

October 2<sup>nd</sup>, 2024

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Jonathan Tsetso  
Superintendent  
Nahanni National Park Reserve  
10002 100 Street, P.O. Box 348,  
Fort Simpson, NT  
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**Re: Water Licence MV2023L8-0002 & PC2023L8-0002, Report of Surveillance Network Program  
August 2024, Prairie Creek Mine Access Road**

As per Part “B” of the Surveillance Network Program (SNP) for Water Licences MV2023L8-0002 and PC2023L8-0002, please find enclosed the SNP Monthly Reporting for August 2024.

We trust this report meets with your requirements. Please contact the undersigned at [andrew.howton@norzinc.com](mailto:andrew.howton@norzinc.com) or alternatively Lynn Boettger at [lynn.boettger@norzinc.com](mailto:lynn.boettger@norzinc.com) should you have any questions or comments.

Sincerely,  
Andrew Howton



**Andrew Howton, B.Sc.**  
Environment Superintendent

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## Water Licence MV2023L8-0002

### Referenced Water Licence Conditions

#### *Schedule 1: Surveillance Network Program (SNP), Condition 12*

12. Within 30 days of completing SNP sampling each month, and every month thereafter, the Licensee shall submit a **Surveillance Network Program Report (SNP Report)**, to the Board and an Inspector. The SNP Report, shall include, but not be limited to, the following information:
- a) Information regarding the calibration and status of the meters and devices referred to in Part B, Condition 19 (MEASURE WATER USE AND WASTE DISCHARGED);
  - b) Electronic and tabular summaries of all data and information required by the SNP referred to in Schedule 1, in accordance with Part B, Condition 6 (SUBMISSION FORMAT);
  - c) Any interpretive comments and calculations and rationale for SNP stations where samples were not collected;
  - d) The coordinates of all SNP stations sampled each month, including an updated map identifying the locations of all the SNP stations in accordance with Part B, Condition 6 (SUBMISSION FORMAT);
  - e) The daily flow and volume measurements from Water sources described in Part D, Condition 1 (WATER SOURCE AND MAXIMUM VOLUME), Part D, Condition 2 (MAXIMUM UNDER-ICE WATER WITHDRAWAL VOLUME), and Schedule 1, Condition 10;
  - f) A tabular summary of cumulative Water Use.
  - g) Graphical summaries and interpretation of the analytical results from the SNP samples collected at the point of compliance (SNP station 2019-2 a, b, c, d, e, f, and g) with comparison to the criteria specified in Part F, Condition 14 (TSS – CRITERIA);
    - a. An explanation of any actions taken in response to any exceedances to the criteria in Part F, Condition 15 (TSS CRITERIA EXCEEDANCE); and
    - b. Results and interpretation of QA/QC procedures and QA/QC samples as described in the approved QA/QC Plan referred to in Schedule 1, Condition 1;
    - c. A tabular summary of cumulative Water Use; and
  - h) Any other details required by the Board.

Part F, Condition 14

14. The Licensee shall ensure water quality downstream of all in-water Construction activities, in addition to SNP Station 2019 -2 a, b, c, d, e, f, and g, meet the following criteria:
- a) If the background concentration of total suspended solids (TSS) is  $\leq 250$  mg/L, the maximum concentration for TSS shall not exceed 25 mg/L above background in any daily sample, and shall not exceed 5 mg/L above background when averaged over any 30-day period;
  - b) If the background concentration of TSS is  $> 250$  mg/L, TSS concentrations shall not exceed 10% of background; and
  - c) All TSS samples are to be analyzed and measured in accordance with the approved **Water Management Plan** referred to in Part F, Condition 7 (WATER MANAGEMENT PLAN – REVISED).

Part D, Conditions 1 and 2

1. The Licensee shall only obtain Water for the Project as set out in the following table. The Licensee may withdraw up to a combined total 2,000 m<sup>3</sup>/day of Water from these sources.

Water Source Name	Coordinates	Type of Watercourse (e.g., river, lake, etc.)	Purpose of Water Use	Maximum Quantity
Prairie Creek 1	61.575705, -124.8262197	River	Dust suppression	<10% of the instantaneous flow at the time of withdrawal
Prairie Creek 2	61.601861, -124.833076			
Grainger River	61.329630, -123.389019			
Liard River 1	61.064190, -123.290589		- Winter Road Construction - Dust suppression	
Liard River 2	61.069920, -123.267813			
Liard River 3	60.972031, -123.269335			
Unnamed Lake 1	61.474093, -123.555714	Lake	- Camp potable use	2,448 m <sup>3</sup> per year
Unnamed Lake 2	61.344995, -123.480299		- Culvert installation	15,293 m <sup>3</sup> per year
Gap Lake	61.324323, -123.422634		- Dust suppression	18,670 m <sup>3</sup> per year

**WATER SOURCE AND MAXIMUM VOLUME**

Unnamed Lake 3	61.213290, -123.246916		- Winter Road Construction	12,806 m <sup>3</sup> per year
Unnamed Lake 4	61.193202, -123.254218			26,523 m <sup>3</sup> per year

2. In any single ice-covered season, the Licensee shall not withdraw greater than the following quantities:

**MAXIMUM  
UNDER-ICE  
WATER  
WITHDRAWAL  
VOLUME**

Water Source Name	Coordinates	Maximum Quantity (m <sup>3</sup> )
Unnamed Lake 1	61.474093, -123.555714	2,448
Unnamed Lake 2	61.344995, -123.480299	5,773
Gap Lake	61.324323, -123.422634	4,090
Unnamed Lake 3	61.213290, -123.246916	5,382
Unnamed Lake 4	61.193202, -123.254218	16,803

SNP Report Water Licence MV2023L8-0002

This SNP report covers the month of August 2024. From August 28<sup>th</sup> to the 31<sup>st</sup> a complete overflight of the PWR was conducted by helicopter. On the ground inspections were made at crossings, field measurements were made, and water samples collected.

Samples were submitted to the accredited environmental laboratory ALS Environmental Inc. The analytical reports received are appended to the end of this report in their entirety, See Appendix D. Five samples were collected in the month of August 2024. A listing of water samples can be seen in Table #1. The location of SNP stations can be seen on the drawing in Appendix A. No new SNP stations were established during the reporting period. SNP stations KP 118.9 and KP 147.6 were dry, no water present.

Table #1

Lab Number	Sample ID	Collection Date
FJ2402658-008	KP 6.2	31-Aug-2024
FJ2402658-007	KP 13.4	31-Aug-2024
FJ2402617-003	KP 111.5	28-Aug-2024
Dry, no water present	KP 118.9	28-Aug-2024
FJ2402617-002	KP 121	28-Aug-2024
Dry, no water present	KP 147.6	28-Aug-2024
FJ2402617-001	KP 156	28-Aug-2024
FJ2402617-008	KP 200 (Field Blank)	28-Aug-2024
FJ2402658-010	KP 400 (Duplicate KP 13.4)	31-Aug-2024

Sampling Procedures and Quality Assurance/Quality Control

Sampling is conducted using only bottles and preservatives provided by the analytical laboratory. Disposable gloves are used at each sample location along with a new syringe and filter when collecting samples. Samples for dissolved analytes are filtered in the field. After sampling, samples are stored in coolers with ice packs and sent with chain of custody forms to the laboratory on the next flight out (samples are collected the day before a flight whenever possible).

During this reporting period one field blank and one duplicate were collected. All parameters in the Field Blank were below detection limits and the relative percent difference (RPD) between the KP 13.4 sample and it’s duplicate (KP 400) were within the expected range, note that Total Metals results can have large differences with individual parameters due to the nature of Total Metals sampling.

The field instrument used to measure turbidity was a Lovibond TB 250 WL Turbidimeter, the unit

was calibrated daily with 0.02, 10, and 1000 NTU (Nephelometric Turbidity Unit) standards. The water multimeter used was a YSI Professional Plus, calibrated daily.

## Results

No Construction work took place in 2024, consequently, there was no in-water work data to compare to water quality Criteria. Graphical summaries are not required currently due to there being no in-water work.

Table #3 (Appendix B) presents field data collected during sampling.

Tables #4 and #5 (Appendix C) present selected laboratory data for all samples collected during the reporting period. Complete laboratory results and COCs can be found in Appendix D.

## Water Use

No water use has taken place since the conclusion of construction on the Pioneer Winter Road (PWR). The last day that water was withdrawn for use was March 14<sup>th</sup>, 2023.

## Water Licence PC2023L8-0002

### Referenced Water Licence Conditions

#### *Schedule 1: Surveillance Network Program (SNP), Condition 12*

12. Within 30 days of completing SNP sampling each month, and every month thereafter, the Licensee shall submit a **Surveillance Network Program Report (SNP Report)**, to the Superintendent. The SNP Report, shall include, but not be limited to, the following information:
- a) Information regarding the calibration and status of the meters and devices referred to in Part B, Condition 19 (MEASURE WATER USE AND WASTE DISCHARGED);
  - b) Electronic and tabular summaries of all data and information required by the SNP referred to in Schedule 1, in accordance with Part B, Condition 6 (SUBMISSION FORMAT);
  - c) Any interpretive comments and calculations and rationale for SNP stations where samples were not collected;
  - d) The coordinates of all SNP stations sampled each month, including an updated map identifying the locations of all the SNP stations in accordance with Part B, Condition 6 (SUBMISSION FORMAT);
  - e) The daily flow and volume measurements from Water sources described in Part D, Condition 1 (WATER SOURCE AND MAXIMUM VOLUME) and Schedule 1, Condition 10;
  - f) A tabular summary of cumulative Water Use;
  - g) Graphical summaries and interpretation of the analytical results from the SNP samples collected at the point of compliance (SNP NNPR-2019-2 a, b, c, d, e, f, g, h, i and j) with comparison to the criteria specified in Part F, Condition 16 (TSS – CRITERIA);
    - a. An explanation of any actions taken in response to any exceedances to the criteria in Part F, Condition 17 (TSS CRITERIA EXCEEDANCE); and
    - b. Results and interpretation of QA/QC procedures and QA/QC samples as described in the approved QA/QC Plan referred to in Schedule 1, Condition 1;
    - c. A tabular summary of cumulative Water Use; and
    - d. Any other details required by the Superintendent.

Part F, Condition 16

16.	<p>The Licensee shall ensure water quality downstream of all in-water Construction activities, in addition to SNP Station NNPR-2019-2 a, b, c, d, e, f, g, h, i and j meet the following criteria:</p> <p>a) If the background concentration of total suspended solids is (TSS) <math>\leq</math> 250 mg/L, the maximum concentration for TSS shall not exceed 25 mg/L above background in any daily sample, and shall not exceed 5 mg/L above background when averaged over any 30-day period;</p> <p>b) If the background concentration of TSS is <math>&gt;</math> 250 mg/L, TSS concentrations shall not exceed 10% of background; and</p> <p>All TSS samples are to be analyzed and measured in accordance with the approved <b>Water Management Plan</b> referred to in Part F, Condition 8 (WATER MANAGEMENT PLAN – REVISED).</p>	<b>TSS – CRITERIA</b>
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Part D, Conditions 1 and 2

1	<p><b>Parks Canada</b></p> <p>The Licensee shall only obtain Water for the Project as set out in the following table. The Licensee may withdraw up to a combined total 1000 m<sup>3</sup>/day of Water from these sources.</p>	<b>WATER SOURCE AND MAXIMUM VOLUME</b>																												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Water Source Name</th> <th style="width: 15%;">Coordinates</th> <th style="width: 15%;">Type of Watercourse (e.g., river, lake, etc.)</th> <th style="width: 30%;">Purpose of Water Use</th> <th style="width: 20%;">Maximum Quantity</th> </tr> </thead> <tbody> <tr> <td>Sundog Creek</td> <td>415639 E, 6829210 N</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">River</td> <td rowspan="5" style="vertical-align: top;"> <ul style="list-style-type: none"> <li>- Camp potable use</li> <li>- Culvert installation</li> <li>- Dust suppression</li> </ul> </td> <td rowspan="5" style="text-align: center; vertical-align: middle;">&lt;10% instantaneous flow</td> </tr> <tr> <td>Sundog Creek II</td> <td>420657 E, 6826795 N</td> </tr> <tr> <td>Sundog Creek III</td> <td>427063 E, 6829318 N</td> </tr> <tr> <td>Polje Creek</td> <td>440692 E, 6830793 N</td> </tr> <tr> <td>Fishtrap Creek</td> <td>465061 E, 6813845 N</td> </tr> <tr> <td>Tetcela River</td> <td>461383 E, 6815676 N</td> <td></td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>- Camp potable use</li> <li>- Culvert installation</li> <li>- Dust suppression</li> <li>- Winter Road Construction</li> </ul> </td> <td></td> </tr> <tr> <td>Mosquito Lake</td> <td>446703 E, 6825712 N</td> <td style="text-align: center;">Lake</td> <td style="vertical-align: top;">Winter road Construction</td> <td style="text-align: center;">44,448 m<sup>3</sup> per year</td> </tr> </tbody> </table>	Water Source Name	Coordinates	Type of Watercourse (e.g., river, lake, etc.)	Purpose of Water Use	Maximum Quantity	Sundog Creek	415639 E, 6829210 N	River	<ul style="list-style-type: none"> <li>- Camp potable use</li> <li>- Culvert installation</li> <li>- Dust suppression</li> </ul>	<10% instantaneous flow	Sundog Creek II	420657 E, 6826795 N	Sundog Creek III	427063 E, 6829318 N	Polje Creek	440692 E, 6830793 N	Fishtrap Creek	465061 E, 6813845 N	Tetcela River	461383 E, 6815676 N		<ul style="list-style-type: none"> <li>- Camp potable use</li> <li>- Culvert installation</li> <li>- Dust suppression</li> <li>- Winter Road Construction</li> </ul>		Mosquito Lake	446703 E, 6825712 N	Lake	Winter road Construction	44,448 m <sup>3</sup> per year	
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Sundog Creek	415639 E, 6829210 N	River	<ul style="list-style-type: none"> <li>- Camp potable use</li> <li>- Culvert installation</li> <li>- Dust suppression</li> </ul>	<10% instantaneous flow																										
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Mosquito Lake	446703 E, 6825712 N	Lake	Winter road Construction	44,448 m <sup>3</sup> per year																										



Lake 70	<b>448577 E, 6819566 N</b>			64,995 m <sup>3</sup> per year
Cat camp pit	<b>428523 E, 6830490 N</b>	Ground water	Winter Road Construction	5750 m <sup>3</sup> per year

2

In any single ice-covered season, the Licensee shall not withdraw greater than the following quantities:

**MAXIMUM  
UNDER-ICE  
WATER  
WITHDRAWAL  
VOLUME**

Water Source Name	Coordinates	Maximum Quantity (m <sup>3</sup> )
Mosquito Lake	<b>446703 E, 6825712 N</b>	33,528
Lake 70	<b>448577 E, 6819566 N</b>	52,475

## SNP Report Water Licence PC2023L8-0002

This SNP report covers the month of August 2024. From August 28<sup>th</sup> to the 31<sup>st</sup> a complete overflight of the PWR was conducted by helicopter. On the ground inspections were made at crossings, field measurements were made, and water samples collected.

Samples were submitted to the accredited environmental laboratory ALS Environmental Inc. The analytical reports received are appended to the end of this report in their entirety, See Appendix D. Ten samples were collected in the month of August 2024. A listing of water samples can be seen in Table #2. The location of SNP stations can be seen on the drawing in Appendix A. No new SNP stations were established during the reporting period.

Table #2

Lab Number	Sample ID	Collection Date
FJ2402658-006	KP 20.3	30-Aug-2024
FJ2402658-005	KP 23.3	30-Aug-2024
FJ2402658-004	KP 25.4	30-Aug-2024
FJ2402658-003	KP 28.5	30-Aug-2024
FJ2402658-002	KP 39.2	29-Aug-2024
FJ2402617-007	KP 42.9	28-Aug-2024
FJ2402617-006	KP 53.2	28-Aug-2024
FJ2402617-005	KP 87.0	28-Aug-2024
FJ2402658-001	KP 89.5	29-Aug-2024
FJ2402617-004	KP 95	28-Aug-2024
FJ2402617-008	KP 200 (Field Blank)	28-Aug-2024
FJ2402658-010	KP 400 (Duplicate KP 13.4)	31-Aug-2024

### Sampling Procedures and Quality Assurance/Quality Control

Sampling is conducted using only bottles and preservatives provided by the analytical laboratory. Disposable gloves are used at each sample location along with a new syringe and filter when collecting samples. Samples for dissolved analytes are filtered in the field. After sampling, samples are stored in coolers with ice packs and sent with chain of custody forms to the laboratory on the next flight out (samples are collected the day before a flight whenever possible).

During this reporting period one field blank and one duplicate were collected. All parameters in the Field Blank were below detection limits and the relative percent difference (RPD) between the KP 13.4 sample and it's duplicate (KP 400) were within the expected range, note that Total Metals results can have large differences with individual parameters due to the nature of Total Metals sampling.

The field instrument used to measure turbidity was a Lovibond TB 250 WL Turbidimeter, the unit was calibrated daily with 0.02, 10, and 1000 NTU (Nephelometric Turbidity Unit) standards. The water multimeter used was a YSI Professional Plus, calibrated daily.

## Results

No Construction work took place in 2024, consequently, there is no in-water work data to compare to water quality Criteria. Graphical summaries are not required currently due to there being no in-water work.

Table #3 (Appendix B) presents field data collected during sampling.

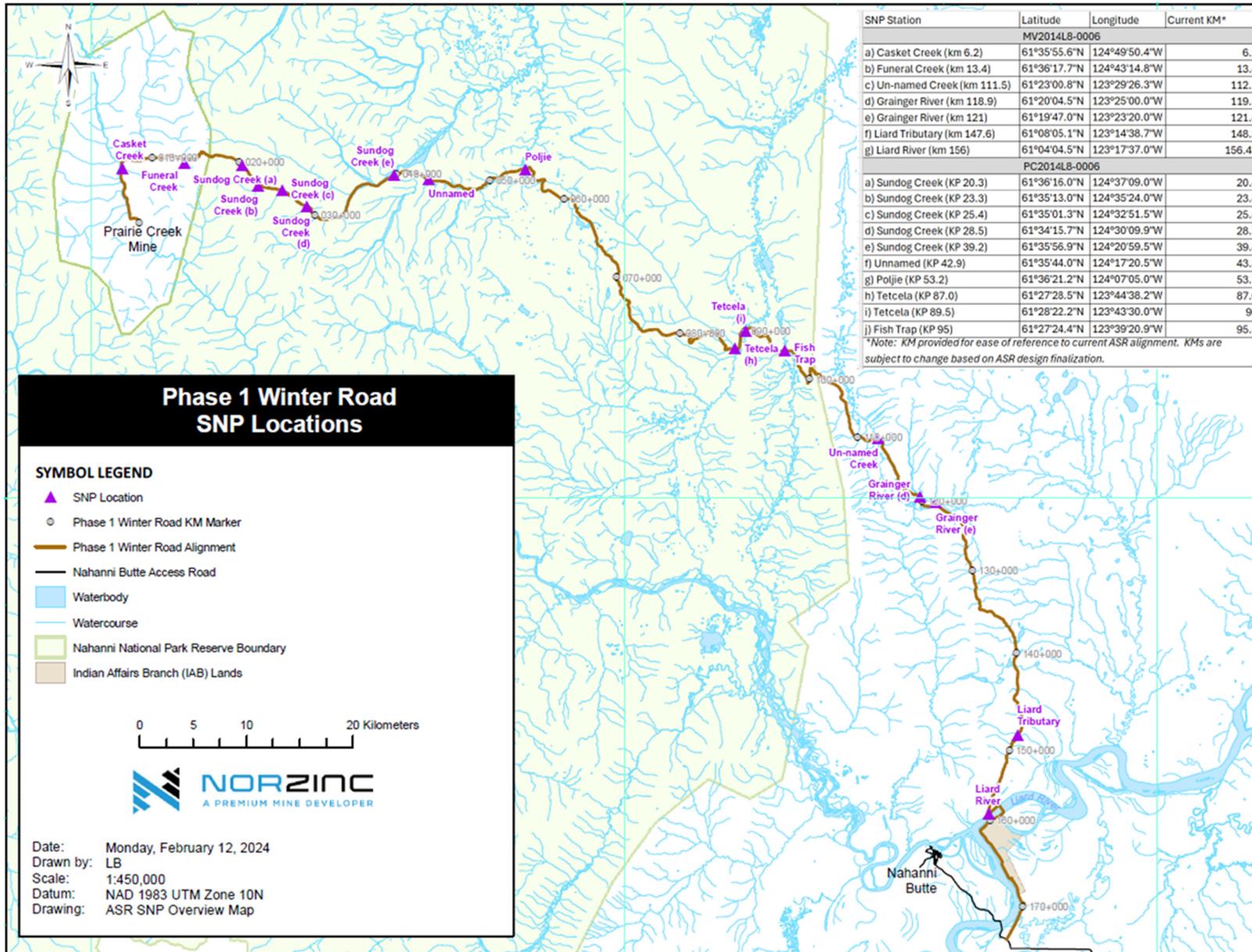
Tables #4 and #5 (Appendix C) present selected laboratory data for all samples collected during the reporting period. Complete laboratory results and COCs can be found in Appendix D.

## Water Use

No water use has taken place.



## APPENDIX A – SNP LOCATIONS





**NORZINC**  
A PREMIUM MINE DEVELOPER

## APPENDIX B – FIELD MEASUREMENTS

Table #3 Field Measurements

GNWT SNP stations	Date	pH	Electrical Conductivity (uS/cm)	Temperature (C)	Dissolved Oxygen (%)	Upstream Turbidity (NTU)	Downstream Turbidity (NTU)
a) Casket Creek (km 6.2)	08/31/24	8.85	436.70	6.80	92.10	0.31	0.34
b) Funeral Creek (km 13.4)	08/31/24	8.73	298.90	5.30	86.50	0.00	0.00
c) Un-named Creek (km 111.5)	08/28/24	7.99	363.80	10.50	55.80	5.52	3.56
d) Grainger River (km 118.9)	08/28/24	DRY	DRY	DRY	DRY	DRY	DRY
e) Grainger River (km 121)	08/28/24	8.56	218.40	8.20	102.40	1.13	1.77
f) Liard Tributary (km 147.6)	08/28/24	DRY	DRY	DRY	DRY	DRY	DRY
g) Liard River (km 156)	08/28/24	8.28	288.60	14.50	92.10	27.33	n/a
NNPR SNP stations		pH	Electrical Conductivity (uS/cm)	Temperature (C)	Dissolved Oxygen (%)	Upstream Turbidity (NTU)	Downstream Turbidity (NTU)
a) Sundog Creek (KP 20.3)	08/30/24	8.94	235.10	8.30	87.20	0.46	0.45
b) Sundog Creek (KP 23.3)	08/30/24	9.00	252.70	6.10	89.00	0.00	0.05
c) Sundog Creek (KP 25.4)	08/30/24	8.95	238.70	5.50	90.20	0.19	0.01
d) Sundog Creek (KP 28.5)	08/30/24	9.03	229.60	5.50	89.30	0.52	0.05
e) Sundog Creek (KP 39.2)	08/29/24	8.69	180.90	7.80	90.30	0.01	0.03
f) Unnamed (KP 42.9)	08/28/24	8.50	261.70	10.90	91.60	1.76	1.05
g) Poljie (KP 53.2)	08/28/24	8.23	230.40	6.10	102.10	0.97	0.41
h) Tetcela (KP 87.0)	08/28/24	8.71	350.30	13.40	101.20	17.52	18.76
i) Tetcela (KP 89.5)	08/29/24	8.80	466.60	9.90	95.90	17.73	17.94
j) Fish Trap (KP 95)	08/28/24	8.03	447.10	11.20	80.00	5.39	4.29

## APPENDIX C – SUMMARY OF SELECTED LABORATORY DATA

Table #4

Client Sample ID	Date Sampled	pH	Conductivity (µS/cm)	Turbidity (NTU)	Solids, total suspended [TSS] (mg/L)	Alkalinity, total (as CaCO3) mg/L	Hardness (as CaCO3), from total Ca/Mg mg/L	Calcium, total (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Magnesium, total (mg/L)	Potassium, total (mg/L)	Sodium, total (mg/L)	Sulfate (as SO4) mg/L	Solids, total dissolved [TDS] mg/L	Oil & grease (gravimetric) mg/L	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)	Xylenes, total (µg/L)	BTEX, total (µg/L)	F1 (C6-C10) (µg/L)	F2 (C10-C16) (µg/L)	F3 (C16-C34) (µg/L)	F4 (C34-C50) (µg/L)
KP 6.2	8/31/24	8.58	672	0.13	<3.0	209	389	80.5	<0.50	0.114	45.6	0.545	1.5	172	516	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 13.4	8/31/24	8.48	488	0.22	<3.0	154	273	60	<0.50	0.026	30	0.382	0.68	111	365	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 400 (Dup of KP 13.4)	8/31/24	8.49	490	0.21	<3.0	153	266	58.9	<0.50	0.023	28.8	0.376	0.658	111	367	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
RPD between KP 13.4 and Duplicate		0.12	0.41	4.65	n/a	0.65	2.60	1.85	n/a	12.24	4.08	1.58	3.29	0.00	0.55	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
KP 20.3	8/30/24	8.44	342	0.47	<3.0	134	188	40.2	<0.50	0.025	21.3	0.164	0.237	53.7	242	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 23.3	8/30/24	8.42	402	0.26	<3.0	128	214	46	<0.50	0.032	24.1	0.213	0.28	85	287	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 25.4	8/30/24	8.2	205	0.23	<3.0	88.8	205	43.2	<0.50	0.031	23.7	0.205	0.237	71.8	271	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 28.5	8/30/24	8.44	374	0.14	<3.0	130	198	41.8	<0.50	0.032	22.7	0.197	0.254	66.3	252	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 39.2	8/29/24	8.4	272	0.15	<3.0	125	147	34.2	<0.50	0.033	15	0.142	0.215	23.8	178	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 42.9	8/28/24	8.56	349	1.26	<3.0	199	192	65	<0.50	0.068	7.22	0.419	0.505	4.14	223	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 53.2	8/28/24	8.53	352	0.2	<3.0	173	189	54.6	<0.50	0.127	12.7	0.372	0.547	25.5	222	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 87	8/28/24	8.61	550	12.6	7	212	294	88.9	<0.50	0.143	17.4	1.3	2.04	98.1	394	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 89.5	8/29/24	8.59	659	15	5.2	235	360	104	3.64	0.267	24.3	1.29	6.5	130	525	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 95	8/28/24	8.48	603	0.75	<3.0	194	282	68.9	<0.50	0.101	26.8	0.837	22.4	136	436	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 111.5	8/28/24	8.53	481	3.94	3.4	238	249	71	<0.50	0.108	17.4	0.755	7.75	41.3	316	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 121	8/28/24	8.52	309	0.38	<3.0	164	168	45.1	<0.50	0.048	13.5	0.392	1.3	16.7	205	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 156	8/28/24	8.4	352	17.2	20.4	124	185	48.9	0.8	0.097	15.2	0.91	2.33	72	261	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250
KP 200 (Field Blank)	8/28/24	6.04	<2.0	<0.10	<3.0	<1.0	<0.60	<0.050	<0.50	<0.020	<0.0050	<0.050	<0.050	<0.30	<10	<5.0	<0.50	<0.50	<0.50	<0.40	<1.0	<100	<100	<250	<250

Table #5

Sample ID	Date Sampled	Aluminum, total (mg/L)	Antimony, total (mg/L)	Arsenic, total (mg/L)	Barium, total (mg/L)	Beryllium, total (mg/L)	Cadmium, total (mg/L)	Cesium, total (mg/L)	Chromium, total (mg/L)	Cobalt, total (mg/L)	Copper, total (mg/L)	Iron, total (mg/L)	Lead, total (mg/L)	Lithium, total (mg/L)	Manganese, total (mg/L)	Mercury, total (mg/L)	Molybdenum, total (mg/L)	Nickel, total (mg/L)	Rubidium, total (mg/L)	Selenium, total (mg/L)	Strontium, total (mg/L)	Thallium, total (mg/L)	Titanium, total (mg/L)	Uranium, total (mg/L)	Vanadium, total (mg/L)	Zinc, total (mg/L)
KP 6.2	8/31/24	0.0034	0.00021	0.00106	0.0611	<0.000100	0.0000609	<0.000010	<0.00050	<0.00010	<0.00050	<0.010	0.000056	0.006	0.00015	<0.0000050	0.0065	0.0065	0.00032	0.00199	0.32	0.00006	<0.00030	0.0123	0.0008	0.0263
KP 13.4	8/31/24	0.0122	<0.00010	<0.00010	0.0975	<0.000100	0.0000436	<0.000010	<0.00050	<0.00010	<0.00050	0.03	0.000092	0.0024	0.00073	<0.0000050	0.00112	0.00067	0.00022	0.000469	0.138	0.00001	<0.00030	0.00242	<0.00050	0.0057
KP 400 (Dup of KP 13.4)	8/31/24	0.0161	<0.00010	<0.00010	0.0945	<0.000100	0.000052	<0.000010	<0.00050	<0.00010	<0.00050	0.06	0.000198	0.0024	0.00129	<0.0000050	0.00109	<0.00050	0.00026	0.000464	0.136	0.000011	<0.00030	0.00242	<0.00050	0.0116
RPD between KP 13.4 and Duplicate		27.56	n/a	n/a	3.13	n/a	17.57	n/a	n/a	n/a	n/a	66.67	73.10	0.00	55.45	n/a	2.71	n/a	16.67	1.07	1.46	9.52	n/a	0.00	n/a	68.21
KP 20.3	8/30/24	0.0062	<0.00010	0.0001	0.0912	<0.000100	0.000107	<0.000010	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	0.00015	<0.0000050	0.00116	<0.00050	<0.00020	0.000106	0.0216	0.000017	<0.00030	0.00197	<0.00050	0.0161
KP 23.3	8/30/24	0.0071	<0.00010	<0.00010	0.0832	<0.000100	0.0000164	<0.000010	<0.00050	<0.00010	<0.00050	<0.010	0.000096	<0.0010	0.00037	<0.0000050	0.000698	<0.00050	<0.00020	0.000086	0.0506	0.000024	<0.00030	0.00158	<0.00050	0.0058
KP 25.4	8/30/24	0.0037	<0.00010	0.00011	0.0727	<0.000100	0.0000239	<0.000010	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	0.00018	<0.0000050	0.00135	<0.00050	<0.00020	0.00013	0.0377	0.00002	<0.00030	0.00261	<0.00050	0.0057
KP 28.5	8/30/24	0.0051	<0.00010	0.00013	0.0706	<0.000100	0.0000311	<0.000010	<0.00050	<0.00010	<0.00050	<0.010	0.00006	<0.0010	0.00055	<0.0000050	0.00123	<0.00050	<0.00020	0.000184	0.037	0.000018	<0.00030	0.00247	<0.00050	0.0074
KP 39.2	8/29/24	0.0079	<0.00010	0.00015	0.0477	<0.000100	0.0000184	<0.000010	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	0.00055	<0.0000050	0.000829	<0.00050	<0.00020	0.000246	0.0277	<0.000010	<0.00030	0.00227	<0.00050	0.005
KP 42.9	8/28/24	0.0184	<0.00010	0.00032	0.185	<0.000100	0.0000262	<0.000010	<0.00050	0.00014	<0.00050	0.457	<0.000050	0.0011	0.0723	<0.0000050	0.00119	0.0009	0.00022	0.000151	0.0981	<0.000010	<0.00030	0.000564	<0.00050	<0.0030
KP 53.2	8/28/24	0.0082	0.0001	0.00011	0.11	<0.000100	0.0000861	<0.000010	<0.00050	<0.00010	<0.00050	0.018	<0.000050	0.0013	0.00364	<0.0000050	0.00374	0.0016	0.00021	0.00132	0.111	0.000011	<0.00030	0.00234	<0.00050	0.0078
KP 87	8/28/24	0.419	0.00019	0.00046	0.0821	<0.000100	0.0000322	0.000106	0.00065	0.0003	0.00168	0.575	0.000252	0.0065	0.0155	<0.0000050	0.0074	0.00235	0.00182	0.000721	0.222	0.00002	0.0056	0.00327	0.00138	0.0038
KP 89.5	8/29/24	0.38	0.00012	0.00067	0.0763	<0.000100	0.0000524	0.000102	0.00056	0.00038	0.00137	0.606	0.000422	0.011	0.0334	0.0000068	0.00405	0.0027	0.00163	0.000598	0.449	0.000025	0.00666	0.00459	0.00152	0.0072
KP 95	8/28/24	0.0147	<0.00010	0.00071	0.0648	<0.000100	0.000016	<0.000010	<0.00050	<0.00010	<0.00050	0.171	0.000124	0.0034	0.0155	<0.0000050	0.000438	0.00094	0.00047	0.000063	0.558	<0.000010	<0.00030	0.000223	<0.00050	0.0061
KP 111.5	8/28/24	0.0864	<0.00010	0.0005	0.0873	<0.000100	0.000018	0.000015	<0.00050	0.00012	<0.00050	0.423	0.000101	0.0034	0.0474	<0.0000050	0.00164	0.00088	0.00044	0.000081	0.371	<0.000010	0.00113	0.000886	<0.00050	0.0059
KP 121	8/28/24	0.0168	<0.00010	0.00023	0.0885	<0.000100	0.0000136	<0.000010	<0.00050	<0.00010	<0.00050	0.039	<0.000050	0.0014	0.00179	<0.0000050	0.00101	<0.00050	0.00035	0.000233	0.0762	0.000053	<0.00030	0.00189	<0.00050	<0.0030
KP 156	8/28/24	0.638	0.00016	0.0008	0.0678	<0.000100	0.000109	0.000149	0.00074	0.00074	0.00138	0.862	0.000529	0.0066	0.0353	<0.0000050	0.00183	0.00454	0.00201	0.000732	0.23	0.000019	0.00959	0.002	0.00158	0.0142
KP 200 (Field Blank)	8/28/24	<0.0030	<0.00010	<0.00010	<0.00010	<0.000100	<0.0000050	<0.000010	<0.00050	<0.00010	<0.00050	<0.010	<0.000050	<0.0010	<0.00010	<0.0000050	<0.0000050	<0.00050	<0.00020	<0.000050	<0.00020	<0.000010	<0.00030	<0.000010	<0.00050	<0.0030



**NORZINC**  
A PREMIUM MINE DEVELOPER

## APPENDIX D – LABORATORY DATA



**CERTIFICATE OF ANALYSIS**

<b>Work Order</b>	: <b>FJ2402617</b>	<b>Page</b>	: 1 of 8
<b>Amendment</b>	: <b>1</b>	<b>Laboratory</b>	: ALS Environmental - Fort St. John
<b>Client</b>	: <b>NorZinc Ltd.</b>	<b>Account Manager</b>	: Thomas Chang
<b>Contact</b>	: Andrew Howton	<b>Address</b>	: 11007 Alaska Road
<b>Address</b>	: 510 Burrard St. Suite 907 Vancouver BC Canada V6C 3A8		: Fort St. John BC Canada V1J 6P3
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 250 261 5517
<b>Project</b>	: ----	<b>Date Samples Received</b>	: 29-Aug-2024 16:45
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 31-Aug-2024
<b>C-O-C number</b>	: 17-716112	<b>Issue Date</b>	: 27-Sep-2024 14:25
<b>Sampler</b>	: ----		
<b>Site</b>	: Canadian Zinc Water License Surveillance Network Program (SNP)		
<b>Quote number</b>	: VA24-NORZ100-001		
<b>No. of samples received</b>	: 8		
<b>No. of samples analysed</b>	: 8		

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>
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Wingyee Cheng	Analyst- General	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).

<i>Unit</i>	<i>Description</i>
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH 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

Amendment (27/09/2024): This report has been amended and re-released to allow the reporting of additional analytical data.



## Analytical Results

Sub-Matrix: Water					Client sample ID				
(Matrix: Water)					KP 156	KP 121	KP 111.5	KP 95	KP 87.0
Client sampling date / time					28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-001	FJ2402617-002	FJ2402617-003	FJ2402617-004	FJ2402617-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	124	164	229	191	204
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	9.6	3.0	8.6
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	4.8	1.5	4.3
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	124	164	238	194	212
Conductivity	----	E100/VA	2.0	µS/cm	352	309	481	603	550
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	185	168	249	282	294
pH	----	E108/VA	0.10	pH units	8.40	8.52	8.53	8.48	8.61
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	261	205	316	436	394
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	20.4	<3.0	3.4	<3.0	7.0
Turbidity	----	E121/VA	0.10	NTU	17.2	0.38	3.94	0.75	12.6
<b>Anions and Nutrients</b>									
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	0.80	<0.50	<0.50	<0.50	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.097	0.048	0.108	0.101	0.143
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	72.0	16.7	41.3	136	98.1
<b>Total Metals</b>									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.638	0.0168	0.0864	0.0147	0.419
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00016	<0.00010	<0.00010	<0.00010	0.00019
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00080	0.00023	0.00050	0.00071	0.00046
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0678	0.0885	0.0873	0.0648	0.0821
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.010	<0.010	0.018	0.048	0.011
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.000109	0.0000136	0.0000180	0.0000160	0.0000322
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	48.9	45.1	71.0	68.9	88.9
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000149	<0.000010	0.000015	<0.000010	0.000106
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	0.00074	<0.00050	<0.00050	<0.00050	0.00065
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00074	<0.00010	0.00012	<0.00010	0.00030
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00138	<0.00050	<0.00050	<0.00050	0.00168



## Analytical Results

Sub-Matrix: Water					Client sample ID				
(Matrix: Water)					KP 156	KP 121	KP 111.5	KP 95	KP 87.0
Client sampling date / time					28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-001	FJ2402617-002	FJ2402617-003	FJ2402617-004	FJ2402617-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.862	0.039	0.423	0.171	0.575
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000529	<0.000050	0.000101	0.000124	0.000252
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0066	0.0014	0.0034	0.0034	0.0065
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	15.2	13.5	17.4	26.8	17.4
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.0353	0.00179	0.0474	0.0155	0.0155
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00183	0.00101	0.00164	0.000438	0.00740
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00454	<0.00050	0.00088	0.00094	0.00235
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	0.910	0.392	0.755	0.837	1.30
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00201	0.00035	0.00044	0.00047	0.00182
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000732	0.000233	0.000081	0.000063	0.000721
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	3.20	1.68	2.59	1.20	3.66
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	2.33	1.30	7.75	22.4	2.04
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.230	0.0762	0.371	0.558	0.222
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	24.0	5.52	14.1	47.7	32.8
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	0.00024	<0.00020
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	0.000019	0.000053	<0.000010	<0.000010	0.000020
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	0.00016	<0.00010	<0.00010	<0.00010	0.00011
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	0.00959	<0.00030	0.00113	<0.00030	0.00560
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00200	0.00189	0.000886	0.000223	0.00327
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00158	<0.00050	<0.00050	<0.00050	0.00138
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0142	<0.0030	0.0059	0.0061	0.0038
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	0.00030	<0.00020	<0.00020	<0.00020	0.00030
<b>Aggregate Organics</b>									
Oil & grease (gravimetric)	----	E567/VA	5.0	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0
<b>Volatile Organic Compounds</b>									



## Analytical Results

Sub-Matrix: Water					Client sample ID	KP 156	KP 121	KP 111.5	KP 95	KP 87.0
(Matrix: Water)					Client sampling date / time	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-001	FJ2402617-002	FJ2402617-003	FJ2402617-004	FJ2402617-005	
					Result	Result	Result	Result	Result	
<b>Volatile Organic Compounds</b>										
BTEX, total	----	E611A/VA	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Volatile Organic Compounds [Fuels]</b>										
Benzene	71-43-2	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Styrene	100-42-5	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Toluene	108-88-3	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>Hydrocarbons</b>										
F1 (C6-C10)	----	E581.VH+F1/ VA	100	µg/L	<100	<100	<100	<100	<100	
F1-BTEX	----	EC580/VA	100	µg/L	<100	<100	<100	<100	<100	
F2 (C10-C16)	----	E601/VA	100	µg/L	<100	<100	<100	<100	<100	
F3 (C16-C34)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	
F4 (C34-C50)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	
TEH (C10-C50)	n/a	E601/VA	400	µg/L	<400	<400	<400	<400	<400	
TEH (C16-C50)	----	E601/VA	400	µg/L	<400	<400	<400	<400	<400	
<b>Hydrocarbons Surrogates</b>										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%	90.6	94.1	83.7	94.0	94.1	
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/ VA	1.0	%	99.1	96.3	104	92.0	97.0	
<b>Volatile Organic Compounds Surrogates</b>										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%	92.6	90.2	92.9	93.2	92.8	
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%	100	99.8	99.1	99.4	99.6	

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

Please refer to the Accreditation section for an explanation of analyte accreditations.



## Analytical Results

Sub-Matrix: Water					Client sample ID		KP 53.2	KP 42.9	KP 200	----	----
(Matrix: Water)					Client sampling date / time		28-Aug-2024 10:00	28-Aug-2024 15:30	28-Aug-2024 15:30	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-006	FJ2402617-007	FJ2402617-008	-----	-----		
					Result	Result	Result	----	----		
<b>Physical Tests</b>											
Alkalinity, bicarbonate (as CaCO3)	---	E290/VA	1.0	mg/L	173	193	<1.0	----	----		
Alkalinity, carbonate (as CaCO3)	---	E290/VA	1.0	mg/L	<1.0	5.2	<1.0	----	----		
Alkalinity, hydroxide (as CaCO3)	---	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	----	----		
Alkalinity, phenolphthalein (as CaCO3)	---	E290/VA	1.0	mg/L	<1.0	2.6	<1.0	----	----		
Alkalinity, total (as CaCO3)	---	E290/VA	1.0	mg/L	173	199	<1.0	----	----		
Conductivity	---	E100/VA	2.0	µS/cm	352	349	<2.0	----	----		
Hardness (as CaCO3), from total Ca/Mg	---	EC100A/VA	0.60	mg/L	189	192	<0.60	----	----		
pH	---	E108/VA	0.10	pH units	8.53	8.56	6.04	----	----		
Solids, total dissolved [TDS]	---	E162/VA	10	mg/L	222	223	<10	----	----		
Solids, total suspended [TSS]	---	E160/VA	3.0	mg/L	<3.0	<3.0	<3.0	----	----		
Turbidity	---	E121/VA	0.10	NTU	0.20	1.26	<0.10	----	----		
<b>Anions and Nutrients</b>											
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	<0.50	<0.50	<0.50	----	----		
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.127	0.068	<0.020	----	----		
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	25.5	4.14	<0.30	----	----		
<b>Total Metals</b>											
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0082	0.0184	<0.0030	----	----		
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00010	<0.00010	<0.00010	----	----		
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00011	0.00032	<0.00010	----	----		
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.110	0.185	<0.00010	----	----		
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	<0.000100	----	----		
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----		
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	<0.010	<0.010	----	----		
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000861	0.0000262	<0.0000050	----	----		
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	54.6	65.0	<0.050	----	----		
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----		
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----		
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	0.00014	<0.00010	----	----		
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----		
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.018	0.457	<0.010	----	----		



## Analytical Results

Sub-Matrix: Water					Client sample ID	KP 53.2	KP 42.9	KP 200	----	----
(Matrix: Water)					Client sampling date / time	28-Aug-2024 10:00	28-Aug-2024 15:30	28-Aug-2024 15:30	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-006	FJ2402617-007	FJ2402617-008	-----	-----	
					Result	Result	Result	----	----	
<b>Total Metals</b>										
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0013	0.0011	<0.0010	----	----	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	12.7	7.22	<0.0050	----	----	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00364	0.0723	<0.00010	----	----	
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	----	----	
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00374	0.00119	<0.000050	----	----	
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00160	0.00090	<0.00050	----	----	
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	<0.050	<0.050	----	----	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	0.372	0.419	<0.050	----	----	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00021	0.00022	<0.00020	----	----	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.00132	0.000151	<0.000050	----	----	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	1.49	2.18	<0.10	----	----	
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	0.547	0.505	<0.050	----	----	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.111	0.0981	<0.00020	----	----	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	8.33	1.61	<0.50	----	----	
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	0.000011	<0.000010	<0.000010	----	----	
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	----	----	
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00234	0.000564	<0.000010	----	----	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0078	<0.0030	<0.0030	----	----	
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	
<b>Aggregate Organics</b>										
Oil & grease (gravimetric)	----	E567/VA	5.0	mg/L	<5.0	<5.0	<5.0	----	----	
<b>Volatile Organic Compounds</b>										
BTEX, total	----	E611A/VA	1.0	µg/L	<1.0	<1.0	<1.0	----	----	



## Analytical Results

Sub-Matrix: Water					Client sample ID	KP 53.2	KP 42.9	KP 200	----	----
(Matrix: Water)					Client sampling date / time	28-Aug-2024 10:00	28-Aug-2024 15:30	28-Aug-2024 15:30	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-006	FJ2402617-007	FJ2402617-008	-----	-----	
					Result	Result	Result	----	----	
<b>Volatile Organic Compounds [Fuels]</b>										
Benzene	71-43-2	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Styrene	100-42-5	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Toluene	108-88-3	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L	<0.40	<0.40	<0.40	----	----	
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L	<0.30	<0.30	<0.30	----	----	
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
<b>Hydrocarbons</b>										
F1 (C6-C10)	----	E581.VH+F1/ VA	100	µg/L	<100	<100	<100	----	----	
F1-BTEX	----	EC580/VA	100	µg/L	<100	<100	<100	----	----	
F2 (C10-C16)	----	E601/VA	100	µg/L	<100	<100	<100	----	----	
F3 (C16-C34)	----	E601/VA	250	µg/L	<250	<250	<250	----	----	
F4 (C34-C50)	----	E601/VA	250	µg/L	<250	<250	<250	----	----	
TEH (C10-C50)	n/a	E601/VA	400	µg/L	<400	<400	<400	----	----	
TEH (C16-C50)	----	E601/VA	400	µg/L	<400	<400	<400	----	----	
<b>Hydrocarbons Surrogates</b>										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%	95.4	91.9	89.5	----	----	
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/ VA	1.0	%	104	121	95.9	----	----	
<b>Volatile Organic Compounds Surrogates</b>										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%	93.2	92.8	97.9	----	----	
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%	99.4	99.8	99.3	----	----	

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: FJ2402617</b>	<b>Page</b>	<b>: 1 of 21</b>
<b>Amendment</b>	<b>: 1</b>		
<b>Client</b>	: NorZinc Ltd.	<b>Laboratory</b>	: ALS Environmental - Fort St. John
<b>Contact</b>	: Andrew Howton	<b>Account Manager</b>	: Thomas Chang
<b>Address</b>	: 510 Burrard St. Suite 907 Vancouver BC Canada V6C 3A8	<b>Address</b>	: 11007 Alaska Road Fort St. John, British Columbia Canada V1J 6P3
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 250 261 5517
<b>Project</b>	: ----	<b>Date Samples Received</b>	: 29-Aug-2024 16:45
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 31-Aug-2024
<b>C-O-C number</b>	: 17-716112	<b>Issue Date</b>	: 27-Sep-2024 14:07
<b>Sampler</b>	: ----		
<b>Site</b>	: Canadian Zinc Water License Surveillance Network Program (SNP)		
<b>Quote number</b>	: VA24-NORZ100-001		
<b>No. of samples received</b>	: 8		
<b>No. of samples analysed</b>	: 8		

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 Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

### 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>
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Wingyee Cheng	Analyst- General	Vancouver Metals, Burnaby, British Columbia

Page : 2 of 21  
Work Order : FJ2402617 Amendment 1  
Client : NorZinc Ltd.  
Project : ----



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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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

## Workorder Comments

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Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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### 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: 1628167)</b>											
FJ2402617-001	KP 156	Turbidity	----	E121	0.10	NTU	17.2	17.4	1.15%	15%	----
<b>Physical Tests (QC Lot: 1628365)</b>											
FJ2402617-001	KP 156	pH	----	E108	0.10	pH units	8.40	8.42	0.238%	4%	----
<b>Physical Tests (QC Lot: 1628366)</b>											
FJ2402617-001	KP 156	Conductivity	----	E100	2.0	µS/cm	352	352	0.00%	10%	----
<b>Physical Tests (QC Lot: 1631034)</b>											
FJ2402612-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	23.8	22.0	1.8	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 1631035)</b>											
FJ2402617-006	KP 53.2	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 1667371)</b>											
VA24C4392-002	Anonymous	Alkalinity, bicarbonate (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, carbonate (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 1671150)</b>											
FJ2402617-001	KP 156	Solids, total dissolved [TDS]	----	E162	20	mg/L	261	262	0.191%	20%	----
<b>Anions and Nutrients (QC Lot: 1667374)</b>											
VA24C4392-002	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1667375)</b>											
VA24C4392-002	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1667376)</b>											
VA24C4392-002	Anonymous	Sulfate (as SO <sub>4</sub> )	14808-79-8	E235.SO <sub>4</sub>	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
<b>Total Metals (QC Lot: 1631983)</b>											
KS2403542-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0060	mg/L	0.0146	0.0162	0.0016	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00020	mg/L	0.0178	0.0178	0.210%	20%	----
		Barium, total	7440-39-3	E420	0.00020	mg/L	0.0152	0.0152	0.596%	20%	----
		Beryllium, total	7440-41-7	E420	0.000040	mg/L	<0.000040	<0.000040	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: 1631983) - continued</b>											
KS2403542-001	Anonymous	Bismuth, total	7440-69-9	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	---
		Boron, total	7440-42-8	E420	0.020	mg/L	0.362	0.356	1.66%	20%	---
		Cadmium, total	7440-43-9	E420	0.0000400	mg/L	<0.0000400	<0.0000400	0	Diff <2x LOR	---
		Calcium, total	7440-70-2	E420	0.100	mg/L	16.2	16.2	0.0555%	20%	---
		Cesium, total	7440-46-2	E420	0.000020	mg/L	0.000024	0.000025	0.0000002	Diff <2x LOR	---
		Chromium, total	7440-47-3	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		Cobalt, total	7440-48-4	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
		Copper, total	7440-50-8	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		Iron, total	7439-89-6	E420	0.020	mg/L	0.132	0.133	0.0001	Diff <2x LOR	---
		Lead, total	7439-92-1	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	---
		Lithium, total	7439-93-2	E420	0.0020	mg/L	0.0059	0.0059	0.00002	Diff <2x LOR	---
		Magnesium, total	7439-95-4	E420	0.0100	mg/L	9.82	9.89	0.761%	20%	---
		Manganese, total	7439-96-5	E420	0.00020	mg/L	0.0744	0.0747	0.412%	20%	---
		Molybdenum, total	7439-98-7	E420	0.000100	mg/L	0.289	0.290	0.244%	20%	---
		Nickel, total	7440-02-0	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		Phosphorus, total	7723-14-0	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	---
		Potassium, total	7440-09-7	E420	0.100	mg/L	15.1	14.8	1.74%	20%	---
		Rubidium, total	7440-17-7	E420	0.00040	mg/L	0.00680	0.00662	2.71%	20%	---
		Selenium, total	7782-49-2	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	---
		Silicon, total	7440-21-3	E420	0.20	mg/L	5.10	4.96	2.89%	20%	---
		Silver, total	7440-22-4	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---
		Sodium, total	7440-23-5	E420	0.100	mg/L	461	456	1.00%	20%	---
		Strontium, total	7440-24-6	E420	0.00040	mg/L	1.16	1.18	1.74%	20%	---
		Sulfur, total	7704-34-9	E420	1.00	mg/L	283	280	1.17%	20%	---
		Tellurium, total	13494-80-9	E420	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	---
		Thallium, total	7440-28-0	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---
		Thorium, total	7440-29-1	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
		Tin, total	7440-31-5	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
		Titanium, total	7440-32-6	E420	0.00120	mg/L	<0.00120	<0.00120	0	Diff <2x LOR	---
		Tungsten, total	7440-33-7	E420	0.00020	mg/L	0.00069	0.00070	0.00001	Diff <2x LOR	---
		Uranium, total	7440-61-1	E420	0.000020	mg/L	0.000774	0.000772	0.228%	20%	---
		Vanadium, total	7440-62-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		Zinc, total	7440-66-6	E420	0.0060	mg/L	<0.0060	<0.0060	0	Diff <2x LOR	---
		Zirconium, total	7440-67-7	E420	0.00040	mg/L	<0.00040	<0.00040	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: 1633129)</b>											
FJ2402602-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0165	0.0176	0.0010	Diff <2x LOR	---
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00144	0.00143	0.767%	20%	---
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00020	0.00020	0.0000005	Diff <2x LOR	---
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0231	0.0222	3.91%	20%	---
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	---
		Boron, total	7440-42-8	E420	0.010	mg/L	0.340	0.328	3.53%	20%	---
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000078	0.0000093	0.0000015	Diff <2x LOR	---
		Calcium, total	7440-70-2	E420	0.050	mg/L	187	179	4.55%	20%	---
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000029	0.000030	0.0000007	Diff <2x LOR	---
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	---
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	---
		Iron, total	7439-89-6	E420	0.010	mg/L	0.010	0.010	0.0002	Diff <2x LOR	---
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	---
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.428	0.406	5.12%	20%	---
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	98.8	98.2	0.585%	20%	---
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00041	0.00045	0.00004	Diff <2x LOR	---
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00339	0.00346	1.99%	20%	---
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.0306	0.0304	0.637%	20%	---
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	---
		Potassium, total	7440-09-7	E420	0.050	mg/L	3.69	3.64	1.47%	20%	---
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00341	0.00336	1.42%	20%	---
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.0288	0.0281	2.59%	20%	---
		Silicon, total	7440-21-3	E420	0.10	mg/L	2.34	2.37	1.51%	20%	---
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	---
		Sodium, total	7440-23-5	E420	0.050	mg/L	281	280	0.282%	20%	---
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.273	0.275	0.565%	20%	---
		Sulfur, total	7704-34-9	E420	0.50	mg/L	339	336	0.962%	20%	---
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000037	0.000037	0.0000004	Diff <2x LOR	---
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Titanium, total	7440-32-6	E420	0.00060	mg/L	<0.00060	<0.00060	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: 1633129) - continued</b>											
FJ2402602-001	Anonymous	Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.0239	0.0248	3.63%	20%	---
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	---
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	---
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
<b>Total Metals (QC Lot: 1633658)</b>											
FJ2402617-008	KP 200	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	---
<b>Total Metals (QC Lot: 1639394)</b>											
FJ2402600-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000056	0.0000051	0.0000006	Diff <2x LOR	---
<b>Volatile Organic Compounds (QC Lot: 1633580)</b>											
FJ2402617-008	KP 200	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	---
<b>Volatile Organic Compounds (QC Lot: 1636113)</b>											
FJ2402617-001	KP 156	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	---
<b>Volatile Organic Compounds (QC Lot: 1638085)</b>											
FJ2402617-007	KP 42.9	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	---
<b>Hydrocarbons (QC Lot: 1633581)</b>											



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>Hydrocarbons (QC Lot: 1633581) - continued</b>											
FJ2402617-008	KP 200	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
<b>Hydrocarbons (QC Lot: 1636112)</b>											
FJ2402617-001	KP 156	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
<b>Hydrocarbons (QC Lot: 1638086)</b>											
FJ2402617-007	KP 42.9	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: 1628167)</b>						
Turbidity	---	E121	0.1	NTU	<0.10	---
<b>Physical Tests (QCLot: 1628366)</b>						
Conductivity	---	E100	1	µS/cm	1.3	---
<b>Physical Tests (QCLot: 1631034)</b>						
Solids, total suspended [TSS]	---	E160	3	mg/L	<3.0	---
<b>Physical Tests (QCLot: 1631035)</b>						
Solids, total suspended [TSS]	---	E160	3	mg/L	<3.0	---
<b>Physical Tests (QCLot: 1667371)</b>						
Alkalinity, bicarbonate (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, carbonate (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, hydroxide (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, phenolphthalein (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, total (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
<b>Physical Tests (QCLot: 1671150)</b>						
Solids, total dissolved [TDS]	---	E162	10	mg/L	<10	---
<b>Anions and Nutrients (QCLot: 1667374)</b>						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
<b>Anions and Nutrients (QCLot: 1667375)</b>						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
<b>Anions and Nutrients (QCLot: 1667376)</b>						
Sulfate (as SO <sub>4</sub> )	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---
<b>Total Metals (QCLot: 1631983)</b>						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	---
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	---
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	---
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	---
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	---
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	---



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 1631983) - continued</b>						
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	---
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	---
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	---
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	---
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	---
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	---
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	---
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	---
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	---
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	---
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	---
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	---
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	---
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	---
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	---
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	---
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	---
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	---
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	---
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	---
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	---
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	---
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	---
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	---
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	---
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	---
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	---
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	---
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	---
<b>Total Metals (QCLot: 1633129)</b>						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	---
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	---



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 1633129) - continued</b>						
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	---
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	---
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	---
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	---
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	---
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	---
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	---
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	---
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	---
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	---
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	---
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	---
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	---
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	---
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	---
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	---
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	---
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	---
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	---
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	---
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	---
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	---
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	---
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	---
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	---
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	---
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	---
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	---
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	---
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	---
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	---
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	---
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	---
<b>Total Metals (QCLot: 1633658)</b>						



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 1633658) - continued</b>						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
<b>Total Metals (QCLot: 1639394)</b>						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
<b>Aggregate Organics (QCLot: 1638320)</b>						
Oil & grease (gravimetric)	----	E567	5	mg/L	<5.0	----
<b>Aggregate Organics (QCLot: 1643746)</b>						
Oil & grease (gravimetric)	----	E567	5	mg/L	<5.0	----
<b>Volatile Organic Compounds (QCLot: 1633580)</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>Volatile Organic Compounds (QCLot: 1636113)</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>Volatile Organic Compounds (QCLot: 1638085)</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: 1633581)</b>						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
<b>Hydrocarbons (QCLot: 1636017)</b>						
F2 (C10-C16)	----	E601	100	µg/L	<100	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Hydrocarbons (QCLot: 1636017) - continued</b>						
F3 (C16-C34)	---	E601	250	µg/L	<250	---
F4 (C34-C50)	---	E601	250	µg/L	<250	---
<b>Hydrocarbons (QCLot: 1636021)</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: 1636112)</b>						
F1 (C6-C10)	---	E581.VH+F1	100	µg/L	<100	---
<b>Hydrocarbons (QCLot: 1638086)</b>						
F1 (C6-C10)	---	E581.VH+F1	100	µg/L	<100	---
<b>Hydrocarbons (QCLot: 1641580)</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	---



## 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	Target Concentration	LCS	Low	High	Qualifier
<b>Physical Tests (QCLot: 1628167)</b>									
Turbidity	---	E121	0.1	NTU	200 NTU	97.0	85.0	115	---
<b>Physical Tests (QCLot: 1628365)</b>									
pH	---	E108	---	pH units	7 pH units	100	98.0	102	---
<b>Physical Tests (QCLot: 1628366)</b>									
Conductivity	---	E100	1	µS/cm	147 µS/cm	93.5	90.0	110	---
<b>Physical Tests (QCLot: 1631034)</b>									
Solids, total suspended [TSS]	---	E160	3	mg/L	150 mg/L	109	85.0	115	---
<b>Physical Tests (QCLot: 1631035)</b>									
Solids, total suspended [TSS]	---	E160	3	mg/L	150 mg/L	109	85.0	115	---
<b>Physical Tests (QCLot: 1667371)</b>									
Alkalinity, phenolphthalein (as CaCO <sub>3</sub> )	---	E290	1	mg/L	229 mg/L	111	75.0	125	---
Alkalinity, total (as CaCO <sub>3</sub> )	---	E290	1	mg/L	500 mg/L	104	85.0	115	---
<b>Physical Tests (QCLot: 1671150)</b>									
Solids, total dissolved [TDS]	---	E162	10	mg/L	1000 mg/L	106	85.0	115	---
<b>Anions and Nutrients (QCLot: 1667374)</b>									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	98.3	90.0	110	---
<b>Anions and Nutrients (QCLot: 1667375)</b>									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	---
<b>Anions and Nutrients (QCLot: 1667376)</b>									
Sulfate (as SO <sub>4</sub> )	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	---
<b>Total Metals (QCLot: 1631983)</b>									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	108	80.0	120	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	110	80.0	120	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	110	80.0	120	---
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	107	80.0	120	---
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	109	80.0	120	---
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	97.3	80.0	120	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	104	80.0	120	---
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	104	80.0	120	---



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Total Metals (QCLot: 1631983) - continued</b>									
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	102	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	91.3	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	107	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	105	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	118	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	107	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	107	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	112	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	97.0	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	108	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	105	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	105	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	103	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	104	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	107	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	99.8	80.0	120	----
<b>Total Metals (QCLot: 1633129)</b>									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	96.0	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	106	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Total Metals (QCLot: 1633129) - continued</b>									
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	91.6	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	94.2	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.3	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	107	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.5	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.0	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	97.4	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	93.9	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	94.3	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	103	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	95.9	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	113	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	96.4	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	96.5	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	96.5	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	101	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.9	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	94.8	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	90.8	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.8	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	93.3	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	94.7	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	95.0	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	98.8	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	95.7	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
<b>Total Metals (QCLot: 1633658)</b>									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	101	80.0	120	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Total Metals (QCLot: 1639394)</b>									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	86.0	80.0	120	----
<b>Aggregate Organics (QCLot: 1638320)</b>									
Oil & grease (gravimetric)	----	E567	5	mg/L	100 mg/L	101	70.0	130	----
<b>Aggregate Organics (QCLot: 1643746)</b>									
Oil & grease (gravimetric)	----	E567	5	mg/L	100 mg/L	103	70.0	130	----
<b>Volatile Organic Compounds (QCLot: 1633580)</b>									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	106	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	105	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	108	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	106	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	109	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	106	70.0	130	----
<b>Volatile Organic Compounds (QCLot: 1636113)</b>									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	104	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	108	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	107	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	113	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	104	70.0	130	----
<b>Volatile Organic Compounds (QCLot: 1638085)</b>									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	101	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	108	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	104	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	102	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	111	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	100	70.0	130	----
<b>Hydrocarbons (QCLot: 1633581)</b>									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	96.3	70.0	130	----
<b>Hydrocarbons (QCLot: 1636017)</b>									
F2 (C10-C16)	----	E601	100	µg/L	3540 µg/L	118	70.0	130	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Hydrocarbons (QCLot: 1636017) - continued</b>									
F3 (C16-C34)	----	E601	250	µg/L	7050 µg/L	108	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5050 µg/L	114	70.0	130	----
<b>Hydrocarbons (QCLot: 1636021)</b>									
F2 (C10-C16)	----	E601	100	µg/L	3540 µg/L	129	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7050 µg/L	114	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5050 µg/L	125	70.0	130	----
<b>Hydrocarbons (QCLot: 1636112)</b>									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	94.9	70.0	130	----
<b>Hydrocarbons (QCLot: 1638086)</b>									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	91.6	70.0	130	----
<b>Hydrocarbons (QCLot: 1641580)</b>									
F2 (C10-C16)	----	E601	100	µg/L	4250 µg/L	114	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	8460 µg/L	104	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	6060 µg/L	111	70.0	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
<b>Anions and Nutrients (QCLot: 1667374)</b>										
VA24C4399-001	Anonymous	Fluoride	16984-48-8	E235.F	0.994 mg/L	1 mg/L	99.4	75.0	125	---
<b>Anions and Nutrients (QCLot: 1667375)</b>										
VA24C4399-001	Anonymous	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	---
<b>Anions and Nutrients (QCLot: 1667376)</b>										
VA24C4399-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	---	ND	75.0	125	---
<b>Total Metals (QCLot: 1631983)</b>										
KS2403542-002	Anonymous	Aluminum, total	7429-90-5	E420	0.203 mg/L	0.2 mg/L	101	70.0	130	---
		Antimony, total	7440-36-0	E420	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	---
		Arsenic, total	7440-38-2	E420	ND mg/L	---	ND	70.0	130	---
		Barium, total	7440-39-3	E420	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	---
		Beryllium, total	7440-41-7	E420	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	---
		Bismuth, total	7440-69-9	E420	0.00897 mg/L	0.01 mg/L	89.7	70.0	130	---
		Boron, total	7440-42-8	E420	ND mg/L	---	ND	70.0	130	---
		Cadmium, total	7440-43-9	E420	0.00374 mg/L	0.004 mg/L	93.6	70.0	130	---
		Calcium, total	7440-70-2	E420	ND mg/L	---	ND	70.0	130	---
		Cesium, total	7440-46-2	E420	0.00941 mg/L	0.01 mg/L	94.1	70.0	130	---
		Chromium, total	7440-47-3	E420	0.0371 mg/L	0.04 mg/L	92.7	70.0	130	---
		Cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.3	70.0	130	---
		Copper, total	7440-50-8	E420	0.0178 mg/L	0.02 mg/L	89.2	70.0	130	---
		Iron, total	7439-89-6	E420	1.82 mg/L	2 mg/L	91.0	70.0	130	---
		Lead, total	7439-92-1	E420	0.0177 mg/L	0.02 mg/L	88.6	70.0	130	---
		Lithium, total	7439-93-2	E420	0.0884 mg/L	0.1 mg/L	88.4	70.0	130	---
		Magnesium, total	7439-95-4	E420	ND mg/L	---	ND	70.0	130	---
		Manganese, total	7439-96-5	E420	ND mg/L	---	ND	70.0	130	---
		Molybdenum, total	7439-98-7	E420	ND mg/L	---	ND	70.0	130	---
		Nickel, total	7440-02-0	E420	0.0363 mg/L	0.04 mg/L	90.7	70.0	130	---
		Phosphorus, total	7723-14-0	E420	10.4 mg/L	10 mg/L	104	70.0	130	---
		Potassium, total	7440-09-7	E420	ND mg/L	---	ND	70.0	130	---
		Rubidium, total	7440-17-7	E420	0.0188 mg/L	0.02 mg/L	94.2	70.0	130	---
		Selenium, total	7782-49-2	E420	0.0400 mg/L	0.04 mg/L	100	70.0	130	---
		Silicon, total	7440-21-3	E420	9.87 mg/L	10 mg/L	98.7	70.0	130	---
		Silver, total	7440-22-4	E420	0.00370 mg/L	0.004 mg/L	92.6	70.0	130	---
		Sodium, total	7440-23-5	E420	ND mg/L	---	ND	70.0	130	---
		Strontium, total	7440-24-6	E420	ND mg/L	---	ND	70.0	130	---
		Sulfur, total	7704-34-9	E420	ND mg/L	---	ND	70.0	130	---
		Tellurium, total	13494-80-9	E420	0.0386 mg/L	0.04 mg/L	96.6	70.0	130	---
		Thallium, total	7440-28-0	E420	0.00347 mg/L	0.004 mg/L	86.6	70.0	130	---
		Thorium, total	7440-29-1	E420	0.0140 mg/L	0.02 mg/L	70.0	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
<b>Total Metals (QCLot: 1631983) - continued</b>										
KS2403542-002	Anonymous	Tin, total	7440-31-5	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	---
		Titanium, total	7440-32-6	E420	0.0413 mg/L	0.04 mg/L	103	70.0	130	---
		Tungsten, total	7440-33-7	E420	0.0186 mg/L	0.02 mg/L	92.9	70.0	130	---
		Uranium, total	7440-61-1	E420	0.00362 mg/L	0.004 mg/L	90.6	70.0	130	---
		Vanadium, total	7440-62-2	E420	0.0993 mg/L	0.1 mg/L	99.3	70.0	130	---
		Zinc, total	7440-66-6	E420	0.379 mg/L	0.4 mg/L	94.7	70.0	130	---
		Zirconium, total	7440-67-7	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	---
<b>Total Metals (QCLot: 1633129)</b>										
FJ2402602-002	Anonymous	Aluminum, total	7429-90-5	E420	0.190 mg/L	0.2 mg/L	95.2	70.0	130	---
		Antimony, total	7440-36-0	E420	0.0197 mg/L	0.02 mg/L	98.3	70.0	130	---
		Arsenic, total	7440-38-2	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	---
		Barium, total	7440-39-3	E420	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	---
		Beryllium, total	7440-41-7	E420	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	---
		Bismuth, total	7440-69-9	E420	0.00850 mg/L	0.01 mg/L	85.0	70.0	130	---
		Boron, total	7440-42-8	E420	ND mg/L	---	ND	70.0	130	---
		Cadmium, total	7440-43-9	E420	0.00370 mg/L	0.004 mg/L	92.5	70.0	130	---
		Calcium, total	7440-70-2	E420	ND mg/L	---	ND	70.0	130	---
		Cesium, total	7440-46-2	E420	0.0104 mg/L	0.01 mg/L	104	70.0	130	---
		Chromium, total	7440-47-3	E420	0.0375 mg/L	0.04 mg/L	93.8	70.0	130	---
		Cobalt, total	7440-48-4	E420	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	---
		Copper, total	7440-50-8	E420	0.0175 mg/L	0.02 mg/L	87.5	70.0	130	---
		Iron, total	7439-89-6	E420	ND mg/L	---	ND	70.0	130	---
		Lead, total	7439-92-1	E420	0.0175 mg/L	0.02 mg/L	87.3	70.0	130	---
		Lithium, total	7439-93-2	E420	ND mg/L	---	ND	70.0	130	---
		Magnesium, total	7439-95-4	E420	ND mg/L	---	ND	70.0	130	---
		Manganese, total	7439-96-5	E420	ND mg/L	---	ND	70.0	130	---
		Molybdenum, total	7439-98-7	E420	0.0213 mg/L	0.02 mg/L	107	70.0	130	---
		Nickel, total	7440-02-0	E420	0.0348 mg/L	0.04 mg/L	86.9	70.0	130	---
		Phosphorus, total	7723-14-0	E420	11.0 mg/L	10 mg/L	110	70.0	130	---
		Potassium, total	7440-09-7	E420	3.81 mg/L	4 mg/L	95.3	70.0	130	---
		Rubidium, total	7440-17-7	E420	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	---
		Selenium, total	7782-49-2	E420	0.0414 mg/L	0.04 mg/L	104	70.0	130	---
		Silicon, total	7440-21-3	E420	8.96 mg/L	10 mg/L	89.6	70.0	130	---
		Silver, total	7440-22-4	E420	0.00394 mg/L	0.004 mg/L	98.4	70.0	130	---
		Sodium, total	7440-23-5	E420	ND mg/L	---	ND	70.0	130	---
		Strontium, total	7440-24-6	E420	ND mg/L	---	ND	70.0	130	---
		Sulfur, total	7704-34-9	E420	ND mg/L	---	ND	70.0	130	---
		Tellurium, total	13494-80-9	E420	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	---
		Thallium, total	7440-28-0	E420	0.00341 mg/L	0.004 mg/L	85.2	70.0	130	---
		Thorium, total	7440-29-1	E420	0.0147 mg/L	0.02 mg/L	73.7	70.0	130	---
		Tin, total	7440-31-5	E420	0.0190 mg/L	0.02 mg/L	94.9	70.0	130	---
		Titanium, total	7440-32-6	E420	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	---
		Tungsten, total	7440-33-7	E420	0.0184 mg/L	0.02 mg/L	92.3	70.0	130	---
		Uranium, total	7440-61-1	E420	ND mg/L	---	ND	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
<b>Total Metals (QCLot: 1633129) - continued</b>										
FJ2402602-002	Anonymous	Vanadium, total	7440-62-2	E420	0.0990 mg/L	0.1 mg/L	99.0	70.0	130	----
		Zinc, total	7440-66-6	E420	0.355 mg/L	0.4 mg/L	88.8	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0426 mg/L	0.04 mg/L	106	70.0	130	----
<b>Total Metals (QCLot: 1633658)</b>										
FJ2402628-001	Anonymous	Mercury, total	7439-97-6	E508	0.000101 mg/L	0 mg/L	101	70.0	130	----
<b>Total Metals (QCLot: 1639394)</b>										
FJ2402617-001	KP 156	Mercury, total	7439-97-6	E508	0.000101 mg/L	0 mg/L	101	70.0	130	----
<b>Volatile Organic Compounds (QCLot: 1633580)</b>										
FJ2402617-008	KP 200	Benzene	71-43-2	E611A	104 µg/L	100 µg/L	104	60.0	140	----
		Ethylbenzene	100-41-4	E611A	106 µg/L	100 µg/L	106	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	104 µg/L	100 µg/L	104	60.0	140	----
		Styrene	100-42-5	E611A	108 µg/L	100 µg/L	108	60.0	140	----
		Toluene	108-88-3	E611A	104 µg/L	100 µg/L	104	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	215 µg/L	200 µg/L	108	60.0	140	----
		Xylene, o-	95-47-6	E611A	105 µg/L	100 µg/L	105	60.0	140	----
<b>Volatile Organic Compounds (QCLot: 1636113)</b>										
FJ2402617-003	KP 111.5	Benzene	71-43-2	E611A	104 µg/L	100 µg/L	104	60.0	140	----
		Ethylbenzene	100-41-4	E611A	107 µg/L	100 µg/L	107	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	108 µg/L	100 µg/L	108	60.0	140	----
		Styrene	100-42-5	E611A	106 µg/L	100 µg/L	106	60.0	140	----
		Toluene	108-88-3	E611A	105 µg/L	100 µg/L	105	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	222 µg/L	200 µg/L	111	60.0	140	----
		Xylene, o-	95-47-6	E611A	103 µg/L	100 µg/L	103	60.0	140	----
<b>Volatile Organic Compounds (QCLot: 1638085)</b>										
FJ2402658-001	Anonymous	Benzene	71-43-2	E611A	97.2 µg/L	100 µg/L	97.2	60.0	140	----
		Ethylbenzene	100-41-4	E611A	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	106 µg/L	100 µg/L	106	60.0	140	----
		Styrene	100-42-5	E611A	98.2 µg/L	100 µg/L	98.2	60.0	140	----
		Toluene	108-88-3	E611A	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	216 µg/L	200 µg/L	108	60.0	140	----
		Xylene, o-	95-47-6	E611A	96.0 µg/L	100 µg/L	96.0	60.0	140	----
<b>Hydrocarbons (QCLot: 1633581)</b>										
VA24C2955-003	Anonymous	F1 (C6-C10)	----	E581.VH+F1	5150 µg/L	6310 µg/L	81.6	60.0	140	----
<b>Hydrocarbons (QCLot: 1636112)</b>										
FJ2402617-002	KP 121	F1 (C6-C10)	----	E581.VH+F1	5480 µg/L	6310 µg/L	86.9	60.0	140	----
<b>Hydrocarbons (QCLot: 1638086)</b>										
VA24C2562-002	Anonymous	F1 (C6-C10)	----	E581.VH+F1	4620 µg/L	6310 µg/L	73.2	60.0	140	----





## QUALITY CONTROL INTERPRETIVE REPORT

<p><b>Work Order</b> : FJ2402617</p> <p><b>Amendment</b> : 1</p> <p><b>Client</b> : NorZinc Ltd.</p> <p><b>Contact</b> : Andrew Howton</p> <p><b>Address</b> : 510 Burrard St. Suite 907 Vancouver BC Canada V6C 3A8</p> <p><b>Telephone</b> : ----</p> <p><b>Project</b> : ----</p> <p><b>PO</b> : ----</p> <p><b>C-O-C number</b> : 17-716112</p> <p><b>Sampler</b> : ----</p> <p><b>Site</b> : Canadian Zinc Water License Surveillance Network Program (SNP)</p> <p><b>Quote number</b> : VA24-NORZ100-001</p> <p><b>No. of samples received</b> : 8</p> <p><b>No. of samples analysed</b> : 8</p>	<p><b>Page</b> : 1 of 21</p> <p><b>Laboratory</b> : ALS Environmental - Fort St. John</p> <p><b>Account Manager</b> : Thomas Chang</p> <p><b>Address</b> : 11007 Alaska Road Fort St. John, British Columbia Canada V1J 6P3</p> <p><b>Telephone</b> : +1 250 261 5517</p> <p><b>Date Samples Received</b> : 29-Aug-2024 16:45</p> <p><b>Issue Date</b> : 27-Sep-2024 14:06</p>
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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 Service number is a unique identifier assigned to discrete substances.
- DQO: Data Quality Objective.
- LOR: Limit of Reporting (detection limit).
- RPD: Relative Percent Difference.

### ***Workorder Comments***

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

### ***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 : Analytical Method 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	
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 111.5	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 121	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 156	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 42.9	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 53.2	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 87.0	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 95	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔



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

Analyte Group : Analytical Method 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	
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
<b>Amber glass (hydrochloric acid)</b> KP 200	E567	28-Aug-2024	10-Sep-2024	28 days	13 days	✓	11-Sep-2024	28 days	14 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 111.5	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 121	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 156	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 200	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 42.9	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 53.2	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 87.0	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 95	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓



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

Analyte Group : Analytical Method 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	
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 111.5	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 121	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 156	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 200	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 42.9	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 53.2	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 87.0	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 95	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 111.5	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓



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

Analyte Group : Analytical Method 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		
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 121	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✔	23-Sep-2024	28 days	26 days	✔	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 156	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✔	23-Sep-2024	28 days	26 days	✔	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 200	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✔	23-Sep-2024	28 days	26 days	✔	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 42.9	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✔	23-Sep-2024	28 days	26 days	✔	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 53.2	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✔	23-Sep-2024	28 days	26 days	✔	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 87.0	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✔	23-Sep-2024	28 days	26 days	✔	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 95	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✔	23-Sep-2024	28 days	26 days	✔	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 200	E601	28-Aug-2024	10-Sep-2024	14 days	12 days	✔	11-Sep-2024	40 days	1 days	✔	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 42.9	E601	28-Aug-2024	06-Sep-2024	14 days	8 days	✔	08-Sep-2024	40 days	3 days	✔	



Matrix: **Water**

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

Analyte Group : Analytical Method 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		
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 121	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	40 days	0 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 156	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	40 days	0 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 111.5	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	08-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 53.2	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	08-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 87.0	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	08-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 95	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	08-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 200	E581.VH+F1	28-Aug-2024	04-Sep-2024	14 days	7 days	✓	05-Sep-2024	14 days	8 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 42.9	E581.VH+F1	28-Aug-2024	07-Sep-2024	14 days	9 days	✓	07-Sep-2024	14 days	10 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 111.5	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓	



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

Analyte Group : Analytical Method 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	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 121	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 156	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 53.2	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 87.0	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 95	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 111.5	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 121	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 156	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 200	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT



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Analyte Group : Analytical Method 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		
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 42.9	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 53.2	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 87.0	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 95	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT	
<b>Physical Tests : Conductivity in Water</b>											
HDPE KP 111.5	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓	
<b>Physical Tests : Conductivity in Water</b>											
HDPE KP 121	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓	
<b>Physical Tests : Conductivity in Water</b>											
HDPE KP 156	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓	
<b>Physical Tests : Conductivity in Water</b>											
HDPE KP 200	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓	
<b>Physical Tests : Conductivity in Water</b>											
HDPE KP 42.9	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓	



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 53.2	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 87.0	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 95	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓
<b>Physical Tests : pH by Meter</b>										
HDPE KP 200	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	72 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	94 hrs	* EHTR-FM
<b>Physical Tests : pH by Meter</b>										
HDPE KP 42.9	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	72 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	94 hrs	* EHTR-FM
<b>Physical Tests : pH by Meter</b>										
HDPE KP 111.5	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM
<b>Physical Tests : pH by Meter</b>										
HDPE KP 121	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM
<b>Physical Tests : pH by Meter</b>										
HDPE KP 156	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM
<b>Physical Tests : pH by Meter</b>										
HDPE KP 53.2	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM



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

Analyte Group : Analytical Method 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		
<b>Physical Tests : pH by Meter</b>											
HDPE KP 87.0	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 95	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 200	E162	28-Aug-2024	---	---	---		25-Sep-2024	7 days	27 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 42.9	E162	28-Aug-2024	---	---	---		25-Sep-2024	7 days	27 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 111.5	E162	28-Aug-2024	---	---	---		25-Sep-2024	7 days	28 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 121	E162	28-Aug-2024	---	---	---		25-Sep-2024	7 days	28 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 156	E162	28-Aug-2024	---	---	---		25-Sep-2024	7 days	28 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 53.2	E162	28-Aug-2024	---	---	---		25-Sep-2024	7 days	28 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 87.0	E162	28-Aug-2024	---	---	---		25-Sep-2024	7 days	28 days	* EHT	



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Analyte Group : Analytical Method 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	
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 95	E162	28-Aug-2024	----	----	----		25-Sep-2024	7 days	28 days	* EHT
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 200	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	6 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 42.9	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	6 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 111.5	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 121	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 156	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 53.2	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 87.0	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 95	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓



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Analyte Group : Analytical Method 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	
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 111.5	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 121	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 156	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 200	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 42.9	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 53.2	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 87.0	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 95	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 111.5	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✔	08-Sep-2024	28 days	11 days	✔



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

Analyte Group : Analytical Method 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	
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 121	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✔	08-Sep-2024	28 days	11 days	✔
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 156	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✔	08-Sep-2024	28 days	11 days	✔
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 42.9	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✔	08-Sep-2024	28 days	11 days	✔
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 53.2	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✔	08-Sep-2024	28 days	11 days	✔
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 87.0	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✔	08-Sep-2024	28 days	11 days	✔
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 95	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✔	08-Sep-2024	28 days	11 days	✔
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 200	E508	28-Aug-2024	05-Sep-2024	28 days	7 days	✔	05-Sep-2024	28 days	7 days	✔
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 200	E420	28-Aug-2024	04-Sep-2024	180 days	7 days	✔	05-Sep-2024	180 days	8 days	✔
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 111.5	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✔	09-Sep-2024	180 days	12 days	✔



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

Analyte Group : Analytical Method 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		
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 121	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 156	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 42.9	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 53.2	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 87.0	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 95	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 200	E611A	28-Aug-2024	04-Sep-2024	14 days	7 days	✓	05-Sep-2024	14 days	8 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 42.9	E611A	28-Aug-2024	07-Sep-2024	14 days	9 days	✓	07-Sep-2024	14 days	10 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 111.5	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓	



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

Analyte Group : Analytical Method 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	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 121	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	06-Sep-2024	14 days	9 days	✔
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 156	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	06-Sep-2024	14 days	9 days	✔
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 53.2	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	06-Sep-2024	14 days	9 days	✔
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 87.0	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	06-Sep-2024	14 days	9 days	✔
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 95	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	06-Sep-2024	14 days	9 days	✔

**Legend & Qualifier Definitions**

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

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 (%)		Evaluation
			QC	Regular	Actual	Expected	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Alkalinity Species by Titration	E290	1667371	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1633580	3	43	6.9	5.0	✓
Chloride in Water by IC	E235.Cl	1667375	1	19	5.2	5.0	✓
Conductivity in Water	E100	1628366	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1667374	1	11	9.0	5.0	✓
pH by Meter	E108	1628365	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1667376	1	12	8.3	5.0	✓
TDS by Gravimetry	E162	1671150	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1633658	2	40	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1631983	2	28	7.1	5.0	✓
TSS by Gravimetry	E160	1631034	2	30	6.6	5.0	✓
Turbidity by Nephelometry	E121	1628167	1	13	7.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1633581	3	36	8.3	5.0	✓
<b>Laboratory Control Samples (LCS)</b>							
Alkalinity Species by Titration	E290	1667371	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1633580	3	43	6.9	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1636017	3	28	10.7	5.0	✓
Chloride in Water by IC	E235.Cl	1667375	1	19	5.2	5.0	✓
Conductivity in Water	E100	1628366	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1667374	1	11	9.0	5.0	✓
Oil & Grease by Gravimetry	E567	1638320	2	18	11.1	5.0	✓
pH by Meter	E108	1628365	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1667376	1	12	8.3	5.0	✓
TDS by Gravimetry	E162	1671150	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1633658	2	40	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1631983	2	28	7.1	5.0	✓
TSS by Gravimetry	E160	1631034	2	30	6.6	5.0	✓
Turbidity by Nephelometry	E121	1628167	1	13	7.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1633581	3	36	8.3	5.0	✓
<b>Method Blanks (MB)</b>							
Alkalinity Species by Titration	E290	1667371	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1633580	3	43	6.9	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1636017	3	28	10.7	5.0	✓
Chloride in Water by IC	E235.Cl	1667375	1	19	5.2	5.0	✓
Conductivity in Water	E100	1628366	1	19	5.2	5.0	✓



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
<i>Analytical Methods</i>							
<b>Method Blanks (MB) - Continued</b>							
Fluoride in Water by IC	E235.F	1667374	1	11	9.0	5.0	✔
Oil & Grease by Gravimetry	E567	1638320	2	18	11.1	5.0	✔
Sulfate in Water by IC	E235.SO4	1667376	1	12	8.3	5.0	✔
TDS by Gravimetry	E162	1671150	1	12	8.3	5.0	✔
Total Mercury in Water by CVAAS	E508	1633658	2	40	5.0	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1631983	2	28	7.1	5.0	✔
TSS by Gravimetry	E160	1631034	2	30	6.6	5.0	✔
Turbidity by Nephelometry	E121	1628167	1	13	7.6	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	1633581	3	36	8.3	5.0	✔
<b>Matrix Spikes (MS)</b>							
BTEX by Headspace GC-MS	E611A	1633580	3	43	6.9	5.0	✔
Chloride in Water by IC	E235.Cl	1667375	1	19	5.2	5.0	✔
Fluoride in Water by IC	E235.F	1667374	1	11	9.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1667376	1	12	8.3	5.0	✔
Total Mercury in Water by CVAAS	E508	1633658	2	40	5.0	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1631983	2	28	7.1	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	1633581	3	36	8.3	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 Water	E100 ALS Environmental - Vancouver	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 water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	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 ALS Environmental - Vancouver	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	E160 ALS Environmental - Vancouver	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	E162 ALS Environmental - Vancouver	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.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	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.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS.  Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Oil & Grease by Gravimetry	E567 ALS Environmental - Vancouver	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane and the extract is evaporated to dryness. The residue is then weighed to determine Oil and Grease.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	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.  Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4).  Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	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.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	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.
F1-BTEX	EC580 ALS Environmental - Vancouver	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).
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions



<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Oil & Grease Extraction for Gravimetry	EP567 ALS Environmental - Vancouver	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane by liquid-liquid extraction.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	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 a GC-MS-FID.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.





**CERTIFICATE OF ANALYSIS**

<b>Work Order</b>	: <b>FJ2402658</b>		
<b>Amendment</b>	: <b>2</b>		
<b>Client</b>	: <b>NorZinc Ltd.</b>	<b>Laboratory</b>	: ALS Environmental - Edmonton
<b>Contact</b>	: Andrew Howton	<b>Account Manager</b>	: Thomas Chang
<b>Address</b>	: 510 Burrard St. Suite 907	<b>Address</b>	: 9450 - 17 Avenue NW
	Vancouver British Columbia Canada V6C 3A8		Edmonton AB Canada T6N 1M9
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 780 413 5227
<b>Project</b>	: ----	<b>Date Samples Received</b>	: 03-Sep-2024 15:10
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 06-Sep-2024
<b>C-O-C number</b>	: 23-1083340	<b>Issue Date</b>	: 02-Oct-2024 13:29
<b>Sampler</b>	: ----		
<b>Site</b>	: Canadian Zinc Water License Surveillance Network Program (SNP)		
<b>Quote number</b>	: VA24-NORZ100-001		
<b>No. of samples received</b>	: 10		
<b>No. of samples analysed</b>	: 10		

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>
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Daniel Shabestani	Lab Assistant	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Inorganics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Organics, Burnaby, British Columbia
Logan Carroll	Laboratory Analyst	Inorganics, Edmonton, Alberta
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	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).

<i>Unit</i>	<i>Description</i>
mg/L	milligrams per litre
µg/L	micrograms per litre
NTU	nephelometric turbidity units
pH units	pH units
µS/cm	microsiemens per centimetre
-	no 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

Amendment (01/10/2024): This report has been amended and re-released to allow the reporting of additional analytical data.

Amendment (02/10/2024): This report has been amended and re-released to allow the reporting of additional analytical data.



## Qualifiers

<u>Qualifier</u>	<u>Description</u>
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.



**Analytical Results**

Sub-Matrix: Water  
 (Matrix: Water)

				Client sample ID	KP 89.5	KP 39.2	KP 28.5	KP 25.4	KP 23.3
				Client sampling date / time	29-Aug-2024 00:00	29-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-001	FJ2402658-002	FJ2402658-003	FJ2402658-004	FJ2402658-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	216	122	125	88.8	124
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	19.4	3.0	4.8	<1.0	4.0
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	9.7	1.5	2.4	<1.0	2.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	235	125	130	88.8	128
Conductivity	----	E100/VA	2.0	µS/cm	659	272	374	205	402
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	360	147	198	205	214
pH	----	E108/VA	0.10	pH units	8.59	8.40	8.44	8.20	8.42
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	525	178	252	271	287
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	5.2	<3.0	<3.0	<3.0	<3.0
Turbidity	----	E121/VA	0.10	NTU	15.0	0.15	0.14	0.23	0.26
<b>Anions and Nutrients</b>									
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	3.64	<0.50	<0.50	<0.50	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.267	0.033	0.032	0.031	0.032
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	130	23.8	66.3	71.8	85.0
<b>Total Metals</b>									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.380	0.0079	0.0051	0.0037	0.0071
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00012	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00067	0.00015	0.00013	0.00011	<0.00010
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0763	0.0477	0.0706	0.0727	0.0832
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100



## Analytical Results

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 89.5	KP 39.2	KP 28.5	KP 25.4	KP 23.3
					Client sampling date / time	29-Aug-2024 00:00	29-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-001	FJ2402658-002	FJ2402658-003	FJ2402658-004	FJ2402658-005	
					Result	Result	Result	Result	Result	
<b>Total Metals</b>										
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.023	<0.010	<0.010	<0.010	<0.010	
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000524	0.0000184	0.0000311	0.0000239	0.0000164	
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	104	34.2	41.8	43.2	46.0	
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000102	<0.000010	<0.000010	<0.000010	<0.000010	
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	0.00056	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00038	<0.00010	<0.00010	<0.00010	<0.00010	
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00137	<0.00050	<0.00050	<0.00050	<0.00050	
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.606	<0.010	<0.010	<0.010	<0.010	
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000422	<0.000050	0.000060	<0.000050	0.000096	
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0110	<0.0010	<0.0010	<0.0010	<0.0010	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	24.3	15.0	22.7	23.7	24.1	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.0334	0.00055	0.00055	0.00018	0.00037	
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	0.0000068	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00405	0.000829	0.00123	0.00135	0.000698	
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00270	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	1.29	0.142	0.197	0.205	0.213	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00163	<0.00020	<0.00020	<0.00020	<0.00020	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000598	0.000246	0.000184	0.000130	0.000086	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	3.83	0.75	0.94	1.00	1.02	



**Analytical Results**

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 89.5	KP 39.2	KP 28.5	KP 25.4	KP 23.3
					Client sampling date / time	29-Aug-2024 00:00	29-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-001	FJ2402658-002	FJ2402658-003	FJ2402658-004	FJ2402658-005	
					Result	Result	Result	Result	Result	
<b>Total Metals</b>										
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	6.50	0.215	0.254	0.237	0.280	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.449	0.0277	0.0370	0.0377	0.0506	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	46.7	8.47	23.9	26.2	31.0	
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	0.000025	<0.000010	0.000018	0.000020	0.000024	
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	0.00666	<0.00030	<0.00030	<0.00030	<0.00030	
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00459	0.00227	0.00247	0.00261	0.00158	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00152	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0072	0.0050	0.0074	0.0057	0.0058	
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	0.00026	<0.00020	<0.00020	<0.00020	<0.00020	
<b>Aggregate Organics</b>										
Oil & grease (gravimetric)	----	E567/WT	5.0	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	
<b>Volatile Organic Compounds [Fuels]</b>										
Benzene	71-43-2	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Styrene	100-42-5	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	



### Analytical Results

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 89.5	KP 39.2	KP 28.5	KP 25.4	KP 23.3
					Client sampling date / time	29-Aug-2024 00:00	29-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-001	FJ2402658-002	FJ2402658-003	FJ2402658-004	FJ2402658-005	
					Result	Result	Result	Result	Result	
<b>Volatile Organic Compounds [Fuels]</b>										
Toluene	108-88-3	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
BTEX, total	----	E611A/VA	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Hydrocarbons</b>										
EPH (C10-C19), silica gel treated	----	E601A.SG/VA	250	µg/L	<250	<250	<250	<250	<250	
EPH (C19-C32), silica gel treated	----	E601A.SG/VA	250	µg/L	<250	<250	<250	<250	<250	
F1 (C6-C10)	----	E581.VH+F1/V A	100	µg/L	<100	<100	<100	<100	<100	
F2 (C10-C16)	----	E601/VA	100	µg/L	<100	<100	<100	<100	<100	
F3 (C16-C34)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	
F4 (C34-C50)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	
TPH (C10-C32), silica gel treated	----	E601A.SG/VA	500	µg/L	<500	<500	<500	<500	<500	
VHw (C6-C10)	----	E581.VH+F1/V A	100	µg/L	<100	<100	<100	<100	<100	
<b>Hydrocarbons Surrogates</b>										
Bromobenzotrifluoride, 2- (EPH-sg surrogate)	392-83-6	E601A.SG/VA	1.0	%	65.7	71.8	69.4	75.5	79.1	
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%	84.2	89.9	85.2	88.5	87.3	
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/V A	1.0	%	106	115	109	97.7	99.9	
<b>Volatile Organic Compounds Surrogates</b>										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%	93.8	91.8	91.2	92.2	92.8	
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%	100.0	99.1	99.3	98.8	100.0	



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

Please refer to the Accreditation section for an explanation of analyte accreditations.

### Analytical Results

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 20.3	KP 13.4	KP 6.2	KP 400	3-4
					Client sampling date / time	30-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	02-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-006	FJ2402658-007	FJ2402658-008	FJ2402658-010	FJ2402658-011	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	130	148	194	146	228	
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	4.4	6.6	15.4	7.0	<1.0	
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	2.2	3.3	7.7	3.5	<1.0	
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	134	154	209	153	228	
Conductivity	----	E100/VA	2.0	µS/cm	342	488	672	490	1160	
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	188	273	389	266	698	
pH	----	E108/VA	0.10	pH units	8.44	8.48	8.58	8.49	8.22	
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	242	365	516	367	1040	
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	
Turbidity	----	E121/VA	0.10	NTU	0.47	0.22	0.13	0.21	----	
<b>Anions and Nutrients</b>										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	----	----	----	----	0.0127	
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	----	----	----	----	<0.250 <sup>DLDS</sup>	
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<2.50 <sup>DLDS</sup>	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.025	0.026	0.114	0.023	<0.100 <sup>DLDS</sup>	
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L	----	----	----	----	0.072	
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	----	----	----	----	0.180	
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	----	----	----	----	<0.0050 <sup>DLDS</sup>	
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	----	----	----	----	<0.0010	



**Analytical Results**

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 20.3	KP 13.4	KP 6.2	KP 400	3-4
					Client sampling date / time	30-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	02-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-006	FJ2402658-007	FJ2402658-008	FJ2402658-010	FJ2402658-011	
					Result	Result	Result	Result	Result	
<b>Anions and Nutrients</b>										
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	----	----	----	----	----	<0.0020
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L	----	----	----	----	----	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	53.7	111	172	111	111	453
<b>Organic / Inorganic Carbon</b>										
Carbon, dissolved organic [DOC]	----	E358-L/EO	0.50	mg/L	----	----	----	----	----	1.41
<b>Total Metals</b>										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0062	0.0122	0.0034	0.0161	0.0161	0.0031
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	<0.00010	0.00021	<0.00010	<0.00010	0.0332
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00010	<0.00010	0.00106	<0.00010	<0.00010	0.00049
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0912	0.0975	0.0611	0.0945	0.0945	0.0237
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	<0.010	0.010	<0.010	<0.010	<0.010
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.000107	0.0000436	0.0000609	0.0000520	0.0000520	0.00273
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	40.2	60.0	80.5	58.9	58.9	148
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000049
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00051
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, total	7439-89-6	E420/VA	0.010	mg/L	<0.010	0.030	<0.010	0.060	0.060	0.585
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	<0.000050	0.000092	0.000056	0.000198	0.000198	0.000200



## Analytical Results

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 20.3	KP 13.4	KP 6.2	KP 400	3-4
					Client sampling date / time	30-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	02-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-006	FJ2402658-007	FJ2402658-008	FJ2402658-010	FJ2402658-011	
					Result	Result	Result	Result	Result	
<b>Total Metals</b>										
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	<0.0010	0.0024	0.0060	0.0024	0.0048	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	21.3	30.0	45.6	28.8	79.7	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00015	0.00073	0.00015	0.00129	0.0214	
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00116	0.00112	0.00650	0.00109	0.00286	
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	<0.00050	0.00067	0.00650	<0.00050	0.00945	
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	0.164	0.382	0.545	0.376	1.26	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	<0.00020	0.00022	0.00032	0.00026	0.00161	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000106	0.000469	0.00199	0.000464	0.00282	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	0.91	1.41	2.04	1.39	2.46	
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	0.237	0.680	1.50	0.658	11.9	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.0216	0.138	0.320	0.136	0.537	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	19.6	40.8	64.7	41.2	169	
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	0.000017	0.000010	0.000060	0.000011	0.000024	
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	0.00171	
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	



**Analytical Results**

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 20.3	KP 13.4	KP 6.2	KP 400	3-4
					Client sampling date / time	30-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	02-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-006	FJ2402658-007	FJ2402658-008	FJ2402658-010	FJ2402658-011	
					Result	Result	Result	Result	Result	
<b>Total Metals</b>										
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00197	0.00242	0.0123	0.00242	0.0165	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	<0.00050	0.00080	<0.00050	<0.00050	
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0161	0.0057	0.0263	0.0116	0.462	
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
<b>Dissolved Metals</b>										
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	----	----	----	----	0.0058	
Dissolved metals filtration location	----	EP421/VA	-	-	----	----	----	----	Field	
<b>Aggregate Organics</b>										
Oil & grease (gravimetric)	----	E567/WT	5.0	mg/L	<5.0	<5.0	<5.0	<5.0	----	
<b>Volatile Organic Compounds [Fuels]</b>										
Benzene	71-43-2	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
Styrene	100-42-5	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
Toluene	108-88-3	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L	<0.40	<0.40	<0.40	<0.40	----	
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L	<0.30	<0.30	<0.30	<0.30	----	
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
BTEX, total	----	E611A/VA	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----	
<b>Hydrocarbons</b>										
EPH (C10-C19), silica gel treated	----	E601A.SG/VA	250	µg/L	<250	<250	<250	<250	----	



## Analytical Results

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 20.3	KP 13.4	KP 6.2	KP 400	3-4
					Client sampling date / time	30-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	02-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-006	FJ2402658-007	FJ2402658-008	FJ2402658-010	FJ2402658-011	
					Result	Result	Result	Result	Result	
<b>Hydrocarbons</b>										
EPH (C19-C32), silica gel treated	----	E601A.SG/VA	250	µg/L	<250	<250	<250	<250	<250	----
F1 (C6-C10)	----	E581.VH+F1/V A	100	µg/L	<100	<100	<100	<100	<100	----
F2 (C10-C16)	----	E601/VA	100	µg/L	<100	<100	<100	<100	<100	----
F3 (C16-C34)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	----
F4 (C34-C50)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	----
TPH (C10-C32), silica gel treated	----	E601A.SG/VA	500	µg/L	<500	<500	<500	<500	<500	----
VHw (C6-C10)	----	E581.VH+F1/V A	100	µg/L	<100	<100	<100	<100	<100	----
<b>Hydrocarbons Surrogates</b>										
Bromobenzotrifluoride, 2- (EPH-sg surrogate)	392-83-6	E601A.SG/VA	1.0	%	59.5	69.7	59.9	61.4	61.4	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%	87.0	90.5	92.0	87.0	87.0	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/V A	1.0	%	109	100	96.0	107	107	----
<b>Volatile Organic Compounds Surrogates</b>										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%	94.3	89.3	90.9	92.4	92.4	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%	99.2	99.8	99.1	99.4	99.4	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: FJ2402658</b>	<b>Page</b>	: 1 of 16
<b>Amendment</b>	<b>: 2</b>		
<b>Client</b>	: NorZinc Ltd.	<b>Laboratory</b>	: ALS Environmental - Fort St. John
<b>Contact</b>	: Andrew Howton	<b>Account Manager</b>	: Thomas Chang
<b>Address</b>	: 510 Burrard St. Suite 907 Vancouver BC Canada V6C 3A8	<b>Address</b>	: 11007 Alaska Road Fort St. John, British Columbia Canada V1J 6P3
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 250 261 5517
<b>Project</b>	: ----	<b>Date Samples Received</b>	: 03-Sep-2024 15:10
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 06-Sep-2024
<b>C-O-C number</b>	: 23-1083340	<b>Issue Date</b>	: 02-Oct-2024 13:29
<b>Sampler</b>	: ----		
<b>Site</b>	: Canadian Zinc Water License Surveillance Network Program (SNP)		
<b>Quote number</b>	: VA24-NORZ100-001		
<b>No. of samples received</b>	: 10		
<b>No. of samples analysed</b>	: 10		

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 Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

### 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>
Cindy Tang	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
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Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia

Page : 2 of 16  
Work Order : FJ2402658 Amendment 2  
Client : NorZinc Ltd.  
Project : ----



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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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

## Workorder Comments

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Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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### 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: 1637344)</b>											
FJ2402658-001	KP 89.5	Solids, total suspended [TSS]	----	E160	3.0	mg/L	5.2	6.8	1.6	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 1637361)</b>											
FJ2402658-001	KP 89.5	Solids, total dissolved [TDS]	----	E162	20	mg/L	525	524	0.191%	20%	----
<b>Physical Tests (QC Lot: 1637631)</b>											
FJ2402645-001	Anonymous	Turbidity	----	E121	0.10	NTU	0.21	0.21	0.005	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 1638296)</b>											
FJ2402645-017	Anonymous	pH	----	E108	0.10	pH units	8.44	8.46	0.237%	4%	----
<b>Physical Tests (QC Lot: 1638297)</b>											
FJ2402645-017	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	158	157	0.318%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	7.0	7.4	5.56%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	3.5	3.7	0.2	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	165	164	0.0608%	20%	----
<b>Physical Tests (QC Lot: 1638298)</b>											
FJ2402645-017	Anonymous	Conductivity	----	E100	2.0	µS/cm	878	877	0.114%	10%	----
<b>Anions and Nutrients (QC Lot: 1637592)</b>											
FJ2402645-017	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0094	0.0090	0.0004	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1637593)</b>											
FJ2402658-011	3-4	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.072	0.069	0.004	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1637594)</b>											
FJ2402645-017	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0105	0.0103	0.0002	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1638289)</b>											
FJ2402645-017	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.151	0.144	0.007	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1638290)</b>											
FJ2402645-017	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1638291)</b>											
FJ2402645-017	Anonymous	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1638292)</b>											
FJ2402645-017	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	0.206	0.202	0.0036	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>Anions and Nutrients (QC Lot: 1638293)</b>											
FJ2402645-017	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1638294)</b>											
FJ2402645-017	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	330	329	0.103%	20%	----
<b>Anions and Nutrients (QC Lot: 1638295)</b>											
FJ2402645-017	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0033	0.0035	0.0002	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1639836)</b>											
EO2407762-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0844	0.0860	1.84%	20%	----
<b>Anions and Nutrients (QC Lot: 1683243)</b>											
FJ2402658-001	KP 89.5	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.267	0.259	3.04%	20%	----
<b>Anions and Nutrients (QC Lot: 1683244)</b>											
FJ2402658-001	KP 89.5	Chloride	16887-00-6	E235.Cl	0.50	mg/L	3.64	3.60	0.03	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1683245)</b>											
FJ2402658-001	KP 89.5	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	130	130	0.132%	20%	----
<b>Organic / Inorganic Carbon (QC Lot: 1639306)</b>											
FC2402393-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	10.9	10.8	1.30%	20%	----
<b>Total Metals (QC Lot: 1637639)</b>											
FJ2402658-001	KP 89.5	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.380	0.387	1.85%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00012	0.00012	0.000002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00067	0.00071	0.00005	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0763	0.0778	1.87%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.023	0.023	0.0002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000524	0.0000580	10.0%	20%	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	104	107	2.62%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000102	0.000104	2.29%	20%	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.00056	0.00059	0.00003	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00038	0.00038	0.000005	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00137	0.00140	0.00003	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.606	0.621	2.59%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000422	0.000429	0.000006	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0110	0.0110	0.431%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	24.3	24.0	1.37%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0334	0.0343	2.60%	20%	----



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: 1637639) - continued</b>											
FJ2402658-001	KP 89.5	Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00405	0.00403	0.327%	20%	---
		Nickel, total	7440-02-0	E420	0.000050	mg/L	0.00270	0.00272	0.00002	Diff <2x LOR	---
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	---
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.29	1.30	1.06%	20%	---
		Rubidium, total	7440-17-7	E420	0.000020	mg/L	0.00163	0.00163	0.000004	Diff <2x LOR	---
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000598	0.000577	3.50%	20%	---
		Silicon, total	7440-21-3	E420	0.10	mg/L	3.83	3.70	3.41%	20%	---
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	---
		Sodium, total	7440-23-5	E420	0.050	mg/L	6.50	6.32	2.75%	20%	---
		Strontium, total	7440-24-6	E420	0.000020	mg/L	0.449	0.432	3.82%	20%	---
		Sulfur, total	7704-34-9	E420	0.50	mg/L	46.7	47.5	1.79%	20%	---
		Tellurium, total	13494-80-9	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000025	0.000026	0.000001	Diff <2x LOR	---
		Thorium, total	7440-29-1	E420	0.000010	mg/L	0.00012	0.00012	0.000001	Diff <2x LOR	---
		Tin, total	7440-31-5	E420	0.000010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Titanium, total	7440-32-6	E420	0.000030	mg/L	0.00666	0.00640	3.95%	20%	---
		Tungsten, total	7440-33-7	E420	0.000010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00459	0.00459	0.0112%	20%	---
		Vanadium, total	7440-62-2	E420	0.000050	mg/L	0.00152	0.00148	0.00004	Diff <2x LOR	---
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0072	0.0072	0.00004	Diff <2x LOR	---
		Zirconium, total	7440-67-7	E420	0.000020	mg/L	0.00026	0.00027	0.000007	Diff <2x LOR	---
<b>Total Metals (QC Lot: 1641418)</b>											
FJ2402658-001	KP 89.5	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000068	0.0000063	0.0000005	Diff <2x LOR	---
<b>Dissolved Metals (QC Lot: 1637677)</b>											
VA24C2654-001	Anonymous	Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0553	0.0548	0.873%	20%	---
<b>Volatile Organic Compounds (QC Lot: 1638085)</b>											
FJ2402617-007	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	---



## 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: 1637344)</b>						
Solids, total suspended [TSS]	---	E160	3	mg/L	<3.0	---
<b>Physical Tests (QCLot: 1637361)</b>						
Solids, total dissolved [TDS]	---	E162	10	mg/L	<10	---
<b>Physical Tests (QCLot: 1637631)</b>						
Turbidity	---	E121	0.1	NTU	<0.10	---
<b>Physical Tests (QCLot: 1638297)</b>						
Alkalinity, bicarbonate (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, carbonate (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, hydroxide (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, phenolphthalein (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, total (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
<b>Physical Tests (QCLot: 1638298)</b>						
Conductivity	---	E100	1	µS/cm	<1.0	---
<b>Anions and Nutrients (QCLot: 1637592)</b>						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	---
<b>Anions and Nutrients (QCLot: 1637593)</b>						
Kjeldahl nitrogen, total [TKN]	---	E318	0.05	mg/L	<0.050	---
<b>Anions and Nutrients (QCLot: 1637594)</b>						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	---
<b>Anions and Nutrients (QCLot: 1638289)</b>						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
<b>Anions and Nutrients (QCLot: 1638290)</b>						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
<b>Anions and Nutrients (QCLot: 1638291)</b>						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	---
<b>Anions and Nutrients (QCLot: 1638292)</b>						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	---
<b>Anions and Nutrients (QCLot: 1638293)</b>						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	---
<b>Anions and Nutrients (QCLot: 1638294)</b>						
Sulfate (as SO <sub>4</sub> )	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Anions and Nutrients (QCLot: 1638295)</b>						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	---
<b>Anions and Nutrients (QCLot: 1639836)</b>						
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	---
<b>Anions and Nutrients (QCLot: 1683243)</b>						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
<b>Anions and Nutrients (QCLot: 1683244)</b>						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
<b>Anions and Nutrients (QCLot: 1683245)</b>						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---
<b>Organic / Inorganic Carbon (QCLot: 1639306)</b>						
Carbon, dissolved organic [DOC]	---	E358-L	0.5	mg/L	<0.50	---
<b>Total Metals (QCLot: 1637639)</b>						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	---
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	---
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	---
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	---
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	---
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	---
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	---
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	---
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	---
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	---
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	---
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	---
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	---
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	---
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	---
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	---
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	---
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	---
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	---



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 1637639) - continued</b>						
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
<b>Total Metals (QCLot: 1641418)</b>						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
<b>Dissolved Metals (QCLot: 1637677)</b>						
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
<b>Aggregate Organics (QCLot: 1639506)</b>						
Oil & grease (gravimetric)	----	E567	5	mg/L	<5.0	----
<b>Volatile Organic Compounds (QCLot: 1638085)</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: 1638042)</b>						
EPH (C10-C19), silica gel treated	----	E601A.SG	250	µg/L	<250	----
EPH (C19-C32), silica gel treated	----	E601A.SG	250	µg/L	<250	----
<b>Hydrocarbons (QCLot: 1673707)</b>						
F2 (C10-C16)	----	E601	100	µg/L	<100	----



Sub-Matrix: **Water**

<i>Analyte</i>	<i>CAS Number</i>	<i>Method</i>	<i>LOR</i>	<i>Unit</i>	<i>Result</i>	<i>Qualifier</i>
<b>Hydrocarbons (QCLot: 1673707) - continued</b>						
F3 (C16-C34)	---	E601	250	µg/L	<250	---
F4 (C34-C50)	---	E601	250	µg/L	<250	---
<b>Hydrocarbons (QCLot: 1676521)</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: 1685175)</b>						
F1 (C6-C10)	---	E581.VH+F1	100	µg/L	<100	---
VHw (C6-C10)	---	E581.VH+F1	100	µg/L	<100	---



## 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	Target Concentration	LCS	Low	High	Qualifier
<b>Physical Tests (QCLot: 1637344)</b>									
Solids, total suspended [TSS]	---	E160	3	mg/L	150 mg/L	88.7	85.0	115	---
<b>Physical Tests (QCLot: 1637361)</b>									
Solids, total dissolved [TDS]	---	E162	10	mg/L	1000 mg/L	105	85.0	115	---
<b>Physical Tests (QCLot: 1637631)</b>									
Turbidity	---	E121	0.1	NTU	200 NTU	97.0	85.0	115	---
<b>Physical Tests (QCLot: 1638296)</b>									
pH	---	E108	---	pH units	7 pH units	101	98.0	102	---
<b>Physical Tests (QCLot: 1638297)</b>									
Alkalinity, phenolphthalein (as CaCO <sub>3</sub> )	---	E290	1	mg/L	229 mg/L	88.0	75.0	125	---
Alkalinity, total (as CaCO <sub>3</sub> )	---	E290	1	mg/L	500 mg/L	99.5	85.0	115	---
<b>Physical Tests (QCLot: 1638298)</b>									
Conductivity	---	E100	1	µS/cm	147 µS/cm	99.1	90.0	110	---
<b>Anions and Nutrients (QCLot: 1637592)</b>									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	94.0	85.0	115	---
<b>Anions and Nutrients (QCLot: 1637593)</b>									
Kjeldahl nitrogen, total [TKN]	---	E318	0.05	mg/L	4 mg/L	103	75.0	125	---
<b>Anions and Nutrients (QCLot: 1637594)</b>									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	93.6	80.0	120	---
<b>Anions and Nutrients (QCLot: 1638289)</b>									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.7	90.0	110	---
<b>Anions and Nutrients (QCLot: 1638290)</b>									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	---
<b>Anions and Nutrients (QCLot: 1638291)</b>									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	103	85.0	115	---
<b>Anions and Nutrients (QCLot: 1638292)</b>									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	---
<b>Anions and Nutrients (QCLot: 1638293)</b>									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.2	90.0	110	---
<b>Anions and Nutrients (QCLot: 1638294)</b>									
Sulfate (as SO <sub>4</sub> )	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	---
<b>Anions and Nutrients (QCLot: 1638295)</b>									



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Anions and Nutrients (QCLot: 1638295) - continued</b>									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	95.4	80.0	120	---
<b>Anions and Nutrients (QCLot: 1639836)</b>									
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	94.0	80.0	120	---
<b>Anions and Nutrients (QCLot: 1683243)</b>									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	---
<b>Anions and Nutrients (QCLot: 1683244)</b>									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	---
<b>Anions and Nutrients (QCLot: 1683245)</b>									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	---
<b>Organic / Inorganic Carbon (QCLot: 1639306)</b>									
Carbon, dissolved organic [DOC]	---	E358-L	0.5	mg/L	8.57 mg/L	102	80.0	120	---
<b>Total Metals (QCLot: 1637639)</b>									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	102	80.0	120	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	100	80.0	120	---
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	97.5	80.0	120	---
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	---
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	90.8	80.0	120	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.9	80.0	120	---
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	102	80.0	120	---
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	100	80.0	120	---
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.9	80.0	120	---
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	96.9	80.0	120	---
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	94.3	80.0	120	---
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.4	80.0	120	---
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	99.0	80.0	120	---
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	98.6	80.0	120	---
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	---
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	96.4	80.0	120	---
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	101	80.0	120	---
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	96.2	80.0	120	---
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	92.8	80.0	120	---
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	97.1	80.0	120	---



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Total Metals (QCLot: 1637639) - continued</b>									
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	91.2	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	105	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	92.8	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	99.7	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	106	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.3	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	100	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	97.4	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	94.7	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	98.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	97.3	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	95.9	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	94.1	80.0	120	----
<b>Total Metals (QCLot: 1641418)</b>									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	96.5	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	91.4	80.0	120	----
<b>Aggregate Organics (QCLot: 1639506)</b>									
Oil & grease (gravimetric)	----	E567	5	mg/L	200 mg/L	99.6	70.0	130	----
<b>Volatile Organic Compounds (QCLot: 1638085)</b>									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	101	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	108	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	104	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	102	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	111	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	100	70.0	130	----
<b>Hydrocarbons (QCLot: 1638042)</b>									
EPH (C10-C19), silica gel treated	----	E601A.SG	250	µg/L	6490 µg/L	94.9	70.0	130	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Hydrocarbons (QCLot: 1638042) - continued</b>									
EPH (C19-C32), silica gel treated	----	E601A.SG	250	µg/L	3360 µg/L	99.2	70.0	130	----
<b>Hydrocarbons (QCLot: 1673707)</b>									
F2 (C10-C16)	----	E601	100	µg/L	3540 µg/L	106	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7050 µg/L	100	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5050 µg/L	107	70.0	130	----
<b>Hydrocarbons (QCLot: 1676521)</b>									
F2 (C10-C16)	----	E601	100	µg/L	3540 µg/L	115	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7050 µg/L	109	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5050 µg/L	116	70.0	130	----
<b>Hydrocarbons (QCLot: 1685175)</b>									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	89.7	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	92.8	70.0	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
<b>Anions and Nutrients (QCLot: 1637592)</b>										
FJ2402645-018	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0902 mg/L	0.1 mg/L	90.2	75.0	125	----
<b>Anions and Nutrients (QCLot: 1637593)</b>										
FJ2402669-005	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.53 mg/L	2.5 mg/L	101	70.0	130	----
<b>Anions and Nutrients (QCLot: 1637594)</b>										
FJ2402645-018	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0475 mg/L	0.05 mg/L	95.1	70.0	130	----
<b>Anions and Nutrients (QCLot: 1638289)</b>										
FJ2402645-018	Anonymous	Fluoride	16984-48-8	E235.F	0.993 mg/L	1 mg/L	99.3	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638290)</b>										
FJ2402645-018	Anonymous	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638291)</b>										
FJ2402645-018	Anonymous	Bromide	24959-67-9	E235.Br-L	0.510 mg/L	0.5 mg/L	102	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638292)</b>										
FJ2402645-018	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.52 mg/L	2.5 mg/L	101	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638293)</b>										
FJ2402645-018	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.488 mg/L	0.5 mg/L	97.5	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638294)</b>										
FJ2402645-018	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638295)</b>										
FJ2402645-018	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0317 mg/L	0.03 mg/L	106	70.0	130	----
<b>Anions and Nutrients (QCLot: 1639836)</b>										
EO2407762-002	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0744 mg/L	0.067 mg/L	111	70.0	130	----
<b>Anions and Nutrients (QCLot: 1683243)</b>										
FJ2402658-002	KP 39.2	Fluoride	16984-48-8	E235.F	1.04 mg/L	1 mg/L	104	75.0	125	----
<b>Anions and Nutrients (QCLot: 1683244)</b>										
FJ2402658-002	KP 39.2	Chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
<b>Anions and Nutrients (QCLot: 1683245)</b>										
FJ2402658-002	KP 39.2	Sulfate (as SO4)	14808-79-8	E235.SO4	103 mg/L	100 mg/L	103	75.0	125	----
<b>Organic / Inorganic Carbon (QCLot: 1639306)</b>										
FC2402393-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
<b>Total Metals (QCLot: 1637639)</b>										



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>Total Metals (QCLot: 1637639) - continued</b>										
FJ2402658-002	KP 39.2	Aluminum, total	7429-90-5	E420	0.186 mg/L	0.2 mg/L	93.0	70.0	130	---
		Antimony, total	7440-36-0	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	---
		Arsenic, total	7440-38-2	E420	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	---
		Barium, total	7440-39-3	E420	ND mg/L	---	ND	70.0	130	---
		Beryllium, total	7440-41-7	E420	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	---
		Bismuth, total	7440-69-9	E420	0.00958 mg/L	0.01 mg/L	95.8	70.0	130	---
		Boron, total	7440-42-8	E420	0.092 mg/L	0.1 mg/L	91.6	70.0	130	---
		Cadmium, total	7440-43-9	E420	0.00390 mg/L	0.004 mg/L	97.6	70.0	130	---
		Calcium, total	7440-70-2	E420	ND mg/L	---	ND	70.0	130	---
		Cesium, total	7440-46-2	E420	0.00994 mg/L	0.01 mg/L	99.4	70.0	130	---
		Chromium, total	7440-47-3	E420	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	---
		Cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	---
		Copper, total	7440-50-8	E420	0.0183 mg/L	0.02 mg/L	91.5	70.0	130	---
		Iron, total	7439-89-6	E420	1.84 mg/L	2 mg/L	92.0	70.0	130	---
		Lead, total	7439-92-1	E420	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	---
		Lithium, total	7439-93-2	E420	0.0915 mg/L	0.1 mg/L	91.5	70.0	130	---
		Magnesium, total	7439-95-4	E420	ND mg/L	---	ND	70.0	130	---
		Manganese, total	7439-96-5	E420	0.0184 mg/L	0.02 mg/L	91.9	70.0	130	---
		Molybdenum, total	7439-98-7	E420	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	---
		Nickel, total	7440-02-0	E420	0.0370 mg/L	0.04 mg/L	92.5	70.0	130	---
		Phosphorus, total	7723-14-0	E420	9.23 mg/L	10 mg/L	92.3	70.0	130	---
		Potassium, total	7440-09-7	E420	3.65 mg/L	4 mg/L	91.4	70.0	130	---
		Rubidium, total	7440-17-7	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	---
		Selenium, total	7782-49-2	E420	0.0366 mg/L	0.04 mg/L	91.6	70.0	130	---
		Silicon, total	7440-21-3	E420	9.20 mg/L	10 mg/L	92.0	70.0	130	---
		Silver, total	7440-22-4	E420	0.00395 mg/L	0.004 mg/L	98.7	70.0	130	---
		Sodium, total	7440-23-5	E420	1.88 mg/L	2 mg/L	94.1	70.0	130	---
		Strontium, total	7440-24-6	E420	ND mg/L	---	ND	70.0	130	---
		Sulfur, total	7704-34-9	E420	19.2 mg/L	20 mg/L	96.2	70.0	130	---
		Tellurium, total	13494-80-9	E420	0.0406 mg/L	0.04 mg/L	102	70.0	130	---
		Thallium, total	7440-28-0	E420	0.00372 mg/L	0.004 mg/L	92.9	70.0	130	---
		Thorium, total	7440-29-1	E420	0.0162 mg/L	0.02 mg/L	81.2	70.0	130	---
		Tin, total	7440-31-5	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	---
		Titanium, total	7440-32-6	E420	0.0368 mg/L	0.04 mg/L	92.0	70.0	130	---
		Tungsten, total	7440-33-7	E420	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	---
		Uranium, total	7440-61-1	E420	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	---
		Vanadium, total	7440-62-2	E420	0.0956 mg/L	0.1 mg/L	95.6	70.0	130	---
		Zinc, total	7440-66-6	E420	0.378 mg/L	0.4 mg/L	94.4	70.0	130	---
		Zirconium, total	7440-67-7	E420	0.0386 mg/L	0.04 mg/L	96.5	70.0	130	---
<b>Total Metals (QCLot: 1641418)</b>										
FJ2402658-002	KP 39.2	Mercury, total	7439-97-6	E508	0.0000941 mg/L	0 mg/L	94.1	70.0	130	---
<b>Dissolved Metals (QCLot: 1637677)</b>										
YL2401369-001	Anonymous	Zinc, dissolved	7440-66-6	E421	0.359 mg/L	0.4 mg/L	89.6	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
<b>Volatile Organic Compounds (QCLot: 1638085)</b>										
FJ2402658-001	KP 89.5	Benzene	71-43-2	E611A	97.2 µg/L	100 µg/L	97.2	60.0	140	----
		Ethylbenzene	100-41-4	E611A	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	106 µg/L	100 µg/L	106	60.0	140	----
		Styrene	100-42-5	E611A	98.2 µg/L	100 µg/L	98.2	60.0	140	----
		Toluene	108-88-3	E611A	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Xylene, m+p-	179601-23-1	E611A	216 µg/L	200 µg/L	108	60.0	140	----
		Xylene, o-	95-47-6	E611A	96.0 µg/L	100 µg/L	96.0	60.0	140	----
<b>Hydrocarbons (QCLot: 1685175)</b>										
FJ2402658-002	KP 39.2	F1 (C6-C10)	----	E581.VH+F1	4550 µg/L	6310 µg/L	72.1	60.0	140	----
		VHw (C6-C10)	----	E581.VH+F1	4710 µg/L	6310 µg/L	74.7	60.0	140	----



## QUALITY CONTROL INTERPRETIVE REPORT

<p><b>Work Order</b> : FJ2402658</p> <p><b>Amendment</b> : 2</p> <p><b>Client</b> : NorZinc Ltd.</p> <p><b>Contact</b> : Andrew Howton</p> <p><b>Address</b> : 510 Burrard St. Suite 907 Vancouver BC Canada V6C 3A8</p> <p><b>Telephone</b> : ----</p> <p><b>Project</b> : ----</p> <p><b>PO</b> : ----</p> <p><b>C-O-C number</b> : 23-1083340</p> <p><b>Sampler</b> : ----</p> <p><b>Site</b> : Canadian Zinc Water License Surveillance Network Program (SNP)</p> <p><b>Quote number</b> : VA24-NORZ100-001</p> <p><b>No. of samples received</b> : 10</p> <p><b>No. of samples analysed</b> : 10</p>	<p><b>Page</b> : 1 of 28</p> <p><b>Laboratory</b> : ALS Environmental - Fort St. John</p> <p><b>Account Manager</b> : Thomas Chang</p> <p><b>Address</b> : 11007 Alaska Road Fort St. John, British Columbia Canada V1J 6P3</p> <p><b>Telephone</b> : +1 250 261 5517</p> <p><b>Date Samples Received</b> : 03-Sep-2024 15:10</p> <p><b>Issue Date</b> : 02-Oct-2024 13:29</p>
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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 Service number is a unique identifier assigned to discrete substances.
- DQO: Data Quality Objective.
- LOR: Limit of Reporting (detection limit).
- RPD: Relative Percent Difference.

### ***Workorder Comments***

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

### ***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***

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.



## 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 : Analytical Method 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	
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 39.2	E567	29-Aug-2024	08-Sep-2024	28 days	10 days	✔	09-Sep-2024	28 days	11 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 89.5	E567	29-Aug-2024	08-Sep-2024	28 days	10 days	✔	09-Sep-2024	28 days	11 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 13.4	E567	31-Aug-2024	08-Sep-2024	28 days	8 days	✔	09-Sep-2024	28 days	9 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 400	E567	31-Aug-2024	08-Sep-2024	28 days	8 days	✔	09-Sep-2024	28 days	9 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 6.2	E567	31-Aug-2024	08-Sep-2024	28 days	8 days	✔	09-Sep-2024	28 days	9 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 20.3	E567	30-Aug-2024	08-Sep-2024	28 days	9 days	✔	09-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 23.3	E567	30-Aug-2024	08-Sep-2024	28 days	9 days	✔	09-Sep-2024	28 days	10 days	✔



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

Analyte Group : Analytical Method 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	
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 25.4	E567	30-Aug-2024	08-Sep-2024	28 days	9 days	✓	09-Sep-2024	28 days	10 days	✓
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 28.5	E567	30-Aug-2024	08-Sep-2024	28 days	9 days	✓	09-Sep-2024	28 days	10 days	✓
<b>Anions and Nutrients : Ammonia by Fluorescence</b>										
Amber glass total (lab preserved) 3-4	E298	02-Sep-2024	06-Sep-2024	3 days	5 days	* EHT	07-Sep-2024	28 days	0 days	✓
<b>Anions and Nutrients : Bromide in Water by IC (Low Level)</b>										
HDPE 3-4	E235.Br-L	02-Sep-2024	07-Sep-2024	28 days	5 days	✓	07-Sep-2024	28 days	5 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 13.4	E235.Cl	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 400	E235.Cl	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 6.2	E235.Cl	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 20.3	E235.Cl	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 23.3	E235.Cl	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT



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

Analyte Group : Analytical Method 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	
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 25.4	E235.Cl	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 28.5	E235.Cl	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 39.2	E235.Cl	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 89.5	E235.Cl	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE 3-4	E235.Cl	02-Sep-2024	07-Sep-2024	28 days	5 days	✓	07-Sep-2024	28 days	5 days	✓
<b>Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)</b>										
HDPE 3-4	E378-U	02-Sep-2024	07-Sep-2024	3 days	5 days	* EHT	08-Sep-2024	3 days	6 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 13.4	E235.F	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 400	E235.F	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 6.2	E235.F	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT



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

Analyte Group : Analytical Method 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	
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 20.3	E235.F	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 23.3	E235.F	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 25.4	E235.F	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 28.5	E235.F	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 39.2	E235.F	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 89.5	E235.F	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE 3-4	E235.F	02-Sep-2024	07-Sep-2024	28 days	5 days	✓	07-Sep-2024	28 days	5 days	✓
<b>Anions and Nutrients : Nitrate in Water by IC (Low Level)</b>										
HDPE 3-4	E235.NO3-L	02-Sep-2024	07-Sep-2024	3 days	5 days	* EHT	07-Sep-2024	3 days	5 days	* EHT
<b>Anions and Nutrients : Nitrite in Water by IC (Low Level)</b>										
HDPE 3-4	E235.NO2-L	02-Sep-2024	07-Sep-2024	3 days	5 days	* EHT	07-Sep-2024	3 days	5 days	* EHT



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

Analyte Group : Analytical Method 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	
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 13.4	E235.SO4	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 400	E235.SO4	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 6.2	E235.SO4	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 20.3	E235.SO4	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 23.3	E235.SO4	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 25.4	E235.SO4	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 28.5	E235.SO4	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 39.2	E235.SO4	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 89.5	E235.SO4	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT



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

Analyte Group : Analytical Method 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	
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE 3-4	E235.SO4	02-Sep-2024	07-Sep-2024	28 days	5 days	✓	07-Sep-2024	28 days	5 days	✓
<b>Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)</b>										
Amber glass dissolved (sulfuric acid) 3-4	E375-U	02-Sep-2024	09-Sep-2024	28 days	7 days	✓	09-Sep-2024	28 days	8 days	✓
<b>Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)</b>										
Amber glass total (lab preserved) 3-4	E318	02-Sep-2024	06-Sep-2024	3 days	5 days	* EHT	09-Sep-2024	28 days	2 days	✓
<b>Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)</b>										
Amber glass total (lab preserved) 3-4	E372-U	02-Sep-2024	06-Sep-2024	3 days	5 days	* EHT	09-Sep-2024	28 days	2 days	✓
<b>Dissolved Metals : Dissolved Metals in Water by CRC ICPMS</b>										
HDPE - dissolved (lab preserved) 3-4	E421	02-Sep-2024	08-Sep-2024	180 days	7 days	✓	09-Sep-2024	180 days	8 days	✓
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 13.4	E601A.SG	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	09-Sep-2024	40 days	3 days	✓
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 400	E601A.SG	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	09-Sep-2024	40 days	3 days	✓
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 6.2	E601A.SG	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	09-Sep-2024	40 days	3 days	✓
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 20.3	E601A.SG	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	09-Sep-2024	40 days	3 days	✓



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

Analyte Group : Analytical Method 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		
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 23.3	E601A.SG	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	09-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 25.4	E601A.SG	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	09-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 28.5	E601A.SG	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	09-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 39.2	E601A.SG	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	09-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 89.5	E601A.SG	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	09-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 13.4	E601	31-Aug-2024	26-Sep-2024	14 days	26 days	* EHT	26-Sep-2024	40 days	1 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 6.2	E601	31-Aug-2024	26-Sep-2024	14 days	26 days	* EHT	26-Sep-2024	40 days	1 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 20.3	E601	30-Aug-2024	26-Sep-2024	14 days	27 days	* EHT	26-Sep-2024	40 days	1 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 23.3	E601	30-Aug-2024	26-Sep-2024	14 days	27 days	* EHT	26-Sep-2024	40 days	1 days	✓	



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

Analyte Group : Analytical Method 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	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 25.4	E601	30-Aug-2024	26-Sep-2024	14 days	27 days	* EHT	26-Sep-2024	40 days	1 days	✓
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 28.5	E601	30-Aug-2024	26-Sep-2024	14 days	27 days	* EHT	26-Sep-2024	40 days	1 days	✓
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 400	E601	31-Aug-2024	27-Sep-2024	14 days	27 days	* EHT	27-Sep-2024	40 days	1 days	✓
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 39.2	E601	29-Aug-2024	26-Sep-2024	14 days	28 days	* EHT	26-Sep-2024	40 days	1 days	✓
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 89.5	E601	29-Aug-2024	26-Sep-2024	14 days	28 days	* EHT	26-Sep-2024	40 days	1 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 13.4	E581.VH+F1	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 400	E581.VH+F1	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 6.2	E581.VH+F1	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 20.3	E581.VH+F1	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓



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

Analyte Group : Analytical Method 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		
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 23.3	E581.VH+F1	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 25.4	E581.VH+F1	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 28.5	E581.VH+F1	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 39.2	E581.VH+F1	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	07-Sep-2024	14 days	9 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 89.5	E581.VH+F1	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	07-Sep-2024	14 days	9 days	✓	
<b>Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)</b>											
Amber glass dissolved (sulfuric acid) 3-4	E358-L	02-Sep-2024	08-Sep-2024	28 days	6 days	✓	08-Sep-2024	28 days	7 days	✓	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE 3-4	E290	02-Sep-2024	07-Sep-2024	14 days	5 days	✓	08-Sep-2024	14 days	6 days	✓	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 13.4	E290	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	08-Sep-2024	14 days	8 days	✓	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 400	E290	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	08-Sep-2024	14 days	8 days	✓	



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 6.2	E290	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	08-Sep-2024	14 days	8 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 20.3	E290	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	08-Sep-2024	14 days	9 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 23.3	E290	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	08-Sep-2024	14 days	9 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 25.4	E290	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	08-Sep-2024	14 days	9 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 28.5	E290	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	08-Sep-2024	14 days	9 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 39.2	E290	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	08-Sep-2024	14 days	10 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 89.5	E290	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	08-Sep-2024	14 days	10 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE 3-4	E100	02-Sep-2024	07-Sep-2024	28 days	5 days	✓	08-Sep-2024	28 days	6 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 13.4	E100	31-Aug-2024	07-Sep-2024	28 days	7 days	✓	08-Sep-2024	28 days	8 days	✓



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 400	E100	31-Aug-2024	07-Sep-2024	28 days	7 days	✓	08-Sep-2024	28 days	8 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 6.2	E100	31-Aug-2024	07-Sep-2024	28 days	7 days	✓	08-Sep-2024	28 days	8 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 20.3	E100	30-Aug-2024	07-Sep-2024	28 days	8 days	✓	08-Sep-2024	28 days	9 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 23.3	E100	30-Aug-2024	07-Sep-2024	28 days	8 days	✓	08-Sep-2024	28 days	9 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 25.4	E100	30-Aug-2024	07-Sep-2024	28 days	8 days	✓	08-Sep-2024	28 days	9 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 28.5	E100	30-Aug-2024	07-Sep-2024	28 days	8 days	✓	08-Sep-2024	28 days	9 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 39.2	E100	29-Aug-2024	07-Sep-2024	28 days	9 days	✓	08-Sep-2024	28 days	10 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 89.5	E100	29-Aug-2024	07-Sep-2024	28 days	9 days	✓	08-Sep-2024	28 days	10 days	✓
<b>Physical Tests : pH by Meter</b>										
HDPE 3-4	E108	02-Sep-2024	07-Sep-2024	0.25 hrs	129 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	155 hrs	* EHTR-FM



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Analyte Group : Analytical Method 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		
<b>Physical Tests : pH by Meter</b>											
HDPE KP 13.4	E108	31-Aug-2024	07-Sep-2024	0.25 hrs	177 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	203 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 400	E108	31-Aug-2024	07-Sep-2024	0.25 hrs	177 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	203 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 6.2	E108	31-Aug-2024	07-Sep-2024	0.25 hrs	177 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	203 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 20.3	E108	30-Aug-2024	07-Sep-2024	0.25 hrs	201 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	227 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 23.3	E108	30-Aug-2024	07-Sep-2024	0.25 hrs	201 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	227 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 25.4	E108	30-Aug-2024	07-Sep-2024	0.25 hrs	201 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	227 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 28.5	E108	30-Aug-2024	07-Sep-2024	0.25 hrs	201 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	227 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 39.2	E108	29-Aug-2024	07-Sep-2024	0.25 hrs	225 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	251 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 89.5	E108	29-Aug-2024	07-Sep-2024	0.25 hrs	225 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	251 hrs	* EHTR-FM	



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE 3-4	E162	02-Sep-2024	----	----	----		06-Sep-2024	7 days	5 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 13.4	E162	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 400	E162	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 6.2	E162	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 20.3	E162	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 23.3	E162	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 25.4	E162	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 28.5	E162	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 39.2	E162	29-Aug-2024	----	----	----		06-Sep-2024	7 days	9 days	* EHT



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 89.5	E162	29-Aug-2024	----	----	----		06-Sep-2024	7 days	9 days	✖ EHT
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE 3-4	E160	02-Sep-2024	----	----	----		06-Sep-2024	7 days	5 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 13.4	E160	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 400	E160	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 6.2	E160	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 20.3	E160	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 23.3	E160	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 25.4	E160	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 28.5	E160	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✔



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 39.2	E160	29-Aug-2024	----	----	----		06-Sep-2024	7 days	9 days	* EHT
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 89.5	E160	29-Aug-2024	----	----	----		06-Sep-2024	7 days	9 days	* EHT
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 13.4	E121	31-Aug-2024	----	----	----		06-Sep-2024	3 days	7 days	* EHTL
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 400	E121	31-Aug-2024	----	----	----		06-Sep-2024	3 days	7 days	* EHTL
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 6.2	E121	31-Aug-2024	----	----	----		06-Sep-2024	3 days	7 days	* EHTL
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 20.3	E121	30-Aug-2024	----	----	----		06-Sep-2024	3 days	8 days	* EHTR
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 23.3	E121	30-Aug-2024	----	----	----		06-Sep-2024	3 days	8 days	* EHTR
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 25.4	E121	30-Aug-2024	----	----	----		06-Sep-2024	3 days	8 days	* EHTR
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 28.5	E121	30-Aug-2024	----	----	----		06-Sep-2024	3 days	8 days	* EHTR



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 39.2	E121	29-Aug-2024	----	----	----		06-Sep-2024	3 days	9 days	* EHTR
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 89.5	E121	29-Aug-2024	----	----	----		06-Sep-2024	3 days	9 days	* EHTR
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 13.4	E508	31-Aug-2024	09-Sep-2024	28 days	10 days	✓	09-Sep-2024	28 days	10 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 400	E508	31-Aug-2024	09-Sep-2024	28 days	10 days	✓	09-Sep-2024	28 days	10 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 6.2	E508	31-Aug-2024	09-Sep-2024	28 days	10 days	✓	09-Sep-2024	28 days	10 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 20.3	E508	30-Aug-2024	09-Sep-2024	28 days	11 days	✓	09-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 23.3	E508	30-Aug-2024	09-Sep-2024	28 days	11 days	✓	09-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 25.4	E508	30-Aug-2024	09-Sep-2024	28 days	11 days	✓	09-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 28.5	E508	30-Aug-2024	09-Sep-2024	28 days	11 days	✓	09-Sep-2024	28 days	11 days	✓



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

Analyte Group : Analytical Method 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	
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 39.2	E508	29-Aug-2024	09-Sep-2024	28 days	12 days	✓	09-Sep-2024	28 days	12 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 89.5	E508	29-Aug-2024	09-Sep-2024	28 days	12 days	✓	09-Sep-2024	28 days	12 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) 3-4	E508	02-Sep-2024	09-Sep-2024	28 days	8 days	✓	09-Sep-2024	28 days	8 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 13.4	E420	31-Aug-2024	09-Sep-2024	180 days	10 days	✓	10-Sep-2024	180 days	10 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 400	E420	31-Aug-2024	09-Sep-2024	180 days	10 days	✓	10-Sep-2024	180 days	10 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 6.2	E420	31-Aug-2024	09-Sep-2024	180 days	10 days	✓	10-Sep-2024	180 days	10 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 20.3	E420	30-Aug-2024	09-Sep-2024	180 days	11 days	✓	10-Sep-2024	180 days	11 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 23.3	E420	30-Aug-2024	09-Sep-2024	180 days	11 days	✓	10-Sep-2024	180 days	11 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 25.4	E420	30-Aug-2024	09-Sep-2024	180 days	11 days	✓	10-Sep-2024	180 days	11 days	✓



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

Analyte Group : Analytical Method 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		
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 28.5	E420	30-Aug-2024	09-Sep-2024	180 days	11 days	✓	10-Sep-2024	180 days	11 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 39.2	E420	29-Aug-2024	09-Sep-2024	180 days	12 days	✓	10-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 89.5	E420	29-Aug-2024	09-Sep-2024	180 days	12 days	✓	10-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) 3-4	E420	02-Sep-2024	09-Sep-2024	180 days	8 days	✓	10-Sep-2024	180 days	8 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 13.4	E611A	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 400	E611A	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 6.2	E611A	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 20.3	E611A	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 23.3	E611A	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓	



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

Analyte Group : Analytical Method 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	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 25.4	E611A	30-Aug-2024	07-Sep-2024	14 days	8 days	✔	07-Sep-2024	14 days	8 days	✔
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 28.5	E611A	30-Aug-2024	07-Sep-2024	14 days	8 days	✔	07-Sep-2024	14 days	8 days	✔
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 39.2	E611A	29-Aug-2024	07-Sep-2024	14 days	9 days	✔	07-Sep-2024	14 days	9 days	✔
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 89.5	E611A	29-Aug-2024	07-Sep-2024	14 days	9 days	✔	07-Sep-2024	14 days	9 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
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Alkalinity Species by Titration	E290	1638297	1	17	5.8	5.0	✔
Ammonia by Fluorescence	E298	1637592	1	20	5.0	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1638291	1	8	12.5	5.0	✔
BTEX by Headspace GC-MS	E611A	1638085	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	1638290	2	17	11.7	5.0	✔
Conductivity in Water	E100	1638298	1	17	5.8	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1637677	1	14	7.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1639306	1	19	5.2	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1638295	1	8	12.5	5.0	✔
Fluoride in Water by IC	E235.F	1638289	2	17	11.7	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1638292	1	8	12.5	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1638293	1	8	12.5	5.0	✔
pH by Meter	E108	1638296	1	17	5.8	5.0	✔
Sulfate in Water by IC	E235.SO4	1638294	2	17	11.7	5.0	✔
TDS by Gravimetry	E162	1637361	1	20	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1639836	1	20	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1637593	1	12	8.3	5.0	✔
Total Mercury in Water by CVAAS	E508	1641418	1	20	5.0	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1637639	1	19	5.2	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1637594	1	17	5.8	5.0	✔
TSS by Gravimetry	E160	1637344	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	1637631	1	20	5.0	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	1685175	0	9	0.0	5.0	✖
<b>Laboratory Control Samples (LCS)</b>							
Alkalinity Species by Titration	E290	1638297	1	17	5.8	5.0	✔
Ammonia by Fluorescence	E298	1637592	1	20	5.0	5.0	✔
BC PHCs - EPH(sg) by GC-FID	E601A.SG	1638042	1	9	11.1	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1638291	1	8	12.5	5.0	✔
BTEX by Headspace GC-MS	E611A	1638085	1	20	5.0	5.0	✔
CCME PHCs - F2-F4 by GC-FID	E601	1673707	2	20	10.0	5.0	✔
Chloride in Water by IC	E235.Cl	1638290	2	17	11.7	5.0	✔
Conductivity in Water	E100	1638298	1	17	5.8	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1637677	1	14	7.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1639306	1	19	5.2	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1638295	1	8	12.5	5.0	✔
Fluoride in Water by IC	E235.F	1638289	2	17	11.7	5.0	✔



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
<i>Analytical Methods</i>							
<b>Laboratory Control Samples (LCS) - Continued</b>							
Nitrate in Water by IC (Low Level)	E235.NO3-L	1638292	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1638293	1	8	12.5	5.0	✓
Oil & Grease by Gravimetry	E567	1639506	1	16	6.2	5.0	✓
pH by Meter	E108	1638296	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1638294	2	17	11.7	5.0	✓
TDS by Gravimetry	E162	1637361	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1639836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1637593	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1641418	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1637639	1	19	5.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1637594	1	17	5.8	5.0	✓
TSS by Gravimetry	E160	1637344	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1637631	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1685175	1	9	11.1	5.0	✓
<b>Method Blanks (MB)</b>							
Alkalinity Species by Titration	E290	1638297	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1637592	1	20	5.0	5.0	✓
BC PHCs - EPH(sg) by GC-FID	E601A.SG	1638042	1	9	11.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1638291	1	8	12.5	5.0	✓
BTEX by Headspace GC-MS	E611A	1638085	1	20	5.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1673707	2	20	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	1638290	2	17	11.7	5.0	✓
Conductivity in Water	E100	1638298	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1637677	1	14	7.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1639306	1	19	5.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1638295	1	8	12.5	5.0	✓
Fluoride in Water by IC	E235.F	1638289	2	17	11.7	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1638292	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1638293	1	8	12.5	5.0	✓
Oil & Grease by Gravimetry	E567	1639506	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1638294	2	17	11.7	5.0	✓
TDS by Gravimetry	E162	1637361	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1639836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1637593	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1641418	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1637639	1	19	5.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1637594	1	17	5.8	5.0	✓
TSS by Gravimetry	E160	1637344	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1637631	1	20	5.0	5.0	✓



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
<i>Analytical Methods</i>							
<b>Method Blanks (MB) - Continued</b>							
VH and F1 by Headspace GC-FID	E581.VH+F1	1685175	1	9	11.1	5.0	✔
<b>Matrix Spikes (MS)</b>							
Ammonia by Fluorescence	E298	1637592	1	20	5.0	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1638291	1	8	12.5	5.0	✔
BTEX by Headspace GC-MS	E611A	1638085	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	1638290	2	17	11.7	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1637677	1	14	7.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1639306	1	19	5.2	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1638295	1	8	12.5	5.0	✔
Fluoride in Water by IC	E235.F	1638289	2	17	11.7	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1638292	1	8	12.5	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1638293	1	8	12.5	5.0	✔
Sulfate in Water by IC	E235.SO4	1638294	2	17	11.7	5.0	✔
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1639836	1	20	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1637593	1	12	8.3	5.0	✔
Total Mercury in Water by CVAAS	E508	1641418	1	20	5.0	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1637639	1	19	5.2	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1637594	1	17	5.8	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	1685175	1	9	11.1	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 Water	E100 ALS Environmental - Vancouver	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 water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	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 ALS Environmental - Vancouver	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	E160 ALS Environmental - Vancouver	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	E162 ALS Environmental - Vancouver	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 Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	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
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	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 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Edmonton	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 CO2. 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 by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.  Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS.  Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.  Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Oil & Grease by Gravimetry	E567 ALS Environmental - Waterloo	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane and the extract is evaporated to dryness. The residue is then weighed to determine Oil and Grease.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	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.  Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4).  Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH(sg) by GC-FID	E601A.SG ALS Environmental - Vancouver	Water	BC MOE Lab Manual (EPH in Water by GC/FID) (mod)	Sample extracts are subjected to column silica gel treatment prior to analysis by GC-FID for BC hydrocarbon fractions (EPHsg).
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	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.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	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.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions



<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Edmonton	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO <sub>3</sub> .
Oil & Grease Extraction for Gravimetry	EP567 ALS Environmental - Waterloo	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane by liquid-liquid extraction.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	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 a GC-MS-FID.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.





**CERTIFICATE OF ANALYSIS**

<b>Work Order</b>	: <b>FJ2402617</b>	<b>Page</b>	: 1 of 8
<b>Amendment</b>	: <b>1</b>	<b>Laboratory</b>	: ALS Environmental - Fort St. John
<b>Client</b>	: <b>NorZinc Ltd.</b>	<b>Account Manager</b>	: Thomas Chang
<b>Contact</b>	: Andrew Howton	<b>Address</b>	: 11007 Alaska Road
<b>Address</b>	: 510 Burrard St. Suite 907 Vancouver BC Canada V6C 3A8		: Fort St. John BC Canada V1J 6P3
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 250 261 5517
<b>Project</b>	: ----	<b>Date Samples Received</b>	: 29-Aug-2024 16:45
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 31-Aug-2024
<b>C-O-C number</b>	: 17-716112	<b>Issue Date</b>	: 27-Sep-2024 14:25
<b>Sampler</b>	: ----		
<b>Site</b>	: Canadian Zinc Water License Surveillance Network Program (SNP)		
<b>Quote number</b>	: VA24-NORZ100-001		
<b>No. of samples received</b>	: 8		
<b>No. of samples analysed</b>	: 8		

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>
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
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## 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).

<i>Unit</i>	<i>Description</i>
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH 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

Amendment (27/09/2024): This report has been amended and re-released to allow the reporting of additional analytical data.



## Analytical Results

Sub-Matrix: Water					Client sample ID				
(Matrix: Water)					KP 156	KP 121	KP 111.5	KP 95	KP 87.0
Client sampling date / time					28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-001	FJ2402617-002	FJ2402617-003	FJ2402617-004	FJ2402617-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	124	164	229	191	204
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	9.6	3.0	8.6
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	4.8	1.5	4.3
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	124	164	238	194	212
Conductivity	----	E100/VA	2.0	µS/cm	352	309	481	603	550
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	185	168	249	282	294
pH	----	E108/VA	0.10	pH units	8.40	8.52	8.53	8.48	8.61
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	261	205	316	436	394
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	20.4	<3.0	3.4	<3.0	7.0
Turbidity	----	E121/VA	0.10	NTU	17.2	0.38	3.94	0.75	12.6
<b>Anions and Nutrients</b>									
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	0.80	<0.50	<0.50	<0.50	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.097	0.048	0.108	0.101	0.143
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	72.0	16.7	41.3	136	98.1
<b>Total Metals</b>									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.638	0.0168	0.0864	0.0147	0.419
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00016	<0.00010	<0.00010	<0.00010	0.00019
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00080	0.00023	0.00050	0.00071	0.00046
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0678	0.0885	0.0873	0.0648	0.0821
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.010	<0.010	0.018	0.048	0.011
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.000109	0.0000136	0.0000180	0.0000160	0.0000322
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	48.9	45.1	71.0	68.9	88.9
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000149	<0.000010	0.000015	<0.000010	0.000106
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	0.00074	<0.00050	<0.00050	<0.00050	0.00065
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00074	<0.00010	0.00012	<0.00010	0.00030
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00138	<0.00050	<0.00050	<0.00050	0.00168



## Analytical Results

Sub-Matrix: Water					Client sample ID				
(Matrix: Water)					KP 156	KP 121	KP 111.5	KP 95	KP 87.0
Client sampling date / time					28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-001	FJ2402617-002	FJ2402617-003	FJ2402617-004	FJ2402617-005
					Result	Result	Result	Result	Result
<b>Total Metals</b>									
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.862	0.039	0.423	0.171	0.575
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000529	<0.000050	0.000101	0.000124	0.000252
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0066	0.0014	0.0034	0.0034	0.0065
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	15.2	13.5	17.4	26.8	17.4
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.0353	0.00179	0.0474	0.0155	0.0155
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00183	0.00101	0.00164	0.000438	0.00740
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00454	<0.00050	0.00088	0.00094	0.00235
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	0.910	0.392	0.755	0.837	1.30
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00201	0.00035	0.00044	0.00047	0.00182
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000732	0.000233	0.000081	0.000063	0.000721
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	3.20	1.68	2.59	1.20	3.66
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	2.33	1.30	7.75	22.4	2.04
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.230	0.0762	0.371	0.558	0.222
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	24.0	5.52	14.1	47.7	32.8
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	0.00024	<0.00020
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	0.000019	0.000053	<0.000010	<0.000010	0.000020
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	0.00016	<0.00010	<0.00010	<0.00010	0.00011
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	0.00959	<0.00030	0.00113	<0.00030	0.00560
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00200	0.00189	0.000886	0.000223	0.00327
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00158	<0.00050	<0.00050	<0.00050	0.00138
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0142	<0.0030	0.0059	0.0061	0.0038
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	0.00030	<0.00020	<0.00020	<0.00020	0.00030
<b>Aggregate Organics</b>									
Oil & grease (gravimetric)	----	E567/VA	5.0	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0
<b>Volatile Organic Compounds</b>									



## Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	KP 156	KP 121	KP 111.5	KP 95	KP 87.0
Client sampling date / time					28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00	28-Aug-2024 10:00
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-001	FJ2402617-002	FJ2402617-003	FJ2402617-004	FJ2402617-005	
					Result	Result	Result	Result	Result	
<b>Volatile Organic Compounds</b>										
BTEX, total	----	E611A/VA	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
<b>Volatile Organic Compounds [Fuels]</b>										
Benzene	71-43-2	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	100-42-5	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	108-88-3	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
<b>Hydrocarbons</b>										
F1 (C6-C10)	----	E581.VH+F1/ VA	100	µg/L	<100	<100	<100	<100	<100	<100
F1-BTEX	----	EC580/VA	100	µg/L	<100	<100	<100	<100	<100	<100
F2 (C10-C16)	----	E601/VA	100	µg/L	<100	<100	<100	<100	<100	<100
F3 (C16-C34)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	<250
F4 (C34-C50)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	<250
TEH (C10-C50)	n/a	E601/VA	400	µg/L	<400	<400	<400	<400	<400	<400
TEH (C16-C50)	----	E601/VA	400	µg/L	<400	<400	<400	<400	<400	<400
<b>Hydrocarbons Surrogates</b>										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%	90.6	94.1	83.7	94.0	94.1	94.1
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/ VA	1.0	%	99.1	96.3	104	92.0	97.0	97.0
<b>Volatile Organic Compounds Surrogates</b>										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%	92.6	90.2	92.9	93.2	92.8	92.8
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%	100	99.8	99.1	99.4	99.6	99.6

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

Please refer to the Accreditation section for an explanation of analyte accreditations.



## Analytical Results

Sub-Matrix: Water					Client sample ID	KP 53.2	KP 42.9	KP 200	----	----
(Matrix: Water)					Client sampling date / time	28-Aug-2024 10:00	28-Aug-2024 15:30	28-Aug-2024 15:30	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-006	FJ2402617-007	FJ2402617-008	-----	-----	
					Result	Result	Result	----	----	
<b>Physical Tests</b>										
Alkalinity, bicarbonate (as CaCO3)	---	E290/VA	1.0	mg/L	173	193	<1.0	----	----	
Alkalinity, carbonate (as CaCO3)	---	E290/VA	1.0	mg/L	<1.0	5.2	<1.0	----	----	
Alkalinity, hydroxide (as CaCO3)	---	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	----	----	
Alkalinity, phenolphthalein (as CaCO3)	---	E290/VA	1.0	mg/L	<1.0	2.6	<1.0	----	----	
Alkalinity, total (as CaCO3)	---	E290/VA	1.0	mg/L	173	199	<1.0	----	----	
Conductivity	---	E100/VA	2.0	µS/cm	352	349	<2.0	----	----	
Hardness (as CaCO3), from total Ca/Mg	---	EC100A/VA	0.60	mg/L	189	192	<0.60	----	----	
pH	---	E108/VA	0.10	pH units	8.53	8.56	6.04	----	----	
Solids, total dissolved [TDS]	---	E162/VA	10	mg/L	222	223	<10	----	----	
Solids, total suspended [TSS]	---	E160/VA	3.0	mg/L	<3.0	<3.0	<3.0	----	----	
Turbidity	---	E121/VA	0.10	NTU	0.20	1.26	<0.10	----	----	
<b>Anions and Nutrients</b>										
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	<0.50	<0.50	<0.50	----	----	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.127	0.068	<0.020	----	----	
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	25.5	4.14	<0.30	----	----	
<b>Total Metals</b>										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0082	0.0184	<0.0030	----	----	
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00010	<0.00010	<0.00010	----	----	
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00011	0.00032	<0.00010	----	----	
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.110	0.185	<0.00010	----	----	
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	<0.000100	----	----	
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	<0.010	<0.010	----	----	
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000861	0.0000262	<0.0000050	----	----	
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	54.6	65.0	<0.050	----	----	
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	0.00014	<0.00010	----	----	
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.018	0.457	<0.010	----	----	



## Analytical Results

Sub-Matrix: Water					Client sample ID	KP 53.2	KP 42.9	KP 200	----	----
(Matrix: Water)					Client sampling date / time	28-Aug-2024 10:00	28-Aug-2024 15:30	28-Aug-2024 15:30	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-006	FJ2402617-007	FJ2402617-008	-----	-----	
					Result	Result	Result	----	----	
<b>Total Metals</b>										
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----	
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0013	0.0011	<0.0010	----	----	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	12.7	7.22	<0.0050	----	----	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00364	0.0723	<0.00010	----	----	
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	----	----	
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00374	0.00119	<0.000050	----	----	
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00160	0.00090	<0.00050	----	----	
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	<0.050	<0.050	----	----	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	0.372	0.419	<0.050	----	----	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00021	0.00022	<0.00020	----	----	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.00132	0.000151	<0.000050	----	----	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	1.49	2.18	<0.10	----	----	
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----	
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	0.547	0.505	<0.050	----	----	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.111	0.0981	<0.00020	----	----	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	8.33	1.61	<0.50	----	----	
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	0.000011	<0.000010	<0.000010	----	----	
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	----	----	
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----	
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00234	0.000564	<0.000010	----	----	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	----	----	
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0078	<0.0030	<0.0030	----	----	
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----	
<b>Aggregate Organics</b>										
Oil & grease (gravimetric)	----	E567/VA	5.0	mg/L	<5.0	<5.0	<5.0	----	----	
<b>Volatile Organic Compounds</b>										
BTEX, total	----	E611A/VA	1.0	µg/L	<1.0	<1.0	<1.0	----	----	



## Analytical Results

Sub-Matrix: Water					Client sample ID	KP 53.2	KP 42.9	KP 200	----	----
(Matrix: Water)					Client sampling date / time	28-Aug-2024 10:00	28-Aug-2024 15:30	28-Aug-2024 15:30	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	FJ2402617-006	FJ2402617-007	FJ2402617-008	-----	-----	
					Result	Result	Result	----	----	
<b>Volatile Organic Compounds [Fuels]</b>										
Benzene	71-43-2	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Styrene	100-42-5	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Toluene	108-88-3	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L	<0.40	<0.40	<0.40	----	----	
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L	<0.30	<0.30	<0.30	----	----	
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	----	----	
<b>Hydrocarbons</b>										
F1 (C6-C10)	----	E581.VH+F1/ VA	100	µg/L	<100	<100	<100	----	----	
F1-BTEX	----	EC580/VA	100	µg/L	<100	<100	<100	----	----	
F2 (C10-C16)	----	E601/VA	100	µg/L	<100	<100	<100	----	----	
F3 (C16-C34)	----	E601/VA	250	µg/L	<250	<250	<250	----	----	
F4 (C34-C50)	----	E601/VA	250	µg/L	<250	<250	<250	----	----	
TEH (C10-C50)	n/a	E601/VA	400	µg/L	<400	<400	<400	----	----	
TEH (C16-C50)	----	E601/VA	400	µg/L	<400	<400	<400	----	----	
<b>Hydrocarbons Surrogates</b>										
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%	95.4	91.9	89.5	----	----	
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/ VA	1.0	%	104	121	95.9	----	----	
<b>Volatile Organic Compounds Surrogates</b>										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%	93.2	92.8	97.9	----	----	
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%	99.4	99.8	99.3	----	----	

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: FJ2402617</b>	<b>Page</b>	<b>: 1 of 21</b>
<b>Amendment</b>	<b>: 1</b>		
<b>Client</b>	: NorZinc Ltd.	<b>Laboratory</b>	: ALS Environmental - Fort St. John
<b>Contact</b>	: Andrew Howton	<b>Account Manager</b>	: Thomas Chang
<b>Address</b>	: 510 Burrard St. Suite 907 Vancouver BC Canada V6C 3A8	<b>Address</b>	: 11007 Alaska Road Fort St. John, British Columbia Canada V1J 6P3
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 250 261 5517
<b>Project</b>	: ----	<b>Date Samples Received</b>	: 29-Aug-2024 16:45
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 31-Aug-2024
<b>C-O-C number</b>	: 17-716112	<b>Issue Date</b>	: 27-Sep-2024 14:07
<b>Sampler</b>	: ----		
<b>Site</b>	: Canadian Zinc Water License Surveillance Network Program (SNP)		
<b>Quote number</b>	: VA24-NORZ100-001		
<b>No. of samples received</b>	: 8		
<b>No. of samples analysed</b>	: 8		

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 Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

### 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>
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Wingyee Cheng	Analyst- General	Vancouver Metals, Burnaby, British Columbia

Page : 2 of 21  
Work Order : FJ2402617 Amendment 1  
Client : NorZinc Ltd.  
Project : ----



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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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

## Workorder Comments

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Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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### 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: 1628167)</b>											
FJ2402617-001	KP 156	Turbidity	----	E121	0.10	NTU	17.2	17.4	1.15%	15%	----
<b>Physical Tests (QC Lot: 1628365)</b>											
FJ2402617-001	KP 156	pH	----	E108	0.10	pH units	8.40	8.42	0.238%	4%	----
<b>Physical Tests (QC Lot: 1628366)</b>											
FJ2402617-001	KP 156	Conductivity	----	E100	2.0	µS/cm	352	352	0.00%	10%	----
<b>Physical Tests (QC Lot: 1631034)</b>											
FJ2402612-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	23.8	22.0	1.8	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 1631035)</b>											
FJ2402617-006	KP 53.2	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 1667371)</b>											
VA24C4392-002	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 1671150)</b>											
FJ2402617-001	KP 156	Solids, total dissolved [TDS]	----	E162	20	mg/L	261	262	0.191%	20%	----
<b>Anions and Nutrients (QC Lot: 1667374)</b>											
VA24C4392-002	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1667375)</b>											
VA24C4392-002	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1667376)</b>											
VA24C4392-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
<b>Total Metals (QC Lot: 1631983)</b>											
KS2403542-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0060	mg/L	0.0146	0.0162	0.0016	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00020	mg/L	0.0178	0.0178	0.210%	20%	----
		Barium, total	7440-39-3	E420	0.00020	mg/L	0.0152	0.0152	0.596%	20%	----
		Beryllium, total	7440-41-7	E420	0.000040	mg/L	<0.000040	<0.000040	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: 1631983) - continued</b>											
KS2403542-001	Anonymous	Bismuth, total	7440-69-9	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	---
		Boron, total	7440-42-8	E420	0.020	mg/L	0.362	0.356	1.66%	20%	---
		Cadmium, total	7440-43-9	E420	0.0000400	mg/L	<0.0000400	<0.0000400	0	Diff <2x LOR	---
		Calcium, total	7440-70-2	E420	0.100	mg/L	16.2	16.2	0.0555%	20%	---
		Cesium, total	7440-46-2	E420	0.000020	mg/L	0.000024	0.000025	0.0000002	Diff <2x LOR	---
		Chromium, total	7440-47-3	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		Cobalt, total	7440-48-4	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
		Copper, total	7440-50-8	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		Iron, total	7439-89-6	E420	0.020	mg/L	0.132	0.133	0.0001	Diff <2x LOR	---
		Lead, total	7439-92-1	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	---
		Lithium, total	7439-93-2	E420	0.0020	mg/L	0.0059	0.0059	0.00002	Diff <2x LOR	---
		Magnesium, total	7439-95-4	E420	0.0100	mg/L	9.82	9.89	0.761%	20%	---
		Manganese, total	7439-96-5	E420	0.00020	mg/L	0.0744	0.0747	0.412%	20%	---
		Molybdenum, total	7439-98-7	E420	0.000100	mg/L	0.289	0.290	0.244%	20%	---
		Nickel, total	7440-02-0	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		Phosphorus, total	7723-14-0	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	---
		Potassium, total	7440-09-7	E420	0.100	mg/L	15.1	14.8	1.74%	20%	---
		Rubidium, total	7440-17-7	E420	0.00040	mg/L	0.00680	0.00662	2.71%	20%	---
		Selenium, total	7782-49-2	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	---
		Silicon, total	7440-21-3	E420	0.20	mg/L	5.10	4.96	2.89%	20%	---
		Silver, total	7440-22-4	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---
		Sodium, total	7440-23-5	E420	0.100	mg/L	461	456	1.00%	20%	---
		Strontium, total	7440-24-6	E420	0.00040	mg/L	1.16	1.18	1.74%	20%	---
		Sulfur, total	7704-34-9	E420	1.00	mg/L	283	280	1.17%	20%	---
		Tellurium, total	13494-80-9	E420	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	---
		Thallium, total	7440-28-0	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---
		Thorium, total	7440-29-1	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
		Tin, total	7440-31-5	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
		Titanium, total	7440-32-6	E420	0.00120	mg/L	<0.00120	<0.00120	0	Diff <2x LOR	---
		Tungsten, total	7440-33-7	E420	0.00020	mg/L	0.00069	0.00070	0.00001	Diff <2x LOR	---
		Uranium, total	7440-61-1	E420	0.000020	mg/L	0.000774	0.000772	0.228%	20%	---
		Vanadium, total	7440-62-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		Zinc, total	7440-66-6	E420	0.0060	mg/L	<0.0060	<0.0060	0	Diff <2x LOR	---
		Zirconium, total	7440-67-7	E420	0.00040	mg/L	<0.00040	<0.00040	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: 1633129)</b>											
FJ2402602-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0165	0.0176	0.0010	Diff <2x LOR	---
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00144	0.00143	0.767%	20%	---
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00020	0.00020	0.0000005	Diff <2x LOR	---
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0231	0.0222	3.91%	20%	---
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	---
		Boron, total	7440-42-8	E420	0.010	mg/L	0.340	0.328	3.53%	20%	---
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000078	0.0000093	0.0000015	Diff <2x LOR	---
		Calcium, total	7440-70-2	E420	0.050	mg/L	187	179	4.55%	20%	---
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000029	0.000030	0.0000007	Diff <2x LOR	---
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	---
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	---
		Iron, total	7439-89-6	E420	0.010	mg/L	0.010	0.010	0.0002	Diff <2x LOR	---
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	---
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.428	0.406	5.12%	20%	---
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	98.8	98.2	0.585%	20%	---
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00041	0.00045	0.00004	Diff <2x LOR	---
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00339	0.00346	1.99%	20%	---
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.0306	0.0304	0.637%	20%	---
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	---
		Potassium, total	7440-09-7	E420	0.050	mg/L	3.69	3.64	1.47%	20%	---
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00341	0.00336	1.42%	20%	---
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.0288	0.0281	2.59%	20%	---
		Silicon, total	7440-21-3	E420	0.10	mg/L	2.34	2.37	1.51%	20%	---
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	---
		Sodium, total	7440-23-5	E420	0.050	mg/L	281	280	0.282%	20%	---
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.273	0.275	0.565%	20%	---
		Sulfur, total	7704-34-9	E420	0.50	mg/L	339	336	0.962%	20%	---
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000037	0.000037	0.0000004	Diff <2x LOR	---
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Titanium, total	7440-32-6	E420	0.00060	mg/L	<0.00060	<0.00060	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: 1633129) - continued</b>											
FJ2402602-001	Anonymous	Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.0239	0.0248	3.63%	20%	---
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	---
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	---
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	---
<b>Total Metals (QC Lot: 1633658)</b>											
FJ2402617-008	KP 200	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	---
<b>Total Metals (QC Lot: 1639394)</b>											
FJ2402600-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000056	0.0000051	0.0000006	Diff <2x LOR	---
<b>Volatile Organic Compounds (QC Lot: 1633580)</b>											
FJ2402617-008	KP 200	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	---
<b>Volatile Organic Compounds (QC Lot: 1636113)</b>											
FJ2402617-001	KP 156	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	---
<b>Volatile Organic Compounds (QC Lot: 1638085)</b>											
FJ2402617-007	KP 42.9	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	---
<b>Hydrocarbons (QC Lot: 1633581)</b>											



Sub-Matrix: <b>Water</b>					<i>Laboratory Duplicate (DUP) Report</i>						
<i>Laboratory sample ID</i>	<i>Client sample ID</i>	<i>Analyte</i>	<i>CAS Number</i>	<i>Method</i>	<i>LOR</i>	<i>Unit</i>	<i>Original Result</i>	<i>Duplicate Result</i>	<i>RPD(%) or Difference</i>	<i>Duplicate Limits</i>	<i>Qualifier</i>
<b>Hydrocarbons (QC Lot: 1633581) - continued</b>											
FJ2402617-008	KP 200	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
<b>Hydrocarbons (QC Lot: 1636112)</b>											
FJ2402617-001	KP 156	F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	<100	0.0%	30%	----
<b>Hydrocarbons (QC Lot: 1638086)</b>											
FJ2402617-007	KP 42.9	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: 1628167)</b>						
Turbidity	---	E121	0.1	NTU	<0.10	---
<b>Physical Tests (QCLot: 1628366)</b>						
Conductivity	---	E100	1	µS/cm	1.3	---
<b>Physical Tests (QCLot: 1631034)</b>						
Solids, total suspended [TSS]	---	E160	3	mg/L	<3.0	---
<b>Physical Tests (QCLot: 1631035)</b>						
Solids, total suspended [TSS]	---	E160	3	mg/L	<3.0	---
<b>Physical Tests (QCLot: 1667371)</b>						
Alkalinity, bicarbonate (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, carbonate (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, hydroxide (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, phenolphthalein (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, total (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
<b>Physical Tests (QCLot: 1671150)</b>						
Solids, total dissolved [TDS]	---	E162	10	mg/L	<10	---
<b>Anions and Nutrients (QCLot: 1667374)</b>						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
<b>Anions and Nutrients (QCLot: 1667375)</b>						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
<b>Anions and Nutrients (QCLot: 1667376)</b>						
Sulfate (as SO <sub>4</sub> )	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---
<b>Total Metals (QCLot: 1631983)</b>						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	---
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	---
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	---
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	---
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	---
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	---



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 1631983) - continued</b>						
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	---
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	---
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	---
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	---
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	---
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	---
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	---
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	---
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	---
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	---
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	---
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	---
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	---
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	---
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	---
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	---
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	---
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	---
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	---
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	---
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	---
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	---
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	---
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	---
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	---
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	---
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	---
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	---
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	---
<b>Total Metals (QCLot: 1633129)</b>						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	---
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	---



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 1633129) - continued</b>						
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	---
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	---
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	---
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	---
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	---
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	---
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	---
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	---
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	---
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	---
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	---
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	---
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	---
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	---
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	---
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	---
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	---
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	---
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	---
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	---
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	---
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	---
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	---
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	---
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	---
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	---
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	---
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	---
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	---
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	---
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	---
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	---
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	---
<b>Total Metals (QCLot: 1633658)</b>						



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 1633658) - continued</b>						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
<b>Total Metals (QCLot: 1639394)</b>						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
<b>Aggregate Organics (QCLot: 1638320)</b>						
Oil & grease (gravimetric)	----	E567	5	mg/L	<5.0	----
<b>Aggregate Organics (QCLot: 1643746)</b>						
Oil & grease (gravimetric)	----	E567	5	mg/L	<5.0	----
<b>Volatile Organic Compounds (QCLot: 1633580)</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>Volatile Organic Compounds (QCLot: 1636113)</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>Volatile Organic Compounds (QCLot: 1638085)</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: 1633581)</b>						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
<b>Hydrocarbons (QCLot: 1636017)</b>						
F2 (C10-C16)	----	E601	100	µg/L	<100	----



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Hydrocarbons (QCLot: 1636017) - continued</b>						
F3 (C16-C34)	----	E601	250	µg/L	<250	----
F4 (C34-C50)	----	E601	250	µg/L	<250	----
<b>Hydrocarbons (QCLot: 1636021)</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: 1636112)</b>						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
<b>Hydrocarbons (QCLot: 1638086)</b>						
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	<100	----
<b>Hydrocarbons (QCLot: 1641580)</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	----



## 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	Target Concentration	LCS	Low	High	Qualifier
<b>Physical Tests (QCLot: 1628167)</b>									
Turbidity	---	E121	0.1	NTU	200 NTU	97.0	85.0	115	---
<b>Physical Tests (QCLot: 1628365)</b>									
pH	---	E108	---	pH units	7 pH units	100	98.0	102	---
<b>Physical Tests (QCLot: 1628366)</b>									
Conductivity	---	E100	1	µS/cm	147 µS/cm	93.5	90.0	110	---
<b>Physical Tests (QCLot: 1631034)</b>									
Solids, total suspended [TSS]	---	E160	3	mg/L	150 mg/L	109	85.0	115	---
<b>Physical Tests (QCLot: 1631035)</b>									
Solids, total suspended [TSS]	---	E160	3	mg/L	150 mg/L	109	85.0	115	---
<b>Physical Tests (QCLot: 1667371)</b>									
Alkalinity, phenolphthalein (as CaCO <sub>3</sub> )	---	E290	1	mg/L	229 mg/L	111	75.0	125	---
Alkalinity, total (as CaCO <sub>3</sub> )	---	E290	1	mg/L	500 mg/L	104	85.0	115	---
<b>Physical Tests (QCLot: 1671150)</b>									
Solids, total dissolved [TDS]	---	E162	10	mg/L	1000 mg/L	106	85.0	115	---
<b>Anions and Nutrients (QCLot: 1667374)</b>									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	98.3	90.0	110	---
<b>Anions and Nutrients (QCLot: 1667375)</b>									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	---
<b>Anions and Nutrients (QCLot: 1667376)</b>									
Sulfate (as SO <sub>4</sub> )	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	---
<b>Total Metals (QCLot: 1631983)</b>									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	108	80.0	120	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	110	80.0	120	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	110	80.0	120	---
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	107	80.0	120	---
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	109	80.0	120	---
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	97.3	80.0	120	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	104	80.0	120	---
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	104	80.0	120	---



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Total Metals (QCLot: 1631983) - continued</b>									
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	102	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	91.3	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	107	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	105	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	118	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	107	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	107	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	112	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	97.0	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	108	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	105	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	105	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	103	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	104	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	107	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	99.8	80.0	120	----
<b>Total Metals (QCLot: 1633129)</b>									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	96.0	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	106	80.0	120	----



Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Total Metals (QCLot: 1633129) - continued</b>									
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	91.6	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	94.2	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.3	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	107	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.5	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.0	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	97.4	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	93.9	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	94.3	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	103	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	95.9	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	113	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	96.4	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	96.5	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	96.5	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	101	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.9	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	94.8	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	90.8	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.8	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	93.3	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	94.7	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	95.0	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	98.8	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	95.7	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
<b>Total Metals (QCLot: 1633658)</b>									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	101	80.0	120	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Total Metals (QCLot: 1639394)</b>									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	86.0	80.0	120	----
<b>Aggregate Organics (QCLot: 1638320)</b>									
Oil & grease (gravimetric)	----	E567	5	mg/L	100 mg/L	101	70.0	130	----
<b>Aggregate Organics (QCLot: 1643746)</b>									
Oil & grease (gravimetric)	----	E567	5	mg/L	100 mg/L	103	70.0	130	----
<b>Volatile Organic Compounds (QCLot: 1633580)</b>									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	106	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	105	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	108	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	106	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	109	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	106	70.0	130	----
<b>Volatile Organic Compounds (QCLot: 1636113)</b>									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	104	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	108	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	107	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	113	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	104	70.0	130	----
<b>Volatile Organic Compounds (QCLot: 1638085)</b>									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	101	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	108	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	104	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	102	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	111	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	100	70.0	130	----
<b>Hydrocarbons (QCLot: 1633581)</b>									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	96.3	70.0	130	----
<b>Hydrocarbons (QCLot: 1636017)</b>									
F2 (C10-C16)	----	E601	100	µg/L	3540 µg/L	118	70.0	130	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Hydrocarbons (QCLot: 1636017) - continued</b>									
F3 (C16-C34)	----	E601	250	µg/L	7050 µg/L	108	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5050 µg/L	114	70.0	130	----
<b>Hydrocarbons (QCLot: 1636021)</b>									
F2 (C10-C16)	----	E601	100	µg/L	3540 µg/L	129	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7050 µg/L	114	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5050 µg/L	125	70.0	130	----
<b>Hydrocarbons (QCLot: 1636112)</b>									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	94.9	70.0	130	----
<b>Hydrocarbons (QCLot: 1638086)</b>									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	91.6	70.0	130	----
<b>Hydrocarbons (QCLot: 1641580)</b>									
F2 (C10-C16)	----	E601	100	µg/L	4250 µg/L	114	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	8460 µg/L	104	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	6060 µg/L	111	70.0	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
<b>Anions and Nutrients (QCLot: 1667374)</b>										
VA24C4399-001	Anonymous	Fluoride	16984-48-8	E235.F	0.994 mg/L	1 mg/L	99.4	75.0	125	----
<b>Anions and Nutrients (QCLot: 1667375)</b>										
VA24C4399-001	Anonymous	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
<b>Anions and Nutrients (QCLot: 1667376)</b>										
VA24C4399-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
<b>Total Metals (QCLot: 1631983)</b>										
KS2403542-002	Anonymous	Aluminum, total	7429-90-5	E420	0.203 mg/L	0.2 mg/L	101	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		Arsenic, total	7440-38-2	E420	ND mg/L	----	ND	70.0	130	----
		Barium, total	7440-39-3	E420	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00897 mg/L	0.01 mg/L	89.7	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00374 mg/L	0.004 mg/L	93.6	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00941 mg/L	0.01 mg/L	94.1	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0371 mg/L	0.04 mg/L	92.7	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.3	70.0	130	----
		Copper, total	7440-50-8	E420	0.0178 mg/L	0.02 mg/L	89.2	70.0	130	----
		Iron, total	7439-89-6	E420	1.82 mg/L	2 mg/L	91.0	70.0	130	----
		Lead, total	7439-92-1	E420	0.0177 mg/L	0.02 mg/L	88.6	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0884 mg/L	0.1 mg/L	88.4	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	ND mg/L	----	ND	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0363 mg/L	0.04 mg/L	90.7	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.4 mg/L	10 mg/L	104	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0188 mg/L	0.02 mg/L	94.2	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
		Silicon, total	7440-21-3	E420	9.87 mg/L	10 mg/L	98.7	70.0	130	----
		Silver, total	7440-22-4	E420	0.00370 mg/L	0.004 mg/L	92.6	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0386 mg/L	0.04 mg/L	96.6	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00347 mg/L	0.004 mg/L	86.6	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0140 mg/L	0.02 mg/L	70.0	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
<b>Total Metals (QCLot: 1631983) - continued</b>										
KS2403542-002	Anonymous	Tin, total	7440-31-5	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	---
		Titanium, total	7440-32-6	E420	0.0413 mg/L	0.04 mg/L	103	70.0	130	---
		Tungsten, total	7440-33-7	E420	0.0186 mg/L	0.02 mg/L	92.9	70.0	130	---
		Uranium, total	7440-61-1	E420	0.00362 mg/L	0.004 mg/L	90.6	70.0	130	---
		Vanadium, total	7440-62-2	E420	0.0993 mg/L	0.1 mg/L	99.3	70.0	130	---
		Zinc, total	7440-66-6	E420	0.379 mg/L	0.4 mg/L	94.7	70.0	130	---
		Zirconium, total	7440-67-7	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	---
<b>Total Metals (QCLot: 1633129)</b>										
FJ2402602-002	Anonymous	Aluminum, total	7429-90-5	E420	0.190 mg/L	0.2 mg/L	95.2	70.0	130	---
		Antimony, total	7440-36-0	E420	0.0197 mg/L	0.02 mg/L	98.3	70.0	130	---
		Arsenic, total	7440-38-2	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	---
		Barium, total	7440-39-3	E420	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	---
		Beryllium, total	7440-41-7	E420	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	---
		Bismuth, total	7440-69-9	E420	0.00850 mg/L	0.01 mg/L	85.0	70.0	130	---
		Boron, total	7440-42-8	E420	ND mg/L	---	ND	70.0	130	---
		Cadmium, total	7440-43-9	E420	0.00370 mg/L	0.004 mg/L	92.5	70.0	130	---
		Calcium, total	7440-70-2	E420	ND mg/L	---	ND	70.0	130	---
		Cesium, total	7440-46-2	E420	0.0104 mg/L	0.01 mg/L	104	70.0	130	---
		Chromium, total	7440-47-3	E420	0.0375 mg/L	0.04 mg/L	93.8	70.0	130	---
		Cobalt, total	7440-48-4	E420	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	---
		Copper, total	7440-50-8	E420	0.0175 mg/L	0.02 mg/L	87.5	70.0	130	---
		Iron, total	7439-89-6	E420	ND mg/L	---	ND	70.0	130	---
		Lead, total	7439-92-1	E420	0.0175 mg/L	0.02 mg/L	87.3	70.0	130	---
		Lithium, total	7439-93-2	E420	ND mg/L	---	ND	70.0	130	---
		Magnesium, total	7439-95-4	E420	ND mg/L	---	ND	70.0	130	---
		Manganese, total	7439-96-5	E420	ND mg/L	---	ND	70.0	130	---
		Molybdenum, total	7439-98-7	E420	0.0213 mg/L	0.02 mg/L	107	70.0	130	---
		Nickel, total	7440-02-0	E420	0.0348 mg/L	0.04 mg/L	86.9	70.0	130	---
		Phosphorus, total	7723-14-0	E420	11.0 mg/L	10 mg/L	110	70.0	130	---
		Potassium, total	7440-09-7	E420	3.81 mg/L	4 mg/L	95.3	70.0	130	---
		Rubidium, total	7440-17-7	E420	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	---
		Selenium, total	7782-49-2	E420	0.0414 mg/L	0.04 mg/L	104	70.0	130	---
		Silicon, total	7440-21-3	E420	8.96 mg/L	10 mg/L	89.6	70.0	130	---
		Silver, total	7440-22-4	E420	0.00394 mg/L	0.004 mg/L	98.4	70.0	130	---
		Sodium, total	7440-23-5	E420	ND mg/L	---	ND	70.0	130	---
		Strontium, total	7440-24-6	E420	ND mg/L	---	ND	70.0	130	---
		Sulfur, total	7704-34-9	E420	ND mg/L	---	ND	70.0	130	---
		Tellurium, total	13494-80-9	E420	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	---
		Thallium, total	7440-28-0	E420	0.00341 mg/L	0.004 mg/L	85.2	70.0	130	---
		Thorium, total	7440-29-1	E420	0.0147 mg/L	0.02 mg/L	73.7	70.0	130	---
		Tin, total	7440-31-5	E420	0.0190 mg/L	0.02 mg/L	94.9	70.0	130	---
		Titanium, total	7440-32-6	E420	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	---
		Tungsten, total	7440-33-7	E420	0.0184 mg/L	0.02 mg/L	92.3	70.0	130	---
		Uranium, total	7440-61-1	E420	ND mg/L	---	ND	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
<b>Total Metals (QCLot: 1633129) - continued</b>										
FJ2402602-002	Anonymous	Vanadium, total	7440-62-2	E420	0.0990 mg/L	0.1 mg/L	99.0	70.0	130	---
		Zinc, total	7440-66-6	E420	0.355 mg/L	0.4 mg/L	88.8	70.0	130	---
		Zirconium, total	7440-67-7	E420	0.0426 mg/L	0.04 mg/L	106	70.0	130	---
<b>Total Metals (QCLot: 1633658)</b>										
FJ2402628-001	Anonymous	Mercury, total	7439-97-6	E508	0.000101 mg/L	0 mg/L	101	70.0	130	---
<b>Total Metals (QCLot: 1639394)</b>										
FJ2402617-001	KP 156	Mercury, total	7439-97-6	E508	0.000101 mg/L	0 mg/L	101	70.0	130	---
<b>Volatile Organic Compounds (QCLot: 1633580)</b>										
FJ2402617-008	KP 200	Benzene	71-43-2	E611A	104 µg/L	100 µg/L	104	60.0	140	---
		Ethylbenzene	100-41-4	E611A	106 µg/L	100 µg/L	106	60.0	140	---
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	104 µg/L	100 µg/L	104	60.0	140	---
		Styrene	100-42-5	E611A	108 µg/L	100 µg/L	108	60.0	140	---
		Toluene	108-88-3	E611A	104 µg/L	100 µg/L	104	60.0	140	---
		Xylene, m+p-	179601-23-1	E611A	215 µg/L	200 µg/L	108	60.0	140	---
		Xylene, o-	95-47-6	E611A	105 µg/L	100 µg/L	105	60.0	140	---
<b>Volatile Organic Compounds (QCLot: 1636113)</b>										
FJ2402617-003	KP 111.5	Benzene	71-43-2	E611A	104 µg/L	100 µg/L	104	60.0	140	---
		Ethylbenzene	100-41-4	E611A	107 µg/L	100 µg/L	107	60.0	140	---
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	108 µg/L	100 µg/L	108	60.0	140	---
		Styrene	100-42-5	E611A	106 µg/L	100 µg/L	106	60.0	140	---
		Toluene	108-88-3	E611A	105 µg/L	100 µg/L	105	60.0	140	---
		Xylene, m+p-	179601-23-1	E611A	222 µg/L	200 µg/L	111	60.0	140	---
		Xylene, o-	95-47-6	E611A	103 µg/L	100 µg/L	103	60.0	140	---
<b>Volatile Organic Compounds (QCLot: 1638085)</b>										
FJ2402658-001	Anonymous	Benzene	71-43-2	E611A	97.2 µg/L	100 µg/L	97.2	60.0	140	---
		Ethylbenzene	100-41-4	E611A	98.4 µg/L	100 µg/L	98.4	60.0	140	---
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	106 µg/L	100 µg/L	106	60.0	140	---
		Styrene	100-42-5	E611A	98.2 µg/L	100 µg/L	98.2	60.0	140	---
		Toluene	108-88-3	E611A	98.4 µg/L	100 µg/L	98.4	60.0	140	---
		Xylene, m+p-	179601-23-1	E611A	216 µg/L	200 µg/L	108	60.0	140	---
		Xylene, o-	95-47-6	E611A	96.0 µg/L	100 µg/L	96.0	60.0	140	---
<b>Hydrocarbons (QCLot: 1633581)</b>										
VA24C2955-003	Anonymous	F1 (C6-C10)	---	E581.VH+F1	5150 µg/L	6310 µg/L	81.6	60.0	140	---
<b>Hydrocarbons (QCLot: 1636112)</b>										
FJ2402617-002	KP 121	F1 (C6-C10)	---	E581.VH+F1	5480 µg/L	6310 µg/L	86.9	60.0	140	---
<b>Hydrocarbons (QCLot: 1638086)</b>										
VA24C2562-002	Anonymous	F1 (C6-C10)	---	E581.VH+F1	4620 µg/L	6310 µg/L	73.2	60.0	140	---





## QUALITY CONTROL INTERPRETIVE REPORT

<p><b>Work Order</b> : FJ2402617</p> <p><b>Amendment</b> : 1</p> <p><b>Client</b> : NorZinc Ltd.</p> <p><b>Contact</b> : Andrew Howton</p> <p><b>Address</b> : 510 Burrard St. Suite 907 Vancouver BC Canada V6C 3A8</p> <p><b>Telephone</b> : ----</p> <p><b>Project</b> : ----</p> <p><b>PO</b> : ----</p> <p><b>C-O-C number</b> : 17-716112</p> <p><b>Sampler</b> : ----</p> <p><b>Site</b> : Canadian Zinc Water License Surveillance Network Program (SNP)</p> <p><b>Quote number</b> : VA24-NORZ100-001</p> <p><b>No. of samples received</b> : 8</p> <p><b>No. of samples analysed</b> : 8</p>	<p><b>Page</b> : 1 of 21</p> <p><b>Laboratory</b> : ALS Environmental - Fort St. John</p> <p><b>Account Manager</b> : Thomas Chang</p> <p><b>Address</b> : 11007 Alaska Road Fort St. John, British Columbia Canada V1J 6P3</p> <p><b>Telephone</b> : +1 250 261 5517</p> <p><b>Date Samples Received</b> : 29-Aug-2024 16:45</p> <p><b>Issue Date</b> : 27-Sep-2024 14:06</p>
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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 Service number is a unique identifier assigned to discrete substances.
- DQO: Data Quality Objective.
- LOR: Limit of Reporting (detection limit).
- RPD: Relative Percent Difference.

### Workorder Comments

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

### 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 : Analytical Method 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	
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 111.5	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 121	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 156	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 42.9	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 53.2	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 87.0	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 95	E567	28-Aug-2024	07-Sep-2024	28 days	10 days	✔	07-Sep-2024	28 days	10 days	✔



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

Analyte Group : Analytical Method 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	
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
<b>Amber glass (hydrochloric acid)</b> KP 200	E567	28-Aug-2024	10-Sep-2024	28 days	13 days	✓	11-Sep-2024	28 days	14 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 111.5	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 121	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 156	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 200	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 42.9	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 53.2	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 87.0	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
<b>HDPE</b> KP 95	E235.Cl	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓



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

Analyte Group : Analytical Method 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	
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 111.5	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 121	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 156	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 200	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 42.9	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 53.2	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 87.0	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 95	E235.F	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE KP 111.5	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓



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

Analyte Group : Analytical Method 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		
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 121	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 156	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 200	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 42.9	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 53.2	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 87.0	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 95	E235.SO4	28-Aug-2024	23-Sep-2024	28 days	26 days	✓	23-Sep-2024	28 days	26 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 200	E601	28-Aug-2024	10-Sep-2024	14 days	12 days	✓	11-Sep-2024	40 days	1 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 42.9	E601	28-Aug-2024	06-Sep-2024	14 days	8 days	✓	08-Sep-2024	40 days	3 days	✓	



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

Analyte Group : Analytical Method 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		
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 121	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	06-Sep-2024	40 days	0 days	✔	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 156	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	06-Sep-2024	40 days	0 days	✔	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 111.5	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	08-Sep-2024	40 days	3 days	✔	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 53.2	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	08-Sep-2024	40 days	3 days	✔	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 87.0	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	08-Sep-2024	40 days	3 days	✔	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 95	E601	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	08-Sep-2024	40 days	3 days	✔	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 200	E581.VH+F1	28-Aug-2024	04-Sep-2024	14 days	7 days	✔	05-Sep-2024	14 days	8 days	✔	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 42.9	E581.VH+F1	28-Aug-2024	07-Sep-2024	14 days	9 days	✔	07-Sep-2024	14 days	10 days	✔	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 111.5	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✔	06-Sep-2024	14 days	9 days	✔	



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

Analyte Group : Analytical Method 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	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 121	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 156	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 53.2	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 87.0	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 95	E581.VH+F1	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 111.5	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 121	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 156	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 200	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT



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

Analyte Group : Analytical Method 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		
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 42.9	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 53.2	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 87.0	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 95	E290	28-Aug-2024	23-Sep-2024	14 days	26 days	* EHT	23-Sep-2024	14 days	26 days	* EHT	
<b>Physical Tests : Conductivity in Water</b>											
HDPE KP 111.5	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓	
<b>Physical Tests : Conductivity in Water</b>											
HDPE KP 121	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓	
<b>Physical Tests : Conductivity in Water</b>											
HDPE KP 156	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓	
<b>Physical Tests : Conductivity in Water</b>											
HDPE KP 200	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓	
<b>Physical Tests : Conductivity in Water</b>											
HDPE KP 42.9	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓	



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 53.2	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 87.0	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 95	E100	28-Aug-2024	31-Aug-2024	28 days	3 days	✓	01-Sep-2024	28 days	4 days	✓
<b>Physical Tests : pH by Meter</b>										
HDPE KP 200	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	72 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	94 hrs	* EHTR-FM
<b>Physical Tests : pH by Meter</b>										
HDPE KP 42.9	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	72 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	94 hrs	* EHTR-FM
<b>Physical Tests : pH by Meter</b>										
HDPE KP 111.5	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM
<b>Physical Tests : pH by Meter</b>										
HDPE KP 121	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM
<b>Physical Tests : pH by Meter</b>										
HDPE KP 156	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM
<b>Physical Tests : pH by Meter</b>										
HDPE KP 53.2	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM



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

Analyte Group : Analytical Method 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		
<b>Physical Tests : pH by Meter</b>											
HDPE KP 87.0	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 95	E108	28-Aug-2024	31-Aug-2024	0.25 hrs	78 hrs	* EHTR-FM	01-Sep-2024	0.25 hrs	100 hrs	* EHTR-FM	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 200	E162	28-Aug-2024	----	----	----		25-Sep-2024	7 days	27 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 42.9	E162	28-Aug-2024	----	----	----		25-Sep-2024	7 days	27 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 111.5	E162	28-Aug-2024	----	----	----		25-Sep-2024	7 days	28 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 121	E162	28-Aug-2024	----	----	----		25-Sep-2024	7 days	28 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 156	E162	28-Aug-2024	----	----	----		25-Sep-2024	7 days	28 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 53.2	E162	28-Aug-2024	----	----	----		25-Sep-2024	7 days	28 days	* EHT	
<b>Physical Tests : TDS by Gravimetry</b>											
HDPE KP 87.0	E162	28-Aug-2024	----	----	----		25-Sep-2024	7 days	28 days	* EHT	



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 95	E162	28-Aug-2024	----	----	----		25-Sep-2024	7 days	28 days	* EHT
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 200	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	6 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 42.9	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	6 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 111.5	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 121	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 156	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 53.2	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 87.0	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 95	E160	28-Aug-2024	----	----	----		03-Sep-2024	7 days	7 days	✓



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 111.5	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 121	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 156	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 200	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 42.9	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 53.2	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 87.0	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 95	E121	28-Aug-2024	----	----	----		31-Aug-2024	3 days	3 days	✔
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 111.5	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✔	08-Sep-2024	28 days	11 days	✔



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

Analyte Group : Analytical Method 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	
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 121	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✓	08-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 156	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✓	08-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 42.9	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✓	08-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 53.2	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✓	08-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 87.0	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✓	08-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 95	E508	28-Aug-2024	08-Sep-2024	28 days	11 days	✓	08-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 200	E508	28-Aug-2024	05-Sep-2024	28 days	7 days	✓	05-Sep-2024	28 days	7 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 200	E420	28-Aug-2024	04-Sep-2024	180 days	7 days	✓	05-Sep-2024	180 days	8 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 111.5	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓



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

Analyte Group : Analytical Method 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		
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 121	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 156	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 42.9	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 53.2	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 87.0	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 95	E420	28-Aug-2024	06-Sep-2024	180 days	9 days	✓	09-Sep-2024	180 days	12 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 200	E611A	28-Aug-2024	04-Sep-2024	14 days	7 days	✓	05-Sep-2024	14 days	8 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 42.9	E611A	28-Aug-2024	07-Sep-2024	14 days	9 days	✓	07-Sep-2024	14 days	10 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 111.5	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓	



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

Analyte Group : Analytical Method 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	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 121	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 156	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 53.2	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 87.0	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 95	E611A	28-Aug-2024	06-Sep-2024	14 days	9 days	✓	06-Sep-2024	14 days	9 days	✓

**Legend & Qualifier Definitions**

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

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 (%)		Evaluation
			QC	Regular	Actual	Expected	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Alkalinity Species by Titration	E290	1667371	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1633580	3	43	6.9	5.0	✓
Chloride in Water by IC	E235.Cl	1667375	1	19	5.2	5.0	✓
Conductivity in Water	E100	1628366	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1667374	1	11	9.0	5.0	✓
pH by Meter	E108	1628365	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1667376	1	12	8.3	5.0	✓
TDS by Gravimetry	E162	1671150	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1633658	2	40	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1631983	2	28	7.1	5.0	✓
TSS by Gravimetry	E160	1631034	2	30	6.6	5.0	✓
Turbidity by Nephelometry	E121	1628167	1	13	7.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1633581	3	36	8.3	5.0	✓
<b>Laboratory Control Samples (LCS)</b>							
Alkalinity Species by Titration	E290	1667371	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1633580	3	43	6.9	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1636017	3	28	10.7	5.0	✓
Chloride in Water by IC	E235.Cl	1667375	1	19	5.2	5.0	✓
Conductivity in Water	E100	1628366	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1667374	1	11	9.0	5.0	✓
Oil & Grease by Gravimetry	E567	1638320	2	18	11.1	5.0	✓
pH by Meter	E108	1628365	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1667376	1	12	8.3	5.0	✓
TDS by Gravimetry	E162	1671150	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1633658	2	40	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1631983	2	28	7.1	5.0	✓
TSS by Gravimetry	E160	1631034	2	30	6.6	5.0	✓
Turbidity by Nephelometry	E121	1628167	1	13	7.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1633581	3	36	8.3	5.0	✓
<b>Method Blanks (MB)</b>							
Alkalinity Species by Titration	E290	1667371	1	12	8.3	5.0	✓
BTEX by Headspace GC-MS	E611A	1633580	3	43	6.9	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1636017	3	28	10.7	5.0	✓
Chloride in Water by IC	E235.Cl	1667375	1	19	5.2	5.0	✓
Conductivity in Water	E100	1628366	1	19	5.2	5.0	✓



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
<i>Analytical Methods</i>							
<b>Method Blanks (MB) - Continued</b>							
Fluoride in Water by IC	E235.F	1667374	1	11	9.0	5.0	✔
Oil & Grease by Gravimetry	E567	1638320	2	18	11.1	5.0	✔
Sulfate in Water by IC	E235.SO4	1667376	1	12	8.3	5.0	✔
TDS by Gravimetry	E162	1671150	1	12	8.3	5.0	✔
Total Mercury in Water by CVAAS	E508	1633658	2	40	5.0	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1631983	2	28	7.1	5.0	✔
TSS by Gravimetry	E160	1631034	2	30	6.6	5.0	✔
Turbidity by Nephelometry	E121	1628167	1	13	7.6	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	1633581	3	36	8.3	5.0	✔
<b>Matrix Spikes (MS)</b>							
BTEX by Headspace GC-MS	E611A	1633580	3	43	6.9	5.0	✔
Chloride in Water by IC	E235.Cl	1667375	1	19	5.2	5.0	✔
Fluoride in Water by IC	E235.F	1667374	1	11	9.0	5.0	✔
Sulfate in Water by IC	E235.SO4	1667376	1	12	8.3	5.0	✔
Total Mercury in Water by CVAAS	E508	1633658	2	40	5.0	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1631983	2	28	7.1	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	1633581	3	36	8.3	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 Water	E100 ALS Environmental - Vancouver	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 water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	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 ALS Environmental - Vancouver	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	E160 ALS Environmental - Vancouver	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	E162 ALS Environmental - Vancouver	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.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	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.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS.  Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Oil & Grease by Gravimetry	E567 ALS Environmental - Vancouver	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane and the extract is evaporated to dryness. The residue is then weighed to determine Oil and Grease.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	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.  Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4).  Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	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.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	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.
F1-BTEX	EC580 ALS Environmental - Vancouver	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).
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions



<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Oil & Grease Extraction for Gravimetry	EP567 ALS Environmental - Vancouver	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane by liquid-liquid extraction.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	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 a GC-MS-FID.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.





**CERTIFICATE OF ANALYSIS**

<b>Work Order</b>	: <b>FJ2402658</b>		
<b>Amendment</b>	: <b>2</b>		
<b>Client</b>	: <b>NorZinc Ltd.</b>	<b>Laboratory</b>	: ALS Environmental - Edmonton
<b>Contact</b>	: Andrew Howton	<b>Account Manager</b>	: Thomas Chang
<b>Address</b>	: 510 Burrard St. Suite 907	<b>Address</b>	: 9450 - 17 Avenue NW
	Vancouver British Columbia Canada V6C 3A8		Edmonton AB Canada T6N 1M9
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 780 413 5227
<b>Project</b>	: ----	<b>Date Samples Received</b>	: 03-Sep-2024 15:10
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 06-Sep-2024
<b>C-O-C number</b>	: 23-1083340	<b>Issue Date</b>	: 02-Oct-2024 13:29
<b>Sampler</b>	: ----		
<b>Site</b>	: Canadian Zinc Water License Surveillance Network Program (SNP)		
<b>Quote number</b>	: VA24-NORZ100-001		
<b>No. of samples received</b>	: 10		
<b>No. of samples analysed</b>	: 10		

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>
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Daniel Shabestani	Lab Assistant	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Inorganics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Organics, Burnaby, British Columbia
Logan Carroll	Laboratory Analyst	Inorganics, Edmonton, Alberta
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	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).

<i>Unit</i>	<i>Description</i>
mg/L	milligrams per litre
µg/L	micrograms per litre
NTU	nephelometric turbidity units
pH units	pH units
µS/cm	microsiemens per centimetre
-	no 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

Amendment (01/10/2024): This report has been amended and re-released to allow the reporting of additional analytical data.

Amendment (02/10/2024): This report has been amended and re-released to allow the reporting of additional analytical data.



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## Qualifiers

<u>Qualifier</u>	<u>Description</u>
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.



**Analytical Results**

Sub-Matrix: Water  
 (Matrix: Water)

				Client sample ID	KP 89.5	KP 39.2	KP 28.5	KP 25.4	KP 23.3
				Client sampling date / time	29-Aug-2024 00:00	29-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-001	FJ2402658-002	FJ2402658-003	FJ2402658-004	FJ2402658-005
					Result	Result	Result	Result	Result
<b>Physical Tests</b>									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	216	122	125	88.8	124
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	19.4	3.0	4.8	<1.0	4.0
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	9.7	1.5	2.4	<1.0	2.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	235	125	130	88.8	128
Conductivity	----	E100/VA	2.0	µS/cm	659	272	374	205	402
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	360	147	198	205	214
pH	----	E108/VA	0.10	pH units	8.59	8.40	8.44	8.20	8.42
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	525	178	252	271	287
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	5.2	<3.0	<3.0	<3.0	<3.0
Turbidity	----	E121/VA	0.10	NTU	15.0	0.15	0.14	0.23	0.26
<b>Anions and Nutrients</b>									
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	3.64	<0.50	<0.50	<0.50	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.267	0.033	0.032	0.031	0.032
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	130	23.8	66.3	71.8	85.0
<b>Total Metals</b>									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.380	0.0079	0.0051	0.0037	0.0071
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	0.00012	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00067	0.00015	0.00013	0.00011	<0.00010
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0763	0.0477	0.0706	0.0727	0.0832
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100



## Analytical Results

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 89.5	KP 39.2	KP 28.5	KP 25.4	KP 23.3
					Client sampling date / time	29-Aug-2024 00:00	29-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-001	FJ2402658-002	FJ2402658-003	FJ2402658-004	FJ2402658-005	
					Result	Result	Result	Result	Result	
<b>Total Metals</b>										
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.023	<0.010	<0.010	<0.010	<0.010	
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000524	0.0000184	0.0000311	0.0000239	0.0000164	
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	104	34.2	41.8	43.2	46.0	
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000102	<0.000010	<0.000010	<0.000010	<0.000010	
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	0.00056	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00038	<0.00010	<0.00010	<0.00010	<0.00010	
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00137	<0.00050	<0.00050	<0.00050	<0.00050	
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.606	<0.010	<0.010	<0.010	<0.010	
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000422	<0.000050	0.000060	<0.000050	0.000096	
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0110	<0.0010	<0.0010	<0.0010	<0.0010	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	24.3	15.0	22.7	23.7	24.1	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.0334	0.00055	0.00055	0.00018	0.00037	
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	0.0000068	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00405	0.000829	0.00123	0.00135	0.000698	
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00270	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	1.29	0.142	0.197	0.205	0.213	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00163	<0.00020	<0.00020	<0.00020	<0.00020	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000598	0.000246	0.000184	0.000130	0.000086	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	3.83	0.75	0.94	1.00	1.02	



**Analytical Results**

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 89.5	KP 39.2	KP 28.5	KP 25.4	KP 23.3
					Client sampling date / time	29-Aug-2024 00:00	29-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-001	FJ2402658-002	FJ2402658-003	FJ2402658-004	FJ2402658-005	
					Result	Result	Result	Result	Result	
<b>Total Metals</b>										
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	6.50	0.215	0.254	0.237	0.280	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.449	0.0277	0.0370	0.0377	0.0506	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	46.7	8.47	23.9	26.2	31.0	
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	0.000025	<0.000010	0.000018	0.000020	0.000024	
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	0.00666	<0.00030	<0.00030	<0.00030	<0.00030	
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00459	0.00227	0.00247	0.00261	0.00158	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00152	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0072	0.0050	0.0074	0.0057	0.0058	
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	0.00026	<0.00020	<0.00020	<0.00020	<0.00020	
<b>Aggregate Organics</b>										
Oil & grease (gravimetric)	----	E567/WT	5.0	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0	
<b>Volatile Organic Compounds [Fuels]</b>										
Benzene	71-43-2	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Styrene	100-42-5	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	



### Analytical Results

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 89.5	KP 39.2	KP 28.5	KP 25.4	KP 23.3
					Client sampling date / time	29-Aug-2024 00:00	29-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00	30-Aug-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-001	FJ2402658-002	FJ2402658-003	FJ2402658-004	FJ2402658-005	
					Result	Result	Result	Result	Result	
<b>Volatile Organic Compounds [Fuels]</b>										
Toluene	108-88-3	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30	
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	
BTEX, total	----	E611A/VA	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>Hydrocarbons</b>										
EPH (C10-C19), silica gel treated	----	E601A.SG/VA	250	µg/L	<250	<250	<250	<250	<250	
EPH (C19-C32), silica gel treated	----	E601A.SG/VA	250	µg/L	<250	<250	<250	<250	<250	
F1 (C6-C10)	----	E581.VH+F1/V A	100	µg/L	<100	<100	<100	<100	<100	
F2 (C10-C16)	----	E601/VA	100	µg/L	<100	<100	<100	<100	<100	
F3 (C16-C34)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	
F4 (C34-C50)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	
TPH (C10-C32), silica gel treated	----	E601A.SG/VA	500	µg/L	<500	<500	<500	<500	<500	
VHw (C6-C10)	----	E581.VH+F1/V A	100	µg/L	<100	<100	<100	<100	<100	
<b>Hydrocarbons Surrogates</b>										
Bromobenzotrifluoride, 2- (EPH-sg surrogate)	392-83-6	E601A.SG/VA	1.0	%	65.7	71.8	69.4	75.5	79.1	
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%	84.2	89.9	85.2	88.5	87.3	
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/V A	1.0	%	106	115	109	97.7	99.9	
<b>Volatile Organic Compounds Surrogates</b>										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%	93.8	91.8	91.2	92.2	92.8	
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%	100.0	99.1	99.3	98.8	100.0	



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

Please refer to the Accreditation section for an explanation of analyte accreditations.

### Analytical Results

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 20.3	KP 13.4	KP 6.2	KP 400	3-4
					Client sampling date / time	30-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	02-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-006	FJ2402658-007	FJ2402658-008	FJ2402658-010	FJ2402658-011	
					Result	Result	Result	Result	Result	
<b>Physical Tests</b>										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	130	148	194	146	228	
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	4.4	6.6	15.4	7.0	<1.0	
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	2.2	3.3	7.7	3.5	<1.0	
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	134	154	209	153	228	
Conductivity	----	E100/VA	2.0	µS/cm	342	488	672	490	1160	
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	188	273	389	266	698	
pH	----	E108/VA	0.10	pH units	8.44	8.48	8.58	8.49	8.22	
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	242	365	516	367	1040	
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	
Turbidity	----	E121/VA	0.10	NTU	0.47	0.22	0.13	0.21	----	
<b>Anions and Nutrients</b>										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	----	----	----	----	0.0127	
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	----	----	----	----	<0.250 <sup>DLDS</sup>	
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<2.50 <sup>DLDS</sup>	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.025	0.026	0.114	0.023	<0.100 <sup>DLDS</sup>	
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L	----	----	----	----	0.072	
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	----	----	----	----	0.180	
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	----	----	----	----	<0.0050 <sup>DLDS</sup>	
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	----	----	----	----	<0.0010	



**Analytical Results**

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 20.3	KP 13.4	KP 6.2	KP 400	3-4
					Client sampling date / time	30-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	02-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-006	FJ2402658-007	FJ2402658-008	FJ2402658-010	FJ2402658-011	
					Result	Result	Result	Result	Result	
<b>Anions and Nutrients</b>										
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L	----	----	----	----	----	<0.0020
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L	----	----	----	----	----	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	53.7	111	172	111	111	453
<b>Organic / Inorganic Carbon</b>										
Carbon, dissolved organic [DOC]	----	E358-L/EO	0.50	mg/L	----	----	----	----	----	1.41
<b>Total Metals</b>										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0062	0.0122	0.0034	0.0161	0.0161	0.0031
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	<0.00010	0.00021	<0.00010	<0.00010	0.0332
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00010	<0.00010	0.00106	<0.00010	<0.00010	0.00049
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0912	0.0975	0.0611	0.0945	0.0945	0.0237
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	<0.010	0.010	<0.010	<0.010	<0.010
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.000107	0.0000436	0.0000609	0.0000520	0.0000520	0.00273
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	40.2	60.0	80.5	58.9	58.9	148
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000049
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00051
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron, total	7439-89-6	E420/VA	0.010	mg/L	<0.010	0.030	<0.010	0.060	0.060	0.585
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	<0.000050	0.000092	0.000056	0.000198	0.000198	0.000200



## Analytical Results

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 20.3	KP 13.4	KP 6.2	KP 400	3-4
					Client sampling date / time	30-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	02-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-006	FJ2402658-007	FJ2402658-008	FJ2402658-010	FJ2402658-011	
					Result	Result	Result	Result	Result	
<b>Total Metals</b>										
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	<0.0010	0.0024	0.0060	0.0024	0.0048	
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	21.3	30.0	45.6	28.8	79.7	
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00015	0.00073	0.00015	0.00129	0.0214	
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	0.00116	0.00112	0.00650	0.00109	0.00286	
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	<0.00050	0.00067	0.00650	<0.00050	0.00945	
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	0.164	0.382	0.545	0.376	1.26	
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	<0.00020	0.00022	0.00032	0.00026	0.00161	
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L	0.000106	0.000469	0.00199	0.000464	0.00282	
Silicon, total	7440-21-3	E420/VA	0.10	mg/L	0.91	1.41	2.04	1.39	2.46	
Silver, total	7440-22-4	E420/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, total	7440-23-5	E420/VA	0.050	mg/L	0.237	0.680	1.50	0.658	11.9	
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L	0.0216	0.138	0.320	0.136	0.537	
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L	19.6	40.8	64.7	41.2	169	
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L	0.000017	0.000010	0.000060	0.000011	0.000024	
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin, total	7440-31-5	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	0.00171	
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	



**Analytical Results**

**Sub-Matrix: Water**  
**(Matrix: Water)**

					Client sample ID	KP 20.3	KP 13.4	KP 6.2	KP 400	3-4
					Client sampling date / time	30-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	02-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-006	FJ2402658-007	FJ2402658-008	FJ2402658-010	FJ2402658-011	
					Result	Result	Result	Result	Result	
<b>Total Metals</b>										
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L	0.00197	0.00242	0.0123	0.00242	0.0165	
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	<0.00050	<0.00050	0.00080	<0.00050	<0.00050	
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0161	0.0057	0.0263	0.0116	0.462	
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
<b>Dissolved Metals</b>										
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	----	----	----	----	0.0058	
Dissolved metals filtration location	----	EP421/VA	-	-	----	----	----	----	Field	
<b>Aggregate Organics</b>										
Oil & grease (gravimetric)	----	E567/WT	5.0	mg/L	<5.0	<5.0	<5.0	<5.0	----	
<b>Volatile Organic Compounds [Fuels]</b>										
Benzene	71-43-2	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
Ethylbenzene	100-41-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
Styrene	100-42-5	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
Toluene	108-88-3	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
Xylene, m+p-	179601-23-1	E611A/VA	0.40	µg/L	<0.40	<0.40	<0.40	<0.40	----	
Xylene, o-	95-47-6	E611A/VA	0.30	µg/L	<0.30	<0.30	<0.30	<0.30	----	
Xylenes, total	1330-20-7	E611A/VA	0.50	µg/L	<0.50	<0.50	<0.50	<0.50	----	
BTEX, total	----	E611A/VA	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	----	
<b>Hydrocarbons</b>										
EPH (C10-C19), silica gel treated	----	E601A.SG/VA	250	µg/L	<250	<250	<250	<250	----	



## Analytical Results

Sub-Matrix: Water  
 (Matrix: Water)

					Client sample ID	KP 20.3	KP 13.4	KP 6.2	KP 400	3-4
					Client sampling date / time	30-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	31-Aug-2024 00:00	02-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	FJ2402658-006	FJ2402658-007	FJ2402658-008	FJ2402658-010	FJ2402658-011	
					Result	Result	Result	Result	Result	
<b>Hydrocarbons</b>										
EPH (C19-C32), silica gel treated	----	E601A.SG/VA	250	µg/L	<250	<250	<250	<250	<250	----
F1 (C6-C10)	----	E581.VH+F1/V A	100	µg/L	<100	<100	<100	<100	<100	----
F2 (C10-C16)	----	E601/VA	100	µg/L	<100	<100	<100	<100	<100	----
F3 (C16-C34)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	----
F4 (C34-C50)	----	E601/VA	250	µg/L	<250	<250	<250	<250	<250	----
TPH (C10-C32), silica gel treated	----	E601A.SG/VA	500	µg/L	<500	<500	<500	<500	<500	----
VHw (C6-C10)	----	E581.VH+F1/V A	100	µg/L	<100	<100	<100	<100	<100	----
<b>Hydrocarbons Surrogates</b>										
Bromobenzotrifluoride, 2- (EPH-sg surrogate)	392-83-6	E601A.SG/VA	1.0	%	59.5	69.7	59.9	61.4	61.4	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601/VA	1.0	%	87.0	90.5	92.0	87.0	87.0	----
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1/V A	1.0	%	109	100	96.0	107	107	----
<b>Volatile Organic Compounds Surrogates</b>										
Bromofluorobenzene, 4-	460-00-4	E611A/VA	1.0	%	94.3	89.3	90.9	92.4	92.4	----
Difluorobenzene, 1,4-	540-36-3	E611A/VA	1.0	%	99.2	99.8	99.1	99.4	99.4	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: FJ2402658</b>	<b>Page</b>	: 1 of 16
<b>Amendment</b>	<b>: 2</b>		
<b>Client</b>	: NorZinc Ltd.	<b>Laboratory</b>	: ALS Environmental - Fort St. John
<b>Contact</b>	: Andrew Howton	<b>Account Manager</b>	: Thomas Chang
<b>Address</b>	: 510 Burrard St. Suite 907 Vancouver BC Canada V6C 3A8	<b>Address</b>	: 11007 Alaska Road Fort St. John, British Columbia Canada V1J 6P3
<b>Telephone</b>	: ----	<b>Telephone</b>	: +1 250 261 5517
<b>Project</b>	: ----	<b>Date Samples Received</b>	: 03-Sep-2024 15:10
<b>PO</b>	: ----	<b>Date Analysis Commenced</b>	: 06-Sep-2024
<b>C-O-C number</b>	: 23-1083340	<b>Issue Date</b>	: 02-Oct-2024 13:29
<b>Sampler</b>	: ----		
<b>Site</b>	: Canadian Zinc Water License Surveillance Network Program (SNP)		
<b>Quote number</b>	: VA24-NORZ100-001		
<b>No. of samples received</b>	: 10		
<b>No. of samples analysed</b>	: 10		

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 Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

### 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>
Cindy Tang	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Daniel Shabestani	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Waterloo Organics, Waterloo, Ontario
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Lindsay Gung	Supervisor - Water Chemistry	Vancouver Organics, Burnaby, British Columbia
Logan Carroll	Laboratory Analyst	Edmonton Inorganics, Edmonton, Alberta
Maya Urquhart	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia

Page : 2 of 16  
Work Order : FJ2402658 Amendment 2  
Client : NorZinc Ltd.  
Project : ----



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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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

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

## Workorder Comments

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Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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### 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: 1637344)</b>											
FJ2402658-001	KP 89.5	Solids, total suspended [TSS]	----	E160	3.0	mg/L	5.2	6.8	1.6	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 1637361)</b>											
FJ2402658-001	KP 89.5	Solids, total dissolved [TDS]	----	E162	20	mg/L	525	524	0.191%	20%	----
<b>Physical Tests (QC Lot: 1637631)</b>											
FJ2402645-001	Anonymous	Turbidity	----	E121	0.10	NTU	0.21	0.21	0.005	Diff <2x LOR	----
<b>Physical Tests (QC Lot: 1638296)</b>											
FJ2402645-017	Anonymous	pH	----	E108	0.10	pH units	8.44	8.46	0.237%	4%	----
<b>Physical Tests (QC Lot: 1638297)</b>											
FJ2402645-017	Anonymous	Alkalinity, bicarbonate (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	158	157	0.318%	200%	----
		Alkalinity, carbonate (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	7.0	7.4	5.56%	200%	----
		Alkalinity, hydroxide (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	3.5	3.7	0.2	Diff <2x LOR	----
		Alkalinity, total (as CaCO <sub>3</sub> )	----	E290	1.0	mg/L	165	164	0.0608%	20%	----
<b>Physical Tests (QC Lot: 1638298)</b>											
FJ2402645-017	Anonymous	Conductivity	----	E100	2.0	µS/cm	878	877	0.114%	10%	----
<b>Anions and Nutrients (QC Lot: 1637592)</b>											
FJ2402645-017	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0094	0.0090	0.0004	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1637593)</b>											
FJ2402658-011	3-4	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.072	0.069	0.004	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1637594)</b>											
FJ2402645-017	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0105	0.0103	0.0002	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1638289)</b>											
FJ2402645-017	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.151	0.144	0.007	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1638290)</b>											
FJ2402645-017	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1638291)</b>											
FJ2402645-017	Anonymous	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1638292)</b>											
FJ2402645-017	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	0.206	0.202	0.0036	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>Anions and Nutrients (QC Lot: 1638293)</b>											
FJ2402645-017	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1638294)</b>											
FJ2402645-017	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	330	329	0.103%	20%	----
<b>Anions and Nutrients (QC Lot: 1638295)</b>											
FJ2402645-017	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0033	0.0035	0.0002	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1639836)</b>											
EO2407762-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0844	0.0860	1.84%	20%	----
<b>Anions and Nutrients (QC Lot: 1683243)</b>											
FJ2402658-001	KP 89.5	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.267	0.259	3.04%	20%	----
<b>Anions and Nutrients (QC Lot: 1683244)</b>											
FJ2402658-001	KP 89.5	Chloride	16887-00-6	E235.Cl	0.50	mg/L	3.64	3.60	0.03	Diff <2x LOR	----
<b>Anions and Nutrients (QC Lot: 1683245)</b>											
FJ2402658-001	KP 89.5	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	130	130	0.132%	20%	----
<b>Organic / Inorganic Carbon (QC Lot: 1639306)</b>											
FC2402393-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	10.9	10.8	1.30%	20%	----
<b>Total Metals (QC Lot: 1637639)</b>											
FJ2402658-001	KP 89.5	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.380	0.387	1.85%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00012	0.00012	0.000002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00067	0.00071	0.00005	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0763	0.0778	1.87%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.023	0.023	0.0002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000524	0.0000580	10.0%	20%	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	104	107	2.62%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000102	0.000104	2.29%	20%	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.00056	0.00059	0.00003	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00038	0.00038	0.000005	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00137	0.00140	0.00003	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.606	0.621	2.59%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000422	0.000429	0.000006	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0110	0.0110	0.431%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	24.3	24.0	1.37%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0334	0.0343	2.60%	20%	----



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: 1637639) - continued</b>											
FJ2402658-001	KP 89.5	Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00405	0.00403	0.327%	20%	---
		Nickel, total	7440-02-0	E420	0.000050	mg/L	0.00270	0.00272	0.00002	Diff <2x LOR	---
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	---
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.29	1.30	1.06%	20%	---
		Rubidium, total	7440-17-7	E420	0.000020	mg/L	0.00163	0.00163	0.000004	Diff <2x LOR	---
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000598	0.000577	3.50%	20%	---
		Silicon, total	7440-21-3	E420	0.10	mg/L	3.83	3.70	3.41%	20%	---
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	---
		Sodium, total	7440-23-5	E420	0.050	mg/L	6.50	6.32	2.75%	20%	---
		Strontium, total	7440-24-6	E420	0.000020	mg/L	0.449	0.432	3.82%	20%	---
		Sulfur, total	7704-34-9	E420	0.50	mg/L	46.7	47.5	1.79%	20%	---
		Tellurium, total	13494-80-9	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	---
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000025	0.000026	0.000001	Diff <2x LOR	---
		Thorium, total	7440-29-1	E420	0.000010	mg/L	0.00012	0.00012	0.000001	Diff <2x LOR	---
		Tin, total	7440-31-5	E420	0.000010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Titanium, total	7440-32-6	E420	0.000030	mg/L	0.00666	0.00640	3.95%	20%	---
		Tungsten, total	7440-33-7	E420	0.000010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	---
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00459	0.00459	0.0112%	20%	---
		Vanadium, total	7440-62-2	E420	0.000050	mg/L	0.00152	0.00148	0.00004	Diff <2x LOR	---
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0072	0.0072	0.00004	Diff <2x LOR	---
		Zirconium, total	7440-67-7	E420	0.000020	mg/L	0.00026	0.00027	0.000007	Diff <2x LOR	---
<b>Total Metals (QC Lot: 1641418)</b>											
FJ2402658-001	KP 89.5	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000068	0.0000063	0.0000005	Diff <2x LOR	---
<b>Dissolved Metals (QC Lot: 1637677)</b>											
VA24C2654-001	Anonymous	Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0553	0.0548	0.873%	20%	---
<b>Volatile Organic Compounds (QC Lot: 1638085)</b>											
FJ2402617-007	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	---



## 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: 1637344)</b>						
Solids, total suspended [TSS]	---	E160	3	mg/L	<3.0	---
<b>Physical Tests (QCLot: 1637361)</b>						
Solids, total dissolved [TDS]	---	E162	10	mg/L	<10	---
<b>Physical Tests (QCLot: 1637631)</b>						
Turbidity	---	E121	0.1	NTU	<0.10	---
<b>Physical Tests (QCLot: 1638297)</b>						
Alkalinity, bicarbonate (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, carbonate (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, hydroxide (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, phenolphthalein (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
Alkalinity, total (as CaCO <sub>3</sub> )	---	E290	1	mg/L	<1.0	---
<b>Physical Tests (QCLot: 1638298)</b>						
Conductivity	---	E100	1	µS/cm	<1.0	---
<b>Anions and Nutrients (QCLot: 1637592)</b>						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	---
<b>Anions and Nutrients (QCLot: 1637593)</b>						
Kjeldahl nitrogen, total [TKN]	---	E318	0.05	mg/L	<0.050	---
<b>Anions and Nutrients (QCLot: 1637594)</b>						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	---
<b>Anions and Nutrients (QCLot: 1638289)</b>						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
<b>Anions and Nutrients (QCLot: 1638290)</b>						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
<b>Anions and Nutrients (QCLot: 1638291)</b>						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	---
<b>Anions and Nutrients (QCLot: 1638292)</b>						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	---
<b>Anions and Nutrients (QCLot: 1638293)</b>						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	---
<b>Anions and Nutrients (QCLot: 1638294)</b>						
Sulfate (as SO <sub>4</sub> )	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Anions and Nutrients (QCLot: 1638295)</b>						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	---
<b>Anions and Nutrients (QCLot: 1639836)</b>						
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	---
<b>Anions and Nutrients (QCLot: 1683243)</b>						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
<b>Anions and Nutrients (QCLot: 1683244)</b>						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
<b>Anions and Nutrients (QCLot: 1683245)</b>						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---
<b>Organic / Inorganic Carbon (QCLot: 1639306)</b>						
Carbon, dissolved organic [DOC]	---	E358-L	0.5	mg/L	<0.50	---
<b>Total Metals (QCLot: 1637639)</b>						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	---
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	---
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	---
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	---
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	---
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	---
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	---
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	---
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	---
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	---
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	---
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	---
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	---
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	---
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	---
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	---
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	---
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	---
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	---



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Total Metals (QCLot: 1637639) - continued</b>						
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	---
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	---
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	---
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	---
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	---
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	---
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	---
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	---
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	---
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	---
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	---
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	---
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	---
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	---
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	---
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	---
<b>Total Metals (QCLot: 1641418)</b>						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	---
<b>Dissolved Metals (QCLot: 1637677)</b>						
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	---
<b>Aggregate Organics (QCLot: 1639506)</b>						
Oil & grease (gravimetric)	---	E567	5	mg/L	<5.0	---
<b>Volatile Organic Compounds (QCLot: 1638085)</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: 1638042)</b>						
EPH (C10-C19), silica gel treated	---	E601A.SG	250	µg/L	<250	---
EPH (C19-C32), silica gel treated	---	E601A.SG	250	µg/L	<250	---
<b>Hydrocarbons (QCLot: 1673707)</b>						
F2 (C10-C16)	---	E601	100	µg/L	<100	---



Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
<b>Hydrocarbons (QCLot: 1673707) - continued</b>						
F3 (C16-C34)	---	E601	250	µg/L	<250	---
F4 (C34-C50)	---	E601	250	µg/L	<250	---
<b>Hydrocarbons (QCLot: 1676521)</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: 1685175)</b>						
F1 (C6-C10)	---	E581.VH+F1	100	µg/L	<100	---
VHw (C6-C10)	---	E581.VH+F1	100	µg/L	<100	---



## 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	Target Concentration	LCS	Low	High	Qualifier
<b>Physical Tests (QCLot: 1637344)</b>									
Solids, total suspended [TSS]	---	E160	3	mg/L	150 mg/L	88.7	85.0	115	---
<b>Physical Tests (QCLot: 1637361)</b>									
Solids, total dissolved [TDS]	---	E162	10	mg/L	1000 mg/L	105	85.0	115	---
<b>Physical Tests (QCLot: 1637631)</b>									
Turbidity	---	E121	0.1	NTU	200 NTU	97.0	85.0	115	---
<b>Physical Tests (QCLot: 1638296)</b>									
pH	---	E108	---	pH units	7 pH units	101	98.0	102	---
<b>Physical Tests (QCLot: 1638297)</b>									
Alkalinity, phenolphthalein (as CaCO <sub>3</sub> )	---	E290	1	mg/L	229 mg/L	88.0	75.0	125	---
Alkalinity, total (as CaCO <sub>3</sub> )	---	E290	1	mg/L	500 mg/L	99.5	85.0	115	---
<b>Physical Tests (QCLot: 1638298)</b>									
Conductivity	---	E100	1	µS/cm	147 µS/cm	99.1	90.0	110	---
<b>Anions and Nutrients (QCLot: 1637592)</b>									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	94.0	85.0	115	---
<b>Anions and Nutrients (QCLot: 1637593)</b>									
Kjeldahl nitrogen, total [TKN]	---	E318	0.05	mg/L	4 mg/L	103	75.0	125	---
<b>Anions and Nutrients (QCLot: 1637594)</b>									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	93.6	80.0	120	---
<b>Anions and Nutrients (QCLot: 1638289)</b>									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.7	90.0	110	---
<b>Anions and Nutrients (QCLot: 1638290)</b>									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	---
<b>Anions and Nutrients (QCLot: 1638291)</b>									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	103	85.0	115	---
<b>Anions and Nutrients (QCLot: 1638292)</b>									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	---
<b>Anions and Nutrients (QCLot: 1638293)</b>									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.2	90.0	110	---
<b>Anions and Nutrients (QCLot: 1638294)</b>									
Sulfate (as SO <sub>4</sub> )	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	---
<b>Anions and Nutrients (QCLot: 1638295)</b>									



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Anions and Nutrients (QCLot: 1638295) - continued</b>									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	95.4	80.0	120	---
<b>Anions and Nutrients (QCLot: 1639836)</b>									
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	94.0	80.0	120	---
<b>Anions and Nutrients (QCLot: 1683243)</b>									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	---
<b>Anions and Nutrients (QCLot: 1683244)</b>									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	---
<b>Anions and Nutrients (QCLot: 1683245)</b>									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	---
<b>Organic / Inorganic Carbon (QCLot: 1639306)</b>									
Carbon, dissolved organic [DOC]	---	E358-L	0.5	mg/L	8.57 mg/L	102	80.0	120	---
<b>Total Metals (QCLot: 1637639)</b>									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	---
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	102	80.0	120	---
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	100	80.0	120	---
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	---
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	97.5	80.0	120	---
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	---
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	90.8	80.0	120	---
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.9	80.0	120	---
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	102	80.0	120	---
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	100	80.0	120	---
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.9	80.0	120	---
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	96.9	80.0	120	---
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	94.3	80.0	120	---
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.4	80.0	120	---
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	99.0	80.0	120	---
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	98.6	80.0	120	---
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	---
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	96.4	80.0	120	---
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	101	80.0	120	---
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	96.2	80.0	120	---
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	92.8	80.0	120	---
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	97.1	80.0	120	---



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Total Metals (QCLot: 1637639) - continued</b>									
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	91.2	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	105	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	92.8	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	99.7	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	106	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	97.3	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	100	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	97.4	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	94.7	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	98.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	97.3	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	95.9	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	94.1	80.0	120	----
<b>Total Metals (QCLot: 1641418)</b>									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	96.5	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	91.4	80.0	120	----
<b>Aggregate Organics (QCLot: 1639506)</b>									
Oil & grease (gravimetric)	----	E567	5	mg/L	200 mg/L	99.6	70.0	130	----
<b>Volatile Organic Compounds (QCLot: 1638085)</b>									
Benzene	71-43-2	E611A	0.5	µg/L	100 µg/L	101	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	108	70.0	130	----
Styrene	100-42-5	E611A	0.5	µg/L	100 µg/L	104	70.0	130	----
Toluene	108-88-3	E611A	0.5	µg/L	100 µg/L	102	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.4	µg/L	200 µg/L	111	70.0	130	----
Xylene, o-	95-47-6	E611A	0.3	µg/L	100 µg/L	100	70.0	130	----
<b>Hydrocarbons (QCLot: 1638042)</b>									
EPH (C10-C19), silica gel treated	----	E601A.SG	250	µg/L	6490 µg/L	94.9	70.0	130	----



Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
<b>Hydrocarbons (QCLot: 1638042) - continued</b>									
EPH (C19-C32), silica gel treated	----	E601A.SG	250	µg/L	3360 µg/L	99.2	70.0	130	----
<b>Hydrocarbons (QCLot: 1673707)</b>									
F2 (C10-C16)	----	E601	100	µg/L	3540 µg/L	106	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7050 µg/L	100	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5050 µg/L	107	70.0	130	----
<b>Hydrocarbons (QCLot: 1676521)</b>									
F2 (C10-C16)	----	E601	100	µg/L	3540 µg/L	115	70.0	130	----
F3 (C16-C34)	----	E601	250	µg/L	7050 µg/L	109	70.0	130	----
F4 (C34-C50)	----	E601	250	µg/L	5050 µg/L	116	70.0	130	----
<b>Hydrocarbons (QCLot: 1685175)</b>									
F1 (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	89.7	70.0	130	----
VHw (C6-C10)	----	E581.VH+F1	100	µg/L	6310 µg/L	92.8	70.0	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
<b>Anions and Nutrients (QCLot: 1637592)</b>										
FJ2402645-018	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0902 mg/L	0.1 mg/L	90.2	75.0	125	----
<b>Anions and Nutrients (QCLot: 1637593)</b>										
FJ2402669-005	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.53 mg/L	2.5 mg/L	101	70.0	130	----
<b>Anions and Nutrients (QCLot: 1637594)</b>										
FJ2402645-018	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0475 mg/L	0.05 mg/L	95.1	70.0	130	----
<b>Anions and Nutrients (QCLot: 1638289)</b>										
FJ2402645-018	Anonymous	Fluoride	16984-48-8	E235.F	0.993 mg/L	1 mg/L	99.3	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638290)</b>										
FJ2402645-018	Anonymous	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638291)</b>										
FJ2402645-018	Anonymous	Bromide	24959-67-9	E235.Br-L	0.510 mg/L	0.5 mg/L	102	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638292)</b>										
FJ2402645-018	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.52 mg/L	2.5 mg/L	101	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638293)</b>										
FJ2402645-018	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.488 mg/L	0.5 mg/L	97.5	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638294)</b>										
FJ2402645-018	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
<b>Anions and Nutrients (QCLot: 1638295)</b>										
FJ2402645-018	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0317 mg/L	0.03 mg/L	106	70.0	130	----
<b>Anions and Nutrients (QCLot: 1639836)</b>										
EO2407762-002	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0744 mg/L	0.067 mg/L	111	70.0	130	----
<b>Anions and Nutrients (QCLot: 1683243)</b>										
FJ2402658-002	KP 39.2	Fluoride	16984-48-8	E235.F	1.04 mg/L	1 mg/L	104	75.0	125	----
<b>Anions and Nutrients (QCLot: 1683244)</b>										
FJ2402658-002	KP 39.2	Chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
<b>Anions and Nutrients (QCLot: 1683245)</b>										
FJ2402658-002	KP 39.2	Sulfate (as SO4)	14808-79-8	E235.SO4	103 mg/L	100 mg/L	103	75.0	125	----
<b>Organic / Inorganic Carbon (QCLot: 1639306)</b>										
FC2402393-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
<b>Total Metals (QCLot: 1637639)</b>										



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>Total Metals (QCLot: 1637639) - continued</b>										
FJ2402658-002	KP 39.2	Aluminum, total	7429-90-5	E420	0.186 mg/L	0.2 mg/L	93.0	70.0	130	---
		Antimony, total	7440-36-0	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	---
		Arsenic, total	7440-38-2	E420	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	---
		Barium, total	7440-39-3	E420	ND mg/L	---	ND	70.0	130	---
		Beryllium, total	7440-41-7	E420	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	---
		Bismuth, total	7440-69-9	E420	0.00958 mg/L	0.01 mg/L	95.8	70.0	130	---
		Boron, total	7440-42-8	E420	0.092 mg/L	0.1 mg/L	91.6	70.0	130	---
		Cadmium, total	7440-43-9	E420	0.00390 mg/L	0.004 mg/L	97.6	70.0	130	---
		Calcium, total	7440-70-2	E420	ND mg/L	---	ND	70.0	130	---
		Cesium, total	7440-46-2	E420	0.00994 mg/L	0.01 mg/L	99.4	70.0	130	---
		Chromium, total	7440-47-3	E420	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	---
		Cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	---
		Copper, total	7440-50-8	E420	0.0183 mg/L	0.02 mg/L	91.5	70.0	130	---
		Iron, total	7439-89-6	E420	1.84 mg/L	2 mg/L	92.0	70.0	130	---
		Lead, total	7439-92-1	E420	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	---
		Lithium, total	7439-93-2	E420	0.0915 mg/L	0.1 mg/L	91.5	70.0	130	---
		Magnesium, total	7439-95-4	E420	ND mg/L	---	ND	70.0	130	---
		Manganese, total	7439-96-5	E420	0.0184 mg/L	0.02 mg/L	91.9	70.0	130	---
		Molybdenum, total	7439-98-7	E420	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	---
		Nickel, total	7440-02-0	E420	0.0370 mg/L	0.04 mg/L	92.5	70.0	130	---
		Phosphorus, total	7723-14-0	E420	9.23 mg/L	10 mg/L	92.3	70.0	130	---
		Potassium, total	7440-09-7	E420	3.65 mg/L	4 mg/L	91.4	70.0	130	---
		Rubidium, total	7440-17-7	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	---
		Selenium, total	7782-49-2	E420	0.0366 mg/L	0.04 mg/L	91.6	70.0	130	---
		Silicon, total	7440-21-3	E420	9.20 mg/L	10 mg/L	92.0	70.0	130	---
		Silver, total	7440-22-4	E420	0.00395 mg/L	0.004 mg/L	98.7	70.0	130	---
		Sodium, total	7440-23-5	E420	1.88 mg/L	2 mg/L	94.1	70.0	130	---
		Strontium, total	7440-24-6	E420	ND mg/L	---	ND	70.0	130	---
		Sulfur, total	7704-34-9	E420	19.2 mg/L	20 mg/L	96.2	70.0	130	---
		Tellurium, total	13494-80-9	E420	0.0406 mg/L	0.04 mg/L	102	70.0	130	---
		Thallium, total	7440-28-0	E420	0.00372 mg/L	0.004 mg/L	92.9	70.0	130	---
		Thorium, total	7440-29-1	E420	0.0162 mg/L	0.02 mg/L	81.2	70.0	130	---
		Tin, total	7440-31-5	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	---
		Titanium, total	7440-32-6	E420	0.0368 mg/L	0.04 mg/L	92.0	70.0	130	---
		Tungsten, total	7440-33-7	E420	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	---
		Uranium, total	7440-61-1	E420	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	---
		Vanadium, total	7440-62-2	E420	0.0956 mg/L	0.1 mg/L	95.6	70.0	130	---
		Zinc, total	7440-66-6	E420	0.378 mg/L	0.4 mg/L	94.4	70.0	130	---
		Zirconium, total	7440-67-7	E420	0.0386 mg/L	0.04 mg/L	96.5	70.0	130	---
<b>Total Metals (QCLot: 1641418)</b>										
FJ2402658-002	KP 39.2	Mercury, total	7439-97-6	E508	0.0000941 mg/L	0 mg/L	94.1	70.0	130	---
<b>Dissolved Metals (QCLot: 1637677)</b>										
YL2401369-001	Anonymous	Zinc, dissolved	7440-66-6	E421	0.359 mg/L	0.4 mg/L	89.6	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
<b>Volatile Organic Compounds (QCLot: 1638085)</b>										
FJ2402658-001	KP 89.5	Benzene	71-43-2	E611A	97.2 µg/L	100 µg/L	97.2	60.0	140	---
		Ethylbenzene	100-41-4	E611A	98.4 µg/L	100 µg/L	98.4	60.0	140	---
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	106 µg/L	100 µg/L	106	60.0	140	---
		Styrene	100-42-5	E611A	98.2 µg/L	100 µg/L	98.2	60.0	140	---
		Toluene	108-88-3	E611A	98.4 µg/L	100 µg/L	98.4	60.0	140	---
		Xylene, m+p-	179601-23-1	E611A	216 µg/L	200 µg/L	108	60.0	140	---
		Xylene, o-	95-47-6	E611A	96.0 µg/L	100 µg/L	96.0	60.0	140	---
<b>Hydrocarbons (QCLot: 1685175)</b>										
FJ2402658-002	KP 39.2	F1 (C6-C10)	---	E581.VH+F1	4550 µg/L	6310 µg/L	72.1	60.0	140	---
		VHw (C6-C10)	---	E581.VH+F1	4710 µg/L	6310 µg/L	74.7	60.0	140	---



## QUALITY CONTROL INTERPRETIVE REPORT

<p><b>Work Order</b> : FJ2402658</p> <p><b>Amendment</b> : 2</p> <p><b>Client</b> : NorZinc Ltd.</p> <p><b>Contact</b> : Andrew Howton</p> <p><b>Address</b> : 510 Burrard St. Suite 907 Vancouver BC Canada V6C 3A8</p> <p><b>Telephone</b> : ----</p> <p><b>Project</b> : ----</p> <p><b>PO</b> : ----</p> <p><b>C-O-C number</b> : 23-1083340</p> <p><b>Sampler</b> : ----</p> <p><b>Site</b> : Canadian Zinc Water License Surveillance Network Program (SNP)</p> <p><b>Quote number</b> : VA24-NORZ100-001</p> <p><b>No. of samples received</b> : 10</p> <p><b>No. of samples analysed</b> : 10</p>	<p><b>Page</b> : 1 of 28</p> <p><b>Laboratory</b> : ALS Environmental - Fort St. John</p> <p><b>Account Manager</b> : Thomas Chang</p> <p><b>Address</b> : 11007 Alaska Road Fort St. John, British Columbia Canada V1J 6P3</p> <p><b>Telephone</b> : +1 250 261 5517</p> <p><b>Date Samples Received</b> : 03-Sep-2024 15:10</p> <p><b>Issue Date</b> : 02-Oct-2024 13:29</p>
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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 Service number is a unique identifier assigned to discrete substances.
- DQO: Data Quality Objective.
- LOR: Limit of Reporting (detection limit).
- RPD: Relative Percent Difference.

### ***Workorder Comments***

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

### ***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***

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.



## 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 : Analytical Method 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	
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 39.2	E567	29-Aug-2024	08-Sep-2024	28 days	10 days	✔	09-Sep-2024	28 days	11 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 89.5	E567	29-Aug-2024	08-Sep-2024	28 days	10 days	✔	09-Sep-2024	28 days	11 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 13.4	E567	31-Aug-2024	08-Sep-2024	28 days	8 days	✔	09-Sep-2024	28 days	9 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 400	E567	31-Aug-2024	08-Sep-2024	28 days	8 days	✔	09-Sep-2024	28 days	9 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 6.2	E567	31-Aug-2024	08-Sep-2024	28 days	8 days	✔	09-Sep-2024	28 days	9 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 20.3	E567	30-Aug-2024	08-Sep-2024	28 days	9 days	✔	09-Sep-2024	28 days	10 days	✔
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 23.3	E567	30-Aug-2024	08-Sep-2024	28 days	9 days	✔	09-Sep-2024	28 days	10 days	✔



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

Analyte Group : Analytical Method 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	
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 25.4	E567	30-Aug-2024	08-Sep-2024	28 days	9 days	✓	09-Sep-2024	28 days	10 days	✓
<b>Aggregate Organics : Oil &amp; Grease by Gravimetry</b>										
Amber glass (hydrochloric acid) KP 28.5	E567	30-Aug-2024	08-Sep-2024	28 days	9 days	✓	09-Sep-2024	28 days	10 days	✓
<b>Anions and Nutrients : Ammonia by Fluorescence</b>										
Amber glass total (lab preserved) 3-4	E298	02-Sep-2024	06-Sep-2024	3 days	5 days	* EHT	07-Sep-2024	28 days	0 days	✓
<b>Anions and Nutrients : Bromide in Water by IC (Low Level)</b>										
HDPE 3-4	E235.Br-L	02-Sep-2024	07-Sep-2024	28 days	5 days	✓	07-Sep-2024	28 days	5 days	✓
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 13.4	E235.Cl	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 400	E235.Cl	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 6.2	E235.Cl	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 20.3	E235.Cl	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 23.3	E235.Cl	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT



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

Analyte Group : Analytical Method 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	
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 25.4	E235.Cl	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 28.5	E235.Cl	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 39.2	E235.Cl	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE KP 89.5	E235.Cl	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT
<b>Anions and Nutrients : Chloride in Water by IC</b>										
HDPE 3-4	E235.Cl	02-Sep-2024	07-Sep-2024	28 days	5 days	✓	07-Sep-2024	28 days	5 days	✓
<b>Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)</b>										
HDPE 3-4	E378-U	02-Sep-2024	07-Sep-2024	3 days	5 days	* EHT	08-Sep-2024	3 days	6 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 13.4	E235.F	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 400	E235.F	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 6.2	E235.F	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT



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

Analyte Group : Analytical Method 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	
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 20.3	E235.F	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 23.3	E235.F	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 25.4	E235.F	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 28.5	E235.F	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 39.2	E235.F	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE KP 89.5	E235.F	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT
<b>Anions and Nutrients : Fluoride in Water by IC</b>										
HDPE 3-4	E235.F	02-Sep-2024	07-Sep-2024	28 days	5 days	✓	07-Sep-2024	28 days	5 days	✓
<b>Anions and Nutrients : Nitrate in Water by IC (Low Level)</b>										
HDPE 3-4	E235.NO3-L	02-Sep-2024	07-Sep-2024	3 days	5 days	* EHT	07-Sep-2024	3 days	5 days	* EHT
<b>Anions and Nutrients : Nitrite in Water by IC (Low Level)</b>										
HDPE 3-4	E235.NO2-L	02-Sep-2024	07-Sep-2024	3 days	5 days	* EHT	07-Sep-2024	3 days	5 days	* EHT



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Analyte Group : Analytical Method 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		
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 13.4	E235.SO4	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 400	E235.SO4	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 6.2	E235.SO4	31-Aug-2024	01-Oct-2024	28 days	32 days	* EHT	01-Oct-2024	28 days	32 days	* EHT	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 20.3	E235.SO4	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 23.3	E235.SO4	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 25.4	E235.SO4	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 28.5	E235.SO4	30-Aug-2024	01-Oct-2024	28 days	33 days	* EHT	01-Oct-2024	28 days	33 days	* EHT	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 39.2	E235.SO4	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT	
<b>Anions and Nutrients : Sulfate in Water by IC</b>											
HDPE KP 89.5	E235.SO4	29-Aug-2024	01-Oct-2024	28 days	34 days	* EHT	01-Oct-2024	28 days	34 days	* EHT	



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Analyte Group : Analytical Method 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	
<b>Anions and Nutrients : Sulfate in Water by IC</b>										
HDPE 3-4	E235.SO4	02-Sep-2024	07-Sep-2024	28 days	5 days	✓	07-Sep-2024	28 days	5 days	✓
<b>Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)</b>										
Amber glass dissolved (sulfuric acid) 3-4	E375-U	02-Sep-2024	09-Sep-2024	28 days	7 days	✓	09-Sep-2024	28 days	8 days	✓
<b>Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)</b>										
Amber glass total (lab preserved) 3-4	E318	02-Sep-2024	06-Sep-2024	3 days	5 days	* EHT	09-Sep-2024	28 days	2 days	✓
<b>Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)</b>										
Amber glass total (lab preserved) 3-4	E372-U	02-Sep-2024	06-Sep-2024	3 days	5 days	* EHT	09-Sep-2024	28 days	2 days	✓
<b>Dissolved Metals : Dissolved Metals in Water by CRC ICPMS</b>										
HDPE - dissolved (lab preserved) 3-4	E421	02-Sep-2024	08-Sep-2024	180 days	7 days	✓	09-Sep-2024	180 days	8 days	✓
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 13.4	E601A.SG	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	09-Sep-2024	40 days	3 days	✓
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 400	E601A.SG	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	09-Sep-2024	40 days	3 days	✓
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 6.2	E601A.SG	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	09-Sep-2024	40 days	3 days	✓
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 20.3	E601A.SG	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	09-Sep-2024	40 days	3 days	✓



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Analyte Group : Analytical Method 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		
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 23.3	E601A.SG	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	09-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 25.4	E601A.SG	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	09-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 28.5	E601A.SG	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	09-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 39.2	E601A.SG	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	09-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : BC PHCs - EPH(sg) by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 89.5	E601A.SG	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	09-Sep-2024	40 days	3 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 13.4	E601	31-Aug-2024	26-Sep-2024	14 days	26 days	* EHT	26-Sep-2024	40 days	1 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 6.2	E601	31-Aug-2024	26-Sep-2024	14 days	26 days	* EHT	26-Sep-2024	40 days	1 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 20.3	E601	30-Aug-2024	26-Sep-2024	14 days	27 days	* EHT	26-Sep-2024	40 days	1 days	✓	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>											
Amber glass/Teflon lined cap (sodium bisulfate) KP 23.3	E601	30-Aug-2024	26-Sep-2024	14 days	27 days	* EHT	26-Sep-2024	40 days	1 days	✓	



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Analyte Group : Analytical Method 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	
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 25.4	E601	30-Aug-2024	26-Sep-2024	14 days	27 days	* EHT	26-Sep-2024	40 days	1 days	✓
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 28.5	E601	30-Aug-2024	26-Sep-2024	14 days	27 days	* EHT	26-Sep-2024	40 days	1 days	✓
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 400	E601	31-Aug-2024	27-Sep-2024	14 days	27 days	* EHT	27-Sep-2024	40 days	1 days	✓
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 39.2	E601	29-Aug-2024	26-Sep-2024	14 days	28 days	* EHT	26-Sep-2024	40 days	1 days	✓
<b>Hydrocarbons : CCME PHCs - F2-F4 by GC-FID</b>										
Amber glass/Teflon lined cap (sodium bisulfate) KP 89.5	E601	29-Aug-2024	26-Sep-2024	14 days	28 days	* EHT	26-Sep-2024	40 days	1 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 13.4	E581.VH+F1	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 400	E581.VH+F1	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 6.2	E581.VH+F1	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>										
Glass vial (sodium bisulfate) KP 20.3	E581.VH+F1	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓



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Analyte Group : Analytical Method 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		
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 23.3	E581.VH+F1	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 25.4	E581.VH+F1	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 28.5	E581.VH+F1	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 39.2	E581.VH+F1	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	07-Sep-2024	14 days	9 days	✓	
<b>Hydrocarbons : VH and F1 by Headspace GC-FID</b>											
Glass vial (sodium bisulfate) KP 89.5	E581.VH+F1	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	07-Sep-2024	14 days	9 days	✓	
<b>Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)</b>											
Amber glass dissolved (sulfuric acid) 3-4	E358-L	02-Sep-2024	08-Sep-2024	28 days	6 days	✓	08-Sep-2024	28 days	7 days	✓	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE 3-4	E290	02-Sep-2024	07-Sep-2024	14 days	5 days	✓	08-Sep-2024	14 days	6 days	✓	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 13.4	E290	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	08-Sep-2024	14 days	8 days	✓	
<b>Physical Tests : Alkalinity Species by Titration</b>											
HDPE KP 400	E290	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	08-Sep-2024	14 days	8 days	✓	



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Analyte Group : Analytical Method 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	
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 6.2	E290	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	08-Sep-2024	14 days	8 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 20.3	E290	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	08-Sep-2024	14 days	9 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 23.3	E290	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	08-Sep-2024	14 days	9 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 25.4	E290	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	08-Sep-2024	14 days	9 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 28.5	E290	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	08-Sep-2024	14 days	9 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 39.2	E290	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	08-Sep-2024	14 days	10 days	✓
<b>Physical Tests : Alkalinity Species by Titration</b>										
HDPE KP 89.5	E290	29-Aug-2024	07-Sep-2024	14 days	9 days	✓	08-Sep-2024	14 days	10 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE 3-4	E100	02-Sep-2024	07-Sep-2024	28 days	5 days	✓	08-Sep-2024	28 days	6 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 13.4	E100	31-Aug-2024	07-Sep-2024	28 days	7 days	✓	08-Sep-2024	28 days	8 days	✓



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Analyte Group : Analytical Method 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	
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 400	E100	31-Aug-2024	07-Sep-2024	28 days	7 days	✓	08-Sep-2024	28 days	8 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 6.2	E100	31-Aug-2024	07-Sep-2024	28 days	7 days	✓	08-Sep-2024	28 days	8 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 20.3	E100	30-Aug-2024	07-Sep-2024	28 days	8 days	✓	08-Sep-2024	28 days	9 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 23.3	E100	30-Aug-2024	07-Sep-2024	28 days	8 days	✓	08-Sep-2024	28 days	9 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 25.4	E100	30-Aug-2024	07-Sep-2024	28 days	8 days	✓	08-Sep-2024	28 days	9 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 28.5	E100	30-Aug-2024	07-Sep-2024	28 days	8 days	✓	08-Sep-2024	28 days	9 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 39.2	E100	29-Aug-2024	07-Sep-2024	28 days	9 days	✓	08-Sep-2024	28 days	10 days	✓
<b>Physical Tests : Conductivity in Water</b>										
HDPE KP 89.5	E100	29-Aug-2024	07-Sep-2024	28 days	9 days	✓	08-Sep-2024	28 days	10 days	✓
<b>Physical Tests : pH by Meter</b>										
HDPE 3-4	E108	02-Sep-2024	07-Sep-2024	0.25 hrs	129 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	155 hrs	* EHTR-FM



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			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval	
				Rec	Actual			Rec	Actual		
<b>Physical Tests : pH by Meter</b>											
HDPE KP 13.4	E108	31-Aug-2024	07-Sep-2024	0.25 hrs	177 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	203 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 400	E108	31-Aug-2024	07-Sep-2024	0.25 hrs	177 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	203 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 6.2	E108	31-Aug-2024	07-Sep-2024	0.25 hrs	177 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	203 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 20.3	E108	30-Aug-2024	07-Sep-2024	0.25 hrs	201 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	227 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 23.3	E108	30-Aug-2024	07-Sep-2024	0.25 hrs	201 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	227 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 25.4	E108	30-Aug-2024	07-Sep-2024	0.25 hrs	201 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	227 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 28.5	E108	30-Aug-2024	07-Sep-2024	0.25 hrs	201 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	227 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 39.2	E108	29-Aug-2024	07-Sep-2024	0.25 hrs	225 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	251 hrs	* EHTR-FM	
<b>Physical Tests : pH by Meter</b>											
HDPE KP 89.5	E108	29-Aug-2024	07-Sep-2024	0.25 hrs	225 hrs	* EHTR-FM	08-Sep-2024	0.25 hrs	251 hrs	* EHTR-FM	



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE 3-4	E162	02-Sep-2024	----	----	----		06-Sep-2024	7 days	5 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 13.4	E162	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 400	E162	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 6.2	E162	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 20.3	E162	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 23.3	E162	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 25.4	E162	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 28.5	E162	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✓
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 39.2	E162	29-Aug-2024	----	----	----		06-Sep-2024	7 days	9 days	* EHT



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : TDS by Gravimetry</b>										
HDPE KP 89.5	E162	29-Aug-2024	----	----	----		06-Sep-2024	7 days	9 days	✖ EHT
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE 3-4	E160	02-Sep-2024	----	----	----		06-Sep-2024	7 days	5 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 13.4	E160	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 400	E160	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 6.2	E160	31-Aug-2024	----	----	----		06-Sep-2024	7 days	7 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 20.3	E160	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 23.3	E160	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 25.4	E160	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✔
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 28.5	E160	30-Aug-2024	----	----	----		06-Sep-2024	7 days	8 days	✔



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 39.2	E160	29-Aug-2024	----	----	----		06-Sep-2024	7 days	9 days	* EHT
<b>Physical Tests : TSS by Gravimetry</b>										
HDPE KP 89.5	E160	29-Aug-2024	----	----	----		06-Sep-2024	7 days	9 days	* EHT
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 13.4	E121	31-Aug-2024	----	----	----		06-Sep-2024	3 days	7 days	* EHTL
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 400	E121	31-Aug-2024	----	----	----		06-Sep-2024	3 days	7 days	* EHTL
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 6.2	E121	31-Aug-2024	----	----	----		06-Sep-2024	3 days	7 days	* EHTL
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 20.3	E121	30-Aug-2024	----	----	----		06-Sep-2024	3 days	8 days	* EHTR
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 23.3	E121	30-Aug-2024	----	----	----		06-Sep-2024	3 days	8 days	* EHTR
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 25.4	E121	30-Aug-2024	----	----	----		06-Sep-2024	3 days	8 days	* EHTR
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 28.5	E121	30-Aug-2024	----	----	----		06-Sep-2024	3 days	8 days	* EHTR



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

Analyte Group : Analytical Method 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	
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 39.2	E121	29-Aug-2024	----	----	----		06-Sep-2024	3 days	9 days	* EHTR
<b>Physical Tests : Turbidity by Nephelometry</b>										
HDPE KP 89.5	E121	29-Aug-2024	----	----	----		06-Sep-2024	3 days	9 days	* EHTR
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 13.4	E508	31-Aug-2024	09-Sep-2024	28 days	10 days	✓	09-Sep-2024	28 days	10 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 400	E508	31-Aug-2024	09-Sep-2024	28 days	10 days	✓	09-Sep-2024	28 days	10 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 6.2	E508	31-Aug-2024	09-Sep-2024	28 days	10 days	✓	09-Sep-2024	28 days	10 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 20.3	E508	30-Aug-2024	09-Sep-2024	28 days	11 days	✓	09-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 23.3	E508	30-Aug-2024	09-Sep-2024	28 days	11 days	✓	09-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 25.4	E508	30-Aug-2024	09-Sep-2024	28 days	11 days	✓	09-Sep-2024	28 days	11 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 28.5	E508	30-Aug-2024	09-Sep-2024	28 days	11 days	✓	09-Sep-2024	28 days	11 days	✓



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

Analyte Group : Analytical Method 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	
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 39.2	E508	29-Aug-2024	09-Sep-2024	28 days	12 days	✓	09-Sep-2024	28 days	12 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) KP 89.5	E508	29-Aug-2024	09-Sep-2024	28 days	12 days	✓	09-Sep-2024	28 days	12 days	✓
<b>Total Metals : Total Mercury in Water by CVAAS</b>										
Glass vial - total (lab preserved) 3-4	E508	02-Sep-2024	09-Sep-2024	28 days	8 days	✓	09-Sep-2024	28 days	8 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 13.4	E420	31-Aug-2024	09-Sep-2024	180 days	10 days	✓	10-Sep-2024	180 days	10 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 400	E420	31-Aug-2024	09-Sep-2024	180 days	10 days	✓	10-Sep-2024	180 days	10 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 6.2	E420	31-Aug-2024	09-Sep-2024	180 days	10 days	✓	10-Sep-2024	180 days	10 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 20.3	E420	30-Aug-2024	09-Sep-2024	180 days	11 days	✓	10-Sep-2024	180 days	11 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 23.3	E420	30-Aug-2024	09-Sep-2024	180 days	11 days	✓	10-Sep-2024	180 days	11 days	✓
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>										
HDPE - total (lab preserved) KP 25.4	E420	30-Aug-2024	09-Sep-2024	180 days	11 days	✓	10-Sep-2024	180 days	11 days	✓



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

Analyte Group : Analytical Method 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		
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 28.5	E420	30-Aug-2024	09-Sep-2024	180 days	11 days	✓	10-Sep-2024	180 days	11 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 39.2	E420	29-Aug-2024	09-Sep-2024	180 days	12 days	✓	10-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) KP 89.5	E420	29-Aug-2024	09-Sep-2024	180 days	12 days	✓	10-Sep-2024	180 days	12 days	✓	
<b>Total Metals : Total Metals in Water by CRC ICPMS</b>											
HDPE - total (lab preserved) 3-4	E420	02-Sep-2024	09-Sep-2024	180 days	8 days	✓	10-Sep-2024	180 days	8 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 13.4	E611A	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 400	E611A	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 6.2	E611A	31-Aug-2024	07-Sep-2024	14 days	7 days	✓	07-Sep-2024	14 days	7 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 20.3	E611A	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>											
Glass vial (sodium bisulfate) KP 23.3	E611A	30-Aug-2024	07-Sep-2024	14 days	8 days	✓	07-Sep-2024	14 days	8 days	✓	



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

Analyte Group : Analytical Method 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	
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 25.4	E611A	30-Aug-2024	07-Sep-2024	14 days	8 days	✔	07-Sep-2024	14 days	8 days	✔
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 28.5	E611A	30-Aug-2024	07-Sep-2024	14 days	8 days	✔	07-Sep-2024	14 days	8 days	✔
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 39.2	E611A	29-Aug-2024	07-Sep-2024	14 days	9 days	✔	07-Sep-2024	14 days	9 days	✔
<b>Volatile Organic Compounds : BTEX by Headspace GC-MS</b>										
Glass vial (sodium bisulfate) KP 89.5	E611A	29-Aug-2024	07-Sep-2024	14 days	9 days	✔	07-Sep-2024	14 days	9 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
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Alkalinity Species by Titration	E290	1638297	1	17	5.8	5.0	✔
Ammonia by Fluorescence	E298	1637592	1	20	5.0	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1638291	1	8	12.5	5.0	✔
BTEX by Headspace GC-MS	E611A	1638085	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	1638290	2	17	11.7	5.0	✔
Conductivity in Water	E100	1638298	1	17	5.8	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1637677	1	14	7.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1639306	1	19	5.2	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1638295	1	8	12.5	5.0	✔
Fluoride in Water by IC	E235.F	1638289	2	17	11.7	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1638292	1	8	12.5	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1638293	1	8	12.5	5.0	✔
pH by Meter	E108	1638296	1	17	5.8	5.0	✔
Sulfate in Water by IC	E235.SO4	1638294	2	17	11.7	5.0	✔
TDS by Gravimetry	E162	1637361	1	20	5.0	5.0	✔
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1639836	1	20	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1637593	1	12	8.3	5.0	✔
Total Mercury in Water by CVAAS	E508	1641418	1	20	5.0	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1637639	1	19	5.2	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1637594	1	17	5.8	5.0	✔
TSS by Gravimetry	E160	1637344	1	20	5.0	5.0	✔
Turbidity by Nephelometry	E121	1637631	1	20	5.0	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	1685175	0	9	0.0	5.0	✖
<b>Laboratory Control Samples (LCS)</b>							
Alkalinity Species by Titration	E290	1638297	1	17	5.8	5.0	✔
Ammonia by Fluorescence	E298	1637592	1	20	5.0	5.0	✔
BC PHCs - EPH(sg) by GC-FID	E601A.SG	1638042	1	9	11.1	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1638291	1	8	12.5	5.0	✔
BTEX by Headspace GC-MS	E611A	1638085	1	20	5.0	5.0	✔
CCME PHCs - F2-F4 by GC-FID	E601	1673707	2	20	10.0	5.0	✔
Chloride in Water by IC	E235.Cl	1638290	2	17	11.7	5.0	✔
Conductivity in Water	E100	1638298	1	17	5.8	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1637677	1	14	7.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1639306	1	19	5.2	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1638295	1	8	12.5	5.0	✔
Fluoride in Water by IC	E235.F	1638289	2	17	11.7	5.0	✔



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
<i>Analytical Methods</i>							
<b>Laboratory Control Samples (LCS) - Continued</b>							
Nitrate in Water by IC (Low Level)	E235.NO3-L	1638292	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1638293	1	8	12.5	5.0	✓
Oil & Grease by Gravimetry	E567	1639506	1	16	6.2	5.0	✓
pH by Meter	E108	1638296	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1638294	2	17	11.7	5.0	✓
TDS by Gravimetry	E162	1637361	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1639836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1637593	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1641418	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1637639	1	19	5.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1637594	1	17	5.8	5.0	✓
TSS by Gravimetry	E160	1637344	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1637631	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1685175	1	9	11.1	5.0	✓
<b>Method Blanks (MB)</b>							
Alkalinity Species by Titration	E290	1638297	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1637592	1	20	5.0	5.0	✓
BC PHCs - EPH(sg) by GC-FID	E601A.SG	1638042	1	9	11.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1638291	1	8	12.5	5.0	✓
BTEX by Headspace GC-MS	E611A	1638085	1	20	5.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID	E601	1673707	2	20	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	1638290	2	17	11.7	5.0	✓
Conductivity in Water	E100	1638298	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1637677	1	14	7.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1639306	1	19	5.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1638295	1	8	12.5	5.0	✓
Fluoride in Water by IC	E235.F	1638289	2	17	11.7	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1638292	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1638293	1	8	12.5	5.0	✓
Oil & Grease by Gravimetry	E567	1639506	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1638294	2	17	11.7	5.0	✓
TDS by Gravimetry	E162	1637361	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1639836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1637593	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1641418	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1637639	1	19	5.2	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1637594	1	17	5.8	5.0	✓
TSS by Gravimetry	E160	1637344	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1637631	1	20	5.0	5.0	✓



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
<i>Analytical Methods</i>							
Method Blanks (MB) - Continued							
VH and F1 by Headspace GC-FID	E581.VH+F1	1685175	1	9	11.1	5.0	✔
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1637592	1	20	5.0	5.0	✔
Bromide in Water by IC (Low Level)	E235.Br-L	1638291	1	8	12.5	5.0	✔
BTEX by Headspace GC-MS	E611A	1638085	1	20	5.0	5.0	✔
Chloride in Water by IC	E235.Cl	1638290	2	17	11.7	5.0	✔
Dissolved Metals in Water by CRC ICPMS	E421	1637677	1	14	7.1	5.0	✔
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1639306	1	19	5.2	5.0	✔
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1638295	1	8	12.5	5.0	✔
Fluoride in Water by IC	E235.F	1638289	2	17	11.7	5.0	✔
Nitrate in Water by IC (Low Level)	E235.NO3-L	1638292	1	8	12.5	5.0	✔
Nitrite in Water by IC (Low Level)	E235.NO2-L	1638293	1	8	12.5	5.0	✔
Sulfate in Water by IC	E235.SO4	1638294	2	17	11.7	5.0	✔
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1639836	1	20	5.0	5.0	✔
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1637593	1	12	8.3	5.0	✔
Total Mercury in Water by CVAAS	E508	1641418	1	20	5.0	5.0	✔
Total Metals in Water by CRC ICPMS	E420	1637639	1	19	5.2	5.0	✔
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1637594	1	17	5.8	5.0	✔
VH and F1 by Headspace GC-FID	E581.VH+F1	1685175	1	9	11.1	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 Water	E100 ALS Environmental - Vancouver	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 water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	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 ALS Environmental - Vancouver	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	E160 ALS Environmental - Vancouver	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	E162 ALS Environmental - Vancouver	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 Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	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
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	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 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Edmonton	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 by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.  Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS.  Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.  Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Oil & Grease by Gravimetry	E567 ALS Environmental - Waterloo	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane and the extract is evaporated to dryness. The residue is then weighed to determine Oil and Grease.
VH and F1 by Headspace GC-FID	E581.VH+F1 ALS Environmental - Vancouver	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.  Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F2-F4 by GC-FID	E601 ALS Environmental - Vancouver	Water	CCME PHC in Soil - Tier 1	Sample extracts are analyzed by GC-FID for CCME hydrocarbon fractions (F2-F4).  Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BC PHCs - EPH(sg) by GC-FID	E601A.SG ALS Environmental - Vancouver	Water	BC MOE Lab Manual (EPH in Water by GC/FID) (mod)	Sample extracts are subjected to column silica gel treatment prior to analysis by GC-FID for BC hydrocarbon fractions (EPHsg).
BTEX by Headspace GC-MS	E611A ALS Environmental - Vancouver	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.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 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.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions



<i>Preparation Methods</i>	<i>Method / Lab</i>	<i>Matrix</i>	<i>Method Reference</i>	<i>Method Descriptions</i>
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Edmonton	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO <sub>3</sub> .
Oil & Grease Extraction for Gravimetry	EP567 ALS Environmental - Waterloo	Water	BC MOE Lab Manual (Oil & Grease) (mod)	The entire water sample is extracted with hexane by liquid-liquid extraction.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	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 a GC-MS-FID.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Vancouver	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

