	85.0	115	----
Anions and Nutrients (QCLot: 272958)									
chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	100.0	90.0	110	----
Anions and Nutrients (QCLot: 272959)									
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 272960)									
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 272961)									
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 272962)									
sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 273053)									
phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	93.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 268402)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	100	80.0	120	----



Sub-Matrix: Water

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 272964)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	92.4	80.0	120	----
Total Metals (QCLot: 268622)									
mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	97.3	80.0	120	----
Total Metals (QCLot: 268818)									
aluminum, total	7429-90-5	E468S	0.005	mg/L	2 mg/L	113	80.0	120	----
antimony, total	7440-36-0	E468S	0.001	mg/L	1 mg/L	110	80.0	120	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	1 mg/L	104	80.0	120	----
barium, total	7440-39-3	E468S	0.001	mg/L	0.25 mg/L	113	80.0	120	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	0.1 mg/L	103	80.0	120	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	1 mg/L	115	80.0	120	----
boron, total	7440-42-8	E468S	0.3	mg/L	2 mg/L	80.9	80.0	120	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	0.1 mg/L	111	80.0	120	----
calcium, total	7440-70-2	E468S	1	mg/L	50 mg/L	106	80.0	120	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	0.05 mg/L	105	80.0	120	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	0.25 mg/L	108	80.0	120	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	0.25 mg/L	113	80.0	120	----
copper, total	7440-50-8	E468S	0.0005	mg/L	0.25 mg/L	111	80.0	120	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
iron, total	7439-89-6	E468S	0.01	mg/L	1 mg/L	110	80.0	120	----
lead, total	7439-92-1	E468S	0.00005	mg/L	0.5 mg/L	113	80.0	120	----
lithium, total	7439-93-2	E468S	0.02	mg/L	0.25 mg/L	102	80.0	120	----
magnesium, total	7439-95-4	E468S	1	mg/L	50 mg/L	105	80.0	120	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	0.25 mg/L	110	80.0	120	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	0.5 mg/L	110	80.0	120	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	10 mg/L	108	80.0	120	----
potassium, total	7440-09-7	E468S	1	mg/L	50 mg/L	110	80.0	120	----
rhenium, total	7440-15-5	E468S	0.0005	mg/L	0.1 mg/L	107	80.0	120	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	0.1 mg/L	111	80.0	120	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	1 mg/L	113	80.0	120	----
silver, total	7440-22-4	E468S	0.0001	mg/L	0.1 mg/L	110	80.0	120	----
strontium, total	7440-24-6	E468S	0.01	mg/L	0.25 mg/L	110	80.0	120	----
sulfur, total	7704-34-9	E468S	5	mg/L	50 mg/L	100.0	80.0	120	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	0.1 mg/L	# 123	80.0	120	MES
thallium, total	7440-28-0	E468S	0.00005	mg/L	1 mg/L	116	80.0	120	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	0.1 mg/L	94.2	80.0	120	----





Sub-Matrix: Water

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 268818) - continued									
tin, total	7440-31-5	E468S	0.001	mg/L	0.5 mg/L	109	80.0	120	----
titanium, total	7440-32-6	E468S	0.005	mg/L	0.25 mg/L	104	80.0	120	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	0.1 mg/L	105	80.0	120	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	0.005 mg/L	99.1	80.0	120	----
vanadium, total	7440-62-2	E468S	0.0005	mg/L	0.5 mg/L	108	80.0	120	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	0.1 mg/L	108	80.0	120	----
zinc, total	7440-66-6	E468S	0.003	mg/L	0.5 mg/L	116	80.0	120	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	0.1 mg/L	99.0	80.0	120	----
Total Metals (QCLot: 268819)									
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	105	80.0	120	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	50 mg/L	107	80.0	120	----
Dissolved Metals (QCLot: 266700)									
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	2 mg/L	97.6	80.0	120	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	1 mg/L	109	80.0	120	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	1 mg/L	101	80.0	120	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	0.25 mg/L	103	80.0	120	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	0.1 mg/L	95.9	80.0	120	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	1 mg/L	111	80.0	120	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	10 mg/L	82.4	80.0	120	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	50 mg/L	96.0	80.0	120	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	0.05 mg/L	102	80.0	120	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	0.25 mg/L	94.6	80.0	120	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	1 mg/L	102	80.0	120	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	0.25 mg/L	94.2	80.0	120	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	50 mg/L	101	80.0	120	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	0.25 mg/L	96.9	80.0	120	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	10 mg/L	103	80.0	120	----
potassium, dissolved	7440-09-7	E469S	1	mg/L	50 mg/L	103	80.0	120	----
rhenium, dissolved	7440-15-5	E469S	0.0005	mg/L	0.1 mg/L	104	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 266700) - continued									
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	0.1 mg/L	102	80.0	120	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	1 mg/L	109	80.0	120	----
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	0.25 mg/L	97.7	80.0	120	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	50 mg/L	# 76.8	80.0	120	MES
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	0.1 mg/L	116	80.0	120	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	1 mg/L	110	80.0	120	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	0.1 mg/L	96.3	80.0	120	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	0.5 mg/L	98.7	80.0	120	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	0.25 mg/L	97.9	80.0	120	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	0.1 mg/L	98.0	80.0	120	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	0.005 mg/L	99.8	80.0	120	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	0.5 mg/L	97.7	80.0	120	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	0.1 mg/L	96.8	80.0	120	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	0.5 mg/L	104	80.0	120	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	102	80.0	120	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	50 mg/L	101	80.0	120	----
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	89.9	80.0	120	----
Volatile Organic Compounds (QCLot: 271051)									
benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	79.5	70.0	130	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	92.4	70.0	130	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	82.9	70.0	130	----
styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	78.8	70.0	130	----
toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	79.6	70.0	130	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	83.2	70.0	130	----
xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	90.0	70.0	130	----
Hydrocarbons (QCLot: 268261)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	107	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	102	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	87.4	70.0	130	----
Hydrocarbons (QCLot: 268299)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	100	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	93.4	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	95.7	70.0	130	----



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Hydrocarbons (QCLot: 271050)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	97.2	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	86.2	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 268258)									
acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	111	60.0	130	----
acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	124	60.0	130	----
anthracene	120-12-7	E641A	0.01	µg/L	0.701 µg/L	87.3	60.0	130	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.743 µg/L	87.8	60.0	130	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	111	60.0	130	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	0.5 µg/L	84.3	60.0	130	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	114	60.0	130	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	94.2	60.0	130	----
chrysene	218-01-9	E641A	0.01	µg/L	0.705 µg/L	85.9	60.0	130	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.685 µg/L	87.9	60.0	130	----
fluoranthene	206-44-0	E641A	0.01	µg/L	0.681 µg/L	87.4	60.0	130	----
fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	116	60.0	130	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.749 µg/L	92.2	60.0	130	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	98.5	60.0	130	----
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	93.9	60.0	130	----
naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	93.4	50.0	130	----
phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	117	60.0	130	----
pyrene	129-00-0	E641A	0.01	µg/L	0.705 µg/L	86.6	60.0	130	----
quinoline	6027-02-7	E641A	0.05	µg/L	0.5 µg/L	120	60.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 268298)									
acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	121	60.0	130	----
acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	120	60.0	130	----
acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	115	60.0	130	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	117	60.0	130	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	0.5 µg/L	99.8	60.0	130	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	126	60.0	130	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	120	60.0	130	----
chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	130	60.0	130	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	108	60.0	130	----
fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	126	60.0	130	----



Sub-Matrix: Water

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 268298) - continued									
fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	125	60.0	130	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	124	60.0	130	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	122	60.0	130	----
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	119	60.0	130	----
naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	123	50.0	130	----
phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	106	60.0	130	----
pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	128	60.0	130	----
quinoline	6027-02-7	E641A	0.05	µg/L	0.5 µg/L	110	60.0	130	----

Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).



## Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level  $\geq 1 \times$  spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
<b>Anions and Nutrients (QCLot: 268403)</b>										
VA21B6876-002	MP-06-WNW	ammonia, total (as N)	7664-41-7	E298	0.115 mg/L	0.1 mg/L	115	75.0	125	----
<b>Anions and Nutrients (QCLot: 268404)</b>										
VA21B6876-002	MP-06-WNW	Kjeldahl nitrogen, total [TKN]	----	E318S	2.95 mg/L	2.5 mg/L	118	70.0	130	----
<b>Anions and Nutrients (QCLot: 272957)</b>										
VA21B6250-002	Anonymous	bromide	24959-67-9	E235S.Br	48.2 mg/L	50 mg/L	96.5	75.0	125	----
<b>Anions and Nutrients (QCLot: 272958)</b>										
VA21B6250-002	Anonymous	chloride	16887-00-6	E235S.Cl	9670 mg/L	10000 mg/L	96.7	75.0	125	----
<b>Anions and Nutrients (QCLot: 272959)</b>										
VA21B6250-002	Anonymous	fluoride	16984-48-8	E235S.F-L	9.56 mg/L	10 mg/L	95.6	75.0	125	----
<b>Anions and Nutrients (QCLot: 272960)</b>										
VA21B6250-002	Anonymous	nitrate (as N)	14797-55-8	E235S.NO3-T	7.36 mg/L	7.5 mg/L	98.1	75.0	125	----
<b>Anions and Nutrients (QCLot: 272961)</b>										
VA21B6250-002	Anonymous	nitrite (as N)	14797-65-0	E235S.NO2-L	4.95 mg/L	5 mg/L	99.0	75.0	125	----
<b>Anions and Nutrients (QCLot: 272962)</b>										
VA21B6250-002	Anonymous	sulfate (as SO4)	14808-79-8	E235S.SO4-L	ND mg/L	1000 mg/L	ND	75.0	125	----
<b>Anions and Nutrients (QCLot: 273053)</b>										
VA21B6250-002	Anonymous	phosphorus, total	7723-14-0	E372S	0.0917 mg/L	0.1 mg/L	91.7	70.0	130	----
<b>Organic / Inorganic Carbon (QCLot: 268402)</b>										
VA21B6876-002	MP-06-WNW	carbon, total organic [TOC]	----	E355-L	5.07 mg/L	5 mg/L	101	70.0	130	----
<b>Organic / Inorganic Carbon (QCLot: 272964)</b>										
VA21B6250-002	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	4.50 mg/L	5 mg/L	89.9	70.0	130	----
<b>Total Metals (QCLot: 268622)</b>										
VA21B6876-001	MP-06-Source	mercury, total	7439-97-6	E508S	0.0000948 mg/L	0.0001 mg/L	94.8	70.0	130	----
<b>Total Metals (QCLot: 268818)</b>										
VA21B6876-001	MP-06-Source	aluminum, total	7429-90-5	E468S	0.436 mg/L	0.4 mg/L	109	70.0	130	----
		antimony, total	7440-36-0	E468S	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	----
		arsenic, total	7440-38-2	E468S	0.0364 mg/L	0.04 mg/L	91.1	70.0	130	----
		barium, total	7440-39-3	E468S	0.0402 mg/L	0.04 mg/L	100	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 268818) - continued										
VA21B6876-001	MP-06-Source	beryllium, total	7440-41-7	E468S	0.0768 mg/L	0.08 mg/L	96.0	70.0	130	----
		bismuth, total	7440-69-9	E468S	0.0171 mg/L	0.02 mg/L	85.3	70.0	130	----
		boron, total	7440-42-8	E468S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, total	7440-43-9	E468S	0.00736 mg/L	0.008 mg/L	91.9	70.0	130	----
		calcium, total	7440-70-2	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E468S	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	----
		chromium, total	7440-47-3	E468S	0.0802 mg/L	0.08 mg/L	100	70.0	130	----
		cobalt, total	7440-48-4	E468S	0.0382 mg/L	0.04 mg/L	95.4	70.0	130	----
		copper, total	7440-50-8	E468S	0.0356 mg/L	0.04 mg/L	89.0	70.0	130	----
		gallium, total	7440-55-3	E468S	0.00540 mg/L	0.005 mg/L	108	70.0	130	----
		iron, total	7439-89-6	E468S	3.99 mg/L	4 mg/L	99.7	70.0	130	----
		lead, total	7439-92-1	E468S	0.0350 mg/L	0.04 mg/L	87.6	70.0	130	----
		lithium, total	7439-93-2	E468S	0.162 mg/L	0.2 mg/L	81.1	70.0	130	----
		magnesium, total	7439-95-4	E468S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E468S	0.0398 mg/L	0.04 mg/L	99.5	70.0	130	----
		molybdenum, total	7439-98-7	E468S	0.0393 mg/L	0.04 mg/L	98.4	70.0	130	----
		nickel, total	7440-02-0	E468S	0.0728 mg/L	0.08 mg/L	91.0	70.0	130	----
		phosphorus, total	7723-14-0	E468S	22.7 mg/L	20 mg/L	113	70.0	130	----
		potassium, total	7440-09-7	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenium, total	7440-15-5	E468S	0.00497 mg/L	0.005 mg/L	99.5	70.0	130	----
		rubidium, total	7440-17-7	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		selenium, total	7782-49-2	E468S	0.0779 mg/L	0.08 mg/L	97.4	70.0	130	----
		silver, total	7440-22-4	E468S	0.00703 mg/L	0.008 mg/L	87.9	70.0	130	----
		strontium, total	7440-24-6	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E468S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, total	13494-80-9	E468S	0.0735 mg/L	0.08 mg/L	91.9	70.0	130	----
		thallium, total	7440-28-0	E468S	0.00740 mg/L	0.008 mg/L	92.5	70.0	130	----
		thorium, total	7440-29-1	E468S	0.0374 mg/L	0.04 mg/L	93.5	70.0	130	----
		tin, total	7440-31-5	E468S	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	----
		titanium, total	7440-32-6	E468S	0.0858 mg/L	0.08 mg/L	107	70.0	130	----
		tungsten, total	7440-33-7	E468S	0.0374 mg/L	0.04 mg/L	93.4	70.0	130	----
		uranium, total	7440-61-1	E468S	0.00664 mg/L	0.008 mg/L	83.0	70.0	130	----
		vanadium, total	7440-62-2	E468S	0.210 mg/L	0.2 mg/L	105	70.0	130	----
		yttrium, total	7440-65-5	E468S	0.00615 mg/L	0.005 mg/L	123	70.0	130	----
		zinc, total	7440-66-6	E468S	0.748 mg/L	0.8 mg/L	93.6	70.0	130	----
		zirconium, total	7440-67-7	E468S	0.0828 mg/L	0.08 mg/L	103	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 268819)										
VA21B6876-001	MP-06-Source	silicon, total	7440-21-3	E468S.NaSi	495 mg/L	500 mg/L	99.0	70.0	130	----
		sodium, total	17341-25-2	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 266700)										
VA21B6876-001	MP-06-Source	uranium, dissolved	7440-61-1	E469S	0.00708 mg/L	0.008 mg/L	88.5	70.0	130	----
VA21B6876-001	MP-06-Source	aluminum, dissolved	7429-90-5	E469S	0.419 mg/L	0.4 mg/L	105	70.0	130	----
		antimony, dissolved	7440-36-0	E469S	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		arsenic, dissolved	7440-38-2	E469S	0.0360 mg/L	0.04 mg/L	90.0	70.0	130	----
		barium, dissolved	7440-39-3	E469S	0.0367 mg/L	0.04 mg/L	91.6	70.0	130	----
		beryllium, dissolved	7440-41-7	E469S	0.0842 mg/L	0.08 mg/L	105	70.0	130	----
		bismuth, dissolved	7440-69-9	E469S	0.0166 mg/L	0.02 mg/L	83.0	70.0	130	----
		boron, dissolved	7440-42-8	E469S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, dissolved	7440-43-9	E469S	0.00680 mg/L	0.008 mg/L	85.0	70.0	130	----
		calcium, dissolved	7440-70-2	E469S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, dissolved	7440-46-2	E469S	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		chromium, dissolved	7440-47-3	E469S	0.0790 mg/L	0.08 mg/L	98.7	70.0	130	----
		cobalt, dissolved	7440-48-4	E469S	0.0367 mg/L	0.04 mg/L	91.7	70.0	130	----
		copper, dissolved	7440-50-8	E469S	0.0341 mg/L	0.04 mg/L	85.3	70.0	130	----
		gallium, dissolved	7440-55-3	E469S	0.00508 mg/L	0.005 mg/L	102	70.0	130	----
		iron, dissolved	7439-89-6	E469S	3.70 mg/L	4 mg/L	92.6	70.0	130	----
		lead, dissolved	7439-92-1	E469S	0.0342 mg/L	0.04 mg/L	85.4	70.0	130	----
		lithium, dissolved	7439-93-2	E469S	0.201 mg/L	0.2 mg/L	100	70.0	130	----
		magnesium, dissolved	7439-95-4	E469S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E469S	0.0400 mg/L	0.04 mg/L	99.9	70.0	130	----
		molybdenum, dissolved	7439-98-7	E469S	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		nickel, dissolved	7440-02-0	E469S	0.0705 mg/L	0.08 mg/L	88.2	70.0	130	----
		phosphorus, dissolved	7723-14-0	E469S	22.1 mg/L	20 mg/L	110	70.0	130	----
		potassium, dissolved	7440-09-7	E469S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenium, dissolved	7440-15-5	E469S	0.00493 mg/L	0.005 mg/L	98.7	70.0	130	----
		rubidium, dissolved	7440-17-7	E469S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		selenium, dissolved	7782-49-2	E469S	0.0726 mg/L	0.08 mg/L	90.8	70.0	130	----
		silver, dissolved	7440-22-4	E469S	0.00715 mg/L	0.008 mg/L	89.4	70.0	130	----
		strontium, dissolved	7440-24-6	E469S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E469S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, dissolved	13494-80-9	E469S	0.0661 mg/L	0.08 mg/L	82.6	70.0	130	----
		thallium, dissolved	7440-28-0	E469S	0.00705 mg/L	0.008 mg/L	88.1	70.0	130	----
		thorium, dissolved	7440-29-1	E469S	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----





Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 266700) - continued										
VA21B6876-001	MP-06-Source	tin, dissolved	7440-31-5	E469S	0.0370 mg/L	0.04 mg/L	92.5	70.0	130	----
		titanium, dissolved	7440-32-6	E469S	0.0827 mg/L	0.08 mg/L	103	70.0	130	----
		tungsten, dissolved	7440-33-7	E469S	0.0365 mg/L	0.04 mg/L	91.3	70.0	130	----
		vanadium, dissolved	7440-62-2	E469S	0.204 mg/L	0.2 mg/L	102	70.0	130	----
		yttrium, dissolved	7440-65-5	E469S	0.00598 mg/L	0.005 mg/L	120	70.0	130	----
		zinc, dissolved	7440-66-6	E469S	0.658 mg/L	0.8 mg/L	82.2	70.0	130	----
		zirconium, dissolved	7440-67-7	E469S	0.0862 mg/L	0.08 mg/L	108	70.0	130	----
Dissolved Metals (QCLot: 266701)										
VA21B6876-001	MP-06-Source	silicon, dissolved	7440-21-3	E469S.NaSi	475 mg/L	500 mg/L	95.1	70.0	130	----
		sodium, dissolved	17341-25-2	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 268973)										
VA21B6876-002	MP-06-WNW	mercury, dissolved	7439-97-6	E509S	0.0000769 mg/L	0.0001 mg/L	76.9	70.0	130	----
Volatile Organic Compounds (QCLot: 271051)										
VA21B6876-006	MP-05-Source	benzene	71-43-2	E611A	80.4 µg/L	100 µg/L	80.4	60.0	140	----
		ethylbenzene	100-41-4	E611A	86.9 µg/L	100 µg/L	86.9	60.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	83.2 µg/L	100 µg/L	83.2	60.0	140	----
		styrene	100-42-5	E611A	75.4 µg/L	100 µg/L	75.4	60.0	140	----
		toluene	108-88-3	E611A	74.9 µg/L	100 µg/L	74.9	60.0	140	----
		xylene, m+p-	179601-23-1	E611A	154 µg/L	200 µg/L	77.1	60.0	140	----
		xylene, o-	95-47-6	E611A	85.4 µg/L	100 µg/L	85.4	60.0	140	----
Hydrocarbons (QCLot: 271050)										
VA21B6876-004	MP-06-ENE	F1 (C6-C10)	----	E581.VH+F1	4530 µg/L	6310 µg/L	71.8	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	4000 µg/L	6310 µg/L	63.4	60.0	140	----



## 14°C

COC Number: 20 - 920779

**Canada Toll Free: 1 800 668 9878**

Page

Environmental Division  
Vancouver

Work Order Reference  
**VA21B6876**



Telephone : +1 604 253 4188

[illegible]

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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**.

AUG 12 2021

AUG 2020 ERMV

## CERTIFICATE OF ANALYSIS

**Work Order** : **VA21B7536**  
**Client** : **Golder Associates Ltd.**  
**Contact** : Elaine Irving  
**Address** : 200-2920 Virtual Way  
                   Vancouver BC Canada V5M 0C4  
**Telephone** : ----  
**Project** : 1663724-44000-03  
**PO** : ----  
**C-O-C number** : 20-920783  
**Sampler** : ----  
**Site** : ----  
**Quote number** : Q84262  
**No. of samples received** : 3  
**No. of samples analysed** : 3

**Page** : 1 of 6  
**Laboratory** : Vancouver - Environmental  
**Account Manager** : Amber Springer  
**Address** : 8081 Lougheed Highway  
                   Burnaby BC Canada V5A 1W9  
**Telephone** : +1 604 253 4188  
**Date Samples Received** : 19-Aug-2021 08:25  
**Date Analysis Commenced** : 19-Aug-2021  
**Issue Date** : 01-Sep-2021 10:04

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



## General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances  
LOR: Limit of Reporting (detection limit).

Unit	Description
-	No Unit
µS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

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

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					TR Ref1	TR Ref2	DUP-D	----	----
Client sampling date / time					15-Aug-2021 14:30	15-Aug-2021 17:00	15-Aug-2021	----	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7536-001	VA21B7536-002	VA21B7536-003	-----	-----
					Result	Result	Result	----	----
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	93.4	93.7	92.4	----	----
conductivity	----	E100S	2.0	µS/cm	36900	38100	37300	----	----
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	4300	4460	4250	----	----
pH	----	E108	0.10	pH units	7.89	7.89	7.90	----	----
salinity	----	EC100S	1.0	psu	22.8	23.6	23.1	----	----
solids, total dissolved [TDS]	----	E162S	10	mg/L	27600	28000	25600	----	----
solids, total suspended [TSS]	----	E160S	2.0	mg/L	<2.0	<2.0	<2.0	----	----
turbidity	----	E121	0.10	NTU	1.45	0.68	0.67	----	----
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	----	----
bromide	24959-67-9	E235S.Br	5.0	mg/L	44.5	44.6	42.6	----	----
chloride	16887-00-6	E235S.Cl	50	mg/L	13000	13100	12600	----	----
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.56	0.61	0.60	----	----
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.068	0.065	0.073	----	----
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	0.018	----	----
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	----	----
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0130	0.0135	0.0118	----	----
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	1790	1840	1790	----	----
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.13	1.10	0.95	----	----
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.81	0.81	0.79	----	----
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0161	0.0353	0.0171	----	----
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----
arsenic, total	7440-38-2	E468S	0.00040	mg/L	0.00108	0.00106	0.00106	----	----
barium, total	7440-39-3	E468S	0.0010	mg/L	0.0078	0.0078	0.0079	----	----
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
boron, total	7440-42-8	E468S	0.30	mg/L	2.95	3.02	3.02	----	----
cadmium, total	7440-43-9	E468S	0.000010	mg/L	0.000031	0.000030	0.000030	----	----



## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

Sub-Matrix: Seawater					Client sample ID	TR Ref1	TR Ref2	DUP-D	----	----
(Matrix: Water)										
Client sampling date / time					15-Aug-2021 14:30	15-Aug-2021 17:00	15-Aug-2021	----	----	
Analyte	CAS Number	Method	LOR	Unit	VA21B7536-001	VA21B7536-002	VA21B7536-003	-----	-----	
					Result	Result	Result	----	----	
Total Metals										
calcium, total	7440-70-2	E468S	1.0	mg/L	309	324	311	----	----	
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
copper, total	7440-50-8	E468S	0.00050	mg/L	0.00131	0.00059	0.00131	----	----	
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
iron, total	7439-89-6	E468S	0.010	mg/L	0.013	0.016	0.014	----	----	
lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
lithium, total	7439-93-2	E468S	0.020	mg/L	0.138	0.142	0.137	----	----	
magnesium, total	7439-95-4	E468S	1.0	mg/L	928	942	951	----	----	
manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00110	0.00115	0.00113	----	----	
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	----	----	
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00770	0.00782	0.00765	----	----	
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	<0.050	----	----	
potassium, total	7440-09-7	E468S	1.0	mg/L	332	349	352	----	----	
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0854	0.0863	0.0899	----	----	
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	----	----	
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	6820	6970	6710	----	----	
strontium, total	7440-24-6	E468S	0.010	mg/L	5.12	5.44	5.33	----	----	
sulfur, total	7704-34-9	E468S	5.0	mg/L	875	896	863	----	----	
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----	
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	----	----	
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----	
uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00213	0.00215	0.00212	----	----	



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					TR Ref1	TR Ref2	DUP-D	----	----
Client sampling date / time					15-Aug-2021 14:30	15-Aug-2021 17:00	15-Aug-2021	----	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7536-001	VA21B7536-002	VA21B7536-003	-----	-----
					Result	Result	Result	----	----
<b>Total Metals</b>									
vanadium, total	7440-62-2	E468S	0.00050	mg/L	0.00112	0.00116	0.00117	----	----
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	----	----
zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
<b>Dissolved Metals</b>									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	----	----
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	0.00107	0.00111	0.00100	----	----
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0071	0.0074	0.0071	----	----
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
boron, dissolved	7440-42-8	E469S	0.30	mg/L	2.86	2.98	2.89	----	----
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	0.000028	0.000029	0.000022	----	----
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	279	288	284	----	----
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00036	0.00044	0.00023	----	----
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	----	----
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	0.122	0.125	0.120	----	----
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	876	908	860	----	----
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00082	0.00077	0.00076	----	----
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	----	----
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00750	0.00765	0.00763	----	----
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	----	----
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	291	304	285	----	----
rhodium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0790	0.0827	0.0774	----	----





## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

Sub-Matrix: Seawater (Matrix: Water)					Client sample ID	TR Ref1	TR Ref2	DUP-D	----	----
Client sampling date / time					15-Aug-2021 14:30	15-Aug-2021 17:00	15-Aug-2021	----	----	
Analyte	CAS Number	Method	LOR	Unit	VA21B7536-001	VA21B7536-002	VA21B7536-003	-----	-----	
					Result	Result	Result	----	----	
Dissolved Metals										
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	----	----	
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	6720	7010	6670	----	----	
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	5.30	5.33	5.27	----	----	
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	702	737	726	----	----	
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----	
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	----	----	
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----	
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00215	0.00219	0.00216	----	----	
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	0.00108	0.00105	0.00097	----	----	
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----	
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	----	----	
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	----	----	

Please refer to the General Comments section for an explanation of any qualifiers detected.

## QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: <b>VA21B7536</b>	Page	: 1 of 16
Client	: <b>Golder Associates Ltd.</b>	Laboratory	: Vancouver - Environmental
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 200-2920 Virtual Way Vancouver BC Canada V5M 0C4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 1663724-44000-03	Date Samples Received	: 19-Aug-2021 08:25
PO	: ----	Issue Date	: 01-Sep-2021 10:04
C-O-C number	: 20-920783		
Sampler	: ----		
Site	: ----		
Quote number	: Q84262		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

### Key

**Anonymous:** Refers to samples which are not part of this work order, but which formed part of the QC process lot.

**CAS Number:** Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

**DQO:** Data Quality Objective.

**LOR:** Limit of Reporting (detection limit).

**RPD:** Relative Percent Difference.

## Summary of Outliers

### Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

### Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

### Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

### Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Holding and Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUP-D	E298	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) TR Ref1	E298	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) TR Ref2	E298	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE DUP-D	E235S.Br	15-Aug-2021	----	----	----		21-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE TR Ref1	E235S.Br	15-Aug-2021	----	----	----		21-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE TR Ref2	E235S.Br	15-Aug-2021	----	----	----		21-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE DUP-D	E235S.Cl	15-Aug-2021	----	----	----		21-Aug-2021	28 days	5 days	✓



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE TR Ref1	E235S.Cl	15-Aug-2021	----	----	----		21-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE TR Ref2	E235S.Cl	15-Aug-2021	----	----	----		21-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE DUP-D	E235S.F-L	15-Aug-2021	----	----	----		21-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE TR Ref1	E235S.F-L	15-Aug-2021	----	----	----		21-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE TR Ref2	E235S.F-L	15-Aug-2021	----	----	----		21-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE TR Ref2	E235S.NO3-T	15-Aug-2021	----	----	----		21-Aug-2021	3 days	5 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE DUP-D	E235S.NO3-T	15-Aug-2021	----	----	----		21-Aug-2021	3 days	5 days	✖ EHTR
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE TR Ref1	E235S.NO3-T	15-Aug-2021	----	----	----		21-Aug-2021	3 days	5 days	✖ EHTR
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE TR Ref2	E235S.NO2-L	15-Aug-2021	----	----	----		21-Aug-2021	3 days	5 days	✖ EHTL



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE DUP-D	E235S.NO2-L	15-Aug-2021	----	----	----		21-Aug-2021	3 days	5 days	✖ EHTR
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE TR Ref1	E235S.NO2-L	15-Aug-2021	----	----	----		21-Aug-2021	3 days	5 days	✖ EHTR
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE DUP-D	E235S.SO4-L	15-Aug-2021	----	----	----		21-Aug-2021	----	5 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE TR Ref1	E235S.SO4-L	15-Aug-2021	----	----	----		21-Aug-2021	----	5 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE TR Ref2	E235S.SO4-L	15-Aug-2021	----	----	----		21-Aug-2021	----	5 days	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) DUP-D	E318S	15-Aug-2021	25-Aug-2021	----	----		29-Aug-2021	28 days	14 days	✔
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) TR Ref1	E318S	15-Aug-2021	25-Aug-2021	----	----		29-Aug-2021	28 days	14 days	✔
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) TR Ref2	E318S	15-Aug-2021	25-Aug-2021	----	----		29-Aug-2021	28 days	14 days	✔
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) DUP-D	E372S	15-Aug-2021	25-Aug-2021	----	----		26-Aug-2021	28 days	11 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) TR Ref1	E372S	15-Aug-2021	25-Aug-2021	----	----		26-Aug-2021	28 days	11 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) TR Ref2	E372S	15-Aug-2021	25-Aug-2021	----	----		26-Aug-2021	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) DUP-D	E509S	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) TR Ref1	E509S	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) TR Ref2	E509S	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) DUP-D	E469S	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) TR Ref1	E469S	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) TR Ref2	E469S	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) TR Ref2	E469S.NaSi	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	10 days	✓



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) DUP-D	E469S.NaSi	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	11 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) TR Ref1	E469S.NaSi	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	180 days	11 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) TR Ref2	E358-L	15-Aug-2021	25-Aug-2021	3 days	10 days	✖ EHTL	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) DUP-D	E358-L	15-Aug-2021	25-Aug-2021	3 days	10 days	✖ EHTR	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) TR Ref1	E358-L	15-Aug-2021	25-Aug-2021	3 days	10 days	✖ EHTR	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) DUP-D	E355-L	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) TR Ref1	E355-L	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) TR Ref2	E355-L	15-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE DUP-D	E290	15-Aug-2021	----	----	----		20-Aug-2021	14 days	5 days	✓





Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE TR Ref1	E290	15-Aug-2021	----	----	----		20-Aug-2021	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE TR Ref2	E290	15-Aug-2021	----	----	----		20-Aug-2021	14 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE DUP-D	E100S	15-Aug-2021	----	----	----		20-Aug-2021	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE TR Ref1	E100S	15-Aug-2021	----	----	----		20-Aug-2021	28 days	5 days	✓
Physical Tests : Conductivity in Seawater										
HDPE TR Ref2	E100S	15-Aug-2021	----	----	----		20-Aug-2021	28 days	5 days	✓
Physical Tests : pH by Meter										
HDPE TR Ref2	E108	15-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	108 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE DUP-D	E108	15-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	110 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE TR Ref1	E108	15-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	111 hrs	✖ EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE DUP-D	E162S	15-Aug-2021	----	----	----		21-Aug-2021	7 days	6 days	✓



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE TR Ref1	E162S	15-Aug-2021	----	----	----		21-Aug-2021	7 days	6 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE TR Ref2	E162S	15-Aug-2021	----	----	----		21-Aug-2021	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE DUP-D	E160S	15-Aug-2021	----	----	----		20-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE TR Ref1	E160S	15-Aug-2021	----	----	----		20-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE TR Ref2	E160S	15-Aug-2021	----	----	----		20-Aug-2021	7 days	5 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE TR Ref2	E121	15-Aug-2021	----	----	----		24-Aug-2021	3 days	9 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE DUP-D	E121	15-Aug-2021	----	----	----		24-Aug-2021	3 days	9 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE TR Ref1	E121	15-Aug-2021	----	----	----		24-Aug-2021	3 days	9 days	✖ EHTR
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) DUP-D	E508S	15-Aug-2021	----	----	----		25-Aug-2021	28 days	10 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) TR Ref1	E508S	15-Aug-2021	----	----	----		25-Aug-2021	28 days	10 days	✓
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) TR Ref2	E508S	15-Aug-2021	----	----	----		25-Aug-2021	28 days	10 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) DUP-D	E468S	15-Aug-2021	----	----	----		25-Aug-2021	180 days	10 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) TR Ref1	E468S	15-Aug-2021	----	----	----		25-Aug-2021	180 days	10 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) TR Ref2	E468S	15-Aug-2021	----	----	----		25-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) DUP-D	E468S.NaSi	15-Aug-2021	----	----	----		25-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) TR Ref1	E468S.NaSi	15-Aug-2021	----	----	----		25-Aug-2021	180 days	10 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) TR Ref2	E468S.NaSi	15-Aug-2021	----	----	----		25-Aug-2021	180 days	10 days	✓

**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.  
 Rec. HT: ALS recommended hold time (see units).



## Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	271647	1	8	12.5	5.0	✔
Ammonia by Fluorescence	E298	275666	1	20	5.0	5.0	✔
Bromide in Seawater by IC	E235S.Br	272456	1	3	33.3	5.0	✔
Chloride in Seawater by IC	E235S.Cl	272457	1	4	25.0	5.0	✔
Conductivity in Seawater	E100S	271650	1	3	33.3	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	275533	1	12	8.3	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	274067	1	5	20.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	276240	1	12	8.3	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	274068	1	3	33.3	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272458	1	3	33.3	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272459	1	3	33.3	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272460	1	3	33.3	5.0	✔
pH by Meter	E108	271648	1	14	7.1	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272461	1	3	33.3	5.0	✔
TDS by Gravimetry (Seawater)	E162S	273148	2	26	7.6	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	275669	1	3	33.3	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	275419	1	11	9.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	274655	1	20	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	275663	1	20	5.0	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	275545	1	16	6.2	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	274656	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	274492	1	20	5.0	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	271647	1	8	12.5	5.0	✔
Ammonia by Fluorescence	E298	275666	1	20	5.0	5.0	✔
Bromide in Seawater by IC	E235S.Br	272456	1	3	33.3	5.0	✔
Chloride in Seawater by IC	E235S.Cl	272457	1	4	25.0	5.0	✔
Conductivity in Seawater	E100S	271650	1	3	33.3	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	275533	1	12	8.3	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	274067	1	5	20.0	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	276240	1	12	8.3	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	274068	1	3	33.3	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272458	1	3	33.3	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272459	1	3	33.3	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272460	1	3	33.3	5.0	✔
pH by Meter	E108	271648	1	14	7.1	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272461	1	3	33.3	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
TDS by Gravimetry (Seawater)	E162S	273148	2	26	7.6	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence	E318S	275669	1	3	33.3	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	275419	1	11	9.0	5.0	✓
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	274655	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	275663	1	20	5.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry	E372S	275545	1	16	6.2	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	274656	1	20	5.0	5.0	✓
TSS by Gravimetry (Seawater)	E160S	272077	1	14	7.1	5.0	✓
Turbidity by Nephelometry	E121	274492	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	271647	1	8	12.5	5.0	✓
Ammonia by Fluorescence	E298	275666	1	20	5.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	272456	1	3	33.3	5.0	✓
Chloride in Seawater by IC	E235S.Cl	272457	1	4	25.0	5.0	✓
Conductivity in Seawater	E100S	271650	1	3	33.3	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	275533	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	274067	1	5	20.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	276240	1	12	8.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	274068	1	3	33.3	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272458	1	3	33.3	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272459	1	3	33.3	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272460	1	3	33.3	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272461	1	3	33.3	5.0	✓
TDS by Gravimetry (Seawater)	E162S	273148	2	26	7.6	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence	E318S	275669	1	3	33.3	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	275419	1	11	9.0	5.0	✓
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	274655	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	275663	1	20	5.0	5.0	✓
Total Phosphorus in Seawater by Colourimetry	E372S	275545	1	16	6.2	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	274656	1	20	5.0	5.0	✓
TSS by Gravimetry (Seawater)	E160S	272077	1	14	7.1	5.0	✓
Turbidity by Nephelometry	E121	274492	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	275666	1	20	5.0	5.0	✓
Bromide in Seawater by IC	E235S.Br	272456	1	3	33.3	5.0	✓
Chloride in Seawater by IC	E235S.Cl	272457	1	4	25.0	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	275533	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	274067	1	5	20.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	276240	1	12	8.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	274068	1	3	33.3	5.0	✓



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Matrix Spikes (MS) - Continued							
Fluoride in Seawater by IC (Low Level)	E235S.F-L	272458	1	3	33.3	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	272459	1	3	33.3	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	272460	1	3	33.3	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	272461	1	3	33.3	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	275669	1	3	33.3	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	275419	1	11	9.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	274655	1	20	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	275663	1	20	5.0	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	275545	1	16	6.2	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	274656	1	20	5.0	5.0	✔



## Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108  Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121  Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S  Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry (Seawater)	E162S  Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.





Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290  Vancouver - Environmental	Water	APHA 2320 B (mod)	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.
Ammonia by Fluorescence	E298  Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthalaldehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence	E318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry	E372S  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Seawater by CRC ICPMS (HMI)	E468S  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode). This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 µm), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S  Vancouver - Environmental	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S  Vancouver - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100  Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO <sub>3</sub> ), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Salinity in Seawater (calculation)	EC100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298  Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent and H <sub>2</sub> SO <sub>4</sub> .
Preparation for Total Organic Carbon by Combustion	EP355  Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358  Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO <sub>3</sub> .

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Work Order : VA21B7536  
Client : Golder Associates Ltd.  
Project : 1663724-44000-03



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	Vancouver - Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver - Environmental			



## QUALITY CONTROL REPORT

Work Order : **VA21B7536**

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Client : Golder Associates Ltd.  
Contact : Elaine Irving  
Address : 200-2920 Virtual Way  
Vancouver BC Canada V5M 0C4  
Telephone : ----  
Project : 1663724-44000-03  
PO : ----  
C-O-C number : 20-920783  
Sampler : ----  
Site : ----  
Quote number : Q84262  
No. of samples received : 3  
No. of samples analysed : 3

Laboratory : Vancouver - Environmental  
Account Manager : Amber Springer  
Address : 8081 Lougheed Highway  
Burnaby, British Columbia Canada V5A 1W9  
Telephone : +1 604 253 4188  
Date Samples Received : 19-Aug-2021 08:25  
Date Analysis Commenced : 19-Aug-2021  
Issue Date : 01-Sep-2021 10:04

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



## General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

### Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

# = Indicates a QC result that did not meet the ALS DQO.



## Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Physical Tests (QC Lot: 271647)</b>											
VA21B7536-001	TR Ref1	alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	93.4	94.3	0.959%	20%	----
<b>Physical Tests (QC Lot: 271648)</b>											
VA21B7493-001	Anonymous	pH	----	E108	0.10	pH units	8.10	8.08	0.247%	4%	----
<b>Physical Tests (QC Lot: 271650)</b>											
VA21B7536-001	TR Ref1	conductivity	----	E100S	2.0	µS/cm	36900	37000	0.271%	20%	----
<b>Physical Tests (QC Lot: 273148)</b>											
VA21B6250-001	Anonymous	solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	<10	0	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 273149)</b>											
VA21B7536-002	TR Ref2	solids, total dissolved [TDS]	----	E162S	80	mg/L	28000	24600	12.7%	20%	----
<b>Physical Tests (QC Lot: 274492)</b>											
VA21B7494-001	Anonymous	turbidity	----	E121	0.10	NTU	26.9	24.9	7.57%	15%	----
<b>Anions and Nutrients (QC Lot: 272456)</b>											
VA21B7536-001	TR Ref1	bromide	24959-67-9	E235S.Br	5.0	mg/L	44.5	43.3	1.2	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272457)</b>											
VA21B7536-001	TR Ref1	chloride	16887-00-6	E235S.Cl	50	mg/L	13000	12800	1.58%	20%	----
<b>Anions and Nutrients (QC Lot: 272458)</b>											
VA21B7536-001	TR Ref1	fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.56	0.56	0.006	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272459)</b>											
VA21B7536-001	TR Ref1	nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272460)</b>											
VA21B7536-001	TR Ref1	nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 272461)</b>											
VA21B7536-001	TR Ref1	sulfate (as SO4)	14808-79-8	E235S.SO4-L	3.0	mg/L	1790	1730	3.52%	20%	----
<b>Anions and Nutrients (QC Lot: 275545)</b>											
VA21B7533-001	Anonymous	phosphorus, total	7723-14-0	E372S	0.0040	mg/L	0.0306	0.0317	0.0011	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 275666)</b>											
VA21B7487-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 275669)</b>											
VA21B7536-001	TR Ref1	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.068	0.067	0.0006	Diff <2x LOR	----
<b>Organic / Inorganic Carbon (QC Lot: 275663)</b>											
VA21B7487-001	Anonymous	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----



Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Organic / Inorganic Carbon (QC Lot: 276240)</b>											
VA21B7536-001	TR Ref1	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.13	1.02	0.11	Diff <2x LOR	----
<b>Total Metals (QC Lot: 274655)</b>											
VA21B7535-006	Anonymous	aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0638	0.0660	3.38%	20%	----
		antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E468S	0.00040	mg/L	0.00162	0.00164	0.00003	Diff <2x LOR	----
		barium, total	7440-39-3	E468S	0.0010	mg/L	0.0098	0.0104	6.37%	20%	----
		beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E468S	0.30	mg/L	4.16	4.09	1.76%	20%	----
		cadmium, total	7440-43-9	E468S	0.000010	mg/L	0.000059	0.000061	0.000002	Diff <2x LOR	----
		calcium, total	7440-70-2	E468S	1.0	mg/L	423	434	2.43%	20%	----
		cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E468S	0.000050	mg/L	0.000092	0.000092	0.0000007	Diff <2x LOR	----
		copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, total	7439-89-6	E468S	0.010	mg/L	0.111	0.113	1.49%	20%	----
		lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, total	7439-93-2	E468S	0.020	mg/L	0.197	0.187	0.010	Diff <2x LOR	----
		magnesium, total	7439-95-4	E468S	1.0	mg/L	1320	1340	2.08%	20%	----
		manganese, total	7439-96-5	E468S	0.00020	mg/L	0.0254	0.0264	3.87%	20%	----
		molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.0106	0.0105	0.709%	20%	----
		nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E468S	0.050	mg/L	0.103	0.085	0.018	Diff <2x LOR	----
		potassium, total	7440-09-7	E468S	1.0	mg/L	473	489	3.35%	20%	----
		rhodium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.119	0.121	1.72%	20%	----
		selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		strontium, total	7440-24-6	E468S	0.010	mg/L	7.21	7.17	0.560%	20%	----
		sulfur, total	7704-34-9	E468S	5.0	mg/L	1230	1240	0.308%	20%	----
		tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----





Sub-Matrix: **Water**

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 274655) - continued											
VA21B7535-006	Anonymous	titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00274	0.00265	3.15%	20%	----
		vanadium, total	7440-62-2	E468S	0.00050	mg/L	0.00208	0.00216	0.00008	Diff <2x LOR	----
		yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Total Metals (QC Lot: 274656)											
VA21B7535-006	Anonymous	silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	1.6	<1.0	0.6	Diff <2x LOR	----
		sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	9140	9480	3.70%	20%	----
Total Metals (QC Lot: 275419)											
VA21B7440-025	Anonymous	mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 274067)											
VA21B7536-001	TR Ref1	aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	0.00107	0.00105	0.00002	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0071	0.0070	0.00004	Diff <2x LOR	----
		beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E469S	0.30	mg/L	2.86	2.82	0.05	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	0.000028	0.000022	0.000006	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E469S	1.0	mg/L	279	276	1.18%	20%	----
		cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00036	0.00028	0.00008	Diff <2x LOR	----
		gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E469S	0.020	mg/L	0.122	0.121	0.0007	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	876	877	0.0995%	20%	----
		manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00082	0.00077	0.00005	Diff <2x LOR	----
		molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00750	0.00761	1.37%	20%	----
		nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----



Sub-Matrix: **Water**

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 274067) - continued											
VA21B7536-001	TR Ref1	potassium, dissolved	7440-09-7	E469S	1.0	mg/L	291	293	0.667%	20%	----
		rhenum, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0790	0.0780	1.19%	20%	----
		selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		strontium, dissolved	7440-24-6	E469S	0.010	mg/L	5.30	5.18	2.28%	20%	----
		sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	702	738	4.92%	20%	----
		tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00215	0.00215	0.133%	20%	----
		vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	0.00108	0.00098	0.00010	Diff <2x LOR	----
		yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 274068)											
VA21B7536-001	TR Ref1	silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	6720	6700	0.234%	20%	----
Dissolved Metals (QC Lot: 275533)											
VA21B7536-001	TR Ref1	mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----



## Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Physical Tests (QCLot: 271647)</b>						
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1	mg/L	<1.0	----
<b>Physical Tests (QCLot: 271650)</b>						
conductivity	----	E100S	2	µS/cm	<2.0	----
<b>Physical Tests (QCLot: 272077)</b>						
solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
<b>Physical Tests (QCLot: 273148)</b>						
solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
<b>Physical Tests (QCLot: 273149)</b>						
solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
<b>Physical Tests (QCLot: 274492)</b>						
turbidity	----	E121	0.1	NTU	<0.10	----
<b>Anions and Nutrients (QCLot: 272456)</b>						
bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
<b>Anions and Nutrients (QCLot: 272457)</b>						
chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
<b>Anions and Nutrients (QCLot: 272458)</b>						
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
<b>Anions and Nutrients (QCLot: 272459)</b>						
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.030	----
<b>Anions and Nutrients (QCLot: 272460)</b>						
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 272461)</b>						
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
<b>Anions and Nutrients (QCLot: 275545)</b>						
phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0040	----
<b>Anions and Nutrients (QCLot: 275666)</b>						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
<b>Anions and Nutrients (QCLot: 275669)</b>						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
<b>Organic / Inorganic Carbon (QCLot: 275663)</b>						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
<b>Organic / Inorganic Carbon (QCLot: 276240)</b>						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 274655)</b>						
aluminum, total	7429-90-5	E468S	0.005	mg/L	<0.0050	----
antimony, total	7440-36-0	E468S	0.001	mg/L	<0.0010	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	<0.00040	----
barium, total	7440-39-3	E468S	0.001	mg/L	<0.0010	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	<0.00050	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	<0.00050	----
boron, total	7440-42-8	E468S	0.3	mg/L	<0.30	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	<0.000010	----
calcium, total	7440-70-2	E468S	1	mg/L	<1.0	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	<0.00050	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	<0.000050	----
copper, total	7440-50-8	E468S	0.0005	mg/L	<0.00050	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E468S	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E468S	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E468S	0.02	mg/L	<0.020	----
magnesium, total	7439-95-4	E468S	1	mg/L	<1.0	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	<0.00020	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	<0.00010	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E468S	1	mg/L	<1.0	----
rhodium, total	7440-15-5	E468S	0.0005	mg/L	<0.00050	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	<0.0050	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	<0.00050	----
silver, total	7440-22-4	E468S	0.0001	mg/L	<0.00010	----
strontium, total	7440-24-6	E468S	0.01	mg/L	<0.010	----
sulfur, total	7704-34-9	E468S	5	mg/L	<5.0	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	<0.00050	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	<0.000050	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	<0.00050	----
tin, total	7440-31-5	E468S	0.001	mg/L	<0.0010	----
titanium, total	7440-32-6	E468S	0.005	mg/L	<0.0050	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	<0.0010	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	<0.000050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 274655) - continued</b>						
vanadium, total	7440-62-2	E468S	0.0005	mg/L	<0.00050	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E468S	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	<0.00050	----
<b>Total Metals (QCLot: 274656)</b>						
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	----
<b>Total Metals (QCLot: 275419)</b>						
mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
<b>Dissolved Metals (QCLot: 274067)</b>						
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	<0.0050	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	<0.0010	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	<0.00040	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	<0.0010	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	<0.00050	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	<0.00050	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	<0.30	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	<0.000010	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	<1.0	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	<0.00050	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	<0.000050	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	<0.00020	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	<0.00050	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	<0.020	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	<1.0	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	<0.00010	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E469S	1	mg/L	<1.0	----
rhodium, dissolved	7440-15-5	E469S	0.0005	mg/L	<0.00050	----
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	<0.0050	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	<0.00050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Dissolved Metals (QCLot: 274067) - continued</b>						
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	<0.00010	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	<0.010	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	<5.0	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	<0.00050	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	<0.000050	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	<0.00050	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	<0.0010	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	<0.0050	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	<0.0010	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	<0.000050	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	<0.00050	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	<0.00050	----
<b>Dissolved Metals (QCLot: 274068)</b>						
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	<2.5	----
<b>Dissolved Metals (QCLot: 275533)</b>						
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 271647)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	98.6	85.0	115	----
Physical Tests (QCLot: 271648)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 271650)									
conductivity	----	E100S	2	µS/cm	146.9 µS/cm	101	80.0	120	----
Physical Tests (QCLot: 272077)									
solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	104	85.0	115	----
Physical Tests (QCLot: 273148)									
solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	98.5	85.0	115	----
Physical Tests (QCLot: 273149)									
solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	103	85.0	115	----
Physical Tests (QCLot: 274492)									
turbidity	----	E121	0.1	NTU	200 NTU	101	85.0	115	----
Anions and Nutrients (QCLot: 272456)									
bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	99.3	85.0	115	----
Anions and Nutrients (QCLot: 272457)									
chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 272458)									
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 272459)									
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 272460)									
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	98.8	90.0	110	----
Anions and Nutrients (QCLot: 272461)									
sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 275545)									
phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	95.7	80.0	120	----
Anions and Nutrients (QCLot: 275666)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 275669)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	92.7	75.0	125	----





Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 275663)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	104	80.0	120	----
Organic / Inorganic Carbon (QCLot: 276240)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	98.7	80.0	120	----
Total Metals (QCLot: 274655)									
aluminum, total	7429-90-5	E468S	0.005	mg/L	2 mg/L	102	80.0	120	----
antimony, total	7440-36-0	E468S	0.001	mg/L	1 mg/L	102	80.0	120	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	1 mg/L	102	80.0	120	----
barium, total	7440-39-3	E468S	0.001	mg/L	0.25 mg/L	102	80.0	120	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	0.1 mg/L	104	80.0	120	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	1 mg/L	110	80.0	120	----
boron, total	7440-42-8	E468S	0.3	mg/L	10 mg/L	99.3	80.0	120	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	0.1 mg/L	107	80.0	120	----
calcium, total	7440-70-2	E468S	1	mg/L	50 mg/L	100	80.0	120	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	0.05 mg/L	95.7	80.0	120	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	0.25 mg/L	107	80.0	120	----
copper, total	7440-50-8	E468S	0.0005	mg/L	0.25 mg/L	108	80.0	120	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
iron, total	7439-89-6	E468S	0.01	mg/L	1 mg/L	108	80.0	120	----
lead, total	7439-92-1	E468S	0.00005	mg/L	0.5 mg/L	107	80.0	120	----
lithium, total	7439-93-2	E468S	0.02	mg/L	0.25 mg/L	101	80.0	120	----
magnesium, total	7439-95-4	E468S	1	mg/L	50 mg/L	100	80.0	120	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	0.25 mg/L	96.1	80.0	120	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	10 mg/L	104	80.0	120	----
potassium, total	7440-09-7	E468S	1	mg/L	50 mg/L	103	80.0	120	----
rhenium, total	7440-15-5	E468S	0.0005	mg/L	0.1 mg/L	98.6	80.0	120	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	0.1 mg/L	106	80.0	120	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	1 mg/L	112	80.0	120	----
silver, total	7440-22-4	E468S	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
strontium, total	7440-24-6	E468S	0.01	mg/L	0.25 mg/L	97.8	80.0	120	----
sulfur, total	7704-34-9	E468S	5	mg/L	50 mg/L	89.0	80.0	120	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	0.1 mg/L	110	80.0	120	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	1 mg/L	96.9	80.0	120	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	0.1 mg/L	93.5	80.0	120	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
<b>Total Metals (QCLot: 274655) - continued</b>									
tin, total	7440-31-5	E468S	0.001	mg/L	0.5 mg/L	97.9	80.0	120	----
titanium, total	7440-32-6	E468S	0.005	mg/L	0.25 mg/L	102	80.0	120	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	0.1 mg/L	98.9	80.0	120	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	0.005 mg/L	101	80.0	120	----
vanadium, total	7440-62-2	E468S	0.0005	mg/L	0.5 mg/L	99.9	80.0	120	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
zinc, total	7440-66-6	E468S	0.003	mg/L	0.5 mg/L	106	80.0	120	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	0.1 mg/L	92.3	80.0	120	----
<b>Total Metals (QCLot: 274656)</b>									
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	105	80.0	120	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	50 mg/L	101	80.0	120	----
<b>Total Metals (QCLot: 275419)</b>									
mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	98.5	80.0	120	----
<b>Dissolved Metals (QCLot: 274067)</b>									
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	2 mg/L	101	80.0	120	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	1 mg/L	106	80.0	120	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	1 mg/L	100	80.0	120	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	0.25 mg/L	101	80.0	120	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	1 mg/L	105	80.0	120	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	10 mg/L	97.0	80.0	120	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	0.1 mg/L	107	80.0	120	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	50 mg/L	100	80.0	120	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	0.05 mg/L	103	80.0	120	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	0.25 mg/L	107	80.0	120	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	0.25 mg/L	105	80.0	120	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	1 mg/L	111	80.0	120	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	0.5 mg/L	106	80.0	120	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	0.25 mg/L	100	80.0	120	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	50 mg/L	104	80.0	120	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	10 mg/L	107	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 274067) - continued									
potassium, dissolved	7440-09-7	E469S	1	mg/L	50 mg/L	100	80.0	120	----
rhodium, dissolved	7440-15-5	E469S	0.0005	mg/L	0.1 mg/L	104	80.0	120	----
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	0.1 mg/L	99.8	80.0	120	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	1 mg/L	108	80.0	120	----
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	0.1 mg/L	107	80.0	120	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	0.25 mg/L	102	80.0	120	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	50 mg/L	102	80.0	120	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	0.1 mg/L	114	80.0	120	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	1 mg/L	110	80.0	120	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	0.1 mg/L	97.6	80.0	120	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	0.5 mg/L	102	80.0	120	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	0.25 mg/L	93.8	80.0	120	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	0.1 mg/L	101	80.0	120	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	0.005 mg/L	107	80.0	120	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	0.5 mg/L	96.2	80.0	120	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	0.5 mg/L	107	80.0	120	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	0.1 mg/L	96.8	80.0	120	----
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	98.8	80.0	120	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	50 mg/L	95.3	80.0	120	----
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	99.1	80.0	120	----



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 272456)										
VA21B7536-002	TR Ref2	bromide	24959-67-9	E235S.Br	48.6 mg/L	50 mg/L	97.1	75.0	125	----
Anions and Nutrients (QCLot: 272457)										
VA21B7536-002	TR Ref2	chloride	16887-00-6	E235S.Cl	ND mg/L	10000 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 272458)										
VA21B7536-002	TR Ref2	fluoride	16984-48-8	E235S.F-L	10.4 mg/L	10 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 272459)										
VA21B7536-002	TR Ref2	nitrate (as N)	14797-55-8	E235S.NO3-T	7.30 mg/L	7.5 mg/L	97.3	75.0	125	----
Anions and Nutrients (QCLot: 272460)										
VA21B7536-002	TR Ref2	nitrite (as N)	14797-65-0	E235S.NO2-L	4.84 mg/L	5 mg/L	96.8	75.0	125	----
Anions and Nutrients (QCLot: 272461)										
VA21B7536-002	TR Ref2	sulfate (as SO4)	14808-79-8	E235S.SO4-L	ND mg/L	1000 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 275545)										
VA21B7533-002	Anonymous	phosphorus, total	7723-14-0	E372S	0.0766 mg/L	0.1 mg/L	76.6	70.0	130	----
Anions and Nutrients (QCLot: 275666)										
VA21B7487-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.106 mg/L	0.1 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 275669)										
VA21B7536-002	TR Ref2	Kjeldahl nitrogen, total [TKN]	----	E318S	2.69 mg/L	2.5 mg/L	107	70.0	130	----
Organic / Inorganic Carbon (QCLot: 275663)										
VA21B7487-002	Anonymous	carbon, total organic [TOC]	----	E355-L	5.00 mg/L	5 mg/L	100	70.0	130	----
Organic / Inorganic Carbon (QCLot: 276240)										
VA21B7536-002	TR Ref2	carbon, dissolved organic [DOC]	----	E358-L	5.29 mg/L	5 mg/L	106	70.0	130	----
Total Metals (QCLot: 274655)										
VA21B7535-007	Anonymous	aluminum, total	7429-90-5	E468S	0.515 mg/L	0.4 mg/L	129	70.0	130	----
		antimony, total	7440-36-0	E468S	0.0374 mg/L	0.04 mg/L	93.4	70.0	130	----
		arsenic, total	7440-38-2	E468S	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	----
		barium, total	7440-39-3	E468S	0.0423 mg/L	0.04 mg/L	106	70.0	130	----
		beryllium, total	7440-41-7	E468S	0.0906 mg/L	0.08 mg/L	113	70.0	130	----
		bismuth, total	7440-69-9	E468S	0.0164 mg/L	0.02 mg/L	82.2	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 274655) - continued										
VA21B7535-007	Anonymous	boron, total	7440-42-8	E468S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, total	7440-43-9	E468S	0.00710 mg/L	0.008 mg/L	88.8	70.0	130	----
		calcium, total	7440-70-2	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E468S	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		chromium, total	7440-47-3	E468S	0.0910 mg/L	0.08 mg/L	114	70.0	130	----
		cobalt, total	7440-48-4	E468S	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
		copper, total	7440-50-8	E468S	0.0356 mg/L	0.04 mg/L	89.0	70.0	130	----
		gallium, total	7440-55-3	E468S	0.00587 mg/L	0.005 mg/L	117	70.0	130	----
		iron, total	7439-89-6	E468S	4.25 mg/L	4 mg/L	106	70.0	130	----
		lead, total	7439-92-1	E468S	0.0342 mg/L	0.04 mg/L	85.6	70.0	130	----
		lithium, total	7439-93-2	E468S	0.213 mg/L	0.2 mg/L	107	70.0	130	----
		magnesium, total	7439-95-4	E468S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E468S	0.0451 mg/L	0.04 mg/L	113	70.0	130	----
		molybdenum, total	7439-98-7	E468S	0.0407 mg/L	0.04 mg/L	102	70.0	130	----
		nickel, total	7440-02-0	E468S	0.0736 mg/L	0.08 mg/L	92.0	70.0	130	----
		phosphorus, total	7723-14-0	E468S	25.1 mg/L	20 mg/L	126	70.0	130	----
		potassium, total	7440-09-7	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenium, total	7440-15-5	E468S	0.00470 mg/L	0.005 mg/L	94.0	70.0	130	----
		rubidium, total	7440-17-7	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		selenium, total	7782-49-2	E468S	0.0814 mg/L	0.08 mg/L	102	70.0	130	----
		silver, total	7440-22-4	E468S	0.00685 mg/L	0.008 mg/L	85.7	70.0	130	----
		strontium, total	7440-24-6	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E468S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, total	13494-80-9	E468S	0.0654 mg/L	0.08 mg/L	81.8	70.0	130	----
		thallium, total	7440-28-0	E468S	0.00654 mg/L	0.008 mg/L	81.8	70.0	130	----
		thorium, total	7440-29-1	E468S	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		tin, total	7440-31-5	E468S	0.0354 mg/L	0.04 mg/L	88.6	70.0	130	----
		titanium, total	7440-32-6	E468S	0.178 mg/L	0.16 mg/L	111	70.0	130	----
		tungsten, total	7440-33-7	E468S	0.0372 mg/L	0.04 mg/L	93.0	70.0	130	----
		uranium, total	7440-61-1	E468S	0.00734 mg/L	0.008 mg/L	91.7	70.0	130	----
		vanadium, total	7440-62-2	E468S	0.238 mg/L	0.2 mg/L	119	70.0	130	----
		yttrium, total	7440-65-5	E468S	0.0110 mg/L	0.01 mg/L	110	70.0	130	----
		zinc, total	7440-66-6	E468S	0.691 mg/L	0.8 mg/L	86.4	70.0	130	----
		zirconium, total	7440-67-7	E468S	0.0872 mg/L	0.08 mg/L	109	70.0	130	----
Total Metals (QCLot: 274656)										
VA21B7535-007	Anonymous	silicon, total	7440-21-3	E468S.NaSi	490 mg/L	500 mg/L	98.0	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 274656) - continued										
VA21B7535-007	Anonymous	sodium, total	17341-25-2	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 275419)										
VA21B7440-026	Anonymous	mercury, total	7439-97-6	E508S	0.0000979 mg/L	0.0001 mg/L	97.9	70.0	130	----
Dissolved Metals (QCLot: 274067)										
VA21B7536-002	TR Ref2	aluminum, dissolved	7429-90-5	E469S	0.426 mg/L	0.4 mg/L	106	70.0	130	----
		antimony, dissolved	7440-36-0	E469S	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		arsenic, dissolved	7440-38-2	E469S	0.0364 mg/L	0.04 mg/L	91.1	70.0	130	----
		barium, dissolved	7440-39-3	E469S	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	----
		beryllium, dissolved	7440-41-7	E469S	0.0779 mg/L	0.08 mg/L	97.3	70.0	130	----
		bismuth, dissolved	7440-69-9	E469S	0.0165 mg/L	0.02 mg/L	82.4	70.0	130	----
		boron, dissolved	7440-42-8	E469S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, dissolved	7440-43-9	E469S	0.00703 mg/L	0.008 mg/L	87.9	70.0	130	----
		calcium, dissolved	7440-70-2	E469S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, dissolved	7440-46-2	E469S	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		chromium, dissolved	7440-47-3	E469S	0.0802 mg/L	0.08 mg/L	100	70.0	130	----
		cobalt, dissolved	7440-48-4	E469S	0.0378 mg/L	0.04 mg/L	94.4	70.0	130	----
		copper, dissolved	7440-50-8	E469S	0.0345 mg/L	0.04 mg/L	86.2	70.0	130	----
		gallium, dissolved	7440-55-3	E469S	0.00528 mg/L	0.005 mg/L	106	70.0	130	----
		iron, dissolved	7439-89-6	E469S	3.97 mg/L	4 mg/L	99.3	70.0	130	----
		lead, dissolved	7439-92-1	E469S	0.0340 mg/L	0.04 mg/L	85.1	70.0	130	----
		lithium, dissolved	7439-93-2	E469S	0.180 mg/L	0.2 mg/L	90.0	70.0	130	----
		magnesium, dissolved	7439-95-4	E469S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E469S	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
		molybdenum, dissolved	7439-98-7	E469S	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		nickel, dissolved	7440-02-0	E469S	0.0703 mg/L	0.08 mg/L	87.9	70.0	130	----
		phosphorus, dissolved	7723-14-0	E469S	22.7 mg/L	20 mg/L	113	70.0	130	----
		potassium, dissolved	7440-09-7	E469S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenum, dissolved	7440-15-5	E469S	0.00480 mg/L	0.005 mg/L	96.0	70.0	130	----
		rubidium, dissolved	7440-17-7	E469S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		selenium, dissolved	7782-49-2	E469S	0.0754 mg/L	0.08 mg/L	94.3	70.0	130	----
		silver, dissolved	7440-22-4	E469S	0.00722 mg/L	0.008 mg/L	90.2	70.0	130	----
		strontium, dissolved	7440-24-6	E469S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E469S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, dissolved	13494-80-9	E469S	0.0716 mg/L	0.08 mg/L	89.5	70.0	130	----
		thallium, dissolved	7440-28-0	E469S	0.00725 mg/L	0.008 mg/L	90.7	70.0	130	----
		thorium, dissolved	7440-29-1	E469S	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 274067) - continued										
VA21B7536-002	TR Ref2	tin, dissolved	7440-31-5	E469S	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	----
		titanium, dissolved	7440-32-6	E469S	0.0813 mg/L	0.08 mg/L	102	70.0	130	----
		tungsten, dissolved	7440-33-7	E469S	0.0380 mg/L	0.04 mg/L	95.0	70.0	130	----
		uranium, dissolved	7440-61-1	E469S	0.00755 mg/L	0.008 mg/L	94.4	70.0	130	----
		vanadium, dissolved	7440-62-2	E469S	0.206 mg/L	0.2 mg/L	103	70.0	130	----
		yttrium, dissolved	7440-65-5	E469S	0.00590 mg/L	0.005 mg/L	118	70.0	130	----
		zinc, dissolved	7440-66-6	E469S	0.679 mg/L	0.8 mg/L	84.9	70.0	130	----
		zirconium, dissolved	7440-67-7	E469S	0.0823 mg/L	0.08 mg/L	103	70.0	130	----
Dissolved Metals (QCLot: 274068)										
VA21B7536-002	TR Ref2	silicon, dissolved	7440-21-3	E469S.NaSi	475 mg/L	500 mg/L	95.0	70.0	130	----
		sodium, dissolved	17341-25-2	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 275533)										
VA21B7536-002	TR Ref2	mercury, dissolved	7439-97-6	E509S	0.0000973 mg/L	0.0001 mg/L	97.3	70.0	130	----





COC Number: 20 - 920783

**Canada Toll Free: 1 800 668 9878**

Page 1 of 1

Environmental Division  
Vancouver  
Work Order Reference  
**VA21B7536**



Telephone : +1 604 253 4188

WHITE - LABORATORY COPY      YELLOW - CLIENT COPY

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**.

AUG 2020 FROM

## CERTIFICATE OF ANALYSIS

**Work Order** : **VA21B7539**  
**Amendment** : **1**  
**Client** : **Golder Associates Ltd.**  
**Contact** : Elaine Irving  
**Address** : 200-2920 Virtual Way  
                   Vancouver BC Canada V5M 0C4  
**Telephone** : ----  
**Project** : 1663724-44000-03  
**PO** : ----  
**C-O-C number** : 20-920780  
**Sampler** : ----  
**Site** : ----  
**Quote number** : Q84262  
**No. of samples received** : 9  
**No. of samples analysed** : 9

**Page** : 1 of 15  
**Laboratory** : Vancouver - Environmental  
**Account Manager** : Amber Springer  
**Address** : 8081 Lougheed Highway  
                   Burnaby BC Canada V5A 1W9  
**Telephone** : +1 604 253 4188  
**Date Samples Received** : 19-Aug-2021 08:25  
**Date Analysis Commenced** : 19-Aug-2021  
**Issue Date** : 07-Sep-2021 14:15

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Paul Cushing	Team Leader - Organics	Organics, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia





## General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances  
LOR: Limit of Reporting (detection limit).

Unit	Description
-	No Unit
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

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

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

## Workorder Comments

Amended COA(1): PAH data is included.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
Client sampling date / time					16-Aug-2021 10:25	16-Aug-2021 10:55	16-Aug-2021 11:05	16-Aug-2021 10:45	16-Aug-2021 13:40
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-001	VA21B7539-002	VA21B7539-003	VA21B7539-004	VA21B7539-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	87.7	106	103	98.4	88.9
conductivity	----	E100S	2.0	µS/cm	5550	46300	42600	41100	9690
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	473	5150	4620	4570	933
pH	----	E108	0.10	pH units	8.04	7.95	7.93	7.92	8.02
salinity	----	EC100S	1.0	psu	2.9	29.3	26.7	25.7	5.3
solids, total dissolved [TDS]	----	E162S	10	mg/L	3450	32000	27400	26200	5730
solids, total suspended [TSS]	----	E160S	2.0	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0
turbidity	----	E121	0.10	NTU	1.10	0.45	0.60	0.71	0.88
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
bromide	24959-67-9	E235S.Br	5.0	mg/L	5.1	56.6	54.0	52.0	10.1
chloride	16887-00-6	E235S.Cl	50	mg/L	1660	16800	15900	15400	3140
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	0.77	0.78	0.76	0.20
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.081	0.097	0.075	0.081	0.069
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	0.021
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0040	0.0170	0.0174	0.0157	<0.0040
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	233	2340	2120	2080	440
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.26	1.04	1.01	1.11	1.18
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.30	1.18	1.02	1.07	1.24
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0292	0.0097	0.0123	0.0124	0.0239
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, total	7440-38-2	E468S	0.00040	mg/L	<0.00040	0.00133	0.00123	0.00122	<0.00040
barium, total	7440-39-3	E468S	0.0010	mg/L	0.0047	0.0075	0.0077	0.0080	0.0048
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, total	7440-42-8	E468S	0.30	mg/L	0.45	3.66	3.48	3.20	0.72
cadmium, total	7440-43-9	E468S	0.000010	mg/L	<0.000010	0.000041	0.000030	0.000030	<0.000010



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
Client sampling date / time					16-Aug-2021 10:25	16-Aug-2021 10:55	16-Aug-2021 11:05	16-Aug-2021 10:45	16-Aug-2021 13:40
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-001	VA21B7539-002	VA21B7539-003	VA21B7539-004	VA21B7539-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
calcium, total	7440-70-2	E468S	1.0	mg/L	55.8	402	365	345	84.5
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, total	7439-89-6	E468S	0.010	mg/L	0.031	0.010	<0.010	<0.010	0.029
lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, total	7439-93-2	E468S	0.020	mg/L	<0.020	0.176	0.155	0.149	0.032
magnesium, total	7439-95-4	E468S	1.0	mg/L	102	1170	1050	1030	195
manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00140	0.00100	0.00097	0.00130	0.00131
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00106	0.00959	0.00891	0.00866	0.00186
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	<0.050	0.052	<0.050
potassium, total	7440-09-7	E468S	1.0	mg/L	33.2	447	397	386	64.8
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0099	0.111	0.0986	0.0972	0.0191
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	833	8830	7900	5630	1610
strontium, total	7440-24-6	E468S	0.010	mg/L	0.624	6.57	6.08	5.89	1.15
sulfur, total	7704-34-9	E468S	5.0	mg/L	80.1	1180	1030	1010	161
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00159	0.00262	0.00234	0.00232	0.00167



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
Client sampling date / time					16-Aug-2021 10:25	16-Aug-2021 10:55	16-Aug-2021 11:05	16-Aug-2021 10:45	16-Aug-2021 13:40
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-001	VA21B7539-002	VA21B7539-003	VA21B7539-004	VA21B7539-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	0.00145	0.00130	0.00133	<0.00050
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
<b>Dissolved Metals</b>									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	0.00133	0.00123	0.00117	<0.00040
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0044	0.0068	0.0070	0.0071	0.0044
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, dissolved	7440-42-8	E469S	0.30	mg/L	0.36	3.34	2.98	2.89	0.71
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	<0.000010	0.000031	0.000030	0.000024	<0.000010
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	46.8	349	306	310	78.4
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00047	0.00022	0.00022	0.00032	0.00034
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	<0.020	0.146	0.125	0.122	0.026
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	86.6	1040	936	923	179
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00054	0.00070	0.00074	0.00105	0.00061
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00088	0.00938	0.00830	0.00845	0.00178
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	26.0	365	327	318	56.4
rhodium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0079	0.0984	0.0888	0.0856	0.0162





## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
Client sampling date / time					16-Aug-2021 10:25	16-Aug-2021 10:55	16-Aug-2021 11:05	16-Aug-2021 10:45	16-Aug-2021 13:40
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-001	VA21B7539-002	VA21B7539-003	VA21B7539-004	VA21B7539-005
					Result	Result	Result	Result	Result
<b>Dissolved Metals</b>									
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	691	8500	7540	7590	1520
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	0.534	6.60	5.83	5.83	1.15
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	62.3	930	831	784	139
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00152	0.00257	0.00227	0.00225	0.00149
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	0.00128	0.00110	0.00106	<0.00050
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	Field	Field
<b>Volatile Organic Compounds [Fuels]</b>									
benzene	71-43-2	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
styrene	100-42-5	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
toluene	108-88-3	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	----	<0.40	----	<0.40
xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	----	<0.30	----	<0.30
xylenes, total	1330-20-7	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
<b>Volatile Organic Compounds Surrogates</b>									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	95.5	----	89.7	----	91.3
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	91.9	----	70.2	----	91.6



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
Client sampling date / time					16-Aug-2021 10:25	16-Aug-2021 10:55	16-Aug-2021 11:05	16-Aug-2021 10:45	16-Aug-2021 13:40
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-001	VA21B7539-002	VA21B7539-003	VA21B7539-004	VA21B7539-005
					Result	Result	Result	Result	Result
<b>Hydrocarbons</b>									
F2 (C10-C16)	----	E601	100	µg/L	<100	----	<100	----	<100
F3 (C16-C34)	----	E601	250	µg/L	<250	----	<250	----	<250
F4 (C34-C50)	----	E601	250	µg/L	<250	----	<250	----	<250
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	<100	----	<100
F1-BTEX	----	EC580	100	µg/L	<100	----	<100	----	<100
VPW	----	EC580A	100	µg/L	<100	----	<100	----	<100
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	<100	----	<100
<b>Hydrocarbons Surrogates</b>									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	E601	1.0	%	78.4	----	79.3	----	78.0
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	104	----	86.7	----	78.7
<b>Polycyclic Aromatic Hydrocarbons</b>									
acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
acridine	260-94-6	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
anthracene	120-12-7	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	----	<0.0050	----	<0.0050
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	<0.015	----	<0.015	----	<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
chrysene	218-01-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	----	<0.0050	----	<0.0050
fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
fluorene	86-73-7	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
methylnaphthalene, 1+2-	----	E641A	0.015	µg/L	<0.015	----	<0.015	----	<0.015
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	----	<0.050	----	<0.050
phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	----	<0.020	----	<0.020



## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

					Client sample ID	MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
					Client sampling date / time	16-Aug-2021 10:25	16-Aug-2021 10:55	16-Aug-2021 11:05	16-Aug-2021 10:45	16-Aug-2021 13:40
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-001	VA21B7539-002	VA21B7539-003	VA21B7539-004	VA21B7539-005	
					Result	Result	Result	Result	Result	
<b>Polycyclic Aromatic Hydrocarbons</b>										
pyrene	129-00-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010	
quinoline	6027-02-7	E641A	0.050	µg/L	<0.050	----	<0.050	----	<0.050	
B(a)P total potency equivalents [B(a)P TPE]	----	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010	
PAHs, high molecular weight (BC AWQ)	----	E641A	0.030	µg/L	<0.030	----	<0.030	----	<0.030	
PAHs, low molecular weight (BC AWQ)	----	E641A	0.060	µg/L	<0.060	----	<0.060	----	<0.060	
PAHs, total (EPA 16)	----	E641A	0.065	µg/L	<0.065	----	<0.065	----	<0.065	
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>										
chrysene-d12	1719-03-5	E641A	0.1	%	82.7	----	83.4	----	75.4	
naphthalene-d8	1146-65-2	E641A	0.1	%	88.0	----	97.9	----	88.5	
phenanthrene-d10	1517-22-2	E641A	0.1	%	111	----	112	----	104	

Please refer to the General Comments section for an explanation of any qualifiers detected.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05 North	MP-05 ENE	MP-05 WNW	DUP-C	----
Client sampling date / time					16-Aug-2021 13:25	16-Aug-2021 13:50	16-Aug-2021 13:35	16-Aug-2021 13:55	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-006	VA21B7539-007	VA21B7539-008	VA21B7539-009	-----
					Result	Result	Result	Result	----
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	87.4	90.2	89.1	89.7	----
conductivity	----	E100S	2.0	µS/cm	11100	14200	12300	12600	----
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	1100	1340	1200	1260	----
pH	----	E108	0.10	pH units	8.01	8.01	8.01	7.97	----
salinity	----	EC100S	1.0	psu	6.2	8.0	6.9	7.0	----
solids, total dissolved [TDS]	----	E162S	10	mg/L	6360	8100	7140	7420	----
solids, total suspended [TSS]	----	E160S	2.0	mg/L	<2.0	<2.0	<2.0	<2.0	----
turbidity	----	E121	0.10	NTU	0.69	0.99	0.87	0.81	----
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
bromide	24959-67-9	E235S.Br	5.0	mg/L	12.0	15.4	12.8	13.2	----
chloride	16887-00-6	E235S.Cl	50	mg/L	3790	4740	3990	4170	----
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.22	0.28	0.24	0.25	----
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.092	0.094	0.097	0.085	----
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	0.028	<0.010	0.049	----
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	<0.0040	0.0072	0.0044	0.0134	----
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	508	652	559	582	----
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.22	1.16	1.14	1.08	----
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.24	1.22	1.15	1.16	----
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0236	0.0247	0.0293	0.0239	----
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
arsenic, total	7440-38-2	E468S	0.00040	mg/L	<0.00040	0.00045	<0.00040	0.00041	----
barium, total	7440-39-3	E468S	0.0010	mg/L	0.0050	0.0051	0.0052	0.0052	----
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
boron, total	7440-42-8	E468S	0.30	mg/L	0.86	1.08	1.00	1.04	----
cadmium, total	7440-43-9	E468S	0.000010	mg/L	<0.000010	0.000011	0.000010	<0.000010	----
calcium, total	7440-70-2	E468S	1.0	mg/L	95.4	114	107	112	----



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05 North	MP-05 ENE	MP-05 WNW	DUP-C	----
Client sampling date / time					16-Aug-2021 13:25	16-Aug-2021 13:50	16-Aug-2021 13:35	16-Aug-2021 13:55	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-006	VA21B7539-007	VA21B7539-008	VA21B7539-009	-----
					Result	Result	Result	Result	----
<b>Total Metals</b>									
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00172	----
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	0.000066	----
copper, total	7440-50-8	E468S	0.00050	mg/L	0.00054	<0.00050	<0.00050	<0.00050	----
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
iron, total	7439-89-6	E468S	0.010	mg/L	0.028	0.032	0.032	0.040	----
lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
lithium, total	7439-93-2	E468S	0.020	mg/L	0.037	0.048	0.042	0.043	----
magnesium, total	7439-95-4	E468S	1.0	mg/L	234	295	258	275	----
manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00140	0.00144	0.00137	0.00167	----
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00216	0.00268	0.00244	0.00251	----
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00225	----
phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
potassium, total	7440-09-7	E468S	1.0	mg/L	78.3	100	91.3	95.9	----
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0224	0.0278	0.0254	0.0261	----
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	1880	2280	2020	2110	----
strontium, total	7440-24-6	E468S	0.010	mg/L	1.38	1.75	1.58	1.68	----
sulfur, total	7704-34-9	E468S	5.0	mg/L	194	250	229	242	----
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00172	0.00229	0.00174	0.00182	----
vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05 North	MP-05 ENE	MP-05 WNW	DUP-C	----
Client sampling date / time					16-Aug-2021 13:25	16-Aug-2021 13:50	16-Aug-2021 13:35	16-Aug-2021 13:55	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-006	VA21B7539-007	VA21B7539-008	VA21B7539-009	-----
					Result	Result	Result	Result	----
<b>Total Metals</b>									
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	----
zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
<b>Dissolved Metals</b>									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	0.0051	----
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	0.00040	<0.00040	<0.00040	----
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0045	0.0046	0.0044	0.0045	----
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
boron, dissolved	7440-42-8	E469S	0.30	mg/L	0.78	0.95	0.86	0.93	----
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	<0.000010	<0.000010	0.000012	<0.000010	----
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	85.7	101	92.6	98.0	----
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00088	0.00037	0.00037	0.00042	----
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	0.031	0.037	0.035	0.038	----
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	216	265	236	247	----
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00060	0.00069	0.00062	0.00059	----
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00202	0.00242	0.00232	0.00232	----
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	0.00051	<0.00050	<0.00050	<0.00050	----
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	68.3	86.4	76.5	79.0	----
rhodium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0197	0.0241	0.0222	0.0227	----
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----

Sub-Matrix: Seawater (Matrix: Water)					Client sample ID	MP-05 North	MP-05 ENE	MP-05 WNW	DUP-C	----
Client sampling date / time					16-Aug-2021 13:25	16-Aug-2021 13:50	16-Aug-2021 13:35	16-Aug-2021 13:55	----	
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-006	VA21B7539-007	VA21B7539-008	VA21B7539-009	-----	
					Result	Result	Result	Result	----	
Dissolved Metals										
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----	
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----	
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	1820	2190	2020	2020	----	
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	1.33	1.62	1.50	1.54	----	
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	164	211	186	195	----	
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----	
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----	
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----	
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----	
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00160	0.00212	0.00166	0.00171	----	
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	<0.0010	<0.0010	0.0013	<0.0010	----	
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	Field	----	
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	Field	----	
Volatile Organic Compounds [Fuels]										
benzene	71-43-2	E611A	0.50	µg/L	<0.50	----	----	----	----	
ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	----	----	----	----	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	----	----	----	----	
styrene	100-42-5	E611A	0.50	µg/L	<0.50	----	----	----	----	
toluene	108-88-3	E611A	0.50	µg/L	<0.50	----	----	----	----	
xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	----	----	----	----	
xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	----	----	----	----	
xylenes, total	1330-20-7	E611A	0.50	µg/L	<0.50	----	----	----	----	
Volatile Organic Compounds Surrogates										
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	93.1	----	----	----	----	
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	93.9	----	----	----	----	
Hydrocarbons										





## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05 North	MP-05 ENE	MP-05 WNW	DUP-C	----
Client sampling date / time					16-Aug-2021 13:25	16-Aug-2021 13:50	16-Aug-2021 13:35	16-Aug-2021 13:55	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-006	VA21B7539-007	VA21B7539-008	VA21B7539-009	-----
					Result	Result	Result	Result	----
<b>Hydrocarbons</b>									
F2 (C10-C16)	----	E601	100	µg/L	<100	----	----	----	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----	----	----	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----	----	----	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	----	----	----
F1-BTEX	----	EC580	100	µg/L	<100	----	----	----	----
VPHw	----	EC580A	100	µg/L	<100	----	----	----	----
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	----	----	----
<b>Hydrocarbons Surrogates</b>									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	E601	1.0	%	77.9	----	----	----	----
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	120	----	----	----	----
<b>Polycyclic Aromatic Hydrocarbons</b>									
acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	----	----	----	----
acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	----	----	----	----
acridine	260-94-6	E641A	0.010	µg/L	<0.010	----	----	----	----
anthracene	120-12-7	E641A	0.010	µg/L	<0.010	----	----	----	----
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	----	----	----	----
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	----	----	----	----
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	<0.010	----	----	----	----
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	<0.015	----	----	----	----
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	----	----	----	----
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	----	----	----	----
chrysene	218-01-9	E641A	0.010	µg/L	<0.010	----	----	----	----
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	----	----	----	----
fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	----	----	----	----
fluorene	86-73-7	E641A	0.010	µg/L	<0.010	----	----	----	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	----	----	----	----
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	<0.010	----	----	----	----
methylnaphthalene, 1+2-	----	E641A	0.015	µg/L	<0.015	----	----	----	----
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	<0.010	----	----	----	----
naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	----	----	----	----
phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	----	----	----	----



## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

					Client sample ID	MP-05 North	MP-05 ENE	MP-05 WNW	DUP-C	---
					Client sampling date / time	16-Aug-2021 13:25	16-Aug-2021 13:50	16-Aug-2021 13:35	16-Aug-2021 13:55	---
Analyte	CAS Number	Method	LOR	Unit	VA21B7539-006	VA21B7539-007	VA21B7539-008	VA21B7539-009	-----	---
					Result	Result	Result	Result	---	---
<b>Polycyclic Aromatic Hydrocarbons</b>										
pyrene	129-00-0	E641A	0.010	µg/L	<0.010	----	----	----	----	----
quinoline	6027-02-7	E641A	0.050	µg/L	<0.050	----	----	----	----	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A	0.010	µg/L	<0.010	----	----	----	----	----
PAHs, high molecular weight (BC AWQ)	----	E641A	0.030	µg/L	<0.030	----	----	----	----	----
PAHs, low molecular weight (BC AWQ)	----	E641A	0.060	µg/L	<0.060	----	----	----	----	----
PAHs, total (EPA 16)	----	E641A	0.065	µg/L	<0.065	----	----	----	----	----
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>										
chrysene-d12	1719-03-5	E641A	0.1	%	85.9	----	----	----	----	----
naphthalene-d8	1146-65-2	E641A	0.1	%	98.5	----	----	----	----	----
phenanthrene-d10	1517-22-2	E641A	0.1	%	117	----	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

## QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: <b>VA21B7539</b>	Page	: 1 of 34
Amendment	: <b>1</b>		
Client	: <b>Golder Associates Ltd.</b>	Laboratory	: Vancouver - Environmental
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 200-2920 Virtual Way Vancouver BC Canada V5M 0C4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 1663724-44000-03	Date Samples Received	: 19-Aug-2021 08:25
PO	: ----	Issue Date	: 07-Sep-2021 14:15
C-O-C number	: 20-920780		
Sampler	: ----		
Site	: ----		
Quote number	: Q84262		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

### Key

**Anonymous:** Refers to samples which are not part of this work order, but which formed part of the QC process lot.

**CAS Number:** Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

**DQO:** Data Quality Objective.

**LOR:** Limit of Reporting (detection limit).

**RPD:** Relative Percent Difference.

## Summary of Outliers

### Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

### Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

### Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

### Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUP-C	E298	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 ENE	E298	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 North	E298	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 Source	E298	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 WNW	E298	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 ENE	E298	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 North	E298	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 Source	E298	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 WNW	E298	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE DUP-C	E235S.Br	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 ENE	E235S.Br	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 North	E235S.Br	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 Source	E235S.Br	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 WNW	E235S.Br	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 ENE	E235S.Br	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 North	E235S.Br	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 Source	E235S.Br	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 WNW	E235S.Br	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE DUP-C	E235S.Cl	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 ENE	E235S.Cl	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 North	E235S.Cl	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 Source	E235S.Cl	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 WNW	E235S.Cl	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 ENE	E235S.Cl	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 North	E235S.Cl	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 Source	E235S.Cl	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 WNW	E235S.Cl	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE DUP-C	E235S.F-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 ENE	E235S.F-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 North	E235S.F-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 Source	E235S.F-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 WNW	E235S.F-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 ENE	E235S.F-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 North	E235S.F-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓





Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 Source	E235S.F-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 WNW	E235S.F-L	16-Aug-2021	----	----	----		24-Aug-2021	28 days	8 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE DUP-C	E235S.NO3-T	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 ENE	E235S.NO3-T	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 North	E235S.NO3-T	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 Source	E235S.NO3-T	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 WNW	E235S.NO3-T	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 ENE	E235S.NO3-T	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	✖ EHTL
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 North	E235S.NO3-T	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	✖ EHTL



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 Source	E235S.NO3-T	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 WNW	E235S.NO3-T	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE DUP-C	E235S.NO2-L	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 ENE	E235S.NO2-L	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 North	E235S.NO2-L	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 Source	E235S.NO2-L	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 WNW	E235S.NO2-L	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 ENE	E235S.NO2-L	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 North	E235S.NO2-L	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 Source	E235S.NO2-L	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 WNW	E235S.NO2-L	16-Aug-2021	----	----	----		24-Aug-2021	3 days	8 days	<div>✖ EHTL</div>
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE DUP-C	E235S.SO4-L	16-Aug-2021	----	----	----		24-Aug-2021	----	8 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 ENE	E235S.SO4-L	16-Aug-2021	----	----	----		24-Aug-2021	----	8 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 North	E235S.SO4-L	16-Aug-2021	----	----	----		24-Aug-2021	----	8 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 Source	E235S.SO4-L	16-Aug-2021	----	----	----		24-Aug-2021	----	8 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 WNW	E235S.SO4-L	16-Aug-2021	----	----	----		24-Aug-2021	----	8 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 ENE	E235S.SO4-L	16-Aug-2021	----	----	----		24-Aug-2021	----	8 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 North	E235S.SO4-L	16-Aug-2021	----	----	----		24-Aug-2021	----	8 days	



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 Source	E235S.S04-L	16-Aug-2021	----	----	----		24-Aug-2021	----	8 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 WNW	E235S.S04-L	16-Aug-2021	----	----	----		24-Aug-2021	----	8 days	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) DUP-C	E318S	16-Aug-2021	24-Aug-2021	----	----		30-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 ENE	E318S	16-Aug-2021	24-Aug-2021	----	----		30-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 North	E318S	16-Aug-2021	24-Aug-2021	----	----		30-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 Source	E318S	16-Aug-2021	24-Aug-2021	----	----		30-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 WNW	E318S	16-Aug-2021	24-Aug-2021	----	----		30-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 ENE	E318S	16-Aug-2021	24-Aug-2021	----	----		30-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 North	E318S	16-Aug-2021	24-Aug-2021	----	----		30-Aug-2021	28 days	14 days	✓



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 Source	E318S	16-Aug-2021	24-Aug-2021	----	----		30-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 WNW	E318S	16-Aug-2021	24-Aug-2021	----	----		30-Aug-2021	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) DUP-C	E372S	16-Aug-2021	24-Aug-2021	----	----		26-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 ENE	E372S	16-Aug-2021	24-Aug-2021	----	----		26-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 North	E372S	16-Aug-2021	24-Aug-2021	----	----		26-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 Source	E372S	16-Aug-2021	24-Aug-2021	----	----		26-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 WNW	E372S	16-Aug-2021	24-Aug-2021	----	----		26-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 ENE	E372S	16-Aug-2021	24-Aug-2021	----	----		26-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 North	E372S	16-Aug-2021	24-Aug-2021	----	----		26-Aug-2021	28 days	10 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 Source	E372S	16-Aug-2021	24-Aug-2021	----	----		26-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 WNW	E372S	16-Aug-2021	24-Aug-2021	----	----		26-Aug-2021	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) DUP-C	E509S	16-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 ENE	E509S	16-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 North	E509S	16-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 Source	E509S	16-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 WNW	E509S	16-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 ENE	E509S	16-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 North	E509S	16-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓





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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 Source	E509S	16-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 WNW	E509S	16-Aug-2021	25-Aug-2021	----	----		25-Aug-2021	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) DUP-C	E469S	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 ENE	E469S	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 North	E469S	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 Source	E469S	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 WNW	E469S	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 ENE	E469S	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 North	E469S	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓





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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 Source	E469S	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 WNW	E469S	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) DUP-C	E469S.NaSi	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 ENE	E469S.NaSi	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 North	E469S.NaSi	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 Source	E469S.NaSi	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 WNW	E469S.NaSi	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 ENE	E469S.NaSi	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✔
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 North	E469S.NaSi	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✔



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 Source	E469S.NaSi	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 WNW	E469S.NaSi	16-Aug-2021	23-Aug-2021	----	----		25-Aug-2021	180 days	9 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 North	E601	16-Aug-2021	23-Aug-2021	14 days	7 days	✓	24-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 Source	E601	16-Aug-2021	23-Aug-2021	14 days	7 days	✓	24-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 ENE	E601	16-Aug-2021	23-Aug-2021	14 days	7 days	✓	24-Aug-2021	40 days	1 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 Source	E601	16-Aug-2021	23-Aug-2021	14 days	7 days	✓	24-Aug-2021	40 days	1 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05 North	E581.VH+F1	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05 Source	E581.VH+F1	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06 ENE	E581.VH+F1	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	14 days	8 days	✓



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Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06 Source	E581.VH+F1	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	14 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) DUP-C	E358-L	16-Aug-2021	25-Aug-2021	3 days	9 days	✖ EHTL	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 ENE	E358-L	16-Aug-2021	25-Aug-2021	3 days	9 days	✖ EHTL	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 North	E358-L	16-Aug-2021	25-Aug-2021	3 days	9 days	✖ EHTL	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 Source	E358-L	16-Aug-2021	25-Aug-2021	3 days	9 days	✖ EHTL	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 WNW	E358-L	16-Aug-2021	25-Aug-2021	3 days	9 days	✖ EHTL	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 ENE	E358-L	16-Aug-2021	25-Aug-2021	3 days	9 days	✖ EHTL	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 North	E358-L	16-Aug-2021	25-Aug-2021	3 days	9 days	✖ EHTL	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 Source	E358-L	16-Aug-2021	25-Aug-2021	3 days	9 days	✖ EHTL	26-Aug-2021	28 days	0 days	✓



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 WNW	E358-L	16-Aug-2021	25-Aug-2021	3 days	9 days	* EHTL	26-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) DUP-C	E355-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 ENE	E355-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 North	E355-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 Source	E355-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 WNW	E355-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 ENE	E355-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 North	E355-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 Source	E355-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 WNW	E355-L	16-Aug-2021	24-Aug-2021	----	----		24-Aug-2021	28 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE DUP-C	E290	16-Aug-2021	----	----	----		20-Aug-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 ENE	E290	16-Aug-2021	----	----	----		20-Aug-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 North	E290	16-Aug-2021	----	----	----		20-Aug-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 Source	E290	16-Aug-2021	----	----	----		20-Aug-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 WNW	E290	16-Aug-2021	----	----	----		20-Aug-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 ENE	E290	16-Aug-2021	----	----	----		20-Aug-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 North	E290	16-Aug-2021	----	----	----		20-Aug-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 Source	E290	16-Aug-2021	----	----	----		20-Aug-2021	14 days	4 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 WNW	E290	16-Aug-2021	----	----	----		20-Aug-2021	14 days	4 days	✓
Physical Tests : Conductivity in Seawater										
HDPE DUP-C	E100S	16-Aug-2021	----	----	----		20-Aug-2021	28 days	4 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 ENE	E100S	16-Aug-2021	----	----	----		20-Aug-2021	28 days	4 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 North	E100S	16-Aug-2021	----	----	----		20-Aug-2021	28 days	4 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 Source	E100S	16-Aug-2021	----	----	----		20-Aug-2021	28 days	4 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 WNW	E100S	16-Aug-2021	----	----	----		20-Aug-2021	28 days	4 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06 ENE	E100S	16-Aug-2021	----	----	----		20-Aug-2021	28 days	4 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06 North	E100S	16-Aug-2021	----	----	----		20-Aug-2021	28 days	4 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06 Source	E100S	16-Aug-2021	----	----	----		20-Aug-2021	28 days	4 days	✓





Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Seawater										
HDPE MP-06 WNW	E100S	16-Aug-2021	----	----	----		20-Aug-2021	28 days	4 days	✓
Physical Tests : pH by Meter										
HDPE DUP-C	E108	16-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	88 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05 ENE	E108	16-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	88 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05 North	E108	16-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	88 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05 Source	E108	16-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	88 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05 WNW	E108	16-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	88 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06 ENE	E108	16-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	90 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06 North	E108	16-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	91 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06 Source	E108	16-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	91 hrs	✖ EHTR-FM





Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE MP-06 WNW	E108	16-Aug-2021	----	----	----		20-Aug-2021	0.25 hrs	91 hrs	✖ EHTR-FM
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE DUP-C	E162S	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 ENE	E162S	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 North	E162S	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 Source	E162S	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 WNW	E162S	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 ENE	E162S	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 North	E162S	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 Source	E162S	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 WNW	E162S	16-Aug-2021	----	----	----		23-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE DUP-C	E160S	16-Aug-2021	----	----	----		21-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 ENE	E160S	16-Aug-2021	----	----	----		21-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 North	E160S	16-Aug-2021	----	----	----		21-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 Source	E160S	16-Aug-2021	----	----	----		21-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 WNW	E160S	16-Aug-2021	----	----	----		21-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 ENE	E160S	16-Aug-2021	----	----	----		21-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 North	E160S	16-Aug-2021	----	----	----		21-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 Source	E160S	16-Aug-2021	----	----	----		21-Aug-2021	7 days	5 days	✓



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 WNW	E160S	16-Aug-2021	----	----	----		21-Aug-2021	7 days	5 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE DUP-C	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 ENE	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 North	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 Source	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 WNW	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 ENE	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 North	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 Source	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHTL



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 WNW	E121	16-Aug-2021	----	----	----		22-Aug-2021	3 days	6 days	✖ EHTL
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 North	E641A	16-Aug-2021	03-Sep-2021	14 days	18 days	✖ EHT	04-Sep-2021	40 days	0 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 Source	E641A	16-Aug-2021	03-Sep-2021	14 days	18 days	✖ EHT	04-Sep-2021	40 days	0 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 ENE	E641A	16-Aug-2021	03-Sep-2021	14 days	18 days	✖ EHT	04-Sep-2021	40 days	0 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 Source	E641A	16-Aug-2021	03-Sep-2021	14 days	18 days	✖ EHT	04-Sep-2021	40 days	0 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) DUP-C	E508S	16-Aug-2021	----	----	----		25-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 ENE	E508S	16-Aug-2021	----	----	----		25-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 North	E508S	16-Aug-2021	----	----	----		25-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 Source	E508S	16-Aug-2021	----	----	----		25-Aug-2021	28 days	9 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 WNW	E508S	16-Aug-2021	----	----	----		25-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 ENE	E508S	16-Aug-2021	----	----	----		25-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 North	E508S	16-Aug-2021	----	----	----		25-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 Source	E508S	16-Aug-2021	----	----	----		25-Aug-2021	28 days	9 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 WNW	E508S	16-Aug-2021	----	----	----		25-Aug-2021	28 days	9 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) DUP-C	E468S	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 ENE	E468S	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 North	E468S	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 Source	E468S	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✔



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 WNW	E468S	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 ENE	E468S	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 North	E468S	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 Source	E468S	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 WNW	E468S	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) DUP-C	E468S.NaSi	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 ENE	E468S.NaSi	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 North	E468S.NaSi	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 Source	E468S.NaSi	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✓



Matrix: **Water** Evaluation: **✖** = Holding time exceedance ; **✔** = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 WNW	E468S.NaSi	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 ENE	E468S.NaSi	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 North	E468S.NaSi	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 Source	E468S.NaSi	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✔
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 WNW	E468S.NaSi	16-Aug-2021	----	----	----		25-Aug-2021	180 days	9 days	✔
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05 North	E611A	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	14 days	8 days	✔
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05 Source	E611A	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	14 days	8 days	✔
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-06 ENE	E611A	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	14 days	8 days	✔
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-06 Source	E611A	16-Aug-2021	24-Aug-2021	----	----		25-Aug-2021	14 days	8 days	✔

**Legend & Qualifier Definitions**

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.



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Project : 1663724-44000-03

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EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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## Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	271653	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	274289	1	19	5.2	5.0	✓
Bromide in Seawater by IC	E235S.Br	274514	1	18	5.5	5.0	✓
BTEX by Headspace GC-MS	E611A	274060	1	14	7.1	5.0	✓
Chloride in Seawater by IC	E235S.Cl	274515	1	18	5.5	5.0	✓
Conductivity in Seawater	E100S	271652	1	9	11.1	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	275533	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	273997	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	276240	1	12	8.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	273998	1	12	8.3	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	274516	1	18	5.5	5.0	✓
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	274517	1	18	5.5	5.0	✓
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	274518	1	18	5.5	5.0	✓
pH by Meter	E108	271651	1	20	5.0	5.0	✓
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	274519	1	18	5.5	5.0	✓
TDS by Gravimetry (Seawater)	E162S	273892	1	18	5.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence	E318S	274291	1	9	11.1	5.0	✓
Total Mercury in Seawater by CVAAS	E508S	275439	1	20	5.0	5.0	✓
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	274655	2	40	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	274286	1	19	5.2	5.0	✓
Total Phosphorus in Seawater by Colourimetry	E372S	274288	1	9	11.1	5.0	✓
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	274656	2	40	5.0	5.0	✓
Turbidity by Nephelometry	E121	273563	1	19	5.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	274061	1	10	10.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	271653	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	274289	1	19	5.2	5.0	✓
Bromide in Seawater by IC	E235S.Br	274514	1	18	5.5	5.0	✓
BTEX by Headspace GC-MS	E611A	274060	1	14	7.1	5.0	✓
CCME PHC - F2-F4 by GC-FID	E601	273798	1	9	11.1	5.0	✓
Chloride in Seawater by IC	E235S.Cl	274515	1	18	5.5	5.0	✓
Conductivity in Seawater	E100S	271652	1	9	11.1	5.0	✓
Dissolved Mercury in Seawater by CVAAS	E509S	275533	1	12	8.3	5.0	✓
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	273997	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	276240	1	12	8.3	5.0	✓
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	273998	1	12	8.3	5.0	✓
Fluoride in Seawater by IC (Low Level)	E235S.F-L	274516	1	18	5.5	5.0	✓



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	274517	1	18	5.5	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	274518	1	18	5.5	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	284186	1	6	16.6	5.0	✔
pH by Meter	E108	271651	1	20	5.0	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	274519	1	18	5.5	5.0	✔
TDS by Gravimetry (Seawater)	E162S	273892	1	18	5.5	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	274291	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	275439	1	20	5.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	274655	2	40	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	274286	1	19	5.2	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	274288	1	9	11.1	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	274656	2	40	5.0	5.0	✔
TSS by Gravimetry (Seawater)	E160S	272739	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	273563	1	19	5.2	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	274061	1	10	10.0	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	271653	1	9	11.1	5.0	✔
Ammonia by Fluorescence	E298	274289	1	19	5.2	5.0	✔
Bromide in Seawater by IC	E235S.Br	274514	1	18	5.5	5.0	✔
BTEX by Headspace GC-MS	E611A	274060	1	14	7.1	5.0	✔
CCME PHC - F2-F4 by GC-FID	E601	273798	1	9	11.1	5.0	✔
Chloride in Seawater by IC	E235S.Cl	274515	1	18	5.5	5.0	✔
Conductivity in Seawater	E100S	271652	1	9	11.1	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	275533	1	12	8.3	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	273997	1	18	5.5	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	276240	1	12	8.3	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	273998	1	12	8.3	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	274516	1	18	5.5	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	274517	1	18	5.5	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	274518	1	18	5.5	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	284186	1	6	16.6	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	274519	1	18	5.5	5.0	✔
TDS by Gravimetry (Seawater)	E162S	273892	1	18	5.5	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	274291	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	275439	1	20	5.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	274655	2	40	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	274286	1	19	5.2	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	274288	1	9	11.1	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	274656	2	40	5.0	5.0	✔
TSS by Gravimetry (Seawater)	E160S	272739	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	273563	1	19	5.2	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
VH and F1 by Headspace GC-FID	E581.VH+F1	274061	1	10	10.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	274289	1	19	5.2	5.0	✔
Bromide in Seawater by IC	E235S.Br	274514	1	18	5.5	5.0	✔
BTEX by Headspace GC-MS	E611A	274060	1	14	7.1	5.0	✔
Chloride in Seawater by IC	E235S.Cl	274515	1	18	5.5	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	275533	1	12	8.3	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	273997	1	18	5.5	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	276240	1	12	8.3	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	273998	1	12	8.3	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	274516	1	18	5.5	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	274517	1	18	5.5	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	274518	1	18	5.5	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	274519	1	18	5.5	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	274291	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	275439	1	20	5.0	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	274655	2	40	5.0	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	274286	1	19	5.2	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	274288	1	9	11.1	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	274656	2	40	5.0	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	274061	1	10	10.0	5.0	✔



## Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108  Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121  Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S  Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry (Seawater)	E162S  Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290  Vancouver - Environmental	Water	APHA 2320 B (mod)	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.
Ammonia by Fluorescence	E298  Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthalaldehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence	E318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry	E372S  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Seawater by CRC ICPMS (HMI)	E468S  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode). This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 µm), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S  Vancouver - Environmental	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S  Vancouver - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1  Vancouver - Environmental	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
CCME PHC - F2-F4 by GC-FID	E601  Vancouver - Environmental	Water	CCME PHC in Soil - Tier 1	CCME Fractions 2-4 (F2-F4) are analyzed by GC-FID.
BTEX by Headspace GC-MS	E611A  Vancouver - Environmental	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A  Vancouver - Environmental	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100  Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO <sub>3</sub> ), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Salinity in Seawater (calculation)	EC100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580  Vancouver - Environmental	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A  Vancouver - Environmental	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.





Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298  Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent and H2SO4.
Preparation for Total Organic Carbon by Combustion	EP355  Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358  Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421  Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509  Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581  Vancouver - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601  Vancouver - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.



## QUALITY CONTROL REPORT

Work Order : **VA21B7539**

Page : 1 of 26

Amendment : **1**

Client : Golder Associates Ltd.  
Contact : Elaine Irving  
Address : 200-2920 Virtual Way  
Vancouver BC Canada V5M 0C4  
Telephone : ----  
Project : 1663724-44000-03  
PO : ----  
C-O-C number : 20-920780  
Sampler : ----  
Site : ----  
Quote number : Q84262  
No. of samples received : 9  
No. of samples analysed : 9

Laboratory : Vancouver - Environmental  
Account Manager : Amber Springer  
Address : 8081 Lougheed Highway  
Burnaby, British Columbia Canada V5A 1W9  
Telephone : +1 604 253 4188  
Date Samples Received : 19-Aug-2021 08:25  
Date Analysis Commenced : 19-Aug-2021  
Issue Date : 07-Sep-2021 14:15

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Paul Cushing	Team Leader - Organics	Organics, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia



## General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

### Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

# = Indicates a QC result that did not meet the ALS DQO.



## Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: <b>Water</b>					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Physical Tests (QC Lot: 271651)</b>											
VA21B7539-003	MP-06 ENE	pH	----	E108	0.10	pH units	7.93	7.92	0.126%	4%	----
<b>Physical Tests (QC Lot: 271652)</b>											
VA21B7539-003	MP-06 ENE	conductivity	----	E100S	2.0	µS/cm	42600	42500	0.235%	20%	----
<b>Physical Tests (QC Lot: 271653)</b>											
VA21B7539-003	MP-06 ENE	alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	103	102	0.195%	20%	----
<b>Physical Tests (QC Lot: 273563)</b>											
VA21B7537-001	Anonymous	turbidity	----	E121	0.10	NTU	0.58	0.53	0.05	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 273892)</b>											
VA21B7539-001	MP-06 Source	solids, total dissolved [TDS]	----	E162S	40	mg/L	3450	3220	6.93%	20%	----
<b>Anions and Nutrients (QC Lot: 274288)</b>											
VA21B7539-001	MP-06 Source	phosphorus, total	7723-14-0	E372S	0.0040	mg/L	0.0040	<0.0040	0.00004	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274289)</b>											
VA21B7537-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274291)</b>											
VA21B7539-001	MP-06 Source	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.081	0.098	0.017	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274514)</b>											
VA21B7539-001	MP-06 Source	bromide	24959-67-9	E235S.Br	5.0	mg/L	5.1	5.0	0.04	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274515)</b>											
VA21B7539-001	MP-06 Source	chloride	16887-00-6	E235S.Cl	50	mg/L	1660	1660	0.254%	20%	----
<b>Anions and Nutrients (QC Lot: 274516)</b>											
VA21B7539-001	MP-06 Source	fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274517)</b>											
VA21B7539-001	MP-06 Source	nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274518)</b>											
VA21B7539-001	MP-06 Source	nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 274519)</b>											
VA21B7539-001	MP-06 Source	sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	233	234	0.429%	20%	----
<b>Organic / Inorganic Carbon (QC Lot: 274286)</b>											
VA21B7537-001	Anonymous	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	3.39	3.54	0.15	Diff <2x LOR	----
<b>Organic / Inorganic Carbon (QC Lot: 276240)</b>											
VA21B7536-001	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.13	1.02	0.11	Diff <2x LOR	----



Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Total Metals (QC Lot: 274655)</b>											
VA21B7535-006	Anonymous	aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0638	0.0660	3.38%	20%	----
		antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E468S	0.00040	mg/L	0.00162	0.00164	0.00003	Diff <2x LOR	----
		barium, total	7440-39-3	E468S	0.0010	mg/L	0.0098	0.0104	6.37%	20%	----
		beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E468S	0.30	mg/L	4.16	4.09	1.76%	20%	----
		cadmium, total	7440-43-9	E468S	0.000010	mg/L	0.000059	0.000061	0.000002	Diff <2x LOR	----
		calcium, total	7440-70-2	E468S	1.0	mg/L	423	434	2.43%	20%	----
		cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E468S	0.000050	mg/L	0.000092	0.000092	0.00000007	Diff <2x LOR	----
		copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, total	7439-89-6	E468S	0.010	mg/L	0.111	0.113	1.49%	20%	----
		lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, total	7439-93-2	E468S	0.020	mg/L	0.197	0.187	0.010	Diff <2x LOR	----
		magnesium, total	7439-95-4	E468S	1.0	mg/L	1320	1340	2.08%	20%	----
		manganese, total	7439-96-5	E468S	0.00020	mg/L	0.0254	0.0264	3.87%	20%	----
		molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.0106	0.0105	0.709%	20%	----
		nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E468S	0.050	mg/L	0.103	0.085	0.018	Diff <2x LOR	----
		potassium, total	7440-09-7	E468S	1.0	mg/L	473	489	3.35%	20%	----
		rhodium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.119	0.121	1.72%	20%	----
		selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		strontium, total	7440-24-6	E468S	0.010	mg/L	7.21	7.17	0.560%	20%	----
		sulfur, total	7704-34-9	E468S	5.0	mg/L	1230	1240	0.308%	20%	----
		tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----



Sub-Matrix: **Water**

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 274655) - continued											
VA21B7535-006	Anonymous	uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00274	0.00265	3.15%	20%	----
		vanadium, total	7440-62-2	E468S	0.00050	mg/L	0.00208	0.00216	0.00008	Diff <2x LOR	----
		yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Total Metals (QC Lot: 274656)											
VA21B7535-006	Anonymous	silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	1.6	<1.0	0.6	Diff <2x LOR	----
		sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	9140	9480	3.70%	20%	----
Total Metals (QC Lot: 274666)											
VA21B7539-008	MP-05 WNW	aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0293	0.0270	0.0023	Diff <2x LOR	----
		antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E468S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		barium, total	7440-39-3	E468S	0.0010	mg/L	0.0052	0.0053	0.00002	Diff <2x LOR	----
		beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E468S	0.30	mg/L	1.00	1.01	0.003	Diff <2x LOR	----
		cadmium, total	7440-43-9	E468S	0.000010	mg/L	0.000010	0.000012	0.000002	Diff <2x LOR	----
		calcium, total	7440-70-2	E468S	1.0	mg/L	107	106	0.542%	20%	----
		cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		copper, total	7440-50-8	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, total	7439-89-6	E468S	0.010	mg/L	0.032	0.032	0.0004	Diff <2x LOR	----
		lead, total	7439-92-1	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, total	7439-93-2	E468S	0.020	mg/L	0.042	0.042	0.0002	Diff <2x LOR	----
		magnesium, total	7439-95-4	E468S	1.0	mg/L	258	262	1.50%	20%	----
		manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00137	0.00134	0.00004	Diff <2x LOR	----
		molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00244	0.00246	1.01%	20%	----
		nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, total	7440-09-7	E468S	1.0	mg/L	91.3	90.8	0.576%	20%	----
		rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0254	0.0251	0.0003	Diff <2x LOR	----
		selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----



Sub-Matrix: **Water**

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 274666) - continued											
VA21B7539-008	MP-05 WNW	silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		strontium, total	7440-24-6	E468S	0.010	mg/L	1.58	1.55	1.88%	20%	----
		sulfur, total	7704-34-9	E468S	5.0	mg/L	229	226	1.42%	20%	----
		tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00174	0.00175	0.458%	20%	----
		vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Total Metals (QC Lot: 274667)											
VA21B7539-008	MP-05 WNW	silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	2020	2090	3.38%	20%	----
Total Metals (QC Lot: 275439)											
VA21B7535-013	Anonymous	mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 273997)											
VA21B7432-001	Anonymous	aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	0.0258	0.0251	0.0007	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.164	0.171	4.01%	20%	----
		beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E469S	0.30	mg/L	1.12	1.14	0.02	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	0.000594	0.000590	0.669%	20%	----
		calcium, dissolved	7440-70-2	E469S	1.0	mg/L	165	167	1.15%	20%	----
		cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	0.000446	0.000478	0.000032	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.0130	0.0130	0.0109%	20%	----
		gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E469S	0.010	mg/L	0.138	0.139	1.12%	20%	----





Sub-Matrix: **Water**

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 273997) - continued											
VA21B7432-001	Anonymous	lead, dissolved	7439-92-1	E469S	0.000050	mg/L	0.000234	0.000235	0.000001	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E469S	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	373	387	3.69%	20%	----
		manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.0899	0.0914	1.62%	20%	----
		molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00287	0.00298	3.73%	20%	----
		nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	0.00064	0.00066	0.00002	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E469S	1.0	mg/L	118	121	2.57%	20%	----
		rhenium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0398	0.0406	0.0009	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, dissolved	7440-22-4	E469S	0.00010	mg/L	0.00017	0.00018	0.00001	Diff <2x LOR	----
		strontium, dissolved	7440-24-6	E469S	0.010	mg/L	2.78	2.82	1.63%	20%	----
		sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	300	306	1.89%	20%	----
		tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	0.000053	0.000050	0.000003	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.000338	0.000340	0.000002	Diff <2x LOR	----
		vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	0.00064	0.00064	0.000007	Diff <2x LOR	----
		yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	0.0329	0.0336	2.16%	20%	----
		zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 273998)											
VA21B7432-001	Anonymous	silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	3.9	3.9	0.02	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	3260	3200	1.89%	20%	----
Dissolved Metals (QC Lot: 275533)											
VA21B7536-001	Anonymous	mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 274060)											
VA21B7455-013	Anonymous	benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Compounds (QC Lot: 274060) - continued											
VA21B7455-013	Anonymous	toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 274061)											
VA21B7484-001	Anonymous	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----



## Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Physical Tests (QCLot: 271652)</b>						
conductivity	----	E100S	2	µS/cm	<2.0	----
<b>Physical Tests (QCLot: 271653)</b>						
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1	mg/L	1.3	----
<b>Physical Tests (QCLot: 272739)</b>						
solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
<b>Physical Tests (QCLot: 273563)</b>						
turbidity	----	E121	0.1	NTU	<0.10	----
<b>Physical Tests (QCLot: 273892)</b>						
solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
<b>Anions and Nutrients (QCLot: 274288)</b>						
phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0040	----
<b>Anions and Nutrients (QCLot: 274289)</b>						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
<b>Anions and Nutrients (QCLot: 274291)</b>						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
<b>Anions and Nutrients (QCLot: 274514)</b>						
bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
<b>Anions and Nutrients (QCLot: 274515)</b>						
chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
<b>Anions and Nutrients (QCLot: 274516)</b>						
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
<b>Anions and Nutrients (QCLot: 274517)</b>						
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 274518)</b>						
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 274519)</b>						
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
<b>Organic / Inorganic Carbon (QCLot: 274286)</b>						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
<b>Organic / Inorganic Carbon (QCLot: 276240)</b>						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
<b>Total Metals (QCLot: 274655)</b>						
aluminum, total	7429-90-5	E468S	0.005	mg/L	<0.0050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 274655) - continued</b>						
antimony, total	7440-36-0	E468S	0.001	mg/L	<0.0010	---
arsenic, total	7440-38-2	E468S	0.0004	mg/L	<0.00040	---
barium, total	7440-39-3	E468S	0.001	mg/L	<0.0010	---
beryllium, total	7440-41-7	E468S	0.0005	mg/L	<0.00050	---
bismuth, total	7440-69-9	E468S	0.0005	mg/L	<0.00050	---
boron, total	7440-42-8	E468S	0.3	mg/L	<0.30	---
cadmium, total	7440-43-9	E468S	0.00001	mg/L	<0.000010	---
calcium, total	7440-70-2	E468S	1	mg/L	<1.0	---
cesium, total	7440-46-2	E468S	0.0005	mg/L	<0.00050	---
chromium, total	7440-47-3	E468S	0.0005	mg/L	<0.00050	---
cobalt, total	7440-48-4	E468S	0.00005	mg/L	<0.000050	---
copper, total	7440-50-8	E468S	0.0005	mg/L	<0.00050	---
gallium, total	7440-55-3	E468S	0.0005	mg/L	<0.00050	---
iron, total	7439-89-6	E468S	0.01	mg/L	<0.010	---
lead, total	7439-92-1	E468S	0.00005	mg/L	<0.000050	---
lithium, total	7439-93-2	E468S	0.02	mg/L	<0.020	---
magnesium, total	7439-95-4	E468S	1	mg/L	<1.0	---
manganese, total	7439-96-5	E468S	0.0002	mg/L	<0.00020	---
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	<0.00010	---
nickel, total	7440-02-0	E468S	0.0005	mg/L	<0.00050	---
phosphorus, total	7723-14-0	E468S	0.05	mg/L	<0.050	---
potassium, total	7440-09-7	E468S	1	mg/L	<1.0	---
rhodium, total	7440-15-5	E468S	0.0005	mg/L	<0.00050	---
rubidium, total	7440-17-7	E468S	0.005	mg/L	<0.0050	---
selenium, total	7782-49-2	E468S	0.0005	mg/L	<0.00050	---
silver, total	7440-22-4	E468S	0.0001	mg/L	<0.00010	---
strontium, total	7440-24-6	E468S	0.01	mg/L	<0.010	---
sulfur, total	7704-34-9	E468S	5	mg/L	<5.0	---
tellurium, total	13494-80-9	E468S	0.0005	mg/L	<0.00050	---
thallium, total	7440-28-0	E468S	0.00005	mg/L	<0.000050	---
thorium, total	7440-29-1	E468S	0.0005	mg/L	<0.00050	---
tin, total	7440-31-5	E468S	0.001	mg/L	<0.0010	---
titanium, total	7440-32-6	E468S	0.005	mg/L	<0.0050	---
tungsten, total	7440-33-7	E468S	0.001	mg/L	<0.0010	---
uranium, total	7440-61-1	E468S	0.00005	mg/L	<0.000050	---
vanadium, total	7440-62-2	E468S	0.0005	mg/L	<0.00050	---



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 274655) - continued</b>						
yttrium, total	7440-65-5	E468S	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E468S	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	<0.00050	----
<b>Total Metals (QCLot: 274656)</b>						
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	----
<b>Total Metals (QCLot: 274666)</b>						
aluminum, total	7429-90-5	E468S	0.005	mg/L	<0.0050	----
antimony, total	7440-36-0	E468S	0.001	mg/L	<0.0010	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	<0.00040	----
barium, total	7440-39-3	E468S	0.001	mg/L	<0.0010	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	<0.00050	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	<0.00050	----
boron, total	7440-42-8	E468S	0.3	mg/L	<0.30	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	<0.000010	----
calcium, total	7440-70-2	E468S	1	mg/L	<1.0	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	<0.00050	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	<0.000050	----
copper, total	7440-50-8	E468S	0.0005	mg/L	<0.00050	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E468S	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E468S	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E468S	0.02	mg/L	<0.020	----
magnesium, total	7439-95-4	E468S	1	mg/L	<1.0	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	<0.00020	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	<0.00010	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E468S	1	mg/L	<1.0	----
rhenium, total	7440-15-5	E468S	0.0005	mg/L	<0.00050	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	<0.0050	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	<0.00050	----
silver, total	7440-22-4	E468S	0.0001	mg/L	<0.00010	----
strontium, total	7440-24-6	E468S	0.01	mg/L	<0.010	----
sulfur, total	7704-34-9	E468S	5	mg/L	<5.0	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 274666) - continued</b>						
tellurium, total	13494-80-9	E468S	0.0005	mg/L	<0.00050	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	<0.000050	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	<0.00050	----
tin, total	7440-31-5	E468S	0.001	mg/L	<0.0010	----
titanium, total	7440-32-6	E468S	0.005	mg/L	<0.0050	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	<0.0010	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	<0.000050	----
vanadium, total	7440-62-2	E468S	0.0005	mg/L	<0.00050	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E468S	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	<0.00050	----
<b>Total Metals (QCLot: 274667)</b>						
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	----
<b>Total Metals (QCLot: 275439)</b>						
mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
<b>Dissolved Metals (QCLot: 273997)</b>						
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	<0.0050	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	<0.0010	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	<0.00040	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	<0.0010	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	<0.00050	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	<0.00050	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	<0.30	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	<0.000010	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	<1.0	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	<0.00050	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	<0.000050	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	<0.00020	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	<0.00050	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	<0.020	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	<1.0	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	<0.00010	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Dissolved Metals (QCLot: 273997) - continued</b>						
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	<0.00010	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E469S	1	mg/L	<1.0	----
rhenium, dissolved	7440-15-5	E469S	0.0005	mg/L	<0.00050	----
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	<0.0050	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	<0.00050	----
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	<0.00010	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	<0.010	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	<5.0	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	<0.00050	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	<0.000050	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	<0.00050	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	<0.0010	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	<0.0050	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	<0.0010	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	<0.000050	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	<0.00050	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	<0.00050	----
<b>Dissolved Metals (QCLot: 273998)</b>						
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	<2.5	----
<b>Dissolved Metals (QCLot: 275533)</b>						
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
<b>Volatile Organic Compounds (QCLot: 274060)</b>						
benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
<b>Hydrocarbons (QCLot: 273798)</b>						
F2 (C10-C16)	----	E601	100	µg/L	<100	----





Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Hydrocarbons (QCLot: 273798) - continued</b>						
F3 (C16-C34)	---	E601	250	µg/L	<250	---
F4 (C34-C50)	---	E601	250	µg/L	<250	---
<b>Hydrocarbons (QCLot: 274061)</b>						
F1 (C6-C10)	---	E581.VH+F1	100	µg/L	<100	---
VHw (C6-C10)	---	E581.VH+F1	100	µg/L	<100	---
<b>Polycyclic Aromatic Hydrocarbons (QCLot: 284186)</b>						
acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	---
acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	---
acridine	260-94-6	E641A	0.01	µg/L	<0.010	---
anthracene	120-12-7	E641A	0.01	µg/L	<0.010	---
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	---
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	---
benzo(b+j)fluoranthene	---	E641A	0.01	µg/L	<0.010	---
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	---
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	---
chrysene	218-01-9	E641A	0.01	µg/L	<0.010	---
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	---
fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	---
fluorene	86-73-7	E641A	0.01	µg/L	<0.010	---
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	---
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	---
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	---
naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	---
phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	---
pyrene	129-00-0	E641A	0.01	µg/L	<0.010	---
quinoline	6027-02-7	E641A	0.05	µg/L	<0.050	---



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 271651)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 271652)									
conductivity	----	E100S	2	µS/cm	146.9 µS/cm	102	80.0	120	----
Physical Tests (QCLot: 271653)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	96.6	85.0	115	----
Physical Tests (QCLot: 272739)									
solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	94.6	85.0	115	----
Physical Tests (QCLot: 273563)									
turbidity	----	E121	0.1	NTU	200 NTU	101	85.0	115	----
Physical Tests (QCLot: 273892)									
solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	97.0	85.0	115	----
Anions and Nutrients (QCLot: 274288)									
phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	93.4	80.0	120	----
Anions and Nutrients (QCLot: 274289)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.1	85.0	115	----
Anions and Nutrients (QCLot: 274291)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 274514)									
bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	97.9	85.0	115	----
Anions and Nutrients (QCLot: 274515)									
chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 274516)									
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	95.8	90.0	110	----
Anions and Nutrients (QCLot: 274517)									
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 274518)									
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	96.0	90.0	110	----
Anions and Nutrients (QCLot: 274519)									
sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	101	90.0	110	----
Organic / Inorganic Carbon (QCLot: 274286)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	99.0	80.0	120	----



Sub-Matrix: Water

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 276240)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	98.7	80.0	120	----
Total Metals (QCLot: 274655)									
aluminum, total	7429-90-5	E468S	0.005	mg/L	2 mg/L	102	80.0	120	----
antimony, total	7440-36-0	E468S	0.001	mg/L	1 mg/L	102	80.0	120	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	1 mg/L	102	80.0	120	----
barium, total	7440-39-3	E468S	0.001	mg/L	0.25 mg/L	102	80.0	120	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	0.1 mg/L	104	80.0	120	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	1 mg/L	110	80.0	120	----
boron, total	7440-42-8	E468S	0.3	mg/L	10 mg/L	99.3	80.0	120	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	0.1 mg/L	107	80.0	120	----
calcium, total	7440-70-2	E468S	1	mg/L	50 mg/L	100	80.0	120	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	0.05 mg/L	95.7	80.0	120	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	0.25 mg/L	107	80.0	120	----
copper, total	7440-50-8	E468S	0.0005	mg/L	0.25 mg/L	108	80.0	120	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
iron, total	7439-89-6	E468S	0.01	mg/L	1 mg/L	108	80.0	120	----
lead, total	7439-92-1	E468S	0.00005	mg/L	0.5 mg/L	107	80.0	120	----
lithium, total	7439-93-2	E468S	0.02	mg/L	0.25 mg/L	101	80.0	120	----
magnesium, total	7439-95-4	E468S	1	mg/L	50 mg/L	100	80.0	120	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	0.25 mg/L	96.1	80.0	120	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	10 mg/L	104	80.0	120	----
potassium, total	7440-09-7	E468S	1	mg/L	50 mg/L	103	80.0	120	----
rhenium, total	7440-15-5	E468S	0.0005	mg/L	0.1 mg/L	98.6	80.0	120	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	0.1 mg/L	106	80.0	120	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	1 mg/L	112	80.0	120	----
silver, total	7440-22-4	E468S	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
strontium, total	7440-24-6	E468S	0.01	mg/L	0.25 mg/L	97.8	80.0	120	----
sulfur, total	7704-34-9	E468S	5	mg/L	50 mg/L	89.0	80.0	120	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	0.1 mg/L	110	80.0	120	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	1 mg/L	96.9	80.0	120	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	0.1 mg/L	93.5	80.0	120	----
tin, total	7440-31-5	E468S	0.001	mg/L	0.5 mg/L	97.9	80.0	120	----
titanium, total	7440-32-6	E468S	0.005	mg/L	0.25 mg/L	102	80.0	120	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	0.1 mg/L	98.9	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 274655) - continued									
uranium, total	7440-61-1	E468S	0.00005	mg/L	0.005 mg/L	101	80.0	120	----
vanadium, total	7440-62-2	E468S	0.0005	mg/L	0.5 mg/L	99.9	80.0	120	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
zinc, total	7440-66-6	E468S	0.003	mg/L	0.5 mg/L	106	80.0	120	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	0.1 mg/L	92.3	80.0	120	----
Total Metals (QCLot: 274656)									
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	105	80.0	120	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	50 mg/L	101	80.0	120	----
Total Metals (QCLot: 274666)									
aluminum, total	7429-90-5	E468S	0.005	mg/L	2 mg/L	97.3	80.0	120	----
antimony, total	7440-36-0	E468S	0.001	mg/L	1 mg/L	105	80.0	120	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	1 mg/L	101	80.0	120	----
barium, total	7440-39-3	E468S	0.001	mg/L	0.25 mg/L	104	80.0	120	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	0.1 mg/L	106	80.0	120	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	1 mg/L	109	80.0	120	----
boron, total	7440-42-8	E468S	0.3	mg/L	10 mg/L	98.6	80.0	120	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	0.1 mg/L	108	80.0	120	----
calcium, total	7440-70-2	E468S	1	mg/L	50 mg/L	102	80.0	120	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	0.05 mg/L	98.1	80.0	120	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	0.25 mg/L	108	80.0	120	----
copper, total	7440-50-8	E468S	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
iron, total	7439-89-6	E468S	0.01	mg/L	1 mg/L	109	80.0	120	----
lead, total	7439-92-1	E468S	0.00005	mg/L	0.5 mg/L	108	80.0	120	----
lithium, total	7439-93-2	E468S	0.02	mg/L	0.25 mg/L	109	80.0	120	----
magnesium, total	7439-95-4	E468S	1	mg/L	50 mg/L	99.8	80.0	120	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	0.25 mg/L	97.5	80.0	120	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	10 mg/L	101	80.0	120	----
potassium, total	7440-09-7	E468S	1	mg/L	50 mg/L	102	80.0	120	----
rhenium, total	7440-15-5	E468S	0.0005	mg/L	0.1 mg/L	102	80.0	120	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	0.1 mg/L	104	80.0	120	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	1 mg/L	111	80.0	120	----
silver, total	7440-22-4	E468S	0.0001	mg/L	0.1 mg/L	106	80.0	120	----
strontium, total	7440-24-6	E468S	0.01	mg/L	0.25 mg/L	100	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 274666) - continued									
sulfur, total	7704-34-9	E468S	5	mg/L	50 mg/L	98.5	80.0	120	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	0.1 mg/L	110	80.0	120	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	1 mg/L	99.6	80.0	120	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	0.1 mg/L	96.8	80.0	120	----
tin, total	7440-31-5	E468S	0.001	mg/L	0.5 mg/L	99.7	80.0	120	----
titanium, total	7440-32-6	E468S	0.005	mg/L	0.25 mg/L	99.2	80.0	120	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	0.1 mg/L	97.4	80.0	120	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	0.005 mg/L	104	80.0	120	----
vanadium, total	7440-62-2	E468S	0.0005	mg/L	0.5 mg/L	99.5	80.0	120	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	0.1 mg/L	100	80.0	120	----
zinc, total	7440-66-6	E468S	0.003	mg/L	0.5 mg/L	105	80.0	120	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	0.1 mg/L	94.2	80.0	120	----
Total Metals (QCLot: 274667)									
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	91.9	80.0	120	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	50 mg/L	98.4	80.0	120	----
Total Metals (QCLot: 275439)									
mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	97.2	80.0	120	----
Dissolved Metals (QCLot: 273997)									
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	2 mg/L	95.3	80.0	120	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	1 mg/L	102	80.0	120	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	1 mg/L	96.0	80.0	120	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	0.25 mg/L	94.8	80.0	120	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	0.1 mg/L	95.2	80.0	120	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	1 mg/L	103	80.0	120	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	10 mg/L	92.3	80.0	120	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	0.1 mg/L	101	80.0	120	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	50 mg/L	94.5	80.0	120	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	0.05 mg/L	99.1	80.0	120	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	0.25 mg/L	97.8	80.0	120	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	1 mg/L	104	80.0	120	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	0.5 mg/L	102	80.0	120	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	0.25 mg/L	97.2	80.0	120	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	50 mg/L	95.5	80.0	120	----



Sub-Matrix: Water

Sub-Matrix: Water					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 273997) - continued									
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	0.25 mg/L	97.8	80.0	120	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	0.25 mg/L	95.0	80.0	120	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	0.5 mg/L	99.6	80.0	120	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	10 mg/L	95.2	80.0	120	----
potassium, dissolved	7440-09-7	E469S	1	mg/L	50 mg/L	96.3	80.0	120	----
rhenium, dissolved	7440-15-5	E469S	0.0005	mg/L	0.1 mg/L	97.4	80.0	120	----
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	0.1 mg/L	94.8	80.0	120	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	1 mg/L	103	80.0	120	----
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	0.25 mg/L	97.4	80.0	120	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	50 mg/L	89.5	80.0	120	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	0.1 mg/L	106	80.0	120	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	1 mg/L	105	80.0	120	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	0.1 mg/L	93.4	80.0	120	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	0.5 mg/L	97.3	80.0	120	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	0.25 mg/L	91.8	80.0	120	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	0.1 mg/L	95.1	80.0	120	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	0.005 mg/L	99.8	80.0	120	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	0.5 mg/L	94.2	80.0	120	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	0.1 mg/L	93.4	80.0	120	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	0.5 mg/L	104	80.0	120	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	0.1 mg/L	92.6	80.0	120	----
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	97.8	80.0	120	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	50 mg/L	93.4	80.0	120	----
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	99.1	80.0	120	----
Volatile Organic Compounds (QCLot: 274060)									
benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	94.7	70.0	130	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	90.2	70.0	130	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	103	70.0	130	----
styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	101	70.0	130	----
toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	94.1	70.0	130	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	95.4	70.0	130	----
xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	95.8	70.0	130	----
Hydrocarbons (QCLot: 273798)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	111	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	104	70.0	130	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
<b>Hydrocarbons (QCLot: 273798) - continued</b>									
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	97.7	70.0	130	----
<b>Hydrocarbons (QCLot: 274061)</b>									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	104	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	91.5	70.0	130	----
<b>Polycyclic Aromatic Hydrocarbons (QCLot: 284186)</b>									
acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	103	60.0	130	----
acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	121	60.0	130	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	122	60.0	130	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	110	60.0	130	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	0.5 µg/L	87.4	60.0	130	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	102	60.0	130	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	86.8	60.0	130	----
chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	110	60.0	130	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	114	60.0	130	----
fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	109	60.0	130	----
fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	125	60.0	130	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	96.7	60.0	130	----
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	95.8	60.0	130	----
naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	97.6	50.0	130	----
phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	113	60.0	130	----
pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	112	60.0	130	----
quinoline	6027-02-7	E641A	0.05	µg/L	0.5 µg/L	102	60.0	130	----





## Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level  $\geq 1 \times$  spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
<b>Anions and Nutrients (QCLot: 274288)</b>										
VA21B7539-002	MP-06 North	phosphorus, total	7723-14-0	E372S	0.0807 mg/L	0.1 mg/L	80.7	70.0	130	----
<b>Anions and Nutrients (QCLot: 274289)</b>										
VA21B7537-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.104 mg/L	0.1 mg/L	104	75.0	125	----
<b>Anions and Nutrients (QCLot: 274291)</b>										
VA21B7539-002	MP-06 North	Kjeldahl nitrogen, total [TKN]	----	E318S	2.95 mg/L	2.5 mg/L	118	70.0	130	----
<b>Anions and Nutrients (QCLot: 274514)</b>										
VA21B7539-002	MP-06 North	bromide	24959-67-9	E235S.Br	ND mg/L	50 mg/L	ND	75.0	125	----
<b>Anions and Nutrients (QCLot: 274515)</b>										
VA21B7539-002	MP-06 North	chloride	16887-00-6	E235S.Cl	ND mg/L	10000 mg/L	ND	75.0	125	----
<b>Anions and Nutrients (QCLot: 274516)</b>										
VA21B7539-002	MP-06 North	fluoride	16984-48-8	E235S.F-L	8.20 mg/L	10 mg/L	82.0	75.0	125	----
<b>Anions and Nutrients (QCLot: 274517)</b>										
VA21B7539-002	MP-06 North	nitrate (as N)	14797-55-8	E235S.NO3-T	7.50 mg/L	7.5 mg/L	100	75.0	125	----
<b>Anions and Nutrients (QCLot: 274518)</b>										
VA21B7539-002	MP-06 North	nitrite (as N)	14797-65-0	E235S.NO2-L	1.43 mg/L	1.5 mg/L	95.1	75.0	125	----
<b>Anions and Nutrients (QCLot: 274519)</b>										
VA21B7539-002	MP-06 North	sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	ND mg/L	1000 mg/L	ND	75.0	125	----
<b>Organic / Inorganic Carbon (QCLot: 274286)</b>										
VA21B7537-002	Anonymous	carbon, total organic [TOC]	----	E355-L	5.09 mg/L	5 mg/L	102	70.0	130	----
<b>Organic / Inorganic Carbon (QCLot: 276240)</b>										
VA21B7536-002	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	5.29 mg/L	5 mg/L	106	70.0	130	----
<b>Total Metals (QCLot: 274655)</b>										
VA21B7535-007	Anonymous	aluminum, total	7429-90-5	E468S	0.515 mg/L	0.4 mg/L	129	70.0	130	----
		antimony, total	7440-36-0	E468S	0.0374 mg/L	0.04 mg/L	93.4	70.0	130	----
		arsenic, total	7440-38-2	E468S	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	----
		barium, total	7440-39-3	E468S	0.0423 mg/L	0.04 mg/L	106	70.0	130	----
		beryllium, total	7440-41-7	E468S	0.0906 mg/L	0.08 mg/L	113	70.0	130	----
		bismuth, total	7440-69-9	E468S	0.0164 mg/L	0.02 mg/L	82.2	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 274655) - continued										
VA21B7535-007	Anonymous	boron, total	7440-42-8	E468S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, total	7440-43-9	E468S	0.00710 mg/L	0.008 mg/L	88.8	70.0	130	----
		calcium, total	7440-70-2	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E468S	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		chromium, total	7440-47-3	E468S	0.0910 mg/L	0.08 mg/L	114	70.0	130	----
		cobalt, total	7440-48-4	E468S	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
		copper, total	7440-50-8	E468S	0.0356 mg/L	0.04 mg/L	89.0	70.0	130	----
		gallium, total	7440-55-3	E468S	0.00587 mg/L	0.005 mg/L	117	70.0	130	----
		iron, total	7439-89-6	E468S	4.25 mg/L	4 mg/L	106	70.0	130	----
		lead, total	7439-92-1	E468S	0.0342 mg/L	0.04 mg/L	85.6	70.0	130	----
		lithium, total	7439-93-2	E468S	0.213 mg/L	0.2 mg/L	107	70.0	130	----
		magnesium, total	7439-95-4	E468S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E468S	0.0451 mg/L	0.04 mg/L	113	70.0	130	----
		molybdenum, total	7439-98-7	E468S	0.0407 mg/L	0.04 mg/L	102	70.0	130	----
		nickel, total	7440-02-0	E468S	0.0736 mg/L	0.08 mg/L	92.0	70.0	130	----
		phosphorus, total	7723-14-0	E468S	25.1 mg/L	20 mg/L	126	70.0	130	----
		potassium, total	7440-09-7	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenium, total	7440-15-5	E468S	0.00470 mg/L	0.005 mg/L	94.0	70.0	130	----
		rubidium, total	7440-17-7	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		selenium, total	7782-49-2	E468S	0.0814 mg/L	0.08 mg/L	102	70.0	130	----
		silver, total	7440-22-4	E468S	0.00685 mg/L	0.008 mg/L	85.7	70.0	130	----
		strontium, total	7440-24-6	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E468S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, total	13494-80-9	E468S	0.0654 mg/L	0.08 mg/L	81.8	70.0	130	----
		thallium, total	7440-28-0	E468S	0.00654 mg/L	0.008 mg/L	81.8	70.0	130	----
		thorium, total	7440-29-1	E468S	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		tin, total	7440-31-5	E468S	0.0354 mg/L	0.04 mg/L	88.6	70.0	130	----
		titanium, total	7440-32-6	E468S	0.178 mg/L	0.16 mg/L	111	70.0	130	----
		tungsten, total	7440-33-7	E468S	0.0372 mg/L	0.04 mg/L	93.0	70.0	130	----
		uranium, total	7440-61-1	E468S	0.00734 mg/L	0.008 mg/L	91.7	70.0	130	----
		vanadium, total	7440-62-2	E468S	0.238 mg/L	0.2 mg/L	119	70.0	130	----
		yttrium, total	7440-65-5	E468S	0.0110 mg/L	0.01 mg/L	110	70.0	130	----
		zinc, total	7440-66-6	E468S	0.691 mg/L	0.8 mg/L	86.4	70.0	130	----
		zirconium, total	7440-67-7	E468S	0.0872 mg/L	0.08 mg/L	109	70.0	130	----
Total Metals (QCLot: 274656)										
VA21B7535-007	Anonymous	silicon, total	7440-21-3	E468S.NaSi	490 mg/L	500 mg/L	98.0	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 274656) - continued										
VA21B7535-007	Anonymous	sodium, total	17341-25-2	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 274666)										
VA21B7539-009	DUP-C	aluminum, total	7429-90-5	E468S	0.426 mg/L	0.4 mg/L	106	70.0	130	----
		antimony, total	7440-36-0	E468S	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	----
		arsenic, total	7440-38-2	E468S	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		barium, total	7440-39-3	E468S	0.0399 mg/L	0.04 mg/L	99.7	70.0	130	----
		beryllium, total	7440-41-7	E468S	0.0867 mg/L	0.08 mg/L	108	70.0	130	----
		bismuth, total	7440-69-9	E468S	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		boron, total	7440-42-8	E468S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, total	7440-43-9	E468S	0.00762 mg/L	0.008 mg/L	95.3	70.0	130	----
		calcium, total	7440-70-2	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E468S	0.0199 mg/L	0.02 mg/L	99.7	70.0	130	----
		chromium, total	7440-47-3	E468S	0.0830 mg/L	0.08 mg/L	104	70.0	130	----
		cobalt, total	7440-48-4	E468S	0.0402 mg/L	0.04 mg/L	101	70.0	130	----
		copper, total	7440-50-8	E468S	0.0378 mg/L	0.04 mg/L	94.6	70.0	130	----
		gallium, total	7440-55-3	E468S	0.00564 mg/L	0.005 mg/L	113	70.0	130	----
		iron, total	7439-89-6	E468S	4.17 mg/L	4 mg/L	104	70.0	130	----
		lead, total	7439-92-1	E468S	0.0372 mg/L	0.04 mg/L	93.0	70.0	130	----
		lithium, total	7439-93-2	E468S	0.214 mg/L	0.2 mg/L	107	70.0	130	----
		magnesium, total	7439-95-4	E468S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E468S	0.0423 mg/L	0.04 mg/L	106	70.0	130	----
		molybdenum, total	7439-98-7	E468S	0.0407 mg/L	0.04 mg/L	102	70.0	130	----
		nickel, total	7440-02-0	E468S	0.0743 mg/L	0.08 mg/L	92.9	70.0	130	----
		phosphorus, total	7723-14-0	E468S	22.4 mg/L	20 mg/L	112	70.0	130	----
		potassium, total	7440-09-7	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenium, total	7440-15-5	E468S	0.00504 mg/L	0.005 mg/L	101	70.0	130	----
		rubidium, total	7440-17-7	E468S	0.0416 mg/L	0.04 mg/L	104	70.0	130	----
		selenium, total	7782-49-2	E468S	0.0853 mg/L	0.08 mg/L	106	70.0	130	----
		silver, total	7440-22-4	E468S	0.00742 mg/L	0.008 mg/L	92.7	70.0	130	----
		strontium, total	7440-24-6	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E468S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, total	13494-80-9	E468S	0.0703 mg/L	0.08 mg/L	87.9	70.0	130	----
		thallium, total	7440-28-0	E468S	0.00698 mg/L	0.008 mg/L	87.2	70.0	130	----
		thorium, total	7440-29-1	E468S	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		tin, total	7440-31-5	E468S	0.0369 mg/L	0.04 mg/L	92.3	70.0	130	----
		titanium, total	7440-32-6	E468S	0.0911 mg/L	0.08 mg/L	114	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 274666) - continued										
VA21B7539-009	DUP-C	tungsten, total	7440-33-7	E468S	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		uranium, total	7440-61-1	E468S	0.00766 mg/L	0.008 mg/L	95.7	70.0	130	----
		vanadium, total	7440-62-2	E468S	0.216 mg/L	0.2 mg/L	108	70.0	130	----
		yttrium, total	7440-65-5	E468S	0.00602 mg/L	0.005 mg/L	120	70.0	130	----
		zinc, total	7440-66-6	E468S	0.716 mg/L	0.8 mg/L	89.5	70.0	130	----
		zirconium, total	7440-67-7	E468S	0.0849 mg/L	0.08 mg/L	106	70.0	130	----
Total Metals (QCLot: 274667)										
VA21B7539-009	DUP-C	silicon, total	7440-21-3	E468S.NaSi	457 mg/L	500 mg/L	91.4	70.0	130	----
		sodium, total	17341-25-2	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 275439)										
VA21B7535-014	Anonymous	mercury, total	7439-97-6	E508S	0.0000960 mg/L	0.0001 mg/L	96.0	70.0	130	----
Dissolved Metals (QCLot: 273997)										
VA21B7539-001	MP-06 Source	aluminum, dissolved	7429-90-5	E469S	0.395 mg/L	0.4 mg/L	98.7	70.0	130	----
		antimony, dissolved	7440-36-0	E469S	0.0370 mg/L	0.04 mg/L	92.5	70.0	130	----
		arsenic, dissolved	7440-38-2	E469S	0.0372 mg/L	0.04 mg/L	93.1	70.0	130	----
		barium, dissolved	7440-39-3	E469S	0.0371 mg/L	0.04 mg/L	92.8	70.0	130	----
		beryllium, dissolved	7440-41-7	E469S	0.0746 mg/L	0.08 mg/L	93.2	70.0	130	----
		bismuth, dissolved	7440-69-9	E469S	0.0174 mg/L	0.02 mg/L	86.9	70.0	130	----
		boron, dissolved	7440-42-8	E469S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, dissolved	7440-43-9	E469S	0.00769 mg/L	0.008 mg/L	96.1	70.0	130	----
		calcium, dissolved	7440-70-2	E469S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, dissolved	7440-46-2	E469S	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		chromium, dissolved	7440-47-3	E469S	0.0769 mg/L	0.08 mg/L	96.1	70.0	130	----
		cobalt, dissolved	7440-48-4	E469S	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
		copper, dissolved	7440-50-8	E469S	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	----
		gallium, dissolved	7440-55-3	E469S	0.00510 mg/L	0.005 mg/L	102	70.0	130	----
		iron, dissolved	7439-89-6	E469S	3.89 mg/L	4 mg/L	97.3	70.0	130	----
		lead, dissolved	7439-92-1	E469S	0.0356 mg/L	0.04 mg/L	89.0	70.0	130	----
		lithium, dissolved	7439-93-2	E469S	0.181 mg/L	0.2 mg/L	90.4	70.0	130	----
		magnesium, dissolved	7439-95-4	E469S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E469S	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		molybdenum, dissolved	7439-98-7	E469S	0.0369 mg/L	0.04 mg/L	92.2	70.0	130	----
		nickel, dissolved	7440-02-0	E469S	0.0744 mg/L	0.08 mg/L	93.0	70.0	130	----
		phosphorus, dissolved	7723-14-0	E469S	21.1 mg/L	20 mg/L	106	70.0	130	----
		potassium, dissolved	7440-09-7	E469S	ND mg/L	8 mg/L	ND	70.0	130	----
				rhenium, dissolved	7440-15-5	E469S	0.00481 mg/L	0.005 mg/L	96.2	70.0



Sub-Matrix: **Water**

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 273997) - continued										
VA21B7539-001	MP-06 Source	rubidium, dissolved	7440-17-7	E469S	0.0377 mg/L	0.04 mg/L	94.2	70.0	130	----
		selenium, dissolved	7782-49-2	E469S	0.0782 mg/L	0.08 mg/L	97.7	70.0	130	----
		silver, dissolved	7440-22-4	E469S	0.00723 mg/L	0.008 mg/L	90.4	70.0	130	----
		strontium, dissolved	7440-24-6	E469S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E469S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, dissolved	13494-80-9	E469S	0.0750 mg/L	0.08 mg/L	93.7	70.0	130	----
		thallium, dissolved	7440-28-0	E469S	0.00740 mg/L	0.008 mg/L	92.5	70.0	130	----
		thorium, dissolved	7440-29-1	E469S	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		tin, dissolved	7440-31-5	E469S	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	----
		titanium, dissolved	7440-32-6	E469S	0.0748 mg/L	0.08 mg/L	93.5	70.0	130	----
		tungsten, dissolved	7440-33-7	E469S	0.0364 mg/L	0.04 mg/L	90.9	70.0	130	----
		uranium, dissolved	7440-61-1	E469S	0.00718 mg/L	0.008 mg/L	89.7	70.0	130	----
		vanadium, dissolved	7440-62-2	E469S	0.190 mg/L	0.2 mg/L	95.3	70.0	130	----
		yttrium, dissolved	7440-65-5	E469S	0.00509 mg/L	0.005 mg/L	102	70.0	130	----
		zinc, dissolved	7440-66-6	E469S	0.776 mg/L	0.8 mg/L	97.0	70.0	130	----
		zirconium, dissolved	7440-67-7	E469S	0.0774 mg/L	0.08 mg/L	96.8	70.0	130	----
Dissolved Metals (QCLot: 273998)										
VA21B7539-001	MP-06 Source	silicon, dissolved	7440-21-3	E469S.NaSi	457 mg/L	500 mg/L	91.5	70.0	130	----
		sodium, dissolved	17341-25-2	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 275533)										
VA21B7536-002	Anonymous	mercury, dissolved	7439-97-6	E509S	0.0000973 mg/L	0.0001 mg/L	97.3	70.0	130	----
Volatile Organic Compounds (QCLot: 274060)										
VA21B7455-014	Anonymous	benzene	71-43-2	E611A	103 µg/L	100 µg/L	103	60.0	140	----
		ethylbenzene	100-41-4	E611A	100 µg/L	100 µg/L	100	60.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	111 µg/L	100 µg/L	111	60.0	140	----
		styrene	100-42-5	E611A	110 µg/L	100 µg/L	110	60.0	140	----
		toluene	108-88-3	E611A	81.6 µg/L	100 µg/L	81.6	60.0	140	----
		xylene, m+p-	179601-23-1	E611A	209 µg/L	200 µg/L	105	60.0	140	----
		xylene, o-	95-47-6	E611A	105 µg/L	100 µg/L	105	60.0	140	----
Hydrocarbons (QCLot: 274061)										
VA21B7539-001	MP-06 Source	F1 (C6-C10)	----	E581.VH+F1	7350 µg/L	6310 µg/L	116	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	6740 µg/L	6310 µg/L	107	60.0	140	----





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## Chain of Custody (COC) / Analytical Request Form

COC Number: 20-920780

Canada Toll Free: 1 800 668 9878

Page 1 of 1

Report To		Reports / Recipients		Turnaround Time (TAT) Requested		Analysis Request										
Contact and company name below will appear on the final report		Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> EDD (DIGITAL)		<input checked="" type="checkbox"/> Routine [R] if received by 3pm M-F - no surcharges apply <input type="checkbox"/> 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum <input type="checkbox"/> 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum <input type="checkbox"/> 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum <input type="checkbox"/> 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum <input type="checkbox"/> Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests		AFFIX ALS BARCODE LABEL HERE (ALS use only)										
Company: <u>Golder Associates</u> Contact: <u>Trish Tomliens/Elaine Irving</u> Phone: <u>250-881-7372</u> Company address below will appear on the final report		Merge QC/QCI Reports with COA <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/> Compare Results to Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX														
Street: <u>200-2920 Virtual Way</u> City/Province: <u>Vancouver, BC</u> Postal Code: <u>V5M 0C4</u>		Email 1 or Fax: <u>Tomliens@golder.com</u> Email 2: <u>Elaine-Irving@golder.com</u> Email 3:		Date and Time Required for all E&P TATs: dd-mm-yy hh:mm am/pm For all tests with rush TATs requested, please contact your AM to confirm availability.												
Invoice To: Same as Report To <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Copy of Invoice with Report <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		Invoice Recipients Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: Email 2: Email 3:		Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below												
Project Information ALS Account # / Quote #: <u>Q84262</u> Job #: <u>1663724-44000-03</u> PO / AFE: LSD:		Oil and Gas Required Fields (client use) AFE/Cost Center: PO# Major/Minor Code: Routing Code: Requisitioner: Location:		NUMBER OF CONTAINERS General (pH, alkalinity, TSS, turbidity, conductivity) Dissolved Metals Total Metals Dissolved Mercury Total Mercury TOC/TN BTEX/EI F2-F4/PAH		SAMPLES ON HOLD EXTENDED STORAGE REQUIRED SUSPECTED HAZARD (see notes)										
ALS Lab Work Order # (ALS use only): <u>7539</u> ALS Contact: Sampler:																
ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	Analysis Request											
1	MP-06 Source	16-Aug-21	10:25	seawater	General	Dissolved Metals	Total Metals	Dissolved Mercury	Total Mercury	TOC/TN	BTEX/EI	F2-F4/PAH				
2	MP-06 North	16-Aug-21	10:55	seawater	X	X	X	X	X	X	X	X				
3	MP-06 ENE	16-Aug-21	11:05	seawater	X	X	X	X	X	X	X	X				
4	MP-06 WNW	16-Aug-21	10:45	seawater	X	X	X	X	X	X	X	X				
5	MP-05 Source	16-Aug-21	13:40	seawater	X	X	X	X	X	X	X	X				
6	MP-05 North	16-Aug-21	13:25	seawater	X	X	X	X	X	X	X	X				
7	MP-05 ENE	16-Aug-21	13:50	seawater	X	X	X	X	X	X	X	X				
8	MP-05 WNW	16-Aug-21	13:35	seawater	X	X	X	X	X	X	X	X				
9	DUP-C	16-Aug-21	13:55	seawater	X	X	X	X	X	X	X	X				

Environmental Division  
Vancouver  
Work Order Reference  
**VA21B7539**



Telephone: +1 604 253 4188

## Drinking Water (DW) Samples (client use)

Are samples taken from a Regulated DW System?

☐ YES ☒ NO

Are samples for human consumption/ use?

☐ YES ☒ NO

## SHIPMENT RELEASE (client use)

Released by:

Date:

selecting from drop-down below

## SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☒ ICE PACKS ☐ FROZEN ☐ COOLING INITIATEDSubmission Comments identified on Sample Receipt Notification: ☐ YES ☒ NOCooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C

FINAL COOLER TEMPERATURES °C

9 3 8

## SHIPMENT RECEPTION (ALS use only)

Date:

Time:

Received by:

## FINAL SHIPMENT RECEPTION (ALS use only)

Date:

Time:

JC 19 Aug

8:25 Am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please

WHITE - LABORATORY COPY YELLOW - CLIENT COPY  
Keep with the Terms and Conditions as specified on the back page of the white - report copy.

AUG 2020 FRONT



## CERTIFICATE OF ANALYSIS

**Work Order** : **VA21B7949**  
**Client** : **Golder Associates Ltd.**  
**Contact** : Elaine Irving  
**Address** : 200-2920 Virtual Way  
                   Vancouver BC Canada V5M 0C4  
**Telephone** : ----  
**Project** : 1663724-44000-03  
**PO** : ----  
**C-O-C number** : 20-920786  
**Sampler** : ----  
**Site** : ----  
**Quote number** : Q84262  
**No. of samples received** : 9  
**No. of samples analysed** : 9

**Page** : 1 of 14  
**Laboratory** : Vancouver - Environmental  
**Account Manager** : Amber Springer  
**Address** : 8081 Lougheed Highway  
                   Burnaby BC Canada V5A 1W9  
**Telephone** : +1 604 253 4188  
**Date Samples Received** : 24-Aug-2021 08:20  
**Date Analysis Commenced** : 25-Aug-2021  
**Issue Date** : 03-Sep-2021 09:55

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Laboratory Department</i>
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Paul Cushing	Team Leader - Organics	Organics, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia



## General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances  
LOR: Limit of Reporting (detection limit).

Unit	Description
-	No Unit
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units
psu	practical salinity units

<: less than.

>: greater than.

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

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

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

## Qualifiers

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
RRV	Reported result verified by repeat analysis.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
Client sampling date / time					19-Aug-2021 10:31	19-Aug-2021 10:58	19-Aug-2021 10:46	19-Aug-2021 11:08	19-Aug-2021 09:17
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-001	VA21B7949-002	VA21B7949-003	VA21B7949-004	VA21B7949-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	89.1	110	106	100	91.0
conductivity	----	E100S	2.0	µS/cm	3260	47100	44600	43400	9470
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	366	6780	5640	5580	996
pH	----	E108	0.10	pH units	8.06	7.95	7.95	7.95	8.02
salinity	----	EC100S	1.0	psu	1.7	30.0	28.2	27.4	5.2
solids, total dissolved [TDS]	----	E162S	10	mg/L	1970	35900	32200	32900	5690
solids, total suspended [TSS]	----	E160S	2.0	mg/L	<2.0	2.2	<2.0	<2.0	<2.0
turbidity	----	E121	0.10	NTU	0.60	0.18	0.15	0.15	0.70
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
bromide	24959-67-9	E235S.Br	5.0	mg/L	<5.0	46.3	43.4	43.6	7.9
chloride	16887-00-6	E235S.Cl	50	mg/L	932	14400	13800	13900	2920
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	0.78	0.78	0.79	<0.20
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.112	0.109	0.097	0.096	0.115
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	0.011	0.026	<0.010	<0.010	0.012
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0130	0.0222	0.0182	0.0186	0.0097
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	132	2240	2110	2070	395
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.29	1.16	1.27	1.01	1.63
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.03	1.12	0.99	0.99	1.54
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0176	0.0056	0.0078	0.0134	0.0166
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, total	7440-38-2	E468S	0.00040	mg/L	<0.00040	0.00144	0.00138	0.00134	<0.00040
barium, total	7440-39-3	E468S	0.0010	mg/L	0.0042	0.0073	0.0079	0.0081	0.0049
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, total	7440-42-8	E468S	0.30	mg/L	<0.30	4.14	3.86	3.83	0.86
cadmium, total	7440-43-9	E468S	0.000010	mg/L	<0.000010	0.000044	0.000037	0.000045	<0.000010



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)					MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
Client sampling date / time					19-Aug-2021 10:31	19-Aug-2021 10:58	19-Aug-2021 10:46	19-Aug-2021 11:08	19-Aug-2021 09:17
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-001	VA21B7949-002	VA21B7949-003	VA21B7949-004	VA21B7949-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
calcium, total	7440-70-2	E468S	1.0	mg/L	42.1	416	394	394	89.1
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, total	7440-50-8	E468S	0.00050	mg/L	0.00214	<0.00050	<0.00050	<0.00050	<0.00050
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, total	7439-89-6	E468S	0.010	mg/L	0.012	<0.010	<0.010	0.014	0.015
lead, total	7439-92-1	E468S	0.000050	mg/L	0.000053	<0.000050	0.000057	0.000480	<0.000050
lithium, total	7439-93-2	E468S	0.020	mg/L	<0.020	0.184	0.175	0.167	0.034
magnesium, total	7439-95-4	E468S	1.0	mg/L	60.8	1220	1140	1110	198
manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00082	0.00058	0.00078	0.00137	0.00105
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00061	0.00993	0.00937	0.00918	0.00187
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E468S	1.0	mg/L	18.7	454	437	430	68.5
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0062	0.116	0.110	0.106	0.0199
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	489	9050	8470	8260	1680
strontium, total	7440-24-6	E468S	0.010	mg/L	0.332	6.76	6.30	6.22	1.18
sulfur, total	7704-34-9	E468S	5.0	mg/L	45.7	1200	1150	1140	176
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00140	0.00259	0.00237	0.00232	0.00184



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
Client sampling date / time					19-Aug-2021 10:31	19-Aug-2021 10:58	19-Aug-2021 10:46	19-Aug-2021 11:08	19-Aug-2021 09:17
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-001	VA21B7949-002	VA21B7949-003	VA21B7949-004	VA21B7949-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	0.00153	0.00146	0.00136	<0.00050
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00100 <sup>DLM</sup>	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
<b>Dissolved Metals</b>									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	0.00140	0.00137	0.00122	<0.00040
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0040	0.0075	0.0074	0.0076	0.0048
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
boron, dissolved	7440-42-8	E469S	0.30	mg/L	<0.30	3.91	3.34	3.34	0.67
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	<0.000010	0.000038	0.000033	0.000038	<0.000010
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	40.1	408	362	354	78.9
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00059	0.00037	0.00130 <sup>DTC</sup>	0.00023	0.00083 <sup>DTC</sup>
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	0.000105	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	<0.020	0.190	0.161	0.159	0.028
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	64.7	1400	1150	1140	194
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00045	0.00052	0.00059	0.00069	0.00070
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00061	0.0103	0.00916	0.00907	0.00177
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	18.8	459	383	383	61.2
rhenium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0060	0.111	0.103	0.102	0.0184



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
Client sampling date / time					19-Aug-2021 10:31	19-Aug-2021 10:58	19-Aug-2021 10:46	19-Aug-2021 11:08	19-Aug-2021 09:17
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-001	VA21B7949-002	VA21B7949-003	VA21B7949-004	VA21B7949-005
					Result	Result	Result	Result	Result
<b>Dissolved Metals</b>									
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	524	9960	9330	9190	1730
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	0.355	7.08	6.42	6.27	1.12
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	43.7	1170	943	948	145
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00146	0.00250	0.00247	0.00234	0.00199
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	0.00146	0.00131	0.00129	<0.00050
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	0.0011	<0.0010	0.0012	<0.0010	<0.0010
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	Field	Field
<b>Volatile Organic Compounds [Fuels]</b>									
benzene	71-43-2	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
styrene	100-42-5	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
toluene	108-88-3	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	----	<0.40	----	<0.40
xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	----	<0.30	----	<0.30
xylenes, total	1330-20-7	E611A	0.50	µg/L	<0.50	----	<0.50	----	<0.50
<b>Volatile Organic Compounds Surrogates</b>									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	111	----	109	----	109
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	107	----	106	----	108



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
Client sampling date / time					19-Aug-2021 10:31	19-Aug-2021 10:58	19-Aug-2021 10:46	19-Aug-2021 11:08	19-Aug-2021 09:17
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-001	VA21B7949-002	VA21B7949-003	VA21B7949-004	VA21B7949-005
					Result	Result	Result	Result	Result
<b>Hydrocarbons</b>									
F2 (C10-C16)	----	E601	100	µg/L	<100	----	<100	----	<100
F3 (C16-C34)	----	E601	250	µg/L	<250	----	<250	----	<250
F4 (C34-C50)	----	E601	250	µg/L	<250	----	<250	----	<250
TEH (C10-C50)	----	E601	400	µg/L	<400	----	<400	----	<400
TEH (C16-C50)	----	E601	400	µg/L	<400	----	<400	----	<400
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	<100	----	<100
F1-BTEX	----	EC580	100	µg/L	<100	----	<100	----	<100
VPHw	----	EC580A	100	µg/L	<100	----	<100	----	<100
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	<100	----	<100
<b>Hydrocarbons Surrogates</b>									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	E601	1.0	%	82.8	----	78.5	----	78.2
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	98.0	----	99.2	----	103
<b>Polycyclic Aromatic Hydrocarbons</b>									
acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
acridine	260-94-6	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
anthracene	120-12-7	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	----	<0.0050	----	<0.0050
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	<0.015	----	<0.015	----	<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
chrysene	218-01-9	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	----	<0.0050	----	<0.0050
fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
fluorene	86-73-7	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010
methylnaphthalene, 1+2-	----	E641A	0.015	µg/L	<0.015	----	<0.015	----	<0.015
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010





## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

					Client sample ID	MP-06 Source	MP-06 North	MP-06 ENE	MP-06 WNW	MP-05 Source
					Client sampling date / time	19-Aug-2021 10:31	19-Aug-2021 10:58	19-Aug-2021 10:46	19-Aug-2021 11:08	19-Aug-2021 09:17
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-001	VA21B7949-002	VA21B7949-003	VA21B7949-004	VA21B7949-005	
					Result	Result	Result	Result	Result	
<b>Polycyclic Aromatic Hydrocarbons</b>										
naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	----	<0.050	----	<0.050	
phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	----	<0.020	----	<0.020	
pyrene	129-00-0	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010	
quinoline	6027-02-7	E641A	0.050	µg/L	<0.050	----	<0.050	----	<0.050	
B(a)P total potency equivalents [B(a)P TPE]	----	E641A	0.010	µg/L	<0.010	----	<0.010	----	<0.010	
PAHs, high molecular weight (BC AWQ)	----	E641A	0.030	µg/L	<0.030	----	<0.030	----	<0.030	
PAHs, low molecular weight (BC AWQ)	----	E641A	0.060	µg/L	<0.060	----	<0.060	----	<0.060	
PAHs, total (EPA 16)	----	E641A	0.065	µg/L	<0.065	----	<0.065	----	<0.065	
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>										
chrysene-d12	1719-03-5	E641A	0.1	%	83.5	----	79.2	----	80.0	
naphthalene-d8	1146-65-2	E641A	0.1	%	98.9	----	98.2	----	97.5	
phenanthrene-d10	1517-22-2	E641A	0.1	%	111	----	109	----	110	

Please refer to the General Comments section for an explanation of any qualifiers detected.



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05 North	MP-05 ENE	MP-05 WNW	MP-05-Source-FBLANK3	----
Client sampling date / time					19-Aug-2021 09:54	19-Aug-2021 09:37	19-Aug-2021 10:15	19-Aug-2021 09:25	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-006	VA21B7949-007	VA21B7949-008	VA21B7949-009	-----
					Result	Result	Result	Result	----
<b>Physical Tests</b>									
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	90.8	92.4	91.9	<1.0	----
conductivity	----	E100S	2.0	µS/cm	11900	9730	11200	<2.0	----
hardness (as CaCO <sub>3</sub> ), dissolved	----	EC100	0.50	mg/L	1270	1020	1220	<1.00	----
pH	----	E108	0.10	pH units	7.99	8.02	7.99	5.10	----
salinity	----	EC100S	1.0	psu	6.7	5.4	6.2	<1.0	----
solids, total dissolved [TDS]	----	E162S	10	mg/L	8050	6390	7070	<10	----
solids, total suspended [TSS]	----	E160S	2.0	mg/L	<2.0	<2.0	<2.0	<2.0	----
turbidity	----	E121	0.10	NTU	0.54	0.60	0.46	<0.10	----
<b>Anions and Nutrients</b>									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
bromide	24959-67-9	E235S.Br	5.0	mg/L	12.8	10.2	10.4	<5.0	----
chloride	16887-00-6	E235S.Cl	50	mg/L	3950	3300	3590	<50	----
fluoride	16984-48-8	E235S.F-L	0.20	mg/L	0.21	<0.20	<0.20	<0.20	----
Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.088	0.100	0.088	<0.050	----
nitrate (as N)	14797-55-8	E235S.NO3-T	0.010	mg/L	<0.010	0.043	<0.010	<0.010	----
nitrite (as N)	14797-65-0	E235S.NO2-L	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
phosphorus, total	7723-14-0	E372S	0.0020	mg/L	0.0076	0.0120	0.0072	<0.0040	----
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3.0	mg/L	509	398	482	<3.0	----
<b>Organic / Inorganic Carbon</b>									
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.47	1.53	1.34	<0.50	----
carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.40	1.39	1.37	<0.50	----
<b>Total Metals</b>									
aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0219	0.0165	0.0182	<0.0050	----
antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
arsenic, total	7440-38-2	E468S	0.00040	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	----
barium, total	7440-39-3	E468S	0.0010	mg/L	0.0052	0.0050	0.0050	<0.0010	----
beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
boron, total	7440-42-8	E468S	0.30	mg/L	1.02	0.78	0.91	<0.30	----
cadmium, total	7440-43-9	E468S	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	----
calcium, total	7440-70-2	E468S	1.0	mg/L	107	87.5	98.9	<1.0	----



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05 North	MP-05 ENE	MP-05 WNW	MP-05-Source-FBLANK3	----
Client sampling date / time					19-Aug-2021 09:54	19-Aug-2021 09:37	19-Aug-2021 10:15	19-Aug-2021 09:25	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-006	VA21B7949-007	VA21B7949-008	VA21B7949-009	-----
					Result	Result	Result	Result	----
<b>Total Metals</b>									
cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
copper, total	7440-50-8	E468S	0.00050	mg/L	0.00191	0.00185	<0.00050	<0.00050	----
gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
iron, total	7439-89-6	E468S	0.010	mg/L	0.018	0.015	0.016	<0.010	----
lead, total	7439-92-1	E468S	0.000050	mg/L	0.000056	0.000179	<0.000050	<0.000050	----
lithium, total	7439-93-2	E468S	0.020	mg/L	0.041	0.031	0.037	<0.020	----
magnesium, total	7439-95-4	E468S	1.0	mg/L	247	184	225	<1.0	----
manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00120	0.00106	0.00101	<0.00020	----
mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00224	0.00176	0.00216	<0.00010	----
nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
potassium, total	7440-09-7	E468S	1.0	mg/L	86.7	63.3	81.0	<1.0	----
rhenium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0244	0.0182	0.0229	<0.0050	----
selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----
silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	2040	1540	1960	<2.5	----
strontium, total	7440-24-6	E468S	0.010	mg/L	1.46	1.12	1.38	<0.010	----
sulfur, total	7704-34-9	E468S	5.0	mg/L	224	167	206	<5.0	----
tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00192	0.00189	0.00180	<0.000050	----
vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05 North	MP-05 ENE	MP-05 WNW	MP-05-Source-FBLANK3	----
Client sampling date / time					19-Aug-2021 09:54	19-Aug-2021 09:37	19-Aug-2021 10:15	19-Aug-2021 09:25	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-006	VA21B7949-007	VA21B7949-008	VA21B7949-009	-----
					Result	Result	Result	Result	----
<b>Total Metals</b>									
yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	----
zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
<b>Dissolved Metals</b>									
aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	0.0061	<0.0050	<0.0050	----
antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	----
barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0051	0.0048	0.0049	<0.0010	----
beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
boron, dissolved	7440-42-8	E469S	0.30	mg/L	0.83	0.64	0.78	<0.30	----
cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	----
calcium, dissolved	7440-70-2	E469S	1.0	mg/L	91.9	78.2	88.6	<1.0	----
cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----
copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00061	0.00081	0.00068	<0.00020	----
gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	0.000094	0.000069	<0.000050	----
lithium, dissolved	7439-93-2	E469S	0.020	mg/L	0.035	0.027	0.033	<0.020	----
magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	253	200	242	<1.0	----
manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00064	0.00070	0.00056	<0.00010	----
mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00228	0.00173	0.00209	<0.00010	----
nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
potassium, dissolved	7440-09-7	E469S	1.0	mg/L	78.4	60.2	73.5	<1.0	----
rhenium, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----
rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0234	0.0183	0.0214	<0.0050	----
selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----

Sub-Matrix: Seawater (Matrix: Water)					Client sample ID	MP-05 North	MP-05 ENE	MP-05 WNW	MP-05-Source-FBLANK3	----
Client sampling date / time					19-Aug-2021 09:54	19-Aug-2021 09:37	19-Aug-2021 10:15	19-Aug-2021 09:25	----	
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-006	VA21B7949-007	VA21B7949-008	VA21B7949-009	-----	
					Result	Result	Result	Result	----	
Dissolved Metals										
silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----	
silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	----	
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	2180	1730	2080	<2.5	----	
strontium, dissolved	7440-24-6	E469S	0.010	mg/L	1.44	1.11	1.37	<0.010	----	
sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	194	144	187	<5.0	----	
tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	----	
thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----	
titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----	
tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----	
uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00195	0.00194	0.00184	<0.000050	----	
vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	0.0011	<0.0010	0.0011	<0.0010	----	
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	----	
dissolved mercury filtration location	----	EP509	-	-	Field	Field	Field	Field	----	
dissolved metals filtration location	----	EP421	-	-	Field	Field	Field	Field	----	
Volatile Organic Compounds [Fuels]										
benzene	71-43-2	E611A	0.50	µg/L	<0.50	----	----	<0.50	----	
ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	----	----	<0.50	----	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	----	----	<0.50	----	
styrene	100-42-5	E611A	0.50	µg/L	<0.50	----	----	<0.50	----	
toluene	108-88-3	E611A	0.50	µg/L	<0.50	----	----	<0.50	----	
xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	----	----	<0.40	----	
xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	----	----	<0.30	----	
xylenes, total	1330-20-7	E611A	0.50	µg/L	<0.50	----	----	<0.50	----	
Volatile Organic Compounds Surrogates										
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	84.8	----	----	86.8	----	
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	98.2	----	----	99.5	----	
Hydrocarbons										



## Analytical Results

Sub-Matrix: Seawater

Client sample ID

(Matrix: Water)

					MP-05 North	MP-05 ENE	MP-05 WNW	MP-05-Source-FBLANK3	----
Client sampling date / time					19-Aug-2021 09:54	19-Aug-2021 09:37	19-Aug-2021 10:15	19-Aug-2021 09:25	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-006	VA21B7949-007	VA21B7949-008	VA21B7949-009	-----
					Result	Result	Result	Result	----
<b>Hydrocarbons</b>									
F2 (C10-C16)	----	E601	100	µg/L	<100	----	----	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----	----	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----	----	<250	----
TEH (C10-C50)	----	E601	400	µg/L	<400	----	----	<400	----
TEH (C16-C50)	----	E601	400	µg/L	<400	----	----	<400	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	----	<100	----
F1-BTEX	----	EC580	100	µg/L	<100	----	----	<100	----
VPW	----	EC580A	100	µg/L	<100	----	----	<100	----
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----	----	<100	----
<b>Hydrocarbons Surrogates</b>									
bromobenzotrifluoride, 2- (F2-F4 surr)	392-83-6	E601	1.0	%	80.4	----	----	73.3	----
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	87.3	----	----	100	----
<b>Polycyclic Aromatic Hydrocarbons</b>									
acenaphthene	83-32-9	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
acenaphthylene	208-96-8	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
acridine	260-94-6	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
anthracene	120-12-7	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
benz(a)anthracene	56-55-3	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
benzo(a)pyrene	50-32-8	E641A	0.0050	µg/L	<0.0050	----	----	<0.0050	----
benzo(b+j)fluoranthene	----	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
benzo(b+j+k)fluoranthene	----	E641A	0.015	µg/L	<0.015	----	----	<0.015	----
benzo(g,h,i)perylene	191-24-2	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
benzo(k)fluoranthene	207-08-9	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
chrysene	218-01-9	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	µg/L	<0.0050	----	----	<0.0050	----
fluoranthene	206-44-0	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
fluorene	86-73-7	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
methylnaphthalene, 1-	90-12-0	E641A	0.010	µg/L	<0.010	----	----	<0.010	----
methylnaphthalene, 1+2-	----	E641A	0.015	µg/L	<0.015	----	----	0.015	----
methylnaphthalene, 2-	91-57-6	E641A	0.010	µg/L	<0.010	----	----	0.015 <sup>RRV</sup>	----



## Analytical Results

Sub-Matrix: Seawater

(Matrix: Water)

					Client sample ID	MP-05 North	MP-05 ENE	MP-05 WNW	MP-05-Source-FBLANK3	----
					Client sampling date / time	19-Aug-2021 09:54	19-Aug-2021 09:37	19-Aug-2021 10:15	19-Aug-2021 09:25	----
Analyte	CAS Number	Method	LOR	Unit	VA21B7949-006	VA21B7949-007	VA21B7949-008	VA21B7949-009	-----	
					Result	Result	Result	Result	----	
<b>Polycyclic Aromatic Hydrocarbons</b>										
naphthalene	91-20-3	E641A	0.050	µg/L	<0.050	----	----	<0.050	----	
phenanthrene	85-01-8	E641A	0.020	µg/L	<0.020	----	----	<0.020	----	
pyrene	129-00-0	E641A	0.010	µg/L	<0.010	----	----	<0.010	----	
quinoline	6027-02-7	E641A	0.050	µg/L	<0.050	----	----	<0.050	----	
B(a)P total potency equivalents [B(a)P TPE]	----	E641A	0.010	µg/L	<0.010	----	----	<0.010	----	
PAHs, high molecular weight (BC AWQ)	----	E641A	0.030	µg/L	<0.030	----	----	<0.030	----	
PAHs, low molecular weight (BC AWQ)	----	E641A	0.060	µg/L	<0.060	----	----	<0.060	----	
PAHs, total (EPA 16)	----	E641A	0.065	µg/L	<0.065	----	----	<0.065	----	
<b>Polycyclic Aromatic Hydrocarbons Surrogates</b>										
chrysene-d12	1719-03-5	E641A	0.1	%	80.8	----	----	94.2	----	
naphthalene-d8	1146-65-2	E641A	0.1	%	95.6	----	----	105	----	
phenanthrene-d10	1517-22-2	E641A	0.1	%	104	----	----	120	----	

Please refer to the General Comments section for an explanation of any qualifiers detected.



## QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: <b>VA21B7949</b>	Page	: 1 of 35
Client	: <b>Golder Associates Ltd.</b>	Laboratory	: Vancouver - Environmental
Contact	: Elaine Irving	Account Manager	: Amber Springer
Address	: 200-2920 Virtual Way Vancouver BC Canada V5M 0C4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 1663724-44000-03	Date Samples Received	: 24-Aug-2021 08:20
PO	: ----	Issue Date	: 03-Sep-2021 09:55
C-O-C number	: 20-920786		
Sampler	: ----		
Site	: ----		
Quote number	: Q84262		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

### Key

**Anonymous:** Refers to samples which are not part of this work order, but which formed part of the QC process lot.

**CAS Number:** Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

**DQO:** Data Quality Objective.

**LOR:** Limit of Reporting (detection limit).

**RPD:** Relative Percent Difference.

## Summary of Outliers

### Outliers : Quality Control Samples

- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

### Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

### Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

### Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: Water

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Physical Tests	QC-MRG2-2761230 01	----	alkalinity, total (as CaCO3)	----	E290	1.6 mg/L <sup>B</sup>	1.5 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.



## Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 ENE	E298	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 North	E298	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 Source	E298	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05 WNW	E298	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-05-Source-FBLANK3	E298	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 ENE	E298	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 North	E298	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 Source	E298	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MP-06 WNW	E298	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 ENE	E235S.Br	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 North	E235S.Br	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 Source	E235S.Br	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05 WNW	E235S.Br	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-05-Source-FBLANK3	E235S.Br	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 ENE	E235S.Br	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 North	E235S.Br	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 Source	E235S.Br	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Bromide in Seawater by IC										
HDPE MP-06 WNW	E235S.Br	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 ENE	E235S.Cl	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 North	E235S.Cl	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 Source	E235S.Cl	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05 WNW	E235S.Cl	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-05-Source-FBLANK3	E235S.Cl	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 ENE	E235S.Cl	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 North	E235S.Cl	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 Source	E235S.Cl	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Chloride in Seawater by IC										
HDPE MP-06 WNW	E235S.Cl	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 ENE	E235S.F-L	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 North	E235S.F-L	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 Source	E235S.F-L	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05 WNW	E235S.F-L	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-05-Source-FBLANK3	E235S.F-L	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 ENE	E235S.F-L	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 North	E235S.F-L	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 Source	E235S.F-L	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Fluoride in Seawater by IC (Low Level)										
HDPE MP-06 WNW	E235S.F-L	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 ENE	E235S.NO3-T	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 North	E235S.NO3-T	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 Source	E235S.NO3-T	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05 WNW	E235S.NO3-T	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-05-Source-FBLANK3	E235S.NO3-T	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 ENE	E235S.NO3-T	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 North	E235S.NO3-T	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR





Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 Source	E235S.NO3-T	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrate in Seawater by IC (Trace Level)										
HDPE MP-06 WNW	E235S.NO3-T	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 ENE	E235S.NO2-L	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 North	E235S.NO2-L	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 Source	E235S.NO2-L	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05 WNW	E235S.NO2-L	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-05-Source-FBLANK3	E235S.NO2-L	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 ENE	E235S.NO2-L	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	<div>✖ EHTR</div>
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 North	E235S.NO2-L	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	<div>✖ EHTR</div>



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 Source	E235S.NO2-L	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	* EHTR
Anions and Nutrients : Nitrite in Seawater by IC (Low Level)										
HDPE MP-06 WNW	E235S.NO2-L	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	* EHTR
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 ENE	E235S.SO4-L	19-Aug-2021	----	----	----		25-Aug-2021	----	6 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 North	E235S.SO4-L	19-Aug-2021	----	----	----		25-Aug-2021	----	6 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 Source	E235S.SO4-L	19-Aug-2021	----	----	----		25-Aug-2021	----	6 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05 WNW	E235S.SO4-L	19-Aug-2021	----	----	----		25-Aug-2021	----	6 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-05-Source-FBLANK3	E235S.SO4-L	19-Aug-2021	----	----	----		25-Aug-2021	----	6 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 ENE	E235S.SO4-L	19-Aug-2021	----	----	----		25-Aug-2021	----	6 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 North	E235S.SO4-L	19-Aug-2021	----	----	----		25-Aug-2021	----	6 days	



Matrix: **Water**

Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 Source	E235S.S04-L	19-Aug-2021	----	----	----		25-Aug-2021	----	6 days	
Anions and Nutrients : Sulfate in Seawater by IC (Low Level)										
HDPE MP-06 WNW	E235S.S04-L	19-Aug-2021	----	----	----		25-Aug-2021	----	6 days	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 ENE	E318S	19-Aug-2021	28-Aug-2021	----	----		01-Sep-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 North	E318S	19-Aug-2021	28-Aug-2021	----	----		01-Sep-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 Source	E318S	19-Aug-2021	28-Aug-2021	----	----		01-Sep-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05 WNW	E318S	19-Aug-2021	28-Aug-2021	----	----		01-Sep-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-05-Source-FBLANK3	E318S	19-Aug-2021	28-Aug-2021	----	----		01-Sep-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 ENE	E318S	19-Aug-2021	28-Aug-2021	----	----		01-Sep-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 North	E318S	19-Aug-2021	28-Aug-2021	----	----		01-Sep-2021	28 days	14 days	✓



Matrix: **Water** Evaluation: **✖** = Holding time exceedance ; **✓** = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 Source	E318S	19-Aug-2021	28-Aug-2021	----	----		01-Sep-2021	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence										
Amber glass total (sulfuric acid) MP-06 WNW	E318S	19-Aug-2021	28-Aug-2021	----	----		01-Sep-2021	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 ENE	E372S	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 North	E372S	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 Source	E372S	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05 WNW	E372S	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-05-Source-FBLANK3	E372S	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 ENE	E372S	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 North	E372S	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 Source	E372S	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✔
Anions and Nutrients : Total Phosphorus in Seawater by Colourimetry										
Amber glass total (sulfuric acid) MP-06 WNW	E372S	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 ENE	E509S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	28 days	7 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 North	E509S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	28 days	7 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 Source	E509S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	28 days	7 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05 WNW	E509S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	28 days	7 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-05-Source-FBLANK3	E509S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	28 days	7 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 ENE	E509S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	28 days	7 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 North	E509S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	28 days	7 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 Source	E509S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	28 days	7 days	✔
Dissolved Metals : Dissolved Mercury in Seawater by CVAAS										
Glass vial dissolved (hydrochloric acid) MP-06 WNW	E509S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	28 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 ENE	E469S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 North	E469S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 Source	E469S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05 WNW	E469S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-05-Source-FBLANK3	E469S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 ENE	E469S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✔
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 North	E469S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✔





Matrix: **Water**

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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 Source	E469S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Seawater by CRC ICPMS (HMI)										
HDPE dissolved (nitric acid) MP-06 WNW	E469S	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 ENE	E469S.NaSi	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 North	E469S.NaSi	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 Source	E469S.NaSi	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05 WNW	E469S.NaSi	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-05-Source-FBLANK3	E469S.NaSi	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 ENE	E469S.NaSi	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 North	E469S.NaSi	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓





Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 Source	E469S.NaSi	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓
Dissolved Metals : Dissolved Sodium and Silicon in Seawater by CRC ICPMS										
HDPE dissolved (nitric acid) MP-06 WNW	E469S.NaSi	19-Aug-2021	26-Aug-2021	----	----		26-Aug-2021	180 days	7 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 North	E601	19-Aug-2021	27-Aug-2021	14 days	8 days	✓	30-Aug-2021	40 days	3 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 Source	E601	19-Aug-2021	27-Aug-2021	14 days	8 days	✓	30-Aug-2021	40 days	3 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-Source-FBLANK3	E601	19-Aug-2021	27-Aug-2021	14 days	8 days	✓	30-Aug-2021	40 days	3 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 ENE	E601	19-Aug-2021	27-Aug-2021	14 days	8 days	✓	30-Aug-2021	40 days	3 days	✓
Hydrocarbons : CCME PHC - F2-F4 by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 Source	E601	19-Aug-2021	27-Aug-2021	14 days	8 days	✓	30-Aug-2021	40 days	3 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05 North	E581.VH+F1	19-Aug-2021	30-Aug-2021	----	----		31-Aug-2021	14 days	12 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05 Source	E581.VH+F1	19-Aug-2021	30-Aug-2021	----	----		31-Aug-2021	14 days	12 days	✓



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-05-Source-FBLANK3	E581.VH+F1	19-Aug-2021	30-Aug-2021	----	----		31-Aug-2021	14 days	12 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06 ENE	E581.VH+F1	19-Aug-2021	30-Aug-2021	----	----		31-Aug-2021	14 days	12 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) MP-06 Source	E581.VH+F1	19-Aug-2021	30-Aug-2021	----	----		31-Aug-2021	14 days	12 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 ENE	E358-L	19-Aug-2021	27-Aug-2021	3 days	8 days	✖ EHTR	27-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 North	E358-L	19-Aug-2021	27-Aug-2021	3 days	8 days	✖ EHTR	27-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 Source	E358-L	19-Aug-2021	27-Aug-2021	3 days	8 days	✖ EHTR	27-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05 WNW	E358-L	19-Aug-2021	27-Aug-2021	3 days	8 days	✖ EHTR	27-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-05-Source-FBLANK3	E358-L	19-Aug-2021	27-Aug-2021	3 days	8 days	✖ EHTR	27-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 ENE	E358-L	19-Aug-2021	27-Aug-2021	3 days	8 days	✖ EHTR	27-Aug-2021	28 days	0 days	✓



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 North	E358-L	19-Aug-2021	27-Aug-2021	3 days	8 days	* EHTR	27-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 Source	E358-L	19-Aug-2021	27-Aug-2021	3 days	8 days	* EHTR	27-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) MP-06 WNW	E358-L	19-Aug-2021	27-Aug-2021	3 days	8 days	* EHTR	27-Aug-2021	28 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 ENE	E355-L	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 North	E355-L	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 Source	E355-L	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05 WNW	E355-L	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-05-Source-FBLANK3	E355-L	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 ENE	E355-L	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓



Matrix: **Water**

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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 North	E355-L	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 Source	E355-L	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MP-06 WNW	E355-L	19-Aug-2021	28-Aug-2021	----	----		29-Aug-2021	28 days	10 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 ENE	E290	19-Aug-2021	----	----	----		25-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 North	E290	19-Aug-2021	----	----	----		25-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 Source	E290	19-Aug-2021	----	----	----		25-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05 WNW	E290	19-Aug-2021	----	----	----		25-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-05-Source-FBLANK3	E290	19-Aug-2021	----	----	----		25-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 ENE	E290	19-Aug-2021	----	----	----		25-Aug-2021	14 days	6 days	✓



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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 North	E290	19-Aug-2021	----	----	----		25-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 Source	E290	19-Aug-2021	----	----	----		25-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MP-06 WNW	E290	19-Aug-2021	----	----	----		25-Aug-2021	14 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 ENE	E100S	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 North	E100S	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 Source	E100S	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05 WNW	E100S	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-05-Source-FBLANK3	E100S	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06 ENE	E100S	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓



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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Seawater										
HDPE MP-06 North	E100S	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06 Source	E100S	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Seawater										
HDPE MP-06 WNW	E100S	19-Aug-2021	----	----	----		25-Aug-2021	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE MP-06 North	E108	19-Aug-2021	----	----	----		25-Aug-2021	0.25 hrs	149 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06 WNW	E108	19-Aug-2021	----	----	----		25-Aug-2021	0.25 hrs	149 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05 North	E108	19-Aug-2021	----	----	----		25-Aug-2021	0.25 hrs	150 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-05 WNW	E108	19-Aug-2021	----	----	----		25-Aug-2021	0.25 hrs	150 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06 ENE	E108	19-Aug-2021	----	----	----		25-Aug-2021	0.25 hrs	150 hrs	✖ EHTR-FM
Physical Tests : pH by Meter										
HDPE MP-06 Source	E108	19-Aug-2021	----	----	----		25-Aug-2021	0.25 hrs	150 hrs	✖ EHTR-FM



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE MP-05 ENE	E108	19-Aug-2021	----	----	----		25-Aug-2021	0.25 hrs	151 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE MP-05 Source	E108	19-Aug-2021	----	----	----		25-Aug-2021	0.25 hrs	151 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : pH by Meter										
HDPE MP-05-Source-FBLANK3	E108	19-Aug-2021	----	----	----		25-Aug-2021	0.25 hrs	151 hrs	<div>✖</div> <div>EHTR-FM</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 ENE	E162S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	<div>✔</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 North	E162S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	<div>✔</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 Source	E162S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	<div>✔</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05 WNW	E162S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	<div>✔</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-05-Source-FBLANK3	E162S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	<div>✔</div>
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 ENE	E162S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	<div>✔</div>





Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 North	E162S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 Source	E162S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : TDS by Gravimetry (Seawater)										
HDPE MP-06 WNW	E162S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 ENE	E160S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 North	E160S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 Source	E160S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05 WNW	E160S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-05-Source-FBLANK3	E160S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 ENE	E160S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓



Matrix: **Water**

Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 North	E160S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 Source	E160S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Seawater)										
HDPE MP-06 WNW	E160S	19-Aug-2021	----	----	----		25-Aug-2021	7 days	7 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 ENE	E121	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 North	E121	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 Source	E121	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05 WNW	E121	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-05-Source-FBLANK3	E121	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 ENE	E121	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR



Matrix: **Water** Evaluation: \* = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 North	E121	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 Source	E121	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Physical Tests : Turbidity by Nephelometry										
HDPE MP-06 WNW	E121	19-Aug-2021	----	----	----		25-Aug-2021	3 days	6 days	✖ EHTR
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 North	E641A	19-Aug-2021	27-Aug-2021	14 days	8 days	✔	29-Aug-2021	40 days	2 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05 Source	E641A	19-Aug-2021	27-Aug-2021	14 days	8 days	✔	29-Aug-2021	40 days	2 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-05-Source-FBLANK3	E641A	19-Aug-2021	27-Aug-2021	14 days	8 days	✔	29-Aug-2021	40 days	2 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 ENE	E641A	19-Aug-2021	27-Aug-2021	14 days	8 days	✔	29-Aug-2021	40 days	2 days	✔
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) MP-06 Source	E641A	19-Aug-2021	27-Aug-2021	14 days	8 days	✔	29-Aug-2021	40 days	2 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 ENE	E508S	19-Aug-2021	----	----	----		27-Aug-2021	28 days	8 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 North	E508S	19-Aug-2021	----	----	----		27-Aug-2021	28 days	8 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 Source	E508S	19-Aug-2021	----	----	----		27-Aug-2021	28 days	8 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05 WNW	E508S	19-Aug-2021	----	----	----		27-Aug-2021	28 days	8 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-05-Source-FBLANK3	E508S	19-Aug-2021	----	----	----		27-Aug-2021	28 days	8 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 ENE	E508S	19-Aug-2021	----	----	----		27-Aug-2021	28 days	8 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 North	E508S	19-Aug-2021	----	----	----		27-Aug-2021	28 days	8 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 Source	E508S	19-Aug-2021	----	----	----		27-Aug-2021	28 days	8 days	✔
Total Metals : Total Mercury in Seawater by CVAAS										
Glass vial total (hydrochloric acid) MP-06 WNW	E508S	19-Aug-2021	----	----	----		27-Aug-2021	28 days	8 days	✔
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 ENE	E468S	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✔



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 North	E468S	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 Source	E468S	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05 WNW	E468S	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-05-Source-FBLANK3	E468S	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 ENE	E468S	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 North	E468S	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 Source	E468S	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Metals in Seawater by CRC ICPMS (HMI)										
HDPE total (nitric acid) MP-06 WNW	E468S	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 North	E468S.NaSi	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 WNW	E468S.NaSi	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 ENE	E468S.NaSi	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 North	E468S.NaSi	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 Source	E468S.NaSi	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-06 WNW	E468S.NaSi	19-Aug-2021	----	----	----		25-Aug-2021	180 days	6 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 ENE	E468S.NaSi	19-Aug-2021	----	----	----		25-Aug-2021	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05 Source	E468S.NaSi	19-Aug-2021	----	----	----		25-Aug-2021	180 days	7 days	✓
Total Metals : Total Sodium and Silicon in Seawater by CRC ICPMS										
HDPE total (nitric acid) MP-05-Source-FBLANK3	E468S.NaSi	19-Aug-2021	----	----	----		25-Aug-2021	180 days	7 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05 North	E611A	19-Aug-2021	30-Aug-2021	----	----		31-Aug-2021	14 days	12 days	✓

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 Client : Golder Associates Ltd.  
 Project : 1663724-44000-03



Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05 Source	E611A	19-Aug-2021	30-Aug-2021	----	----		31-Aug-2021	14 days	12 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-05-Source-FBLANK3	E611A	19-Aug-2021	30-Aug-2021	----	----		31-Aug-2021	14 days	12 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-06 ENE	E611A	19-Aug-2021	30-Aug-2021	----	----		31-Aug-2021	14 days	12 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) MP-06 Source	E611A	19-Aug-2021	30-Aug-2021	----	----		31-Aug-2021	14 days	12 days	✓

**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.

Rec. HT: ALS recommended hold time (see units).





## Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type	Method	QC Lot #	Count		Frequency (%)		
			QC	Regular	Actual	Expected	Evaluation
Analytical Methods							
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	276123	1	20	5.0	5.0	✔
Ammonia by Fluorescence	E298	278671	1	18	5.5	5.0	✔
Bromide in Seawater by IC	E235S.Br	276227	1	9	11.1	5.0	✔
BTEX by Headspace GC-MS	E611A	279502	2	30	6.6	5.0	✔
Chloride in Seawater by IC	E235S.Cl	276228	1	9	11.1	5.0	✔
Conductivity in Seawater	E100S	276125	1	9	11.1	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	277158	1	9	11.1	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	276744	2	13	15.3	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	277906	1	9	11.1	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	276745	1	13	7.6	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	276229	1	9	11.1	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	276230	1	9	11.1	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	276231	1	9	11.1	5.0	✔
pH by Meter	E108	276124	1	20	5.0	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	276232	1	9	11.1	5.0	✔
TDS by Gravimetry (Seawater)	E162S	276449	1	9	11.1	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	278674	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	277628	1	9	11.1	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	275621	1	9	11.1	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	278673	1	9	11.1	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	278672	1	18	5.5	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	275622	1	9	11.1	5.0	✔
Turbidity by Nephelometry	E121	275633	1	11	9.0	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	279503	2	20	10.0	5.0	✔
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	276123	1	20	5.0	5.0	✔
Ammonia by Fluorescence	E298	278671	1	18	5.5	5.0	✔
Bromide in Seawater by IC	E235S.Br	276227	1	9	11.1	5.0	✔
BTEX by Headspace GC-MS	E611A	279502	2	30	6.6	5.0	✔
CCME PHC - F2-F4 by GC-FID	E601	278286	1	10	10.0	5.0	✔
Chloride in Seawater by IC	E235S.Cl	276228	1	9	11.1	5.0	✔
Conductivity in Seawater	E100S	276125	1	9	11.1	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	277158	1	9	11.1	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	276744	1	13	7.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	277906	1	9	11.1	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	276745	1	13	7.6	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	276229	1	9	11.1	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS) - Continued							
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	276230	1	9	11.1	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	276231	1	9	11.1	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	278285	1	10	10.0	5.0	✔
pH by Meter	E108	276124	1	20	5.0	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	276232	1	9	11.1	5.0	✔
TDS by Gravimetry (Seawater)	E162S	276449	1	9	11.1	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	278674	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	277628	1	9	11.1	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	275621	1	9	11.1	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	278673	1	9	11.1	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	278672	1	18	5.5	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	275622	1	9	11.1	5.0	✔
TSS by Gravimetry (Seawater)	E160S	276447	2	26	7.6	5.0	✔
Turbidity by Nephelometry	E121	275633	1	11	9.0	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	279503	2	20	10.0	5.0	✔
Method Blanks (MB)							
Alkalinity Species by Titration	E290	276123	1	20	5.0	5.0	✔
Ammonia by Fluorescence	E298	278671	1	18	5.5	5.0	✔
Bromide in Seawater by IC	E235S.Br	276227	1	9	11.1	5.0	✔
BTEX by Headspace GC-MS	E611A	279502	2	30	6.6	5.0	✔
CCME PHC - F2-F4 by GC-FID	E601	278286	1	10	10.0	5.0	✔
Chloride in Seawater by IC	E235S.Cl	276228	1	9	11.1	5.0	✔
Conductivity in Seawater	E100S	276125	1	9	11.1	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	277158	1	9	11.1	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	276744	1	13	7.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	277906	1	9	11.1	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	276745	1	13	7.6	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	276229	1	9	11.1	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	276230	1	9	11.1	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	276231	1	9	11.1	5.0	✔
PAHs by Hexane LVI GC-MS	E641A	278285	1	10	10.0	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	276232	1	9	11.1	5.0	✔
TDS by Gravimetry (Seawater)	E162S	276449	1	9	11.1	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	278674	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	277628	1	9	11.1	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	275621	1	9	11.1	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	278673	1	9	11.1	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	278672	1	18	5.5	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	275622	1	9	11.1	5.0	✔
TSS by Gravimetry (Seawater)	E160S	276447	2	26	7.6	5.0	✔
Turbidity by Nephelometry	E121	275633	1	11	9.0	5.0	✔



Matrix: **Water**

Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
VH and F1 by Headspace GC-FID	E581.VH+F1	279503	2	20	10.0	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	278671	1	18	5.5	5.0	✔
Bromide in Seawater by IC	E235S.Br	276227	1	9	11.1	5.0	✔
BTEX by Headspace GC-MS	E611A	279502	2	30	6.6	5.0	✔
Chloride in Seawater by IC	E235S.Cl	276228	1	9	11.1	5.0	✔
Dissolved Mercury in Seawater by CVAAS	E509S	277158	1	9	11.1	5.0	✔
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S	276744	1	13	7.6	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	277906	1	9	11.1	5.0	✔
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi	276745	1	13	7.6	5.0	✔
Fluoride in Seawater by IC (Low Level)	E235S.F-L	276229	1	9	11.1	5.0	✔
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T	276230	1	9	11.1	5.0	✔
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L	276231	1	9	11.1	5.0	✔
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L	276232	1	9	11.1	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence	E318S	278674	1	9	11.1	5.0	✔
Total Mercury in Seawater by CVAAS	E508S	277628	1	9	11.1	5.0	✔
Total Metals in Seawater by CRC ICPMS (HMI)	E468S	275621	1	9	11.1	5.0	✔
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	278673	1	9	11.1	5.0	✔
Total Phosphorus in Seawater by Colourimetry	E372S	278672	1	18	5.5	5.0	✔
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi	275622	1	9	11.1	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	279503	2	20	10.0	5.0	✔



## Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Seawater	E100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
pH by Meter	E108  Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121  Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry (Seawater)	E160S  Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry (Seawater)	E162S  Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Seawater by IC	E235S.Br  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Seawater by IC	E235S.Cl  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Seawater by IC (Low Level)	E235S.F-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Seawater by IC (Low Level)	E235S.NO2-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Seawater by IC (Trace Level)	E235S.NO3-T  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Seawater by IC (Low Level)	E235S.SO4-L  Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290  Vancouver - Environmental	Water	APHA 2320 B (mod)	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.
Ammonia by Fluorescence	E298  Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthalaldehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence	E318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L  Vancouver - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO <sub>2</sub> . NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus in Seawater by Colourimetry	E372S  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Seawater by CRC ICPMS (HMI)	E468S  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode). This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Total Sodium and Silicon in Seawater by CRC ICPMS	E468S.NaSi  Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Seawater samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. This method is compliant with digestion requirements of the British Columbia Environmental Laboratory Manual.
Dissolved Metals in Seawater by CRC ICPMS (HMI)	E469S  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 µm), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS (HMI Mode).



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Sodium and Silicon in Seawater by CRC ICPMS	E469S.NaSi  Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Seawater samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Total Mercury in Seawater by CVAAS	E508S  Vancouver - Environmental	Water	EPA 1631E (mod)	Seawater samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Mercury in Seawater by CVAAS	E509S  Vancouver - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Seawater samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1  Vancouver - Environmental	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
CCME PHC - F2-F4 by GC-FID	E601  Vancouver - Environmental	Water	CCME PHC in Soil - Tier 1	CCME Fractions 2-4 (F2-F4) are analyzed by GC-FID.
BTEX by Headspace GC-MS	E611A  Vancouver - Environmental	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A  Vancouver - Environmental	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100  Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO <sub>3</sub> ), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO <sub>3</sub> equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Salinity in Seawater (calculation)	EC100S  Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a seawater sample. Conductivity measurements are temperature-compensated to 25°C. Salinity in Practical Salinity Units is calculated.
F1-BTEX	EC580  Vancouver - Environmental	Water	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
VPH: VH-BTEX-Styrene	EC580A  Vancouver - Environmental	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298  Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in Seawater	EP318S  Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent and H2SO4.
Preparation for Total Organic Carbon by Combustion	EP355  Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358  Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372  Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421  Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509  Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581  Vancouver - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601  Vancouver - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.





## QUALITY CONTROL REPORT

Work Order : **VA21B7949**

Page : 1 of 22

Client : Golder Associates Ltd.  
Contact : Elaine Irving  
Address : 200-2920 Virtual Way  
Vancouver BC Canada V5M 0C4  
Telephone : ----  
Project : 1663724-44000-03  
PO : ----  
C-O-C number : 20-920786  
Sampler : ----  
Site : ----  
Quote number : Q84262  
No. of samples received : 9  
No. of samples analysed : 9

Laboratory : Vancouver - Environmental  
Account Manager : Amber Springer  
Address : 8081 Lougheed Highway  
Burnaby, British Columbia Canada V5A 1W9  
Telephone : +1 604 253 4188  
Date Samples Received : 24-Aug-2021 08:20  
Date Analysis Commenced : 25-Aug-2021  
Issue Date : 03-Sep-2021 09:55

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	Position	Laboratory Department
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
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Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Paul Cushing	Team Leader - Organics	Organics, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia



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## General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include 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 predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

### Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

# = Indicates a QC result that did not meet the ALS DQO.



## Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: <b>Water</b>					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Physical Tests (QC Lot: 275633)</b>											
VA21B7933-001	Anonymous	turbidity	----	E121	0.10	NTU	1.79	1.90	5.64%	15%	----
<b>Physical Tests (QC Lot: 276123)</b>											
VA21B7949-001	MP-06 Source	alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	89.1	87.7	1.58%	20%	----
<b>Physical Tests (QC Lot: 276124)</b>											
VA21B7949-001	MP-06 Source	pH	----	E108	0.10	pH units	8.06	8.05	0.124%	4%	----
<b>Physical Tests (QC Lot: 276125)</b>											
VA21B7949-001	MP-06 Source	conductivity	----	E100S	2.0	µS/cm	3260	3260	0.00%	20%	----
<b>Physical Tests (QC Lot: 276449)</b>											
VA21B7949-001	MP-06 Source	solids, total dissolved [TDS]	----	E162S	20	mg/L	1970	1840	6.74%	20%	----
<b>Anions and Nutrients (QC Lot: 276227)</b>											
VA21B7949-001	MP-06 Source	bromide	24959-67-9	E235S.Br	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 276228)</b>											
VA21B7949-001	MP-06 Source	chloride	16887-00-6	E235S.Cl	50	mg/L	932	933	0.0716%	20%	----
<b>Anions and Nutrients (QC Lot: 276229)</b>											
VA21B7949-001	MP-06 Source	fluoride	16984-48-8	E235S.F-L	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 276230)</b>											
VA21B7949-001	MP-06 Source	nitrate (as N)	14797-55-8	E235S.NO <sub>3</sub> -T	0.010	mg/L	0.011	<0.010	0.0010	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 276231)</b>											
VA21B7949-001	MP-06 Source	nitrite (as N)	14797-65-0	E235S.NO <sub>2</sub> -L	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 276232)</b>											
VA21B7949-001	MP-06 Source	sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO <sub>4</sub> -L	3.0	mg/L	132	132	0.136%	20%	----
<b>Anions and Nutrients (QC Lot: 278671)</b>											
VA21B7949-001	MP-06 Source	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 278672)</b>											
VA21B7949-001	MP-06 Source	phosphorus, total	7723-14-0	E372S	0.0040	mg/L	0.0130	0.0121	0.0009	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 278674)</b>											
VA21B7949-001	MP-06 Source	Kjeldahl nitrogen, total [TKN]	----	E318S	0.050	mg/L	0.112	0.119	0.007	Diff <2x LOR	----
<b>Organic / Inorganic Carbon (QC Lot: 277906)</b>											
VA21B7949-001	MP-06 Source	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.29	1.35	0.07	Diff <2x LOR	----
<b>Organic / Inorganic Carbon (QC Lot: 278673)</b>											
VA21B7949-001	MP-06 Source	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.03	1.64	0.61	Diff <2x LOR	----



Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<b>Total Metals (QC Lot: 275621)</b>											
VA21B7949-001	MP-06 Source	aluminum, total	7429-90-5	E468S	0.0050	mg/L	0.0176	0.0154	0.0022	Diff <2x LOR	----
		antimony, total	7440-36-0	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E468S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		barium, total	7440-39-3	E468S	0.0010	mg/L	0.0042	0.0042	0.00006	Diff <2x LOR	----
		beryllium, total	7440-41-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E468S	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		cadmium, total	7440-43-9	E468S	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		calcium, total	7440-70-2	E468S	1.0	mg/L	42.1	42.1	0.165%	20%	----
		cesium, total	7440-46-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, total	7440-47-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		copper, total	7440-50-8	E468S	0.00050	mg/L	0.00214	0.00210	0.00004	Diff <2x LOR	----
		gallium, total	7440-55-3	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, total	7439-89-6	E468S	0.010	mg/L	0.012	0.013	0.0004	Diff <2x LOR	----
		lead, total	7439-92-1	E468S	0.000050	mg/L	0.000053	<0.000050	0.000003	Diff <2x LOR	----
		lithium, total	7439-93-2	E468S	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		magnesium, total	7439-95-4	E468S	1.0	mg/L	60.8	61.7	1.44%	20%	----
		manganese, total	7439-96-5	E468S	0.00020	mg/L	0.00082	0.00080	0.00002	Diff <2x LOR	----
		molybdenum, total	7439-98-7	E468S	0.00010	mg/L	0.00061	0.00061	0.000003	Diff <2x LOR	----
		nickel, total	7440-02-0	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E468S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, total	7440-09-7	E468S	1.0	mg/L	18.7	19.4	3.65%	20%	----
		rhodium, total	7440-15-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		rubidium, total	7440-17-7	E468S	0.0050	mg/L	0.0062	0.0062	0.00002	Diff <2x LOR	----
		selenium, total	7782-49-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, total	7440-22-4	E468S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		strontium, total	7440-24-6	E468S	0.010	mg/L	0.332	0.343	3.20%	20%	----
		sulfur, total	7704-34-9	E468S	5.0	mg/L	45.7	44.5	1.2	Diff <2x LOR	----
		tellurium, total	13494-80-9	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, total	7440-28-0	E468S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		thorium, total	7440-29-1	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, total	7440-31-5	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E468S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, total	7440-33-7	E468S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----



Sub-Matrix: **Water**

Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 275621) - continued											
VA21B7949-001	MP-06 Source	uranium, total	7440-61-1	E468S	0.000050	mg/L	0.00140	0.00143	1.97%	20%	----
		vanadium, total	7440-62-2	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		yttrium, total	7440-65-5	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E468S	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		zirconium, total	7440-67-7	E468S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
Total Metals (QC Lot: 275622)											
VA21B7949-001	MP-06 Source	silicon, total	7440-21-3	E468S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	489	490	0.118%	20%	----
Total Metals (QC Lot: 277628)											
VA21B7949-001	MP-06 Source	mercury, total	7439-97-6	E508S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 276744)											
VA21B7949-001	MP-06 Source	copper, dissolved	7440-50-8	E469S	0.00020	mg/L	0.00059	0.00059	0.000001	Diff <2x LOR	----
VA21B7949-001	MP-06 Source	aluminum, dissolved	7429-90-5	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		antimony, dissolved	7440-36-0	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E469S	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E469S	0.0010	mg/L	0.0040	0.0044	0.0003	Diff <2x LOR	----
		beryllium, dissolved	7440-41-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E469S	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E469S	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E469S	1.0	mg/L	40.1	41.1	2.41%	20%	----
		cesium, dissolved	7440-46-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		chromium, dissolved	7440-47-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		gallium, dissolved	7440-55-3	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E469S	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E469S	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E469S	1.0	mg/L	64.7	69.6	7.28%	20%	----
		manganese, dissolved	7439-96-5	E469S	0.00010	mg/L	0.00045	0.00049	0.00004	Diff <2x LOR	----
		molybdenum, dissolved	7439-98-7	E469S	0.00010	mg/L	0.00061	0.00061	0.000003	Diff <2x LOR	----
		nickel, dissolved	7440-02-0	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E469S	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E469S	1.0	mg/L	18.8	19.7	4.29%	20%	----
		rhenum, dissolved	7440-15-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (QC Lot: 276744) - continued											
VA21B7949-001	MP-06 Source	rubidium, dissolved	7440-17-7	E469S	0.0050	mg/L	0.0060	0.0061	0.0002	Diff <2x LOR	----
		selenium, dissolved	7782-49-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silver, dissolved	7440-22-4	E469S	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		strontium, dissolved	7440-24-6	E469S	0.010	mg/L	0.355	0.359	1.07%	20%	----
		sulfur, dissolved	7704-34-9	E469S	5.0	mg/L	43.7	43.4	0.4	Diff <2x LOR	----
		tellurium, dissolved	13494-80-9	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E469S	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		thorium, dissolved	7440-29-1	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E469S	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		tungsten, dissolved	7440-33-7	E469S	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E469S	0.000050	mg/L	0.00146	0.00149	2.15%	20%	----
		vanadium, dissolved	7440-62-2	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		yttrium, dissolved	7440-65-5	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E469S	0.0010	mg/L	0.0011	<0.0010	0.0001	Diff <2x LOR	----
zirconium, dissolved	7440-67-7	E469S	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----		
Dissolved Metals (QC Lot: 276745)											
VA21B7949-001	MP-06 Source	silicon, dissolved	7440-21-3	E469S.NaSi	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	524	536	2.27%	20%	----
Dissolved Metals (QC Lot: 277158)											
VA21B7949-001	MP-06 Source	mercury, dissolved	7439-97-6	E509S	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 279502)											
VA21B7908-001	Anonymous	benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 279811)											
VA21B7949-006	MP-05 North	benzene	71-43-2	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		styrene	100-42-5	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		toluene	108-88-3	E611A	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----



Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Compounds (QC Lot: 279811) - continued											
VA21B7949-006	MP-05 North	xylene, m+p-	179601-23-1	E611A	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Hydrocarbons (QC Lot: 279503)											
VA21B7908-001	Anonymous	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
Hydrocarbons (QC Lot: 279810)											
VA21B7949-006	MP-05 North	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
		VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----





## Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Physical Tests (QCLot: 275633)</b>						
turbidity	----	E121	0.1	NTU	<0.10	----
<b>Physical Tests (QCLot: 276123)</b>						
alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1	mg/L	# 1.6	B
<b>Physical Tests (QCLot: 276125)</b>						
conductivity	----	E100S	2	µS/cm	<2.0	----
<b>Physical Tests (QCLot: 276447)</b>						
solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
<b>Physical Tests (QCLot: 276448)</b>						
solids, total suspended [TSS]	----	E160S	2	mg/L	<2.0	----
<b>Physical Tests (QCLot: 276449)</b>						
solids, total dissolved [TDS]	----	E162S	10	mg/L	<10	----
<b>Anions and Nutrients (QCLot: 276227)</b>						
bromide	24959-67-9	E235S.Br	5	mg/L	<5.0	----
<b>Anions and Nutrients (QCLot: 276228)</b>						
chloride	16887-00-6	E235S.Cl	50	mg/L	<50	----
<b>Anions and Nutrients (QCLot: 276229)</b>						
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	<0.20	----
<b>Anions and Nutrients (QCLot: 276230)</b>						
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 276231)</b>						
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	<0.010	----
<b>Anions and Nutrients (QCLot: 276232)</b>						
sulfate (as SO <sub>4</sub> )	14808-79-8	E235S.SO4-L	3	mg/L	<3.0	----
<b>Anions and Nutrients (QCLot: 278671)</b>						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
<b>Anions and Nutrients (QCLot: 278672)</b>						
phosphorus, total	7723-14-0	E372S	0.002	mg/L	<0.0040	----
<b>Anions and Nutrients (QCLot: 278674)</b>						
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	<0.050	----
<b>Organic / Inorganic Carbon (QCLot: 277906)</b>						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
<b>Organic / Inorganic Carbon (QCLot: 278673)</b>						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 275621)</b>						
aluminum, total	7429-90-5	E468S	0.005	mg/L	<0.0050	----
antimony, total	7440-36-0	E468S	0.001	mg/L	<0.0010	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	<0.00040	----
barium, total	7440-39-3	E468S	0.001	mg/L	<0.0010	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	<0.00050	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	<0.00050	----
boron, total	7440-42-8	E468S	0.3	mg/L	<0.30	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	<0.000010	----
calcium, total	7440-70-2	E468S	1	mg/L	<1.0	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	<0.00050	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	<0.000050	----
copper, total	7440-50-8	E468S	0.0005	mg/L	<0.00050	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E468S	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E468S	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E468S	0.02	mg/L	<0.020	----
magnesium, total	7439-95-4	E468S	1	mg/L	<1.0	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	<0.00020	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	<0.00010	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E468S	1	mg/L	<1.0	----
rhodium, total	7440-15-5	E468S	0.0005	mg/L	<0.00050	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	<0.0050	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	<0.00050	----
silver, total	7440-22-4	E468S	0.0001	mg/L	<0.00010	----
strontium, total	7440-24-6	E468S	0.01	mg/L	<0.010	----
sulfur, total	7704-34-9	E468S	5	mg/L	<5.0	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	<0.00050	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	<0.000050	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	<0.00050	----
tin, total	7440-31-5	E468S	0.001	mg/L	<0.0010	----
titanium, total	7440-32-6	E468S	0.005	mg/L	<0.0050	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	<0.0010	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	<0.000050	----



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 275621) - continued</b>						
vanadium, total	7440-62-2	E468S	0.0005	mg/L	<0.00050	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E468S	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	<0.00050	----
<b>Total Metals (QCLot: 275622)</b>						
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	<1.0	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	<2.5	----
<b>Total Metals (QCLot: 277628)</b>						
mercury, total	7439-97-6	E508S	0.000005	mg/L	<0.0000050	----
<b>Dissolved Metals (QCLot: 276744)</b>						
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	<0.0050	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	<0.0010	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	<0.00040	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	<0.0010	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	<0.00050	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	<0.00050	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	<0.30	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	<0.000010	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	<1.0	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	<0.00050	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	<0.000050	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	<0.00020	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	<0.00050	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	<0.020	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	<1.0	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	<0.00010	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E469S	1	mg/L	<1.0	----
rhenium, dissolved	7440-15-5	E469S	0.0005	mg/L	<0.00050	----
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	<0.0050	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	<0.00050	----

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 276744) - continued						
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	<0.00010	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	<0.010	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	<5.0	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	<0.00050	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	<0.000050	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	<0.00050	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	<0.0010	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	<0.0050	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	<0.0010	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	<0.000050	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	<0.00050	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	<0.00050	----
Dissolved Metals (QCLot: 276745)						
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	<1.0	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	<2.5	----
Dissolved Metals (QCLot: 277158)						
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	<0.0000050	----
Volatile Organic Compounds (QCLot: 279502)						
benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Volatile Organic Compounds (QCLot: 279811)						
benzene	71-43-2	E611A	0.5	µg/L	<0.50	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	<0.50	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	<0.50	----
styrene	100-42-5	E611A	0.5	µg/L	<0.50	----
toluene	108-88-3	E611A	0.5	µg/L	<0.50	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	<0.40	----
xylene, o-	95-47-6	E611A	0.3	µg/L	<0.30	----
Hydrocarbons (QCLot: 278286)						



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Hydrocarbons (QCLot: 278286) - continued						
F2 (C10-C16)	----	E601	100	µg/L	<100	----
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
Hydrocarbons (QCLot: 279503)						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Hydrocarbons (QCLot: 279810)						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
Polycyclic Aromatic Hydrocarbons (QCLot: 278285)						
acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	<0.010	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
quinoline	6027-02-7	E641A	0.05	µg/L	<0.050	----

Qualifiers

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 275633)									
turbidity	----	E121	0.1	NTU	200 NTU	101	85.0	115	----
Physical Tests (QCLot: 276123)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	97.3	85.0	115	----
Physical Tests (QCLot: 276124)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 276125)									
conductivity	----	E100S	2	µS/cm	146.9 µS/cm	102	80.0	120	----
Physical Tests (QCLot: 276447)									
solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	95.8	85.0	115	----
Physical Tests (QCLot: 276448)									
solids, total suspended [TSS]	----	E160S	2	mg/L	150 mg/L	98.2	85.0	115	----
Physical Tests (QCLot: 276449)									
solids, total dissolved [TDS]	----	E162S	10	mg/L	1000 mg/L	99.0	85.0	115	----
Anions and Nutrients (QCLot: 276227)									
bromide	24959-67-9	E235S.Br	5	mg/L	0.5 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 276228)									
chloride	16887-00-6	E235S.Cl	50	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 276229)									
fluoride	16984-48-8	E235S.F-L	0.2	mg/L	1 mg/L	96.4	90.0	110	----
Anions and Nutrients (QCLot: 276230)									
nitrate (as N)	14797-55-8	E235S.NO3-T	0.01	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 276231)									
nitrite (as N)	14797-65-0	E235S.NO2-L	0.01	mg/L	0.5 mg/L	96.5	90.0	110	----
Anions and Nutrients (QCLot: 276232)									
sulfate (as SO4)	14808-79-8	E235S.SO4-L	3	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 278671)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	95.3	85.0	115	----
Anions and Nutrients (QCLot: 278672)									
phosphorus, total	7723-14-0	E372S	0.002	mg/L	0.05 mg/L	93.9	80.0	120	----
Anions and Nutrients (QCLot: 278674)									
Kjeldahl nitrogen, total [TKN]	----	E318S	0.05	mg/L	4 mg/L	104	75.0	125	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 277906)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	99.6	80.0	120	----
Organic / Inorganic Carbon (QCLot: 278673)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	92.6	80.0	120	----
Total Metals (QCLot: 275621)									
aluminum, total	7429-90-5	E468S	0.005	mg/L	2 mg/L	103	80.0	120	----
antimony, total	7440-36-0	E468S	0.001	mg/L	1 mg/L	103	80.0	120	----
arsenic, total	7440-38-2	E468S	0.0004	mg/L	1 mg/L	102	80.0	120	----
barium, total	7440-39-3	E468S	0.001	mg/L	0.25 mg/L	106	80.0	120	----
beryllium, total	7440-41-7	E468S	0.0005	mg/L	0.1 mg/L	103	80.0	120	----
bismuth, total	7440-69-9	E468S	0.0005	mg/L	1 mg/L	109	80.0	120	----
cadmium, total	7440-43-9	E468S	0.00001	mg/L	0.1 mg/L	106	80.0	120	----
calcium, total	7440-70-2	E468S	1	mg/L	50 mg/L	103	80.0	120	----
cesium, total	7440-46-2	E468S	0.0005	mg/L	0.05 mg/L	97.7	80.0	120	----
chromium, total	7440-47-3	E468S	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
cobalt, total	7440-48-4	E468S	0.00005	mg/L	0.25 mg/L	107	80.0	120	----
copper, total	7440-50-8	E468S	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
gallium, total	7440-55-3	E468S	0.0005	mg/L	0.25 mg/L	108	80.0	120	----
iron, total	7439-89-6	E468S	0.01	mg/L	1 mg/L	107	80.0	120	----
lead, total	7439-92-1	E468S	0.00005	mg/L	0.5 mg/L	110	80.0	120	----
lithium, total	7439-93-2	E468S	0.02	mg/L	0.25 mg/L	107	80.0	120	----
magnesium, total	7439-95-4	E468S	1	mg/L	50 mg/L	101	80.0	120	----
manganese, total	7439-96-5	E468S	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
molybdenum, total	7439-98-7	E468S	0.0001	mg/L	0.25 mg/L	99.3	80.0	120	----
nickel, total	7440-02-0	E468S	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
phosphorus, total	7723-14-0	E468S	0.05	mg/L	10 mg/L	106	80.0	120	----
potassium, total	7440-09-7	E468S	1	mg/L	50 mg/L	105	80.0	120	----
rhenium, total	7440-15-5	E468S	0.0005	mg/L	0.1 mg/L	101	80.0	120	----
rubidium, total	7440-17-7	E468S	0.005	mg/L	0.1 mg/L	105	80.0	120	----
selenium, total	7782-49-2	E468S	0.0005	mg/L	1 mg/L	114	80.0	120	----
silver, total	7440-22-4	E468S	0.0001	mg/L	0.1 mg/L	107	80.0	120	----
strontium, total	7440-24-6	E468S	0.01	mg/L	0.25 mg/L	103	80.0	120	----
sulfur, total	7704-34-9	E468S	5	mg/L	50 mg/L	94.4	80.0	120	----
tellurium, total	13494-80-9	E468S	0.0005	mg/L	0.1 mg/L	109	80.0	120	----
thallium, total	7440-28-0	E468S	0.00005	mg/L	1 mg/L	99.0	80.0	120	----
thorium, total	7440-29-1	E468S	0.0005	mg/L	0.1 mg/L	94.4	80.0	120	----
tin, total	7440-31-5	E468S	0.001	mg/L	0.5 mg/L	98.9	80.0	120	----





Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 275621) - continued									
titanium, total	7440-32-6	E468S	0.005	mg/L	0.25 mg/L	101	80.0	120	----
tungsten, total	7440-33-7	E468S	0.001	mg/L	0.1 mg/L	97.4	80.0	120	----
uranium, total	7440-61-1	E468S	0.00005	mg/L	0.005 mg/L	101	80.0	120	----
vanadium, total	7440-62-2	E468S	0.0005	mg/L	0.5 mg/L	99.6	80.0	120	----
yttrium, total	7440-65-5	E468S	0.0005	mg/L	0.1 mg/L	96.7	80.0	120	----
zinc, total	7440-66-6	E468S	0.003	mg/L	0.5 mg/L	112	80.0	120	----
zirconium, total	7440-67-7	E468S	0.0005	mg/L	0.1 mg/L	95.4	80.0	120	----
Total Metals (QCLot: 275622)									
silicon, total	7440-21-3	E468S.NaSi	1	mg/L	10 mg/L	98.3	80.0	120	----
sodium, total	17341-25-2	E468S.NaSi	2.5	mg/L	50 mg/L	103	80.0	120	----
Total Metals (QCLot: 277628)									
mercury, total	7439-97-6	E508S	0.000005	mg/L	0.0001 mg/L	94.0	80.0	120	----
Dissolved Metals (QCLot: 276744)									
aluminum, dissolved	7429-90-5	E469S	0.005	mg/L	2 mg/L	101	80.0	120	----
antimony, dissolved	7440-36-0	E469S	0.001	mg/L	1 mg/L	99.6	80.0	120	----
arsenic, dissolved	7440-38-2	E469S	0.0004	mg/L	1 mg/L	106	80.0	120	----
barium, dissolved	7440-39-3	E469S	0.001	mg/L	0.25 mg/L	107	80.0	120	----
beryllium, dissolved	7440-41-7	E469S	0.0005	mg/L	0.1 mg/L	108	80.0	120	----
bismuth, dissolved	7440-69-9	E469S	0.0005	mg/L	1 mg/L	96.8	80.0	120	----
boron, dissolved	7440-42-8	E469S	0.3	mg/L	10 mg/L	98.0	80.0	120	----
cadmium, dissolved	7440-43-9	E469S	0.00001	mg/L	0.1 mg/L	105	80.0	120	----
calcium, dissolved	7440-70-2	E469S	1	mg/L	50 mg/L	102	80.0	120	----
cesium, dissolved	7440-46-2	E469S	0.0005	mg/L	0.05 mg/L	92.7	80.0	120	----
chromium, dissolved	7440-47-3	E469S	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
cobalt, dissolved	7440-48-4	E469S	0.00005	mg/L	0.25 mg/L	107	80.0	120	----
copper, dissolved	7440-50-8	E469S	0.0002	mg/L	0.25 mg/L	108	80.0	120	----
gallium, dissolved	7440-55-3	E469S	0.0005	mg/L	0.25 mg/L	105	80.0	120	----
iron, dissolved	7439-89-6	E469S	0.01	mg/L	1 mg/L	104	80.0	120	----
lead, dissolved	7439-92-1	E469S	0.00005	mg/L	0.5 mg/L	108	80.0	120	----
lithium, dissolved	7439-93-2	E469S	0.02	mg/L	0.25 mg/L	104	80.0	120	----
magnesium, dissolved	7439-95-4	E469S	1	mg/L	50 mg/L	110	80.0	120	----
manganese, dissolved	7439-96-5	E469S	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
molybdenum, dissolved	7439-98-7	E469S	0.0001	mg/L	0.25 mg/L	96.6	80.0	120	----
nickel, dissolved	7440-02-0	E469S	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
phosphorus, dissolved	7723-14-0	E469S	0.05	mg/L	10 mg/L	90.2	80.0	120	----
potassium, dissolved	7440-09-7	E469S	1	mg/L	50 mg/L	106	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 276744) - continued									
rhodium, dissolved	7440-15-5	E469S	0.0005	mg/L	0.1 mg/L	99.5	80.0	120	----
rubidium, dissolved	7440-17-7	E469S	0.005	mg/L	0.1 mg/L	104	80.0	120	----
selenium, dissolved	7782-49-2	E469S	0.0005	mg/L	1 mg/L	120	80.0	120	----
silver, dissolved	7440-22-4	E469S	0.0001	mg/L	0.1 mg/L	104	80.0	120	----
strontium, dissolved	7440-24-6	E469S	0.01	mg/L	0.25 mg/L	100.0	80.0	120	----
sulfur, dissolved	7704-34-9	E469S	5	mg/L	50 mg/L	97.1	80.0	120	----
tellurium, dissolved	13494-80-9	E469S	0.0005	mg/L	0.1 mg/L	119	80.0	120	----
thallium, dissolved	7440-28-0	E469S	0.00005	mg/L	1 mg/L	99.1	80.0	120	----
thorium, dissolved	7440-29-1	E469S	0.0005	mg/L	0.1 mg/L	87.7	80.0	120	----
tin, dissolved	7440-31-5	E469S	0.001	mg/L	0.5 mg/L	95.0	80.0	120	----
titanium, dissolved	7440-32-6	E469S	0.005	mg/L	0.25 mg/L	104	80.0	120	----
tungsten, dissolved	7440-33-7	E469S	0.001	mg/L	0.1 mg/L	95.6	80.0	120	----
uranium, dissolved	7440-61-1	E469S	0.00005	mg/L	0.005 mg/L	99.2	80.0	120	----
vanadium, dissolved	7440-62-2	E469S	0.0005	mg/L	0.5 mg/L	99.9	80.0	120	----
yttrium, dissolved	7440-65-5	E469S	0.0005	mg/L	0.1 mg/L	94.2	80.0	120	----
zinc, dissolved	7440-66-6	E469S	0.001	mg/L	0.5 mg/L	115	80.0	120	----
zirconium, dissolved	7440-67-7	E469S	0.0005	mg/L	0.1 mg/L	93.7	80.0	120	----
silicon, dissolved	7440-21-3	E469S.NaSi	1	mg/L	10 mg/L	102	80.0	120	----
sodium, dissolved	17341-25-2	E469S.NaSi	2.5	mg/L	50 mg/L	107	80.0	120	----
mercury, dissolved	7439-97-6	E509S	0.000005	mg/L	0.0001 mg/L	99.3	80.0	120	----
Volatile Organic Compounds (QCLot: 279502)									
benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	102	70.0	130	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	103	70.0	130	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	105	70.0	130	----
styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	101	70.0	130	----
toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	108	70.0	130	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	112	70.0	130	----
xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	101	70.0	130	----
Volatile Organic Compounds (QCLot: 279811)									
benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	97.8	70.0	130	----
ethylbenzene	100-41-4	E611A	0.5	µg/L	100 µg/L	89.5	70.0	130	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	µg/L	100 µg/L	103	70.0	130	----
styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	96.4	70.0	130	----
toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	97.6	70.0	130	----
xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	107	70.0	130	----
xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	98.0	70.0	130	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Hydrocarbons (QCLot: 278286)									
F2 (C10-C16)	----	E601	100	µg/L	3538 µg/L	110	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7053 µg/L	100	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5051 µg/L	99.2	70.0	130	----
Hydrocarbons (QCLot: 279503)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	92.2	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	92.0	70.0	130	----
Hydrocarbons (QCLot: 279810)									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	95.4	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	87.2	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 278285)									
acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	98.8	60.0	130	----
acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	121	60.0	130	----
benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	120	60.0	130	----
benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	99.6	60.0	130	----
benzo(b+j)fluoranthene	----	E641A	0.01	µg/L	0.5 µg/L	74.5	60.0	130	----
benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	89.8	60.0	130	----
benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	78.2	60.0	130	----
chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	109	60.0	130	----
dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	105	60.0	130	----
fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	106	60.0	130	----
fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	109	60.0	130	----
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	130	60.0	130	----
methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	107	60.0	130	----
naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	103	50.0	130	----
phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	109	60.0	130	----
pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	110	60.0	130	----
quinoline	6027-02-7	E641A	0.05	µg/L	0.5 µg/L	106	60.0	130	----



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 276227)										
VA21B7949-002	MP-06 North	bromide	24959-67-9	E235S.Br	52.5 mg/L	50 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 276228)										
VA21B7949-002	MP-06 North	chloride	16887-00-6	E235S.Cl	ND mg/L	10000 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 276229)										
VA21B7949-002	MP-06 North	fluoride	16984-48-8	E235S.F-L	7.86 mg/L	10 mg/L	78.6	75.0	125	----
Anions and Nutrients (QCLot: 276230)										
VA21B7949-002	MP-06 North	nitrate (as N)	14797-55-8	E235S.NO3-T	7.64 mg/L	7.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 276231)										
VA21B7949-002	MP-06 North	nitrite (as N)	14797-65-0	E235S.NO2-L	4.37 mg/L	5 mg/L	87.4	75.0	125	----
Anions and Nutrients (QCLot: 276232)										
VA21B7949-002	MP-06 North	sulfate (as SO4)	14808-79-8	E235S.SO4-L	ND mg/L	1000 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 278671)										
VA21B7949-002	MP-06 North	ammonia, total (as N)	7664-41-7	E298	0.101 mg/L	0.1 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 278672)										
VA21B7949-002	MP-06 North	phosphorus, total	7723-14-0	E372S	0.0935 mg/L	0.1 mg/L	93.5	70.0	130	----
Anions and Nutrients (QCLot: 278674)										
VA21B7949-002	MP-06 North	Kjeldahl nitrogen, total [TKN]	----	E318S	2.83 mg/L	2.5 mg/L	113	70.0	130	----
Organic / Inorganic Carbon (QCLot: 277906)										
VA21B7949-002	MP-06 North	carbon, dissolved organic [DOC]	----	E358-L	4.99 mg/L	5 mg/L	99.8	70.0	130	----
Organic / Inorganic Carbon (QCLot: 278673)										
VA21B7949-002	MP-06 North	carbon, total organic [TOC]	----	E355-L	5.01 mg/L	5 mg/L	100	70.0	130	----
Total Metals (QCLot: 275621)										
VA21B7949-002	MP-06 North	aluminum, total	7429-90-5	E468S	0.495 mg/L	0.4 mg/L	124	70.0	130	----
		antimony, total	7440-36-0	E468S	0.0363 mg/L	0.04 mg/L	90.8	70.0	130	----
		arsenic, total	7440-38-2	E468S	0.0366 mg/L	0.04 mg/L	91.5	70.0	130	----
		barium, total	7440-39-3	E468S	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		beryllium, total	7440-41-7	E468S	0.0957 mg/L	0.08 mg/L	120	70.0	130	----
		bismuth, total	7440-69-9	E468S	0.0157 mg/L	0.02 mg/L	78.4	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 275621) - continued										
VA21B7949-002	MP-06 North	boron, total	7440-42-8	E468S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, total	7440-43-9	E468S	0.00682 mg/L	0.008 mg/L	85.3	70.0	130	----
		calcium, total	7440-70-2	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E468S	0.0189 mg/L	0.02 mg/L	94.3	70.0	130	----
		chromium, total	7440-47-3	E468S	0.0886 mg/L	0.08 mg/L	111	70.0	130	----
		cobalt, total	7440-48-4	E468S	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		copper, total	7440-50-8	E468S	0.0344 mg/L	0.04 mg/L	86.0	70.0	130	----
		gallium, total	7440-55-3	E468S	0.00615 mg/L	0.005 mg/L	123	70.0	130	----
		iron, total	7439-89-6	E468S	4.16 mg/L	4 mg/L	104	70.0	130	----
		lead, total	7439-92-1	E468S	0.0329 mg/L	0.04 mg/L	82.2	70.0	130	----
		lithium, total	7439-93-2	E468S	0.234 mg/L	0.2 mg/L	117	70.0	130	----
		magnesium, total	7439-95-4	E468S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E468S	0.0446 mg/L	0.04 mg/L	111	70.0	130	----
		molybdenum, total	7439-98-7	E468S	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
		nickel, total	7440-02-0	E468S	0.0717 mg/L	0.08 mg/L	89.6	70.0	130	----
		phosphorus, total	7723-14-0	E468S	23.9 mg/L	20 mg/L	120	70.0	130	----
		potassium, total	7440-09-7	E468S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenium, total	7440-15-5	E468S	0.00449 mg/L	0.005 mg/L	89.8	70.0	130	----
		rubidium, total	7440-17-7	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		selenium, total	7782-49-2	E468S	0.0800 mg/L	0.08 mg/L	100.0	70.0	130	----
		silver, total	7440-22-4	E468S	0.00673 mg/L	0.008 mg/L	84.1	70.0	130	----
		strontium, total	7440-24-6	E468S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E468S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, total	13494-80-9	E468S	0.0629 mg/L	0.08 mg/L	78.7	70.0	130	----
		thallium, total	7440-28-0	E468S	0.00649 mg/L	0.008 mg/L	81.2	70.0	130	----
		thorium, total	7440-29-1	E468S	0.0374 mg/L	0.04 mg/L	93.6	70.0	130	----
		tin, total	7440-31-5	E468S	0.0345 mg/L	0.04 mg/L	86.2	70.0	130	----
		titanium, total	7440-32-6	E468S	0.100 mg/L	0.08 mg/L	125	70.0	130	----
		tungsten, total	7440-33-7	E468S	0.0364 mg/L	0.04 mg/L	90.9	70.0	130	----
		uranium, total	7440-61-1	E468S	0.00690 mg/L	0.008 mg/L	86.3	70.0	130	----
		vanadium, total	7440-62-2	E468S	0.230 mg/L	0.2 mg/L	115	70.0	130	----
		yttrium, total	7440-65-5	E468S	0.0124 mg/L	0.01 mg/L	124	70.0	130	----
		zinc, total	7440-66-6	E468S	0.669 mg/L	0.8 mg/L	83.6	70.0	130	----
		zirconium, total	7440-67-7	E468S	0.0856 mg/L	0.08 mg/L	107	70.0	130	----
Total Metals (QCLot: 275622)										
VA21B7949-002	MP-06 North	silicon, total	7440-21-3	E468S.NaSi	459 mg/L	500 mg/L	91.8	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 275622) - continued										
VA21B7949-002	MP-06 North	sodium, total	17341-25-2	E468S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Total Metals (QCLot: 277628)										
VA21B7949-002	MP-06 North	mercury, total	7439-97-6	E508S	0.0000904 mg/L	0.0001 mg/L	90.4	70.0	130	----
Dissolved Metals (QCLot: 276744)										
VA21B7949-002	MP-06 North	aluminum, dissolved	7429-90-5	E469S	0.516 mg/L	0.4 mg/L	129	70.0	130	----
		antimony, dissolved	7440-36-0	E469S	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	----
		arsenic, dissolved	7440-38-2	E469S	0.0361 mg/L	0.04 mg/L	90.2	70.0	130	----
		barium, dissolved	7440-39-3	E469S	0.0428 mg/L	0.04 mg/L	107	70.0	130	----
		beryllium, dissolved	7440-41-7	E469S	0.0950 mg/L	0.08 mg/L	119	70.0	130	----
		bismuth, dissolved	7440-69-9	E469S	0.0168 mg/L	0.02 mg/L	84.1	70.0	130	----
		boron, dissolved	7440-42-8	E469S	ND mg/L	0.2 mg/L	ND	70.0	130	----
		cadmium, dissolved	7440-43-9	E469S	0.00667 mg/L	0.008 mg/L	83.4	70.0	130	----
		calcium, dissolved	7440-70-2	E469S	ND mg/L	8 mg/L	ND	70.0	130	----
		cesium, dissolved	7440-46-2	E469S	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		chromium, dissolved	7440-47-3	E469S	0.0871 mg/L	0.08 mg/L	109	70.0	130	----
		cobalt, dissolved	7440-48-4	E469S	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		copper, dissolved	7440-50-8	E469S	0.0332 mg/L	0.04 mg/L	83.1	70.0	130	----
		gallium, dissolved	7440-55-3	E469S	0.00581 mg/L	0.005 mg/L	116	70.0	130	----
		iron, dissolved	7439-89-6	E469S	4.18 mg/L	4 mg/L	105	70.0	130	----
		lead, dissolved	7439-92-1	E469S	0.0352 mg/L	0.04 mg/L	88.1	70.0	130	----
		lithium, dissolved	7439-93-2	E469S	0.229 mg/L	0.2 mg/L	114	70.0	130	----
		magnesium, dissolved	7439-95-4	E469S	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E469S	0.0445 mg/L	0.04 mg/L	111	70.0	130	----
		molybdenum, dissolved	7439-98-7	E469S	0.0447 mg/L	0.04 mg/L	112	70.0	130	----
		nickel, dissolved	7440-02-0	E469S	0.0697 mg/L	0.08 mg/L	87.1	70.0	130	----
		phosphorus, dissolved	7723-14-0	E469S	20.3 mg/L	20 mg/L	101	70.0	130	----
		potassium, dissolved	7440-09-7	E469S	ND mg/L	8 mg/L	ND	70.0	130	----
		rhenum, dissolved	7440-15-5	E469S	0.00424 mg/L	0.005 mg/L	84.8	70.0	130	----
		rubidium, dissolved	7440-17-7	E469S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		selenium, dissolved	7782-49-2	E469S	0.0763 mg/L	0.08 mg/L	95.4	70.0	130	----
		silver, dissolved	7440-22-4	E469S	0.00737 mg/L	0.008 mg/L	92.2	70.0	130	----
		strontium, dissolved	7440-24-6	E469S	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E469S	ND mg/L	40 mg/L	ND	70.0	130	----
		tellurium, dissolved	13494-80-9	E469S	0.0683 mg/L	0.08 mg/L	85.3	70.0	130	----
		thallium, dissolved	7440-28-0	E469S	0.00688 mg/L	0.008 mg/L	85.9	70.0	130	----
		thorium, dissolved	7440-29-1	E469S	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----



Sub-Matrix: Water					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 276744) - continued										
VA21B7949-002	MP-06 North	tin, dissolved	7440-31-5	E469S	0.0370 mg/L	0.04 mg/L	92.4	70.0	130	----
		titanium, dissolved	7440-32-6	E469S	0.103 mg/L	0.08 mg/L	129	70.0	130	----
		tungsten, dissolved	7440-33-7	E469S	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		uranium, dissolved	7440-61-1	E469S	0.00739 mg/L	0.008 mg/L	92.4	70.0	130	----
		vanadium, dissolved	7440-62-2	E469S	0.230 mg/L	0.2 mg/L	115	70.0	130	----
		yttrium, dissolved	7440-65-5	E469S	0.00592 mg/L	0.005 mg/L	118	70.0	130	----
		zinc, dissolved	7440-66-6	E469S	0.656 mg/L	0.8 mg/L	82.0	70.0	130	----
		zirconium, dissolved	7440-67-7	E469S	0.0930 mg/L	0.08 mg/L	116	70.0	130	----
Dissolved Metals (QCLot: 276745)										
VA21B7949-002	MP-06 North	silicon, dissolved	7440-21-3	E469S.NaSi	479 mg/L	500 mg/L	95.8	70.0	130	----
		sodium, dissolved	17341-25-2	E469S.NaSi	ND mg/L	100 mg/L	ND	70.0	130	----
Dissolved Metals (QCLot: 277158)										
VA21B7949-002	MP-06 North	mercury, dissolved	7439-97-6	E509S	0.0000964 mg/L	0.0001 mg/L	96.4	70.0	130	----
Volatile Organic Compounds (QCLot: 279502)										
VA21B7908-002	Anonymous	benzene	71-43-2	E611A	98.5 µg/L	100 µg/L	98.5	60.0	140	----
		ethylbenzene	100-41-4	E611A	99.7 µg/L	100 µg/L	99.7	60.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	102 µg/L	100 µg/L	102	60.0	140	----
		styrene	100-42-5	E611A	98.9 µg/L	100 µg/L	98.9	60.0	140	----
		toluene	108-88-3	E611A	103 µg/L	100 µg/L	103	60.0	140	----
		xylene, m+p-	179601-23-1	E611A	221 µg/L	200 µg/L	110	60.0	140	----
		xylene, o-	95-47-6	E611A	99.4 µg/L	100 µg/L	99.4	60.0	140	----
Volatile Organic Compounds (QCLot: 279811)										
VA21B7949-009	MP-05-Source-FBLANK3	benzene	71-43-2	E611A	87.3 µg/L	100 µg/L	87.3	60.0	140	----
		ethylbenzene	100-41-4	E611A	80.4 µg/L	100 µg/L	80.4	60.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	98.6 µg/L	100 µg/L	98.6	60.0	140	----
		styrene	100-42-5	E611A	86.9 µg/L	100 µg/L	86.9	60.0	140	----
		toluene	108-88-3	E611A	80.6 µg/L	100 µg/L	80.6	60.0	140	----
		xylene, m+p-	179601-23-1	E611A	190 µg/L	200 µg/L	94.8	60.0	140	----
		xylene, o-	95-47-6	E611A	87.9 µg/L	100 µg/L	87.9	60.0	140	----
Hydrocarbons (QCLot: 279503)										
VA21B7949-001	MP-06 Source	F1 (C6-C10)	----	E581.VH+F1	5450 µg/L	6310 µg/L	86.4	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	5330 µg/L	6310 µg/L	84.4	60.0	140	----
Hydrocarbons (QCLot: 279810)										
VA21B8055-001	Anonymous	F1 (C6-C10)	----	E581.VH+F1	4360 µg/L	6310 µg/L	69.2	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	3940 µg/L	6310 µg/L	62.5	60.0	140	----







COC Number: 20 - 920786

**Canada Toll Free: 1 800 668 9878**

Page of

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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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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**.

Environmental Division  
Vancouver  
Work Order Reference  
**VA21B7949**



Telephone : +1 604 253 4189

AUG 20TH FRON

**APPENDIX 2C**

# Marine Water Quality - Screening Table

Appendix XX: Water Quality Screening  
Table for Marine Environmental Effects Monitoring Program 2021

Station		Sample Date		FIELD SDC		MP-05 ENE		2021-08-08		2021-08-14		2021-08-02		2021-08-16		MP-05 North		2021-08-08		2021-08-14		2021-08-08		2021-08-14		MP-05-Source		2021-08-16		2021-08-19		2021-08-02		2021-08-16		MP-05 WNW		2021-08-08		2021-08-14				
SAMPLE_TYPE_CODE		VA2186250		VA2187539		VA2187949		VA2186876		Y12101029		VA2186250		VA2186250		VA2186250		VA2186876		Y12101029		VA2186876		Y12101029		VA2186250		VA2187539		VA2187949		VA2186250		VA2187539		VA2187949		VA2186876		Y12101029				
Parameter	CCME AQUATIC MARINE WATER - LONG TERM	CCME AQUATIC MARINE WATER - SHORT TERM	Unit																																									
Anions + Nutrients																																												
Alkalinity, Total as CaCO3			µg/L	91800	90200	92400	85600	102000	85700	87400	90800	91600	93100	92700	88100	86800	88900	91000	88800	89100	91900	91900	95900																					
Bromide (Br)			µg/L	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000	22000		
Chloride (Cl)			µg/L	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000	720000
Fluoride (F)			µg/L	320	280	<200	630	760	260	220	210	660	620	650	250	240	200	<200	290	240	<200	660	700																					
Nitrate (as N)		339000	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
Nitrite (as N)			µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10		
Ammonia (as N)			µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0		
Total Kjeldahl Nitrogen			µg/L	96	94	100	84	<90	80	92	88	84	<90	106	<90	85	<90	115	85	97	88	89	<90																					
Sulfate (SO4)			µg/L	1060000	652000	398000	1690000	2080000	779000	508000	509000	1840000	1600000	1870000	270000	788000	440000	395000	912000	559000	482000	1890000	1900000																					
Phosphorus, Total			µg/L	10.7	7.7	17.1	17.7	16.8	14.3	7.6	16.3	14.3	15.0	17.5	18.1	11.1	9.7	10.8	7.4	17.1	18.3	18.3																						
Phosphorus, Dissolved			µg/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50		
Carbons																																												
Dissolved Organic Carbon			µg/L	1380	1160	1530	1790	1030	<500	1220	1470	1340	970	1270	1040	1150	1340	1150	1140	1340	1060	990																						
Field - Physical																																												
Conductivity			uS/cm	21900	14200	9730	33500	40100	16800	11100	11900	37000	31500	37300	12100	15900	9690	9470	19600	12300	11200	36600	37100																					
Total Dissolved Solids			µg/L	14100000	8100000	6390000	24400000	26000000	6300000	5000000	5000000	25000000	21400000	25000000	7000000	10500000	5730000	5690000	21400000	7070000	2300000	2300000	2300000																					
Total Suspended Solids			µg/L	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	<2000	
Turbidity			NTU	0.40	0.39	0.40	0.41	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40		
Salinity			PSU	33.2	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0		
Total Organic Carbon			µg/L	970	1220	1390	840	960	930	1240	1400	780	940	790	980	1040	1040	1240	1540	890	1150	1040	970																					
Dissolved Organic Carbon			µg/L	1380	1160	1530	1790	1030	500	1220	1470	1340	970	1270	1040	1150	1340	1150	1140	1340	1060	990																						
Hardness, Calcium Carbonate (Dissolved)			µg/L	2440000	1340000	1020000	4860000	5900000	3990000	1100000	1270000	4860000	3240000	4730000	1740000	1830000	1830000	2300000	2200000	2300000	2200000	2300000	2300000																					
Hardness, Calcium Carbonate (Total)			µg/L	2770000																																								
Hydrocarbons																																												
Aceaphthalene			µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		
Acephenanthylene			µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		
Acridine			µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Anthracene			µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Benz[a]anthracene			µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Benz[a]pyrene			µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Benz[b]a]perylene			µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Benz[b]fluoranthene			µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Chrysene			µg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<																		



**APPENDIX 2D**

**QA/QC**

## 1.0 QAQC RESULTS

This appendix describes the QAQC results for surface water sampled for the 2021 MEEMP conducted at Milne Port and in Milne Inlet during the 2021 open-water season. Water quality samples were collected during five sampling events scheduled between 2 August and 19 August 2021, to monitor for potential changes in water quality associated with site drainage and treated effluent discharges to the marine environment (including iron ore stockpile run-off). Samples were collected weekly over this period; however, the fourth and fifth sampling events were conducted two days apart to align with the confirmed active site discharge at MP-05. Four additional water quality stations downstream from discharge MP-06 were monitored in 2021, similar to 2020.

Most chemical analyses on surface water samples were completed within the sample hold time requirements, with the exception of some hold time exceedances for parameters such as DOC, anions, and nutrients (nitrite, nitrate), TDS, and turbidity. Although hold time exceedances were documented, the hold times for the parameters in question are relatively short, and given the remote location of the site, such exceedances were unavoidable. The data should still be comparable to previous yearly measurements as similar issues with hold time exceedances have been encountered on an annual basis.

ALS is certified by the Canadian Association for Laboratory Accreditation (CALA) for the analyses conducted. The analytical laboratory also incorporated and reported the results of internal QA/QC checks. These were used to assess the reliability, accuracy, and reproducibility of the data. Reports from the laboratory are provided in Appendix 2B and were reviewed by Golder. Data reported by the laboratory were considered reliable according to the accredited laboratory QA/QC assessment.

From the field blanks collected during the field program, measured concentrations were all less than the analytical detection limit (Table 1). Sample detection limits were increased by ALS for dissolved hardness, TDS, and total phosphorus.

To demonstrate that the samples and analytical results can be considered valid, representative, and reproducible, five field duplicate samples were collected. The RPD between field duplicate sample results was used to assess duplicate sample data. The RPD is a measure of the variability between two outcomes from the same procedure or process and is calculated as:

$$RPD = \frac{\text{absolute value (sample concentration - duplicate concentration)}}{\text{mean concentration}} \times 100$$

An RPD less than 20% for inorganic parameters in water is considered acceptable (BC ENV 2020<sup>1</sup>). The QA/QC results of field RPDs are provided in Table 2 below. For this sample pair, the data quality objective of RPDs less than 20% were met, where they could be calculated, except for one instance of dissolved uranium (23%) and one instance of turbidity (74%) (Table 2). Where the parameter concentrations were less than five times the detection limit, a difference factor (DF)<sup>2</sup> was calculated and all DFs were below 2 except for one instance, where nitrate had a DF of 2.1.

Based on the above assessment, the QA/QC results indicate that the water chemistry data collected during the 2021 MEEMP were of acceptable quality.

<sup>1</sup> BC ENV (British Columbia Ministry of Environment and Climate Change Strategy). 2020. British Columbia Environmental Laboratory Manual, Section A: Laboratory Quality Assurance/Quality Control. 2020 Edition. April 2020. Available online at: <<https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/lab-manual/title-page-2020.pdf>>.

<sup>2</sup> Absolute difference between two values divided by the method detection limit



Table 1 - Results of Water Quality QA/QC Duplicate Sample Results  
Milne Port, 2021

Sample ID		MP-05 Source	DUP-A	Reported	Mean	Relative	Difference	MP-06 Source	DUP-B	Reported	Mean	Relative	Difference	MP-05 ENE	DUP-C	Reported	Mean	Relative	Difference	TR Ref1	DUP-D	Reported	Mean	Relative	Difference
Date Sampled	Units	2021-08-02	2021-08-02	Detection		Percent	Factor (DF)	2021-08-16	2021-08-08	Detection		Percent	Factor (DF)	2021-08-16	2021-08-16	Detection		Percent	Factor (DF)	2021-08-15	2021-08-15	Detection		Percent	Factor (DF)
Laboratory ID		VA21B6250	VA21B6250	Limit				VA21B7539	VA21B6876	Limit				VA21B7539	VA21B7539	Limit				VA21B7536	VA21B7536	Limit			
QA/QC		FDA	FD			(RPD)		FDA	FD			(RPD)		FDA	FD			(RPD)		FDA	FD			(RPD)	
Anions and Nutrients																									
Alkalinity, Total as CaCO3	µg/L	86800	88000	1000	87400	1%	NA	92900	92900	1000	92900	0%	NA	90200	89700	1000	89950	1%	NA	93400	92400	1000	92900	1%	NA
Bromide (Br)	µg/L	18200	18500	5000	18350	NA	0.1	50500	49100	5000	49800	3%	NA	15400	13200	5000	14300	NA	0.4	44500	42600	5000	43550	4%	NA
Chloride (Cl)	µg/L	5320000	5440000	50000	5380000	2%	NA	14500000	14200000	50000	14350000	2%	NA	4740000	4170000	50000	4455000	13%	NA	13000000	12600000	50000	12800000	3%	NA
Fluoride (F)	µg/L	240	250	200	245	NA	0.1	600	680	200	640	NA	0.4	280	250	200	265	NA	0.2	560	600	200	580	NA	0.2
Nitrate (as N)	µg/L	53	53	10	53.0	0%	NA	< 10	< 10	10	NC	NC	NC	28	49	10	39	NA	2.1	< 10	18	10	NC	NC	NC
Nitrite (as N)	µg/L	< 10	< 10	10	NC	NC	NC	< 10	< 10	10	NC	NC	NC	< 10	< 10	10	NC	NC	NC	< 10	< 10	10	NC	NC	NC
Ammonia (as N)	µg/L	< 5.0	< 5.0	5	NC	NC	NC	< 5.0	< 5.0	5	NC	NC	NC	< 5.0	< 5.0	5	NC	NC	NC	< 5.0	< 5.0	5	NC	NC	NC
Total Kjeldahl Nitrogen	µg/L	85	92	50	89	NA	0.1	87	84	50	86	NA	0.1	94	85	50	90	NA	0.2	68	73	50	71	NA	0.1
Sulfate (SO4)	µg/L	738000	739000	3000	738500	0%	NA	1880000	1950000	3000	1915000	4%	NA	652000	582000	3000	617000	11%	NA	1790000	1790000	3000	1790000	0%	NA
Field and Physical																									
pH	pH Units	7.98	7.98	0.1	7.98	0%	NA	8.01	7.99	0.1	8	0%	NA	8.01	7.97	0.1	7.99	1%	NA	7.89	7.9	0.1	7.90	0%	NA
Conductivity	uS/cm	15900	16000	2.0	15950	1%	NA	37300	37300	2.0	37300	0%	NA	14200	12600	2.0	13400	12%	NA	36900	37300	2.0	37100	1%	NA
Total Dissolved Solids	µg/L	10500000	9250000	10000	9875000	13%	NA	27900000	25800000	10000	26850000	8%	NA	8100000	7420000	10000	7760000	9%	NA	27600000	25600000	10000	26600000	8%	NA
Total Suspended Solids	µg/L	< 2000	< 2000	2000	NC	NC	NC	< 2000	< 2000	2000	NC	NC	NC	< 2000	< 2000	2000	NC	NC	NC	< 2000	< 2000	2000	NC	NC	NC
Turbidity	NTU	0.37	0.38	0.10	0.38	NA	0.1	< 0.10	0.16	0.10	NC	NC	NC	0.99	0.81	0.10	0.90	20%	NA	1.45	0.67	0.10	1.1	74%	NA
Salinity	PSU	9.3	9.4	1.0	9.4	1%	NA	24.4	24.4	1.0	24.4	0%	NA	8.0	7.0	1.0	7.5	13%	NA	22.8	23.1	1.0	23.0	1%	NA
Total Organic Carbon	µg/L	1040	960	500	1000	NA	0.2	830	920	500	875	NA	0.2	1220	1160	500	1190	NA	0.1	810	790	500	800	NA	0.0
Dissolved Organic Carbon	µg/L	1150	1010	500	1080	NA	0.3	900	1180	500	1040	NA	0.6	1160	1080	500	1120	NA	0.2	1130	950	500	1040	NA	0.4
Hardness, Calcium Carbonate (Dissolved)	µg/L	1830000	1860000	500	1845000	2%	NA	4720000	4630000	500	4675000	2%	NA	1340000	1260000	500	1300000	6%	NA	4300000	4250000	500	4275000	1%	NA
Hardness, Calcium Carbonate (Total)	µg/L	1930000	1980000	600	1955000	3%	NA	-	-	600	NC	NC	NC	-	-	600	NC	NC	NC	-	-	600	NC	NC	NC
Metals, Dissolved																									
Aluminum (Al)	µg/L	< 5.0	< 5.0	5	NC	NC	NC	< 5.0	< 5.0	5	NC	NC	NC	< 5.0	5.1	5	NC	NC	NC	< 5.0	< 5.0	5	NC	NC	NC
Antimony (Sb)	µg/L	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC
Arsenic (As)	µg/L	0.48	0.47	0.4	0.48	NA	0.0	1.15	1.22	0.4	1.19	NA	0.2	0.40	< 0.40	0.4	NC	NC	NC	1.07	1.00	0.4	1.04	NA	0.2
Barium (Ba)	µg/L	4.7	4.8	1	4.8	NA	0.1	6.8	7.0	1	6.9	3%	NA	4.6	4.5	1	4.6	NA	0.1	7.1	7.1	1	7.1	0%	NA
Beryllium (Be)	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Bismuth (Bi)	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Boron (B)	µg/L	1210	1300	300	1255	NA	0.3	3420	3340	300	3380	2%	NA	950	930	300	940	NA	0.1	2860	2890	300	2875	1%	NA
Cadmium (Cd)	µg/L	0.016	0.017	0.01	0.017	NA	0.1	0.034	0.025	0.01	0.030	NA	0.9	< 0.010	< 0.010	0.01	NC	NC	NC	0.028	0.022	0.01	0.025	NA	0.6
Calcium (Ca)	µg/L	1310000	1370000	10000	1340000	4%	NA	3210000	3190000	10000	3200000	1%	NA	1010000	980000	10000	995000	3%	NA	2790000	2840000	10000	2815000	2%	NA
Cesium	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Chromium (Cr)	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Cobalt (Co)	µg/L	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC
Copper (Cu)	µg/L	0.57	0.56	0.2	0.57	NA	0.0	0.45	0.46	0.2	0.46	NA	0.1	0.37	0.42	0.2	0.40	NA	0.3	0.36	0.23	0.2	0.30	NA	0.7
Gallium	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Iron (Fe)	µg/L	< 10	< 10	10	NC	NC	NC	< 10	< 10	10	NC	NC	NC	< 10	< 10	10	NC	NC	NC	< 10	< 10	10	NC	NC	NC
Lead (Pb)	µg/L	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC
Lithium (Li)	µg/L	48	53	20	51	NA	0.3	149	148	20	149	1%	NA	37	38	20	38	NA	0.1	122	120	20	121	2%	NA
Magnesium (Mg)	µg/L	366000	369000	1000	367500	1%	NA	951000	931000	1000	941000	2%	NA	265000	247000	1000	256000	7%	NA	876000	860000	1000	868000	2%	NA
Manganese (Mn)	µg/L	0.58	0.58	0.1	0.58	0%	NA	0.85	0.86	0.1	0.86	1%	NA	0.69	0.59	0.1	0.64	16%	NA	0.82	0.76	0.1	0.79	8%	NA
Mercury (Hg)	µg/L	< 0.0050	< 0.0050	0.005	NC	NC	NC	< 0.0050	< 0.0050	0.005	NC	NC	NC	< 0.0050	< 0.0050	0.005	NC	NC	NC	< 0.0050	< 0.0050	0.005	NC	NC	NC
Molybdenum (Mo)	µg/L	3.00	3.29	0.1	3.15	9%	NA	7.9	8.23	0.1	8.1	4%	NA	2.42	2.32	0.1	2.37	4%	NA	7.50	7.63	0.1	7.57	2%	NA
Nickel (Ni)	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Phosphorus (P)	µg/L	< 50	< 50	50	NC	NC	NC	< 50	< 50	50	NC	NC	NC	< 50	< 50	50	NC	NC	NC	< 50	< 50	50	NC	NC	NC
Potassium (K)	µg/L	1130000	1160000	1000	1145000	3%	NA	3140000	3030000	1000	3085000	4%	NA	864000	790000	1000</									

Table 1 - Results of Water Quality QAQC Duplicate Sample Results  
Milne Port, 2021

Metals, Total																									
Aluminum	µg/L	15.3	8.2	5	11.750	NA	1.4	7.6	9.1	5	8.4	NA	0.3	24.7	23.9	5	24.3	NA	0.2	16.1	17.1	5	16.6	NA	0.2
Antimony	µg/L	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC
Arsenic	µg/L	0.51	0.53	0.4	0.52	NA	0.1	1.41	1.32	0.4	1.37	NA	0.2	0.45	0.41	0.4	0.43	NA	0.1	1.08	1.06	0.4	1.07	NA	0.1
Barium	µg/L	5.0	5.0	1	5.0	NA	0.0	7.4	7.3	1	7.35	1%	NA	5.1	5.2	1	5.2	2%	NA	7.8	7.9	1	7.9	1%	NA
Beryllium	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Bismuth	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Boron	µg/L	1370	1410	300	1390	NA	0.1	3190	3080	300	3135	4%	NA	1080	1040	300	1060	NA	0.1	2950	3020	300	2985	2%	NA
Cadmium	µg/L	0.016	0.019	0.01	0.018	NA	0.3	0.037	0.027	0.01	0.032	NA	1.0	0.011	< 0.010	0.01	NC	NC	NC	0.031	0.030	0.01	0.031	NA	0.1
Calcium	µg/L	137000	140000	1000	138500	2%	NA	308000	311000	1000	309500	1%	NA	114000	112000	1000	113000	2%	NA	309000	311000	1000	310000	1%	NA
Cesium	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Chromium	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	1.72	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Cobalt	µg/L	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	0.066	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC
Copper	µg/L	2.02	< 0.50	0.5	NC	NC	NC	0.52	0.65	0.5	0.59	NA	0.3	< 0.50	< 0.50	0.5	NC	NC	NC	1.31	1.31	0.5	1.31	NA	0.0
Gallium	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Iron	µg/L	15	< 10	10	NC	NC	NC	< 10	< 10	10	NC	NC	NC	32	40	10	36	NA	0.8	13	14	10	14	NA	0.1
Lead	µg/L	0.080	< 0.050	0.05	NC	NC	NC	0.07	0.076	0.05	0.07	NA	0.1	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC
Lithium	µg/L	57	60	20	59	NA	0.2	132	122	20	127	8%	NA	48	43	20	46	NA	0.3	138	137	20	138	1%	NA
Magnesium	µg/L	386000	395000	1000	390500	2%	NA	900000	878000	1000	889000	2%	NA	295000	275000	1000	285000	7%	NA	928000	951000	1000	939500	2%	NA
Manganese	µg/L	0.88	0.64	0.2	0.76	NA	1.2	1.02	1.00	0.2	1.01	2%	NA	1.44	1.67	0.2	1.56	15%	NA	1.10	1.13	0.2	1.12	3%	NA
Mercury	µg/L	< 0.0050	< 0.0050	0.005	NC	NC	NC	< 0.0050	< 0.0050	0.005	NC	NC	NC	< 0.0050	< 0.0050	0.005	NC	NC	NC	< 0.0050	< 0.0050	0.005	NC	NC	NC
Molybdenum	µg/L	3.07	3.39	0.1	3.23	10%	NA	8.14	8.22	0.1	8.18	1%	NA	2.68	2.51	0.1	2.60	7%	NA	7.70	7.65	0.1	7.68	1%	NA
Nickel	µg/L	1.47	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	2.25	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Phosphorus	µg/L	< 50	< 50	50	NC	NC	NC	< 50	< 50	50	NC	NC	NC	< 50	< 50	50	NC	NC	NC	< 50	< 50	50	NC	NC	NC
Potassium	µg/L	119000	122000	1000	120500	2%	NA	305000	308000	1000	306500	1%	NA	100000	95900	1000	97950	4%	NA	332000	352000	1000	342000	6%	NA
Rubidium	µg/L	34.5	34.8	0.5	34.7	1%	NA	84.6	81.3	0.5	83.0	4%	NA	27.8	26.1	0.5	27.0	6%	NA	85.4	89.9	0.5	87.7	5%	NA
Rhenium	µg/L	< 0.50	< 0.50	5	NC	NC	NC	< 0.50	< 0.50	5	NC	NC	NC	< 0.50	< 0.50	5	NC	NC	NC	< 0.50	< 0.50	5	NC	NC	NC
Selenium	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Silicon	µg/L	< 1000	< 1000	1000	NC	NC	NC	< 1000	< 1000	1000	NC	NC	NC	< 1000	< 1000	1000	NC	NC	NC	< 1000	< 1000	1000	NC	NC	NC
Silver	µg/L	< 0.10	< 0.10	0.1	NC	NC	NC	< 0.10	< 0.10	0.1	NC	NC	NC	< 0.10	< 0.10	0.1	NC	NC	NC	< 0.10	< 0.10	0.1	NC	NC	NC
Sodium	µg/L	2910000	3000000	2500	2955000	3%	NA	7740000	7360000	2500	7550000	5%	NA	2280000	2110000	2500	2195000	8%	NA	6820000	6710000	2500	6765000	2%	NA
Strontium	µg/L	2150	2240	10	2195	4%	NA	5540	5690	10	5615	3%	NA	1750	1680	10	1715	4%	NA	5120	5330	10	5225	4%	NA
Sulphur (Colloidal)	µg/L	278000	283000	5000	280500	2%	NA	729000	745000	5000	737000	2%	NA	250000	242000	5000	245000	3%	NA	875000	863000	5000	869000	1%	NA
Tellurium	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Thallium	µg/L	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC	< 0.050	< 0.050	0.05	NC	NC	NC
Thorium-232	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Tin	µg/L	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC
Titanium	µg/L	< 5.0	< 5.0	5	NC	NC	NC	< 5.0	< 5.0	5	NC	NC	NC	< 5.0	< 5.0	5	NC	NC	NC	< 5.0	< 5.0	5	NC	NC	NC
Tungsten	µg/L	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC	< 1.0	< 1.0	1	NC	NC	NC
Uranium	µg/L	1.62	1.63	0.05	1.63	1%	NA	2.72	2.72	0.05	2.72	0%	NA	2.29	1.82	0.05	2.06	23%	NA	2.13	2.12	0.05	2.13	0%	NA
Vanadium	µg/L	0.50	< 0.50	0.5	NC	NC	NC	1.08	1.09	0.5	1.09	NA	0.0	< 0.50	< 0.50	0.5	NC	NC	NC	1.12	1.17	0.5	1.15	NA	0.1
Yttrium	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Zinc	µg/L	83.7	< 3.0	3	NC	NC	NC	< 3.0	< 3.0	3	NC	NC	NC	< 3.0	< 3.0	3	NC	NC	NC	< 3.0	< 3.0	3	NC	NC	NC
Zirconium	µg/L	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC	< 0.50	< 0.50	0.5	NC	NC	NC
Hydrocarbons																									
Acenaphthene	µg/L	< 0.010	< 0.010	0.01	NC	NC	NC	< 0.010.																	

Table 2 - Results of Water Quality QAQC Blank Sample Results  
Milne Port, 2021

Sample ID					
	Units	Reported Detection Limit (RDL)	MP-05- WNW-FBLANK-1	MP-06-North FBlank-2	MP-05-Source-FBLANK3
Date Sampled			02-Aug-2021	14-Aug-2021	19-Aug-2021
Laboratory ID			VA21B6250-001	YL2101029-001	VA21B7949-009
<b>Anions and Nutrients</b>					
Alkalinity, Total as CaCO3	µg/L	1000	< 1000	< 1000	< 1000
Bromide (Br)	µg/L	5000	< 5000	< 5000	< 5000
Chloride (Cl)	µg/L	50000	< 50000	< 50000	< 50000
Fluoride (F)	µg/L	200	< 200	< 200	< 200
Nitrate (as N)	µg/L	10	< 10	< 10	< 10
Nitrite (as N)	µg/L	10	< 10	< 10	< 10
Ammonia (as N)	µg/L	5	< 5.0	< 5.0	< 5.0
Total Kjeldahl Nitrogen	µg/L	50	< 50	< 50	< 50
Sulfate (SO4)	µg/L	3000	< 3000	< 3000	< 3000
<b>Field and Physical</b>					
pH	pH Units	0.1	5.35	6.37	5.1
Conductivity	µS/cm	2.0	< 2.0	< 2.0	< 2.0
Total Dissolved Solids	µg/L	10000	< 10000	< 10000	< 10000
Total Suspended Solids	µg/L	2000	< 2000	< 2000	< 2000
Turbidity	NTU	0.10	< 0.10	< 0.10	< 0.10
Salinity	PSU	1.0	< 1.0	< 1.0	< 1.0
Total Organic Carbon	µg/L	500	< 500	< 500	< 500
Dissolved Organic Carbon	µg/L	500	< 500	< 500	< 500
Hardness, Calcium Carbonate (Dissolved)	µg/L	500	< 1000	< 1000	< 1000
Hardness, Calcium Carbonate (Total)	µg/L	600	< 1000	-	-
<b>Metals, Dissolved</b>					
Aluminum (Al)	µg/L	5	< 5.0	< 5.0	< 5.0
Antimony (Sb)	µg/L	1	< 1.0	< 1.0	< 1.0
Arsenic (As)	µg/L	0.4	< 0.40	< 0.40	< 0.40
Barium (Ba)	µg/L	1	< 1.0	< 1.0	< 1.0
Beryllium (Be)	µg/L	0.5	< 0.50	< 0.50	< 0.50
Bismuth (Bi)	µg/L	0.5	< 0.50	< 0.50	< 0.50
Boron (B)	µg/L	300	< 300	< 300	< 300
Cadmium (Cd)	µg/L	0.01	< 0.010	< 0.010	< 0.010
Calcium (Ca)	µg/L	1000	< 1000	< 1000	< 1000
Cesium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Chromium (Cr)	µg/L	0.5	< 0.50	< 0.50	< 0.50
Cobalt (Co)	µg/L	0.05	< 0.050	< 0.050	< 0.050
Copper (Cu)	µg/L	0.2	< 0.20	< 0.20	< 0.20
Gallium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Iron (Fe)	µg/L	10	< 10	< 10	< 10
Lead (Pb)	µg/L	0.05	< 0.050	< 0.050	< 0.050
Lithium (Li)	µg/L	20	< 20	< 20	< 20
Magnesium (Mg)	µg/L	1000	< 1000	< 1000	< 1000
Manganese (Mn)	µg/L	0.1	< 0.10	< 0.10	< 0.10
Mercury (Hg)	µg/L	0.005	< 0.0050	< 0.0050	< 0.0050
Molybdenum (Mo)	µg/L	0.1	< 0.10	< 0.10	< 0.10
Nickel (Ni)	µg/L	0.5	< 0.50	< 0.50	< 0.50
Phosphorus (P)	µg/L	50	< 50	< 50	< 50
Potassium (K)	µg/L	1000	< 1000	< 1000	< 1000
Rhenium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Rubidium	µg/L	5	< 5.0	< 5.0	< 5.0
Selenium (Se)	µg/L	0.5	< 0.50	< 0.50	< 0.50
Silicon	µg/L	1000	< 1000	< 1000	< 1000
Silver (Ag)	µg/L	0.1	< 0.10	< 0.10	< 0.10
Sodium (Na)	µg/L	2500	< 2500	< 2500	< 2500
Strontium (Sr)	µg/L	10	< 10	< 10	< 10
Sulfur (S)	µg/L	5000	< 5000	< 5000	< 5000
Tellurium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Thallium (Tl)	µg/L	0.05	< 0.050	< 0.050	< 0.050
Thorium-232	µg/L	0.5	< 0.50	< 0.50	< 0.50
Tin (Sn)	µg/L	1	< 1.0	< 1.0	< 1.0
Titanium (Ti)	µg/L	5	< 5.0	< 5.0	< 5.0
Tungsten (W)	µg/L	1	< 1.0	< 1.0	< 1.0
Uranium (U)	µg/L	0.05	< 0.050	< 0.050	< 0.050
Vanadium (V)	µg/L	0.5	< 0.50	< 0.50	< 0.50
Yttrium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Zinc (Zn)	µg/L	1	< 1.0	< 1.0	< 1.0
Zirconium (Zr)	µg/L	0.5	< 0.50	< 0.50	< 0.50
<b>Metals, Total</b>					
Aluminum	µg/L	5	< 5.0	< 5.0	< 5.0
Antimony	µg/L	1	< 1.0	< 1.0	< 1.0
Arsenic	µg/L	0.4	< 0.40	< 0.40	< 0.40
Barium	µg/L	1	< 1.0	< 1.0	< 1.0
Beryllium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Bismuth	µg/L	0.5	< 0.50	< 0.50	< 0.50
Boron	µg/L	300	< 300	< 300	< 300
Cadmium	µg/L	0.01	< 0.010	< 0.010	< 0.010
Calcium	µg/L	1000	< 1000	< 1000	< 1000
Cesium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Chromium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Cobalt	µg/L	0.05	< 0.050	< 0.050	< 0.050
Copper	µg/L	0.5	< 0.50	< 0.50	< 0.50
Gallium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Iron	µg/L	10	< 10	< 10	< 10
Lead	µg/L	0.05	< 0.050	< 0.050	< 0.050
Lithium	µg/L	20	< 20	< 20	< 20
Magnesium	µg/L	1000	< 1000	< 1000	< 1000
Manganese	µg/L	0.2	< 0.20	< 0.20	< 0.20
Mercury	µg/L	0.005	< 0.0050	< 0.0050	< 0.0050
Molybdenum	µg/L	0.1	< 0.10	< 0.10	< 0.10
Nickel	µg/L	0.5	< 0.50	< 0.50	< 0.50
Phosphorus	µg/L	50	< 50	< 50	< 50
Potassium	µg/L	1000	< 1000	< 1000	< 1000
Rubidium	µg/L	0.5	< 5.0	< 5.0	< 5.0
Rhenium	µg/L	5	< 0.50	< 0.50	< 0.50
Selenium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Silicon	µg/L	1000	< 1000	< 1000	< 1000
Silver	µg/L	0.1	< 0.10	< 0.10	< 0.10
Sodium	µg/L	2500	< 2500	< 2500	< 2500
Strontium	µg/L	10	< 10	< 10	< 10
Sulphur (Colloidal)	µg/L	5000	< 5000	< 5000	< 5000
Tellurium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Thallium	µg/L	0.05	< 0.050	< 0.050	< 0.050
Thorium-232	µg/L	0.5	< 0.50	< 0.50	< 0.50
Tin	µg/L	1	< 1.0	< 1.0	< 1.0
Titanium	µg/L	5	< 5.0	< 5.0	< 5.0
Tungsten	µg/L	1	< 1.0	< 1.0	< 1.0
Uranium	µg/L	0.05	< 0.050	< 0.050	< 0.050
Vanadium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Yttrium	µg/L	0.5	< 0.50	< 0.50	< 0.50
Zinc	µg/L	3	< 3.0	< 3.0	< 3.0
Zirconium	µg/L	0.5	0.65	< 0.50	< 0.50
<b>Hydrocarbons</b>					
Acenaphthene	µg/L	0.01	< 0.010	-	< 0.010
Acenaphthylene	µg/L	0.01	< 0.010	-	< 0.010
Acridine	µg/L	0.01	< 0.010	-	< 0.010
Anthracene	µg/L	0.01	< 0.010	-	< 0.010
Benz(a)anthracene	µg/L	0.01	< 0.010	-	< 0.010
Benzo(a)pyrene	µg/L	0.05	< 0.0050	-	< 0.0050
Benzo(g,h,i)perylene	µg/L	0.01	< 0.010	-	< 0.010
Benzo(k)fluoranthene	µg/L	0.01	< 0.010	-	< 0.010
Chrysene	µg/L	0.01	< 0.010	-	< 0.010
Dibenz(a,h)anthracene	µg/L	0.05	< 0.0050	-	< 0.0050
Fluoranthene	µg/L	0.01	< 0.010	-	< 0.010
Benzo(b,j) fluoranthene	µg/L	0.01	< 0.010	-	< 0.010
Fluorene	µg/L	0.01	< 0.010	-	< 0.010
Indeno(1,2,3-c,d)pyrene	µg/L	0.01	< 0.010	-	< 0.010
Naphthalene	µg/L	0.05	< 0.050	-	< 0.050
Phenanthrene	µg/L	0.02	< 0.020	-	< 0.020
Pyrene	µg/L	0.01	< 0.010	-	< 0.010
Quinoline	µg/L	0.05	< 0.050	-	< 0.050
1- & 2-Methylnaphthalene	µg/L	0.01	-	-	0.015
2-methylnaphthalene	µg/L	0.01	< 0.010	-	0.015
Petroleum Hydrocarbons - F1 (C6-C10)	µg/L	100	< 100	-	< 100
Petroleum Hydrocarbons - F2 (C10-C16)	µg/L	100	< 100	-	< 100
Petroleum Hydrocarbons - F3 (C16-C34)	µg/L	250	< 250	-	< 250
Petroleum Hydrocarbons - F4 (C34-C50)	µg/L	250	< 250	-	< 250
1-Methylnaphthalene	µg/L	0.01	< 0.010	-	< 0.010
Benzo[b,j,k]fluoranthene	µg/L	0.015	< 0.015	-	< 0.015
<b>VHCS</b>					
Volatile Hydrocarbons (C6-C10)	µg/L	100	-	-	< 100
Volatile Petroleum Hydrocarbons (C6-C10)	µg/L	100	-	-	< 100
<b>VOCs and BTEX</b>					
Benzene	µg/L	0.5	< 0.50	-	< 0.50
Ethylbenzene	µg/L	0.5	< 0.50	-	< 0.50
Styrene	µg/L	0.5	< 0.50	-	< 0.50
Toluene	µg/L	0.5	< 0.50	-	< 0.50
Xylenes, Total	µg/L	0.5	< 0.50	-	< 0.50
o-Xylene	µg/L	0.3	< 0.30	-	< 0.30
m,p-Xylenes	µg/L	0.4	< 0.40	-	< 0.40
Methyl tert-Butyl Ether	µg/L	0.5	< 0.50	-	< 0.50
SUM OF BTEX	µg/L	1	< 1.0	-	-

**Notes:**  
µg/L = micrograms per litre; cm = centimeter; RDL = reported detection limit; < = less than detection limit; VHC = volatile hydrocarbons;  
VOCs = volatile organic compounds; BTEX = benzen, toluene, ethylbenzene and xylene  
**Bolded** values indicate parameter concentrations that are greater than 5-times the detection limit.

**APPENDIX 2E**

# Marine Water Quality - Annual Comparison Tables

**Table 1: Marine Water Quality - Receiving Environment Annual Summary Statistics from 2015 to 2021 for the MP-05 and MP-06 Milne Port Site Discharges (all five stations sampled per discharge)**

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