6.2.2.53 Watercourse Crossing X01-094 (Hood River)

Watercourse Crossing Location

Watercourse crossing X01-094 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

The watercourse was previously assessed in the fall of 2007 and re-assessed in the spring of 2008. On July 5th, the mean channel width was 52 m (34-84 m), the mean wetted width was 53 m (34-88 m), with a mean bankfull depth of 3.8 m (3.0-4.0 m) and a mean water depth of 3.8 m (3.0-4.0 m). The channel substrate upstream of the proposed crossing was composed of 40% boulders, 10% cobbles, and 50% exposed bedrock. At the crossing site the stream flowed through a narrow portion of the river that has created a rapid habitat (Photographs 61 and 62). Downstream and upstream of the crossing, habitat consisted of deep runs and pools. Instream cover was dominated by boulders and deep pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be 100 m^3/s.

Field water quality measurements included dissolved oxygen (9.0 mg/L), conductivity (5.0 μS/cm), pH (7.67), temperature (5.6°C) and turbidity (0.60 NTU).

Fish Population

The watercourse was not sampled for fish during the ground assessment on July 5th, 2008 due to high water depth and rapid flow conditions. It is assumed that this watercourse is fish bearing.

Habitat Use

There was no potential spawning habitat within the crossing centreline; however there is spawning habitat available downstream due to the presence of suitable gravel/cobble substrate and adequate water depth and flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and lakes further upstream and downstream. The deep runs and pools provide good seasonal adult and juvenile rearing habitat, and may provide overwintering habitat as well.

Photograph 61. Crossing X01-094 –Proposed Crossing Location Looking Downstream (05 July 2008)

Photograph 62. Crossing X01-094 – 300 m Downstream of Proposed Crossing Looking Downstream (05 July 2008)

6.2.2.54 Watercourse Crossing X03-095B

Watercourse Crossing Location

Crossing X03-95B was a new alternate crossing added after the 2008 spring assessment. This crossing is located approximately 500 m to the east of X01-95 (GLL 2008).

Habitat Assessment

On August 22, the mean channel width was 3.8 m (0.80-10.0 m), the mean wetted width was 4.0 m (0.80-10.0 m), with a mean bankfull depth of 0.49 m (0.16-1.0 m) and a mean water depth of 0.51 m (0.88-1.0 m). The channel substrate was composed of 5% fines, 15% cobbles, 30% boulders, and 50% bedrock. Downstream and upstream of the crossing, habitat consisted of shallow to moderate depth runs, pools, and riffles. Instream cover was dominated by boulders and moderate depth pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.33 m^3/s.

Field water quality measurements included dissolved oxygen (12mg/L), conductivity (20 µS/cm), pH (6.8), temperature (8.1°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was sampled for fish on August 22, 2008 using 518 seconds of sampling effort. No fish were captured or observed.

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate. Migratory habitat was absent due to sections of discontinues flow creating physical impassable barriers to fish movement throughout most of the year. The shallow depth flats may provide limited seasonal juvenile rearing habitat for fish near the upstream lake.

6.2.2.55 Watercourse Crossing X01-096

Watercourse Crossing Location

Watercourse crossing X01-096 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

The channel was poorly defined upstream. On July 5th, the mean channel width was 1.1 m (0.55-1.5 m), the mean wetted width was 1.4 m (0.65-2.15 m), with a mean bankfull depth of 0.60 m (0.35-1.6 m) and a mean water depth of 0.58 m (0.35-1.6 m). The channel substrate upstream of the proposed crossing was composed of 50% boulders, 30% cobbles, 5% gravels and 15% fines. Downstream and upstream of the crossing, habitat consisted of shallow runs, pools, and riffles (Photographs 63 and 64). Instream cover was dominated by boulders. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.624 m^3/s.

Field water quality measurements included dissolved oxygen (9.2 mg/L), conductivity (5.0 μS/cm), pH (7.46), temperature (9.8°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was sampled for fish on July 5th, 2008 using 327 seconds of sampling effort. No fish were captured or observed.

Habitat Use

There was some potential spawning habitat available in the study section due patches of appropriately sized substrate. Migratory habitat was absent due to sections of discontinues flow upstream of the crossing creating physical impassable barriers to fish movement throughout most of the year. The shallow runs, riffles, and pools may provide limited seasonal juvenile rearing habitat for fish.

Photograph 63. Crossing X01-096 –Proposed Crossing Location Looking Upstream (05 July 2008)

Photograph 64. Crossing X01-096 – 300 m Downstream of Proposed Crossing Looking Upstream (05 July 2008)

6.2.2.56 Watercourse Crossing X01-097

Watercourse Crossing Location

Watercourse crossing X01-097 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

On July 5th the draw has little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence (Photographs 64 and 65). The watercourse had no defined channel or recognizable flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during the assessment on July 5th, 2008 due to lack of continuous surface water flow within a defined channel and no defined bed or banks.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

Photograph 65. Crossing X01-097 –Aerial Overview of Proposed Crossing Location Looking Downstream (05 July 2008)

Photograph 66. Crossing X01-097 –Proposed Crossing Location Looking Upstream (05 July 2008)

6.2.2.57 Watercourse Crossing X03-098A

Watercourse Crossing Location

Crossing X03-98A was a new alternate crossing added after the 2008 spring assessment. This crossing is located approximately 2 km upstream of X01-96 (GLL 2008).

Habitat Assessment

On August 22, the mean channel width was 0.71 m (0.38-1.40 m), the mean wetted width was 1.0 m (0.38-1.8 m), with a mean bankfull depth of 0.31 m (0.16-0.54 m) and a mean water depth of 0.36 m (0.19-0.60 m). The channel substrate was composed of 10% boulders, 10% gravels, 20% cobbles, and 60% fines. Downstream and upstream of the crossing, habitat consisted of shallow, runs, flats, and riffles. Instream cover was dominated by boulders with trace amounts of instream vegetation. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.0072 m^3/s.

Field water quality measurements included dissolved oxygen (13.1 mg/L), conductivity (20 µS/cm), pH (6.7), temperature (7.8°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was sampled for fish on August 22, 2008 using 293 seconds of sampling effort. No fish were captured or observed.

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate. Migratory habitat was available with no physical impassable barriers to fish movement observed. The shallow depth runs, flats, and riffles may provide limited seasonal juvenile rearing habitat for fish from lakes upstream or downstream.

6.2.2.58 Watercourse Crossing X03-099A

Watercourse Crossing Location

Crossing X03-99A was a new alternate crossing added after the 2008 spring assessment. This crossing is located in the narrows of a large lake.

Habitat Assessment

On August 22, the channel and wetted width at the crossing was 150 m, with a water and bankfull depth of 5 m. The channel substrate was composed of 10% cobbles and 90% boulders. Crossing was located within a narrow corridor between two large lakes. Downstream and upstream of the crossing, habitat consisted of deep flats. Instream cover was dominated by boulders and deep water. Banks were vertical with sloped sections and were composed of boulders and fines. No visible water velocity was observed; therefore stream discharge was not collected.

Field water quality measurements included dissolved oxygen (12.9 mg/L), conductivity (20 μS/cm), pH (6.9), temperature (8.9°C) and turbidity (0.16 NTU).

Fish Population

The watercourse was not sampled for fish on August 22, 2008 due to depth of water.

Habitat Use

There was likely no potential spawning habitat within the crossing centreline, however there is potential spawning habitat available in deeper areas of the lake on either side of the crossing. Migratory habitat was available with no physical impassable fish barriers observed between the two portions of the lake. The deep water provides good seasonal adult and juvenile rearing habitat, and may provide overwintering habitat as well.

6.2.2.59 Watercourse Crossing X03-100A

Watercourse Crossing Location

Crossing X03-100A was a new alternate crossing added after the 2008 spring assessment. This crossing is located in a small channel approximately 50 m upstream of a small lake.

Habitat Assessment

On August 22, the mean channel width was 0.78 m (0.23-1.0 m), the mean wetted width was 0.84 m (0.23-1.5 m), with a mean bankfull depth of 0.16 m (0.09-0.28 m) and a mean water depth of 0.16 m (0.09-0.28 m). The channel substrate was composed of 20% fines, 20% cobbles, 20% bedrock and 40% boulders. The channel exhibits sections of underground flow. Downstream and upstream of the crossing, habitat consisted of shallow runs, riffles, and cascades. Instream cover was dominated by boulders with trace amounts of overhanging vegetation. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.036 m^3/s.

Field water quality measurements included dissolved oxygen (12.2 mg/L), conductivity (20 µS/cm), pH (6.9), temperature (8.0°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was sampled for fish on August 22, 2008 using 261 seconds of sampling effort. No fish were captured or observed.

Habitat Use

There was no potential spawning habitat available in the study section due to shallow water depths and lack of continuous channel. Migratory habitat was not available due to physical impassable barriers to fish movement observed (underground flow). The shallow depth runs and riffles may provide limited seasonal juvenile rearing habitat for fish from lakes upstream or downstream.

6.2.2.60 Watercourse Crossing X03-100B

Watercourse Crossing Location

Crossing X03-100B was a new alternate crossing added after the 2008 spring assessment. This crossing is located between two small lakes approximately 1 km upstream of X03-100A.

Habitat Assessment

On August 22, the mean channel width was 12.5 m (0.87-50 m), the mean wetted width was 13.2 m (0.53-50 m), with a mean bankfull depth of 0.47 m (0.04-2.2 m) and a mean water depth of 0.47 m (0.05-2.2 m). The channel substrate was composed of 10% fines, 30% boulders and 40% bedrock. The channel was poorly defined. Downstream and upstream of the crossing, habitat consisted of shallow runs, flats, and riffles. Instream cover was dominated by boulders with trace amounts of instream vegetation. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.033 m^3/s.

Field water quality measurements included dissolved oxygen (12.4 mg/L), conductivity (0 µS/cm), pH (7.1), temperature (9.5°C) and turbidity (0.11 NTU).

Fish Population

The watercourse was sampled for fish on August 22, 2008 using 263 seconds of sampling effort. Two slimy sculpin were captured at the inlet and outlet of the adjacent lakes. The fish capture information is summarized in Table 32.

Table 32. X03-100B Fish Capture Summary

Species	# Caught	Length avg. (mm)	Length min (mm)	Length max (mm)	Weight avg. (g)	Weight min (g)	Weight max (g)
SLSC	2	43	40	46	1	1	1

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate. Migratory habitat was available with no physical impassable barriers to fish movement observed. The shallow depth runs, flats, and riffles may provide limited seasonal juvenile rearing habitat for fish from lakes upstream or downstream.

6.2.2.61 Watercourse Crossing X01-101

Watercourse Crossing Location

Watercourse crossing X01-101 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

On July 4th, the draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw. The draw was located between two lakes and was composed mostly of boulders. The stream flowed through a boulder field upstream and downstream of the crossing site and had visible surface flow (Photographs 67 and 68). The watercourse had no defined channel and as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during the assessment on July 4th, 2008 due to lack of continuous surface water flow within a defined channel and no defined bed or banks.

Habitat Use

There was no potential spawning habitat available in the study section due to shallow water depths, lack of a continuous channel, and predominance of boulder substrate. Migratory habitat was not available due to physical impassable barriers to fish movement observed (underground flow) upstream of the crossing. The area immediately downstream of the lake may provide limited seasonal juvenile rearing habitat for fish.

Photograph 67. Crossing X01-101 –Proposed Crossing Location Looking Upstream (04 July 2008)

Photograph 68. Crossing X01-101 –Proposed Crossing Location Looking Downstream (04 July 2008)

6.2.2.62 Watercourse Crossing X03-101B

Watercourse Crossing Location

Crossing X03-101B was a new alternate crossing added after the 2008 spring assessment. This crossing is located between two small lakes approximately 1 km downstream of X01-101.

Habitat Assessment

On August 25, the mean channel width was 8.2 m (5.0-12.0 m), the mean wetted width was 8.6 m (5.0-13.0 m), with a mean bankfull depth of 0.36 m (0.13-0.63 m) and a mean water depth of 0.34 m (0.13-0.79 m). The channel substrate was composed of 10% gravels, 30% fines, 20% cobbles and 40% boulders. Downstream and upstream of the crossing, habitat consisted of shallow to moderate depth runs and pools separated by rapids. Instream cover was dominated by boulders and deep pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.65 m^3/s.

Field water quality measurements included dissolved oxygen (13.4 mg/L), conductivity (30 μS/cm), pH (7.4), temperature (5.9°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was sampled for fish on August 25, 2008 using 554 seconds of sampling effort. No fish were captured or observed.

Habitat Use

There was potential spawning habitat available in the study section due to the presence of suitable gravel/cobble substrate and adequate water depth and flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and lakes further upstream and downstream. The runs and pools provide good seasonal juvenile rearing habitat.

6.2.2.63 Watercourse Crossing X01-103

Watercourse Crossing Location

Watercourse crossing X01-103 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

The watercourse was previously assessed in the fall of 2007 and re-assessed in the spring of 2008. On July 4th the stream flowed through a poorly defined channel and this watercourse is expected to be dry throughout much of the year. Within sections of defined channel, the mean channel width was 12.2 m (4.5-45 m), the mean wetted width was 14.1 m (4.5-45 m), with a mean bankfull depth of 0.62 m (0.35-72 m) and a mean water depth of 0.55 m (0.29-65 m). The channel substrate upstream of the proposed crossing was composed of 30% boulders, 30% cobbles, and 40% fines. Downstream and upstream of the crossing, habitat consisted of shallow runs and flats (Photographs 69 and 70). Instream cover was dominated by boulders. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be approximately 0.1 m^3/s.

Field water quality measurements included dissolved oxygen (6.2 mg/L), conductivity (18 μS/cm), pH (6.25), temperature (11°C) and turbidity (0.01 NTU).

Fish Population

The watercourse was not sampled for fish due to the lack of defined channel.

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate. Migratory habitat was poor due to sections of discontinues flow creating potential physical impassable barriers to fish movement throughout parts of the year. The shallow depth runs and flats may provide seasonal juvenile rearing habitat for fish, however the nearest source for fish (overwintering area) is approximately 1 km downstream and due to the lack of migratory habitat it is unlikely that fish would use the section of the watercourse adjacent to the crossing.

Photograph 69. Crossing X01-103 –Proposed Crossing Location Looking Downstream (04 July 2008)

Photograph 70. Crossing X01-103 – 300 m Downstream of Proposed Crossing Looking Upstream (04 July 2008)

6.2.2.64 Watercourse Crossing X01-104

Watercourse Crossing Location

Watercourse crossing X01-104 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

The watercourse was previously assessed in the fall of 2007 and re-assessed in the spring of 2008. On July 4th, the mean channel width was 51 m (40-60 m), the mean wetted width was 53.8 m (43-64 m), with a mean bankfull depth of 1.0 m (0.90-1.1 m) and a mean water depth of 1.0 m (0.90-1.1 m). The channel substrate upstream of the proposed crossing was composed of 70% boulders, 20% cobbles, and 10% gravels. At the crossing location, habitat consisted of a rapid. Downstream and upstream of the crossing, habitat consisted of deep runs, pools, and rapids (Photographs 71 and 72). Instream cover was dominated by boulders and deep pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be 40 m^3/s.

Field water quality measurements included dissolved oxygen (6.5 mg/L), conductivity (5.0 μS/cm), pH (7.65), temperature (7.6°C) and turbidity (0.61 NTU).

Fish Population

The watercourse was not sampled for fish on July 4th, 2008 due to high water flow and rapids along the watercourse. No fish were captured or observed.

Habitat Use

Spawning habitat quality was poor within the crossing centreline due to swift flowing water and large substrate; however there is spawning habitat available downstream due to the presence of suitable gravel/cobble substrate and adequate water depth and flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and water bodies further upstream and downstream. The deep runs and pools provide good seasonal adult and juvenile rearing habitat, and may provide overwintering habitat as well.

Photograph 71. Crossing X01-104 –100 m Upstream of Proposed Crossing Location Looking Downstream (04 July 2008)

Photograph 72. Crossing X01-104 –Proposed Crossing Looking Downstream (04 July 2008)

6.2.2.65 Watercourse Crossing X01-105

Watercourse Crossing Location

Watercourse crossing X01-105 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

The watercourse was previously assessed in the fall of 2007 and re-assessed in the spring of 2008. On July 4, the mean channel width was 21 m (20-26 m), the mean wetted width was 28 m (25-32 m), with a mean bankfull depth of 1.1 m (0.90-1.3 m) and a mean water depth of 1.1 m (0.90-1.3 m). The channel substrate upstream of the proposed crossing was composed of 5% boulders, 5% cobbles, and 90% fines. Downstream and upstream of the crossing, habitat consisted of deep runs and flats. Instream cover was dominated by instream vegetation (Photographs 73 and 74). Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 3.75 m^3/s.

Field water quality measurements included dissolved oxygen (7.9 mg/L), conductivity (15 µS/cm), pH (7.85), temperature (11.0°C) and turbidity (1.13 NTU).

Fish Population

The watercourse was not sampled for fish due to high water flow and depth.

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate and low stream flow. Migratory habitat was available with no physical impassable barriers to fish movement observed. The deep runs and flats may provide limited seasonal juvenile rearing habitat for fish from lakes upstream or downstream.

Photograph 73. Crossing X01-105 –Proposed Crossing Location Looking Upstream (04 July 2008)

Photograph 74. Crossing X01-105 –20 m Downstream of Proposed Crossing Looking at Tributary (04 July 2008)

6.2.2.66 Watercourse Crossing X03-106A

Watercourse Crossing Location

Crossing X03-106A was a new alternate crossing added after the 2008 spring assessment. This crossing is located immediately downstream of a narrow lake approximately 500 upstream of X01-106. Crossing X01-106 was not assessed in the fall of 2007 because it was dry (GLL 2008).

Habitat Assessment

On August 25, the mean channel width was 2.8 m (0.57-8.0 m), the mean wetted width was 2.4 m (0.93-7.0 m), with a mean bankfull depth of 0.56 m (0.22-1.7 m) and a mean water depth of 0.54 m (0.25-1.5 m). The channel substrate was composed of 20% boulders, 30% cobbles and 50% fines. The channel had braided sections both upstream and downstream of the crossing. Habitat consisted of shallow to moderate depth runs, pools, and flats with occasional riffles and deep pools. Instream cover was dominated by boulders and deep pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.12 m^3/s.

Field water quality measurements included dissolved oxygen (13.4 mg/L), conductivity (40 μS/cm), pH (7.0), temperature (5.8°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was not sampled for fish at the time of the assessment on August 25, 2008.

Habitat Use

Spawning habitat quality was poor within the crossing centreline due to the high fines fraction in the substrate, however spawning habitat available downstream due to the presence patches of suitable gravel/cobble substrate and adequate water depth and flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and water bodies further upstream and downstream. The runs and pools provide seasonal juvenile rearing habitat.

6.2.2.67 Watercourse Crossing X03-108A

Watercourse Crossing Location

Crossing X03-108A was a new alternate crossing added after the 2008 spring assessment. This crossing is located immediately downstream of a small lake, approximately 1km upstream of X03-109A.

Habitat Assessment

On August 25th, the mean channel width was 8.6 m (0.62-25 m), the mean wetted width was 10.2 m (1.9-30 m), with a mean bankfull depth of 0.23 m (0.07-0.38 m) and a mean water depth of 0.24 m (0.12-0.28 m). The channel substrate was composed of 5% boulders and 95% fines. The stream flowed into a boulder field downstream of the crossing site with no visible surface flow or defined channel. Within sections of defined channel, habitat consisted of shallow runs and flats. Instream cover was dominated by boulders and instream vegetation. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.17 m^3/s.

Field water quality measurements included dissolved oxygen (13.8 mg/L), conductivity (40 μS/cm), pH (6.9), temperature (6.1°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was not sampled for fish on August 25, 2008 due to discontinuous and braided sections both upstream and downstream of proposed crossing location.

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate. Migratory habitat was absent due to sections of discontinues flow creating physical impassable barriers to fish movement. The shallow depth runs and flats may provide seasonal juvenile rearing habitat for fish originating from the lake immediately upstream of the crossing.

6.2.2.68 Watercourse Crossing X01-109

Watercourse Crossing Location

Watercourse crossing X01-109 is at the same location as in 2007 (GLL 2008). In 2007, the crossing was dry and was therefore not assessed from the ground at that time.

Habitat Assessment

On July 11, the mean channel width was 10.5 m (2.2-26 m), the mean wetted width was 15.5 m (2.3-38 m), with a mean bankfull depth of 0.41 m (0.22-0.60 m) and a mean water depth of 0.46 m (0.28-0.65 m). In the fall, the mean channel width was 10.1 m (1.0-20.0 m), the mean wetted width was 7.8 m (1.0-15.0 m), with a mean bankfull depth of 0.40 m (0.15-0.88 m) and a mean water depth of 0.37 m (0.10-0.88 m). The channel substrate upstream of the proposed crossing was composed of 80% boulders, 10% large cobbles, and 10% large gravels. Upstream and downstream of the crossing the channel is braided, and had sections of undefined channel with underground flow (Photographs 75 and 76). Within sections of defined channel, habitat consisted of shallow runs and riffles. Instream cover was dominated by boulders. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be 0.1 m^3/s.

In the fall, field water quality measurements included dissolved oxygen (12.5 mg/L), conductivity (30 μS/cm), pH (6.9), temperature (7.2°C) and turbidity (0.24 NTU).

Fish Population

The watercourse was sampled for fish on July 11, 2008 using 619 seconds of sampling effort. One lake trout and one slimy sculpin were captured. The fish capture information is summarized in Table 33. The watercourse was again sampled for fish on August 25th, 2008 using 237 seconds of sampling effort. No fish were captured or observed.

Table 33. X01-109 Fish Capture Summary

Species	# Caught	Length avg. (mm)	Length min (mm)	Length max (mm)	Weight avg. (g)	Weight min (g)	Weight max (g)
LKTR	1	127	-	-	20	-	-
SLSC	1	35	-	-	1	-	-

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate. Migratory habitat was absent due to sections of discontinues flow creating physical impassable barriers to fish movement. The shallow runs and riffles provide seasonal juvenile rearing habitat for fish originating from the lake immediately upstream of the crossing.

Photograph 75. Crossing X01-109 –Proposed Crossing Location Looking Downstream (05 July 2008)

Photograph 76. Crossing X01-109 – 150 m Downstream of Proposed Crossing Looking Upstream (05 July 2008)

6.2.2.69 Watercourse Crossing X03-109A

Watercourse Crossing Location

Crossing X03-109A was a new alternate crossing added after the 2008 spring assessment. This crossing is located immediately downstream of a series of small lakes, approximately 1km downstream of X03-108A.

Habitat Assessment

The channel had sections that were undefined and flow occurred over terrestrial vegetation. On August 25, within sections of defined channel, the mean channel width was 0.53 m (0.40-0.89 m), the mean wetted width was 1.8 m (0.40-5.0 m), with a mean bankfull depth of 0.12 m (0.07-0.22 m) and a mean water depth of 0.14 m (0.10-0.24 m). The channel substrate was composed of 100% fines. Downstream and upstream of the crossing, habitat consisted of shallow runs and flats. Instream cover was dominated by boulders. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.050 m^3/s.

Field water quality measurements included dissolved oxygen (13.2 mg/L), conductivity (40 µS/cm), pH (6.8), temperature (5.3°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was sampled for fish on August 25, 2008 using 230 seconds of sampling effort. No fish were captured or observed.

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate and lack of flow. Migratory habitat was poor due to sections of discontinues flow creating physical impassable barriers to fish movement throughout much of the year. The shallow runs and flats provide poor seasonal juvenile rearing habitat for fish.

6.2.2.70 Watercourse Crossing X01-111

Watercourse Crossing Location

Watercourse crossing X01-111 is at the same location as in 2007 (GLL 2008). In 2007, the crossing was dry and was therefore not assessed from the ground at that time.

Habitat Assessment

On July 5th, the draw has little to no channel development with mainly vegetated with terrestrial vegetation and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence (Photographs 77 and 78). The watercourse had no defined channel or flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during the assessment on July 5th, 2008 due to lack of continuous surface water flow within a defined channel and no defined bed or banks.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

Photograph 77. Crossing X01-111 –Proposed Crossing Location Looking Downstream (05 July 2008)

Photograph 78. Crossing X01-111 –Aerial Overview of Proposed Crossing (05 July 2008)

6.2.2.71 Watercourse Crossing X03-113A

Watercourse Crossing Location

Crossing X03-113A was a new alternate crossing added after the 2008 spring assessment. This crossing is located immediately downstream of a small lake, approximately 500 m upstream of X01-113.

Habitat Assessment

On August 25, 2008, the mean channel width was 0.66 m (0.30-1.0 m), the mean wetted width was 1.1 m (0.30-3.0 m), with a mean bankfull depth of 0.08 m (0.05-0.13 m) and a mean water depth of 0.07 m (0.04-0.11 m). The channel substrate was composed of 5% boulders, 5% cobbles and 90% fines. The channel was poorly defined throughout the study section. Within sections of defined channel, habitat consisted of shallow runs and flats. Instream cover was dominated by instream vegetation. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.053 m^3/s.

Field water quality measurements included dissolved oxygen (13.7 mg/L), conductivity (120 µS/cm), pH (6.5), temperature (6.0°C) and turbidity (1.22 NTU).

Fish Population

The watercourse was not sampled for fish due to lack of surface water flow and discontinuous sections.

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate and lack of flow. Migratory habitat was poor due to sections of discontinues flow creating physical impassable barriers to fish movement throughout much of the year. The shallow runs and flats provide seasonal juvenile rearing habitat for fish.

6.2.2.72 Watercourse Crossing X01-115 (James River)

Watercourse Crossing Location

Watercourse crossing X01-115 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

The watercourse was previously assessed in the fall of 2007 and re-assessed in the spring of 2008. On July 4, 2008, the mean channel width was 37 m (22-80 m), the mean wetted width was 47 m (22-110 m), with a mean bankfull depth of 1.6 m (0.60-2.0 m) and a mean water depth of 1.2 m (0.45-2.5 m). The channel substrate upstream of the proposed crossing was composed of 60% boulders, 30% bedrock, 5% cobbles, and 5% gravels. Downstream and upstream of the crossing, habitat consisted of deep runs and rapids (Photographs 79 and 80). Instream cover was dominated by boulders and deep pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 18.0 m^3/s.

Field water quality measurements included conductivity (12 μS/cm), pH (8.01), temperature (7.3°C) and turbidity (1.5 NTU).

Fish Population

The watercourse was not sampled for fish on July 4th, 2008 due to high water flow and depth. No fish were captured or observed.

Habitat Use

Spawning habitat quality was poor within the crossing centreline due to swift flowing water and large substrate; however there is spawning habitat available downstream due to the presence of suitable gravel/cobble substrate and adequate water depth and flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and water bodies further upstream and downstream. The deep runs and pools provide good seasonal adult and juvenile rearing habitat, and may provide overwintering habitat as well.

Photograph 79. Crossing X01-115 –Proposed Crossing Location Looking Downstream (04 July 2008)

Photograph 80. Crossing X01-115 –300 m Downstream of Proposed Crossing Looking Upstream (04 July 2008)

6.2.2.73 Watercourse Crossing X01-117

Watercourse Crossing Location

Watercourse crossing X01-117 is at the same location as in 2007 (GLL 2008). In 2007, the crossing was dry and was therefore not assessed from the ground at that time.

Habitat Assessment

On July 4, 2008, the mean channel width was 1.2 m (0.60-2.3 m), the mean wetted width was 2.5 m (1.0-7.0 m), with a mean bankfull depth of 0.29 m (0.12-0.60 m) and a mean water depth of 0.38 m (0.15-0.87 m). The channel substrate upstream of the proposed crossing was composed of 20% boulders, 10% small cobbles, 5% small gravels, and 65% fines. Upstream and downstream of the crossing the stream had sections of discontinuous channel with no defined bed or banks and underground flow. Within sections of defined channel, habitat consisted of riffles and shallow runs (Photographs 81 and 82). Instream cover was dominated by instream vegetation and boulders. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be approximately 0.08 m^3/s.

Field water quality measurements included dissolved oxygen (9.7 mg/L), conductivity (50 μS/cm), pH (8.0), temperature (11°C) and turbidity (0.20 NTU).

Fish Population

The watercourse was sampled for fish on July 11, 2008 using 507 seconds of sampling effort. Four slimy sculpin were captured. The fish capture information is summarized in Table 34.

Table 34. X01-117 Fish Capture Summary

Species	# Caught	Length avg. (mm)	Length min (mm)	Length max (mm)	Weight avg. (g)	Weight min (g)	Weight max (g)
SLSC	4	74	64	84	3	2	5

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate and lack of flow. Migratory habitat was poor due to sections of discontinues flow creating physical impassable barriers to fish movement throughout much of the year. The shallow runs and flats provide limited seasonal juvenile rearing habitat for fish.

Photograph 81. Crossing X01-117 –Proposed Crossing Location Looking Upstream (04 July 2008)

Photograph 82. Crossing X01-117 – 100 m Downstream of Proposed Crossing Looking Downstream (04 July 2008)

6.2.2.74 Watercourse Crossing X03-117A

Watercourse Crossing Location

Crossing X03-117A was a new alternate crossing added after the 2008 spring assessment. This crossing is located between a small lake and a pond, approximately 250 m downstream of X01-117.

Habitat Assessment

On August 25, 2008, the mean channel width was 1.4 m (0.90-1.6 m), the mean wetted width was 1.4 m (0.90-1.7 m), with a mean bankfull depth of 0.16 m (0.15-0.20 m) and a mean water depth of 0.13 m (0.07-0.16 m). The channel substrate was composed of 20% cobbles, 30% boulders, and 50% fines. The channel exhibited underground flow both upstream and downstream of the crossing. Within sections of defined channel, habitat consisted of shallow runs and flats. Instream cover was dominated by boulders with trace amounts of overhanging vegetation. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.012 m^3/s.

Field water quality measurements included dissolved oxygen (12.8 mg/L), conductivity (90 μS/cm), pH (6.1), temperature (5.6°C) and turbidity (0.31 NTU).

Fish Population

The watercourse was not sampled for fish on August 25th, 2008 due to lack of surface water flow and discontinuous sections of channel.

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate and lack of flow. Migratory habitat was absent due to sections of discontinues flow creating physical impassable barriers to fish movement throughout much of the year. The shallow runs and flats provide limited seasonal juvenile rearing habitat for fish that may originate from the lake immediately downstream.

6.2.2.75 Watercourse Crossing X01-117B

Watercourse Crossing Location

Crossing X03-117B was a new alternate crossing added after the 2008 spring assessment. This crossing is located in a short section of channel between two moderately sized lakes.

Habitat Assessment

On August 25, 2008, the mean channel width was 17.1 m (8.0-35.0 m), the mean wetted width was 17.9 m (8.0-40.0 m), with a mean bankfull depth of 0.69 m (0.35-1.2 m) and a mean water depth of 0.57 m (0.28-1.0 m). The channel substrate was composed of 20% cobbles and 80% boulders. Downstream and upstream of the crossing, habitat consisted of moderate depth flats. Instream cover was dominated by boulders. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was not measured due to lack of surface water flow.

Field water quality measurements included dissolved oxygen (12.6 mg/L), conductivity (50 μS/cm), pH (5.4), temperature (6.7°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was sampled for fish on August 25th, 2008 using 243 seconds of sampling effort. No fish were captured or observed.

Habitat Use

There was no spawning habitat available in the study section due to the absence of suitable gravel/cobble substrate and the lack of flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and the lakes further upstream and downstream. The moderate depth flats provided seasonal juvenile rearing habitat for fish originating from the lake upstream and downstream.

6.2.2.76 Watercourse Crossing X01-118

Watercourse Crossing Location

Watercourse crossing X01-118 is at the same location as in 2007 (GLL 2008). This crossing was dry in 2007 and was not assessed at that time.

Habitat Assessment

The watercourse originates from a boulder field upstream of the crossing and flows into a shallow lake through a braided on discontinuous channel. On August 23, 2008, within sections of defined channel, the mean channel width was 11.4 m (1.0-68 m), the mean wetted width was 11.4 m (1.0-68 m), with a mean bankfull depth of 0.26 m (0.12-0.68 m) and a mean water depth of 0.25 m (0.08-0.68 m). The channel substrate was composed of 15% cobbles 20% boulders and 65% fines. Downstream and upstream of the crossing, habitat consisted of shallow flats (Photographs 83 and 84). Instream cover was dominated by boulders and instream vegetation. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.05 m^3/s.

Field water quality measurements included dissolved oxygen (14.2 mg/L), conductivity (200 μS/cm), pH (8.2), temperature (7.0°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was not sampled for fish during the assessment on July 4 or August 23, 2008 due to lack of continuous surface water flow and depth within a defined channel.

Habitat Use

There was no potential spawning habitat available in the study section due to the lack of appropriately sized substrate and lack of flow. Migratory habitat was absent due to sections of discontinues flow creating physical impassable barriers to fish movement throughout much of the year. The shallow flats provide limited seasonal juvenile rearing habitat for fish that may originate from the lake immediately downstream.

Photograph 83. Crossing X01-118 –Aerial Overview of Proposed Crossing Location Looking Upstream (04 July 2008)

Photograph 84. Crossing X01-118 –Aerial Overview 200 m Downstream of Proposed Crossing Looking Upstream (04 July 2008)

6.2.2.77 Watercourse Crossing X03-118A

Watercourse Crossing Location

Crossing X03-118A was a new alternate crossing added after the 2008 spring assessment. This crossing was assessed from the air on August 23, 2008.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw was located within a boulder field with isolated pools of water but with no visible surface flow. The watercourse had no evidence of channel development or surface flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish due to lack of continuous surface water flow within a defined channel and no defined bed or banks.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.78 Watercourse Crossing X03-118B

Watercourse Crossing Location

Crossing X03-118B was a new alternate crossing added after the 2008 spring assessment. This crossing was assessed from the air on August 23, 2008.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw substrate is dominated by boulders with isolated pools of water but with no visible surface flow. The watercourse had no evidence of channel development or surface flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish due to lack of continuous surface water flow within a defined channel and no defined bed or banks.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.79 Watercourse Crossing X03-118C

Watercourse Crossing Location

Crossing X03-118C was a new alternate crossing added after the 2008 spring assessment. This crossing was assessed from the air on August 23, 2008.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw is located within a boulder field with isolated pools of water but with no visible surface flow. Ephemeral draw has scoured discontinuous channelized sections with no connectivity. The watercourse had no evidence of channel development or surface flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during due to lack of continuous surface water flow within a defined channel and no defined bed or banks.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.80 Watercourse Crossing X03-119A

Watercourse Crossing Location

Crossing X03-119A was a new alternate crossing added after the 2008 spring assessment. This crossing was assessed from the air on August 23, 2008.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw had scoured sections within boulder fields. The draw had no evidence of defined banks or channel and lack surface water flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during due to lack of continuous surface water flow within a defined channel and no defined bed or banks.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.81 Watercourse Crossing X03-119B

Watercourse Crossing Location

Crossing X03-119B was a new alternate crossing added after the 2008 spring assessment. The crossing is located near the inlet of a 1 km long lake.

Habitat Assessment

On August 23, the mean channel width was 47 m (25-100 m), the mean wetted width was 43 m (28-90 m), with a mean bankfull depth of 0.76 m (0.26-1.0 m) and a mean water depth of 0.76 m (0.26-1.0 m). The channel substrate upstream of the proposed crossing was composed of 20% cobbles, and 80% boulders. Downstream and upstream of the crossing, habitat consisted of moderate depth runs, pools, and flats. Instream cover was dominated by boulders and deep pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 26 m^3/s.

Field water quality measurements included dissolved oxygen (12.9 mg/L), conductivity (20 μS/cm), pH (8.8), temperature (8.1°C) and turbidity (0.97 NTU).

Fish Population

The watercourse was sampled for fish on August 23th, 2008 using 398 seconds of sampling effort. Three slimly sculpin were captured. The fish capture information is summarized in Table 35.

Table 35. X03-119B Fish Capture Summary

Species	# Caught	Length avg. (mm)	Length min (mm)	Length max (mm)	Weight avg. (g)	Weight min (g)	Weight max (g)
SLSC	3	52	45	56	1	1	1

Habitat Use

There was no spawning habitat available in the study section due to the absence of suitable gravel/cobble substrate. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and the lakes further upstream and downstream. The moderate depth runs, pools, and flats provided seasonal juvenile rearing habitat for fish originating from the lake upstream and downstream.

6.2.2.82 Watercourse Crossing X03-119C

Watercourse Crossing Location

Crossing X03-119C was a new alternate crossing added after the 2008 spring assessment. The crossing was assessed from the air on August 23, 2008.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw had occasional boulders, discontinuous sections with little channel development and isolated pools of water with no connectivity to lake downstream. The draw had no evidence of defined banks or channel and lack surface water flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during the aerial assessment on August 23th, 2008 due to lack of continuous surface water flow within a defined channel.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.83 Watercourse Crossing X03-120B

Watercourse Crossing Location

Crossing X03-120B was a new alternate crossing added after the 2008 spring assessment. The crossing was assessed from the air on August 23, 2008.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw had isolated pools of water within a boulder field and discontinuous sections. The draw had no evidence of defined banks or channel and lack surface water flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during the aerial assessment on August 23th, 2008 due to lack of continuous surface water flow within a defined channel and no defined bed or banks.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.84 Watercourse Crossing X03-120C

Watercourse Crossing Location

Crossing X03-120B was a new alternate crossing added after the 2008 spring assessment. The crossing is located in a narrows between two lakes.

Habitat Assessment

On August 23, 2008, the channel and wetted width at the crossing was 35 m, with a water and bankfull depth of 1.5 m. The channel substrate was composed of 40% cobbles and 60% boulders. Habitat consisted of deep flats and instream cover was dominated by boulders. Stream discharge was not collected as the crossing is located within a lake and water velocity was too low to measure.

Field water quality measurements included dissolved oxygen (12.5 mg/L), conductivity (30 μS/cm), pH (8.9), temperature (8.8°C) and turbidity (2.76 NTU).

Fish Population

The watercourse was not sampled for fish on August 23, 2008 due to the lack of water depth.

Habitat Use

There was likely no potential spawning habitat within the crossing centreline, however there is potential spawning habitat available in deeper areas of the lake on either side of the crossing. Migratory habitat was available with no physical impassable fish barriers observed between the two portions of the lake. The deep water provides good seasonal adult and juvenile rearing habitat, and may provide overwintering habitat as well.

6.2.2.85 Watercourse Crossing X03-120D

Watercourse Crossing Location

Crossing X03-120D was a new alternate crossing added after the 2008 spring assessment. The crossing was assessed from the air on August 23, 2008.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw had isolated pools of water within boulder fields and discontinuous sections both upstream and downstream. The draw had no evidence of defined banks or channel and lack surface water flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during the aerial assessment on August 23th, 2008 due to lack of continuous surface water flow within a defined channel.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.86 Watercourse Crossing X03-120E

Watercourse Crossing Location

Crossing X03-120E was a new alternate crossing added after the 2008 spring assessment. The crossing was assessed from the air on August 23, 2008.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw had sections of wetland type vegetation between boulder fields with isolated pools of water and lacking connectivity. The draw had no evidence of defined banks or channel and lack surface water flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during the aerial assessment on August 23th, 2008 due to lack of continuous surface water flow within a defined channel.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.87 Watercourse Crossing X03-121B

Watercourse Crossing Location

Crossing X03-121B was a new alternate crossing added after the 2008 spring assessment. The crossing was assessed from the air on August 23, 2008.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw had isolated pools of water within boulder fields, discontinuous sections between two lakes. The draw had no evidence of defined banks or channel and lack surface water flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during the aerial assessment on August 23th, 2008 due to lack of continuous surface water flow within a defined channel.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.88 Watercourse Crossing X03-121A

Watercourse Crossing Location

Crossing X03-121A was a new alternate crossing added after the 2008 spring assessment. The crossing is located in a 400 m length of fast flowing channel between two lakes.

Habitat Assessment

On August 23, 2008, the mean channel width was 6.9 m (4.0-12.0 m), the mean wetted width was 6.9 m (4.0-12.0 m), with a mean bankfull depth of 0.45 m (0.25-0.60 m) and a mean water depth of 0.43 m (0.20-0.62 m). The channel substrate upstream of the proposed crossing was composed of 30% bedrock, 30% cobbles and 40% boulders. Downstream and upstream of the crossing, habitat consisted of shallow to moderate depth runs, pools, rapids, and cascades. Instream cover was dominated by boulders and deep pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be approximately 2.6 m^3/s.

Field water quality measurements included dissolved oxygen (12.3 mg/L), conductivity (30 μS/cm), pH (8.5), temperature (8.9°C) and turbidity (0.00 NTU).

Fish Population

The watercourse was sampled for fish on August 23, 2008 using 500 seconds of sampling effort. One lake trout was captured. The fish capture information is summarized in Table 36.

Table 36. X01-121A Fish Capture Summary

Species	# Caught	Length avg. (mm)	Length min (mm)	Length max (mm)	Weight avg. (g)	Weight min (g)	Weight max (g)
LKTR	1	168	-	-	42	-	-

Habitat Use

Spawning habitat quality was poor within the crossing centreline due to swift flowing water and large substrate; however there is spawning habitat available downstream due to the presence of suitable cobble substrate and adequate water depth and flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and water bodies further upstream and downstream. The deep runs and pools provide good seasonal adult and juvenile rearing habitat, and may provide overwintering habitat as well.

6.2.2.89 Watercourse Crossing X03-122A

Watercourse Crossing Location

Crossing X03-121B was a new alternate crossing added after the 2008 spring assessment. The crossing was assessed from the air on August 23, 2008.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw had isolated pools of water within boulder fields and discontinuous sections. The draw had no evidence of defined banks or channel and lack surface water flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish due to lack of continuous surface water flow within a defined channel.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.90 Watercourse Crossing X01-123

Watercourse Crossing Location

Watercourse crossing X01-123 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

On July 11, 2008, the mean channel width was 12.5 m (8.0-19.0 m), the mean wetted width was 12.3 m (6.0-22.0m), with a mean bankfull depth of 0.59 m (0.26-1.1 m) and a mean water depth of 0.67 m (0.30-1.20 m). The channel substrate upstream of the proposed crossing was composed of 75% boulders, and 25% cobbles. The stream flowed through a boulder field from 90 to 120 m downstream of the crossing site with no defined channel visible. Downstream and upstream of the crossing, habitat consisted of riffles, shallow to moderate depth runs and pools (Photograph 85 and 86). Instream cover was dominated by boulders and deep pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be approximately 1.0 m^3/s.

Field water quality measurements included dissolved oxygen (11.5 mg/L), conductivity (60 μS/cm), pH (8.3), temperature (9.0°C) and turbidity (0.45 NTU).

Fish Population

The watercourse was sampled for fish on July 11, 2008 using 467 seconds of sampling effort. No fish were captured or observed.

Habitat Use

There was no spawning habitat available in the study section due to the absence of suitable gravel/cobble substrate. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and the lakes further upstream and downstream. The moderate depth runs and pools provided seasonal juvenile rearing habitat for fish originating from the lakes upstream or downstream.

Photograph 85. Crossing X01-123 –150 m Upstream of Proposed Crossing Location Looking Downstream (04 July 2008)

Photograph 86. Crossing X01-123 –Proposed Crossing Looking Downstream (04 July 2008)

6.2.2.91 Watercourse Crossing X03-123A

Watercourse Crossing Location

Crossing X03-123A was a new alternate crossing added after the 2008 spring assessment. The crossing is located immediately downstream of a small lake.

Habitat Assessment

On August 21, the mean channel width was 56 m (45-65 m), the mean wetted width was 47 m (35-55 m), with a mean bankfull depth of 0.58 m (0.40-1.1 m) and a mean water depth of 0.49 m (0.29-0.62 m). The channel substrate upstream of the proposed crossing was composed of 5% fines, 20% cobbles and 75% boulders. Downstream and upstream of the crossing, habitat consisted of shallow to moderate depth runs and flats. Instream cover was dominated by boulders and deep pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 4.3 m^3/s.

Field water quality measurements included dissolved oxygen (8.9 mg/L), conductivity (70 µS/cm), pH (9.1), temperature (9.0°C) and turbidity (1.01 NTU).

Fish Population

The watercourse was not sampled for as this crossing occurs within the same watercourse as crossing X01-123. Refer to crossing X01-123 for fish capture information.

Habitat Use

There was no spawning habitat available in the study section due to the absence of suitable gravel/cobble substrate. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and the lakes further upstream and downstream. The moderate depth runs and flats provided seasonal juvenile rearing habitat for fish originating from the nearby lake upstream.

6.2.2.92 Watercourse Crossing X01-125

Watercourse Crossing Location

Watercourse crossing X01-123 is at the same location as in 2007 (GLL 2008). In the fall of 2007, this watercourse was dry and was not assessed at that time. The crossing is located immediately downstream of a large wet area with undefined channel. Downstream of the wet area, a channel develops and drops into the Kenarctic River through a steep bedrock chute.

Habitat Assessment

On August 21, 2008, the mean channel width was 1.6 m (1.3-2.0 m), the mean wetted width was 1.6 m (1.0-2.0 m), with a mean bankfull depth of 0.31 m (0.20-0.43 m) and a mean water depth of 0.25 m (0.10-0.33 m). The channel substrate upstream of the proposed crossing was composed of bedrock and boulders. Before dropping into the Kenarctic River, the channel consisted of riffles and shallow runs and flats (Photographs 87 and 88). Instream cover was dominated by boulders with trace amounts of instream vegetation. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be approximately 0.1 m^3/s.

Field water quality measurements included dissolved oxygen (9.6 mg/L), conductivity (170 μS/cm), pH (9.1), temperature (9.0°C) and turbidity (1.51 NTU).

Fish Population

The watercourse was sampled for fish on August 21, 2008 using 314 seconds of sampling effort. No fish captured or observed.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

Photograph 87. Crossing X01-125 –Aerial Overview of Proposed Crossing Location Looking Downstream (04 July 2008)

Photograph 88. Crossing X01-125 –Aerial Overview 100 m Downstream of Proposed Crossing Looking Upstream (04 July 2008)

6.2.2.93 Watercourse Crossing X03-126A

Watercourse Crossing Location

Crossing X03-126A was a new alternate crossing added after the 2008 spring assessment. The crossing is now located approximately 400 m downstream of X01-126.

Habitat Assessment

On August 21, 2008, the channel was dry from 10 to 25 m upstream of the crossing. The mean channel width was 2.5 m (0.82-10.0 m), the mean wetted width was 3.4 m (0.86-10.0 m), with a mean bankfull depth of 0.29 m (0.08-0.78 m) and a mean water depth of 0.29 m (0.05-0.78 m). The channel substrate upstream of the proposed crossing was composed of 80% boulders and 20% large cobbles. Downstream and upstream of the crossing, habitat consisted of shallow runs, pools, and flats. Instream cover was dominated by boulders. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be approximately 0.1 m^3/s.

Field water quality measurements included dissolved oxygen (7.3 mg/L), conductivity (240 μS/cm), pH (9.1), temperature (6.2°C) and turbidity (1.87 NTU).

Fish Population

The watercourse was not sampled for fish.

Habitat Use

There was no spawning habitat available in the study section due to the absence of suitable gravel/cobble substrate. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and the lakes further upstream and downstream, but is likely limited to spring when there is a higher probability of continuous flow. The shallow runs and flats provided seasonal juvenile rearing habitat for fish if any are able to access this section of stream from the lake upstream.

6.2.2.94 Watercourse Crossing X01-127

Watercourse Crossing Location

Watercourse crossing X01-127 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

The watercourse was previously assessed in the fall of 2007 and re-assessed in the spring of 2008. On July 4, 2008, the mean channel width was 13.7 m (5.0-30 m), the mean wetted width was 14.6 m (5.3-32 m), with a mean bankfull depth of 0.68 m (0.35-1.3 m) and a mean water depth of 0.85 m (0.39-1.5 m). The channel substrate upstream of the proposed crossing was composed of 80% boulders, and 20% large cobbles. Downstream and upstream of the crossing, habitat consisted of moderate depth runs and rapids (Photographs 89 and 90). Instream cover was dominated by boulders and deep pools. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be approximately 4.75 m^3/s.

Field water quality measurements included dissolved oxygen (10.9 mg/L), conductivity (50 μS/cm), pH (8.4), temperature (9.0°C) and turbidity (1.25 NTU).

Fish Population

The watercourse was sampled for fish on July 11, 2008 using 556 seconds of sampling effort. One lake trout was captured. The fish capture information is summarized in Table 37.

Table 37. X01-127 Fish Capture Summary

Species	# Caught	Length avg. (mm)	Length min (mm)	Length max (mm)	Weight avg. (g)	Weight min (g)	Weight max (g)
LKTR	1	339	-	-	339	-	-

Habitat Use

Spawning habitat quality was poor within the crossing centreline due to swift flowing water and large substrate; however there is likely spawning habitat available downstream due to the presence of suitable cobble substrate and adequate water depth and flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and water bodies further upstream and downstream. The deep runs and pools provide good seasonal adult and juvenile rearing habitat, and may provide overwintering habitat as well.

Photograph 89. Crossing X01-127 –150 m Upstream of Proposed Crossing Location Looking Downstream (04 July 2008)

Photograph 90. Crossing X01-127 –Proposed Crossing Looking Upstream (04 July 2008)

6.2.2.95 Watercourse Crossing X03-127A

Watercourse Crossing Location

Crossing X03-127A was a new alternate crossing added after the 2008 spring assessment. The crossing is now located approximately 500 m downstream of X01-127.

Habitat Assessment

On August 21, 2008, the mean channel width was 9.8 m (5.5-20 m), the mean wetted width was 9.8 m (5.5-20 m), with a mean bankfull depth of 0.58 m (0.31-0.90 m) and a mean water depth of 0.50 m (0.31-0.72 m). The channel substrate upstream of the proposed crossing was composed of 5% fines, 15% gravels, 20% cobbles, 20% bedrock, and 40% boulders. Downstream and upstream of the crossing, habitat consisted of shallow to moderate depth runs, pools, and rapids. Instream cover was dominated by boulders. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimated to be 2.9 m^3/s.

Field water quality measurements included dissolved oxygen (8.6 mg/L), conductivity (80 µS/cm), pH (8.9), temperature (8.3°C) and turbidity (0.77 NTU).

Fish Population

The watercourse was not sampled for fish, as this crossing occurs with the same watercourse as crossing X01-127. Refer to crossing X01-127 for fish capture information.

Habitat Use

Spawning habitat quality was poor within the crossing centreline due to swift flowing water and large substrate; however there is likely spawning habitat available downstream due to the presence of suitable cobble substrate and adequate water depth and flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and water bodies further upstream and downstream. The deep runs and pools provide good seasonal adult and juvenile rearing habitat, and may provide overwintering habitat as well.

6.2.2.96 Watercourse Crossing X01-130

Watercourse Crossing Location

Watercourse crossing X01-130 is at the same location as in 2007 (GLL 2008).

Habitat Assessment

The watercourse was previously assessed in the fall of 2007 and re-assessed in the spring of 2008. On July 3, 2008, the mean channel width was 1.4 m (0.40-2.3 m), the mean wetted width was 6.2 m (0.80-30 m), with a mean bankfull depth of 0.36 m (0.22-0.50 m) and a mean water depth of 0.43 m (0.25-0.61 m). The channel substrate upstream of the proposed crossing was composed of 65% boulders, 15% cobbles and 20% fines. Downstream and upstream of the crossing, habitat consisted of riffles and shallow runs and pools (Photographs 91 and 92). Instream cover was dominated by boulders with trace amounts of undercut banks. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.45 m^3/s.

Field water quality measurements included dissolved oxygen (9.3 mg/L), conductivity (40 µS/cm), pH (8.7), temperature (10.0°C) and turbidity (1.64 NTU).

Fish Population

The watercourse was sampled for fish on July 11, 2008 using 628 seconds of sampling effort. Seven slimy sculpin were captured. The fish capture information is summarized in Table 38.

Table 38. X01-130 Fish Capture Summary

Species	# Caught	Length avg. (mm)	Length min (mm)	Length max (mm)	Weight avg. (g)	Weight min (g)	Weight max (g)
SLSC	7	73	54	89	4	1	7

Habitat Use

There was no spawning habitat available in the study section due to the absence of suitable gravel/cobble substrate. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and the lakes further upstream and downstream, but is likely limited to spring when there is a higher probability of continuous flow. The shallow runs and flats provided seasonal juvenile rearing habitat for fish if any are able to access this section of stream from the lake immediately upstream.

Photograph 91. Crossing X01-130 –Proposed Crossing Location Looking Downstream (03 July 2008)

Photograph 92. Crossing X01-130 –150 m Downstream of Proposed Crossing Looking Downstream (03 July 2008)

6.2.2.97 Watercourse Crossing X03-130B

Watercourse Crossing Location

Crossing X03-130B was a new alternate crossing added after the 2008 spring assessment. The crossing is now located approximately 400 m downstream of X01-130.

Habitat Assessment

On August 21, 2008, the mean channel width was 1.2 m (0.75-1.5 m), the mean wetted width was 1.1 m (0.59-1.5 m), with a mean bankfull depth of 0.26 m (0.15-0.42 m) and a mean water depth of 0.21 m (0.12-0.34 m). The channel substrate upstream of the proposed crossing was composed of 10% gravels, 20% fines 20% boulders, 20% cobbles and 30% bedrock. Downstream and upstream of the crossing, habitat consisted of shallow runs, pools, and riffles. Instream cover was dominated by boulders. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was estimate to be 0.1 m^3/s.

Field water quality measurements included dissolved oxygen (7.3 mg/L), conductivity (60 μS/cm), pH (9.1), temperature (8.0°C) and turbidity (1.13 NTU).

Fish Population

The watercourse was not sampled for fish on August 21, 2008 using 184 seconds of sampling effort. No fish captured or observed.

Habitat Use

There was some potential spawning habitat available in the study section due to the presence of suitable gravel/cobble substrate and adequate water depth and flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and lakes further upstream and downstream. The shallow runs and pools provided seasonal juvenile rearing habitat.

6.2.2.98 Watercourse Crossing X03-130A

Watercourse Crossing Location

Crossing X03-130A was a new alternate crossing added after the 2008 spring assessment.

Habitat Assessment

The draw had little to no channel development and would contain water only after precipitation events or runoff and is therefore classified as an ephemeral draw with no potential fish habitat or fish presence. The draw had low flowing water upstream and underground sections. The draw had no evidence of defined banks or channel and lack surface water flow at the proposed crossing site as such discharge was not recorded.

Field water quality measurements were not taken due to lack of surface water flow within a defined channel.

Fish Population

The watercourse was not sampled for fish during the aerial assessment on August 21, 2008 due to lack of continuous surface water flow within a defined channel.

Habitat Use

Based on the discontinuous channel and lack of flow, there was no spawning, migration, or rearing habitat within this stream adjacent to the crossing location.

6.2.2.99 Watercourse Crossing X03-132A

Watercourse Crossing Location

Crossing X03-132A was a new alternate crossing added after the 2008 spring assessment. The crossing is located approximately 60 m downstream of a fish bearing lake.

Habitat Assessment

At the time of assessment, the mean channel width was 6.8 m (4.5-10 m), the mean wetted width was 3.9 m (1.2-10 m), with a mean bankfull depth of 0.31 m (0.15-0.45 m) and a mean water depth of 0.25 m (0.13-0.39 m). The channel substrate upstream of the proposed crossing was composed of 50% boulders, 30% cobbles, 15% gravels and 5% fines. Downstream and upstream of the crossing, habitat consisted of shallow runs, riffles, and pools. Instream cover was dominated by boulders with trace amounts of instream vegetation. Banks were vertical with sloped sections and were composed of boulders and fines. Stream discharge was 0.052 m^3/s.

Field water quality measurements included dissolved oxygen (7.8 mg/L), conductivity (50 µS/cm), pH (8.9), temperature (8.0°C) and turbidity (0.99 NTU).

Fish Population

The watercourse was sampled for fish on August 21, 2008 using 285 seconds of sampling effort. Two lake trout were captured. The fish capture information is summarized in Table 39.

Table 39. X01-130A Fish Capture Summary

Species	# Caught	Length avg. (mm)	Length min (mm)	Length max (mm)	Weight avg. (g)	Weight min (g)	Weight max (g)
LKTR	2	163	155	170	47	45	48

Habitat Use

There was some potential spawning habitat available in the study section due to the presence of suitable gravel/cobble substrate and adequate water depth and flow. Migratory habitat was available with no physical impassable fish barriers observed between the proposed crossing site and lakes further upstream and downstream. The shallow runs and pools provided seasonal juvenile rearing habitat.

7. Recommendations

- Control lake(s) for the Izok Mine site need to be identified and baseline data needs to be collected.
- L314, L412, L414, and L415 all have pH values less than 5 suggesting that there is some acid rock drainage in the vicinity of these four lakes. If the mine will impact these lakes, water quality within these water bodies should be further investigated.
- Benthic invertebrate data should be collected from the Izok Mine Project area (i.e. Itchen Lake).
- Bathymetry and habitat mapping should be completed for Izok Lake and portions of Itchen and Iznogoudh Lakes.
- Bathymetry and habitat mapping should be completed for lakes and watercourses that will be directly impacted by the diversion scheme.
- Lakes and water bodies that will be directed impacted by tailings storage should be further sampled to determine fish presence/absence.
- Further ageing data should be collected across a broader range of fish sizes

8. References

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Appendix A

Lupin to High Lake Road Alignment Sheets

Appendix B

Summary of Mine Site Fish Sampling Effort, 2008

Table B-1. Summary of Mine Site Fish Sampling Effort, 2008

Water Body ID	Water Body Name	Date	Fish Survey Effort			
			Angling	Gill Net (m^2 of net and total hrs)	Minnow Trap (hrs)	Backpack Electrofishing
D301	Inlet to Itchen Lk		not recorded	-	-	-
D317	Trib to Itchen	Aug 27	-	-	-	487 s
D401	Inlet to Izok Lk	July 6	5	-	-	-
		July 7	8	-	-	-
		July 8	11.25	-	-	-
		July 14	13	-	-	-
		July 15	4	-	-	-
D407	Trib to Izok Lk	July 3	-	-	-	455 s
D408	Trib to Izok Lk	July 3	-	-	-	162 s
D409	Trib to Izok Lk	July 3				340 s
D410	Trib to Izok Lk	July 5	-	-	-	75 s
D414	Trib to Izok Lk	July 11	-	-	-	525 s
D420	Trib to Izok Lk	July 4	-	-	-	454 s
D421	Trib to Izok Lk	July 5	-	-	-	167 s
D422	Trib to Izok Lk	July 4	-	-	-	448 s
D560	Trib to Iznogoudh Lk	Aug 27	-	-	-	909 s
L300	Itchen	July 10	not recorded	129.6 m^2 - 20.75 hrs	97 hrs	-
		Aug 24	not recorded	-	580 hrs	-
		Aug 27	not recorded	-	20 hrs	1562 s
		Sep-02	-	129.6 m^2 - 54 hr	-	-
L314	Unnamed lake	Aug 29	-	-	not recorded	-
L317	Unnamed lake	Aug 27	-	86.4 m^2 - 5.42 hrs	not recorded	-
L400	Izok Lake	July 6	5 hrs	129.6 m^2 - 19.17 hrs	6.5 hrs	-
		July 7	-	86.4 m^2 - 8.75 hrs	222 hrs	-
		July 8	-	86.4 m^2 - 13.5 hrs	-	-
		July 9	not recorded	86.4 m^2 - 8.66 hrs	-	-

Water Body ID	Water Body Name	Date	Fish Survey Effort			
		Aug 21	-	-	576 hrs	-
L407	Unnamed lake	July 3	-	86.4 m^2 - 5.25 hrs	-	408 s
L408	Unnamed lake	July 3	-	43.2 m^2 - 4.25 hrs	-	368 s
		July 11	-	-	24.4 hrs	-
L409	Unnamed lake	July 3	-	129.6 m^2 - 54 hrs	-	332 s
L410	Unnamed lake	July 5	-	86.4 m^2 - 5.25 hrs	12.3 hrs	409 s
L412	Unnamed lake	July 12	-	86.4 m^2 - 5 hrs	10 hrs	-
L414	Unnamed lake	July 12	-	86.4 m^2 - 5.8 hrs	12.7 hrs	-
L415	Unnamed lake	July 13	-	86.4 m^2 - 5.1 hrs	10.3 hrs	-
L420	Unnamed lake	July 4	-	86.4 m^2 - 4.7 hrs	12 hrs	416 s
L421	Unnamed lake	July 5	-	86.4 m^2 - 5 hrs	13.3 hrs	229 s
L422	Unnamed lake	July 4	-	86.4 m^2 - 4.4 hrs	11.7 hrs	369 s
L560	Unnamed lake	Aug 27	-	86.4 m^2 - 5.3 hrs	not recorded	457 s

Appendix C

Summary of Proposed Lupin to High Lake Watercourse Crossing Sites, 2008

Table C-1. Summary of Proposed Lupin to High Lake Road Watercourse Crossing Sites, 2008

2007 Crossing Name	2008 Crossing Name	Easting	Northing	Classification	2008 Ground Assessment Date(s)	2008 Aerial Assessment Date
X01-026	X01-026	472272	7287067	Small Permanent	July 3	
X01-028	X01-028	469921	7289052	Intermittent	July 3	
X01-029	X02-029	469391	7290183	Small Permanent	July 3	
X01-035	X01-031	469915	7292627	Ephemeral	July 9	
X01-036	X01-032	470018	7292874	Ephemeral	July 9	
X01-037	X01-033	470008	7293832	Ephemeral	July 9	
	X01-033A	469445	7294697	Ephemeral	Aug 24	
X01-038	X02-034	469334	7296024	Intermittent	July 9	
-	X03-034A	468805	7296137	Small Permanent	Aug 24	
X01-039	X01-035	469570	7297863	Small Permanent	July 8	
-	X02-037	468968	7299325	Intermittent	July 9	
X01-041	X01-038	468785	7300861	Small Permanent	July 7	
X01-042	X02-039	470218	7301740	Intermittent	July 9	
X01-043	X01-040	472468	7302591	Large Permanent	July 7	
X01-044	X01-041	473216	7307129	Intermittent	July 7	
X01-046	X02-043	474257	7309053	Small Permanent	July 7	
	X03-045A, B, and C	476815	7314395	Ephemeral		Aug 24
X01-051	X01-047	476790	7317605	Intermittent	July 10	
X01-052	X01-048	478942	7320895	Intermittent	July 10, Aug 24	
X01-053	X01-049	479125	7321714	Intermittent	July 10	
X01-054	X01-050	479787	7322614	Small Permanent	July 7	
X01-055	X01-051	479877	7322776	Intermittent	July 6	
-	X02-052	480051	7323351	Intermittent	July 10	
X01-056	X02-053	480299	7323520	Intermittent	July 10	
X01-057	X02-054	480179	7324307	Small Permanent	July 4	
X01-058	X01-055	480369	7325483	Large Permanent	July 5	
-	X03-055A	479354	7325834	Large Permanent	Aug 19	
X01-060	X01-057	4800 94	7328109	Intermittent	July 6	
X01-062	X01-059	480851	7331273	Intermittent	July 5	
X01-063	X01-060	481042	7331828	Intermittent	July 6	
	X03-060A	480969	7332690	Ephemeral	Aug 23	
X01-064	X01-061	481559	7334339	Ephemeral	July 6	
X01-065	X01-062	481700	7335106	Large Permanent	July 6	
	X03-062A	481379	7335558	Large Permanent	Aug 24	

2007 Crossing Name	2008 Crossing Name	Easting	Northing	Classification	2008 Ground Assessment Date(s)	2008 Aerial Assessment Date
X01-066	X01-063	484937	7340138	Large Permanent	July 5	
X01-067	X01-064	484945	7340167	Large Permanent	July 5	
X01-069	X01-067	489682	7347358	Intermittent	July 6	
X01-070	X01-068	490709	7348658	Large Permanent	July 6	
X01-071	X01-069	491811	7349937	Small Permanent	July 8	
	X03-069A	491784	7350195	Small Permanent	Aug 24	
X01-073	X01-071	495090	7351873	Large Permanent	July 8	
X01-074	X01-072	496882	7353663	Large Permanent	July 6	
X01-079	X01-077	497025	7365561	Ephemeral	July 11	
X01-081	X01-079	497656	7367787	Intermittent	July 6	
X01-082	X01-080	498235	7370992	Boulder Field	July 10	
X01-083	X01-081	498742	7371998	Small Permanent	July 6	
X01-087	X01-085	498422	7376281	Small Permanent	July 6	
	X02-086A	500996	7381509	Intermittent	July 5	
X02-092	X01-087	499808	7387663	Intermittent	Aug 22	
X01-094	X01-088	499125	7392254	Intermittent	July 5	
	X03-089A	499081	7393162	Small Permanent	Aug 22	
	X03-091A	499633	7399244	Ephemeral	-	Aug 22
	X03-092A	499239	7401300	Intermittent	Aug 22	
X01-100	X01-94	500162	7408246	Large Permanent (Hood River)	July 5	
-	X03-95B	500433	7409013	Intermittent	Aug 22	
X01-102	X01-096	500003	7409572	Small Permanent	July 5	
X01-103	X01-097	500840	7410264	Ephemeral	July 5	
	X03-098A	499749	7411199	Intermittent	Aug 22	
	X03-099A	499945	7414643	Lake	Aug 22	
	X03-100A	501024	7419890	Intermittent	Aug 22	
	X03-100B	500882	7418977	Intermittent	Aug 22	
X01-110	X01-101	502754	7421128	Intermittent	July 4	
	X03-101B	502985	7421535	Small Permanent	Aug 25	
X01-112	X01-103	502202	7424239	Small Permanent	July 4	
X01-1112	X01-104	502867	7425433	Large Permanent	July 4	
X01-113	X01-105	504572	7427498	Large Permanent	July 4	
	X03-106A	505848	7429984	Small Permanent	Aug 25	
	X03-108A	507468	7436483	Intermittent	Aug 25	
X01-117	X01-109	507842	7439157	Intermittent	July 5, Aug 25	

2007 Crossing Name	2008 Crossing Name	Easting	Northing	Classification	2008 Ground Assessment Date(s)	2008 Aerial Assessment Date
	X03-109A	507599	7437380	Intermittent	Aug 25	
X01-119	X01-111	508171	7444966	Intermittent	July 5	
	X03-113A	507855	7445865	Intermittent	Aug 25	
X01-123	X01-115	509561	7451505	Large Permanent (James River)	July 4	
X01-124	X01-117	509661	7453273	Intermittent	July 4	
	X03-117A	509832	7453082	Intermittent	Aug 25	
	X03-117B	510788	7455383	Large Permanent	Aug 25	
X01-125	X01-118	510288	7459648	Ephemeral	July 4, Aug 23	
	X03-118A	510822	7457702	Ephemeral		Aug 23
	X03-118B	511031	7458687	Ephemeral		Aug 23
	X03-118C	511772	7459798	Ephemeral		Aug 23
	X03-119A	512520	7461011	Ephemeral		Aug 23
	X03-119B	512572	7461223	Large Permanent	Aug 23	
	X03-119C	512052	7462137	Ephemeral		Aug 23
	X03-120B	511958	7462431	Ephemeral		Aug 23
	X03-120C	511590	7463716	Lake	Aug 23	
	X03-120D	511704	7463669	Ephemeral		Aug 23
	X03-120E	511907	7463675	Ephemeral		Aug 23
	X03-121A	510697	7465318	Small Permanent	Aug 23	
	X03-121B	511565	7464491	Ephemeral		Aug 23
	X03-122A	509875	7465440	Ephemeral		Aug 23
X01-130	X01-123	509269	7466966	Large Permanent	July 4	
	X03-123A	509241	7466331	Large Permanent	Aug 21	
X01-132	X01-125	508738	7468027	Intermittent	July 4, Aug 21	
	X03-126A	507537	7470985	Intermittent	Aug 21	
X01-134	X01-127	507396	7470481	Large Permanent	July 4	
	X03-127A	507454	7471106	Large Permanent	Aug 21	
X01-137	X01-130	506503	7471701	Intermittent	July 3	
	X03-130A	507421	7472095	Ephemeral		Aug 21
	X03-130B	506927	7471616	Small Permanent	Aug 21	
	X03-132A	506786	7473244	Small Permanent	Aug 21	

X01 – same location as 2007
X02- revision – spring 2008
X03-revison – fall 2008

Appendix D

Fish Habitat Rating System

Table D-1. Habitat Type, Cover Features, and Hydraulic Control Definitions (Northern River Basins Study, 1994).

HABITAT TYPE DESCRIPTIONS					
Habitat Type	**Water Depth**	**Water Velocity**	**Flow Characteristics**	**Substrate**	**Surface**
Riffle (RF)	<0.5 m	High (0.5 to 1.0 m/s)	Turbulent	Coarse	Irregular Broken
Class 1 Run (R1)	>1.0 m	Moderate to high (0.05 to 1.0 m/s)	Moderate turbulence	Coarse	Irregular Rarely broken
Class 2 Run (R2)	0.5 to 1.0 m	Moderate to high (005 to 1.0 m/s)	Moderate turbulence	Coarse	Irregular Rarely broken
Class 3 Run (R3)	<0.5 m	Moderate (0.05 to 0.75 m/s)	Moderate turbulence	Coarse	Irregular Rarely broken
Class 1 Pool (P1)	>1.0 m	Low, variable (0.05-0.3 m/s)	Low turbulence, some back eddy	Variable	Smooth
Class 2 Pool (P2)	0.5 to 1.0 m	Low, variable (0.05-0.3 m/s)	Low turbulence, some back eddy	Variable	Smooth
Class 3 Pool (P3)	<0.5 m	Low, variable (0.05-0.3 m/s)	Low turbulence, some back eddy	Variable	Smooth
Class 1 Flat (F1)	>1.0 m	Low (<0.05 m/s)	Laminar	Fines	Smooth
Class 2 Flat (F2)	0.5 to 1.0 m	Low (< 0.05 m/s)	Laminar	Fines	Smooth
Class 3 Flat (F3)	<0.5 m	Low (< 0.05 m/s)	Laminar	Fines	Smooth
Cascade (CA)	<0.5 m	Highly variable (0.5 to 1.5 m/s)	Very turbulent	Very coarse	Irregular, broken
Rapids (RA)	>0.5 m	High (>1.0 m/s)	Very turbulent	Very coarse	Irregular, broken
Chutes (CH)	<0.5 m	High (>1.0 m/s)	Shooting	Bedrock	Irregular
Snye (SN)	Variable	None (0)	None	Variable, high in Fines	Smooth
COVER FEATURES					
Woody Debris (WD)	Large or small, in stream woody debris				
Overhanging Bank (OB)	Undercut, overhanging bank				
Overhanging Vegetation (OV)	Overhanging terrestrial vegetation (within 1 m of water surface)				
Aquatic Vegetation (AV)	Dense, well distributed aquatic vegetation providing cover				
Boulder Garden (BG)	Dense, well distributed boulders or large cobble providing cover				
HYDRAULIC CONTROLS					
Falls (FA)	Vertical drop, usually impassable to fish				
Ledges (LG)	Bedrock outcrops forming hydraulic controls				
Log Ledge (LL)	Large woody debris forming a hydraulic jump, typically with a scour pool beneath				
Beaver Dams (BD)	Beaver dams				
Log Jam (LJ)	Accumulation of woody debris across channel with water flowing through				

Table D-2. Substrate Types and Description (Resource Inventory Committee 2001)

Type	Bedrock	Boulder	Cobble	Gravel	Fines
Abbreviation	BR	BL	CB	GR	FN
Size (mm)	n/a	>256	64-256	2-64	<2

Appendix E

Izok Mine Fish Otolith Ageing Data

Table E-1. Izok Mine Site Otolith Ageing data, July to September 2008.

Date	Water body	Sample	Species	F.L. (mm)	Weight (g)	Sex	Age (oto)
15-Jul	D401	61	ARGR	425	880	--	14
15-Jul	D401	62	ARGR	391	801	--	9
15-Jul	D401	70	ARGR	437	850	--	15
02-Sep	L300	88	ARGR	434	1175	M	14
02-Sep	L300	89	ARGR	450	1048	M	14
24-Aug	L300	74	LKTR	464	1114		10
24-Aug	L300	75	LKTR	373	553	M	11
24-Aug	L300	76	LKTR	385	547	M	11
24-Aug	L300	77	LKTR	456	978	M	12
02-Sep	L300	84	LKTR	534	1712	F	18
02-Sep	L300	85	LKTR	465	1113	M	15
02-Sep	L300	87	LKTR	514	1515	M	16
02-Sep	L300	90	LKTR	366	560	M	9
02-Sep	L300	91	LKTR	480	1468	M	22
02-Sep	L300	92	LKTR	817	7050	M	36
10-Jul	L300	43/94	LKTR	470	1011	M	12
03-Jul	L407	1	RNWH	400	--	--	10
08-Jul	L400	30	RNWH	415	848	F	15
09-Jul	L400	36	RNWH	430	882	M	11
09-Jul	L400	93	RNWH	419	909	--	12

Appendix F

Mine Site Fish Capture Data

Table F-1. Izok Mine fish capture data, 2008

Date	Water body	Sample	Species	F.L. (mm)	Weight (g)	Age structure*	Capture method	Tag #	Transmitter
03-Jul	L407	1	RNWH	400	--	?	GN		
03-Jul	L407	2	LKTR	441	--	?	GN		
03-Jul	D409		SLSC	107	--	--	EF		
03-Jul	D409		SLSC	96	--	--	EF		
03-Jul	D409		SLSC	58	--	--	EF		
03-Jul	D409		BURB	116	--	--	EF		
04-Jul	D422		SLSC	40	0.7	--	EF		
04-Jul	D420		BURB	122	10	--	EF		
05-Jul	D410		SLSC	29	0.3	--	EF		
06-Jul	L400	3	LKTR	522	1606	s	GN	1	
06-Jul	L400	4	LKTR	525	1690	s,f	GN	5	
06-Jul	L400	5	LKTR	485	1460	s,f	AN	9	
06-Jul	L400	6	LKTR	82	4100	s,f	AN	4	
06-Jul	L400	7	LKTR	494	1450	s,f	AN	10	
06-Jul	L400	8	LKTR	1000	>4000	s,f	GN	3	
06-Jul	L400	9	LKTR	496	1760	s,f	GN	8	
06-Jul	D401	10	LKTR	538	1584	s,f	AN	11	
06-Jul	D401	11	LKTR	508	1622	s,f	AN	12	
07-Jul	D401	12	ARGR	445	1119	s	AN	15	149.999
07-Jul	D401	13	ARGR	425	945	s	AN	17	149.758
07-Jul	D401	14	ARGR	408	914	s	AN	18	149.728
07-Jul	D401	15	ARGR	377	684	s	AN	19	149.768
07-Jul	D401	16	ARGR	438	1029	s	AN	20	149.818
07-Jul	D401	17	LKTR	518	1305	s,f	AN	14	
07-Jul	D401	18	LKTR	505	1157	s,f	AN	16	
07-Jul	L400	19	RNWH	128	19	s	GN		
07-Jul	L400	20	LKTR	493	1492	s,f	GN	13	
08-Jul	L400	21	LKTR	510	1497	s,f	AN	21	
08-Jul	L400	22	ARGR	413	855	s	AN	2	149.889
08-Jul	L400	23	ARGR	435	1035	s	AN	23	149.678
08-Jul	L400	24	ARGR	414	976	s	AN	24	149.528
08-Jul	L400	25	ARGR	413	816	s	AN	25	149.838
08-Jul	L400	26	ARGR	414	822	s	AN	26	149.538
08-Jul	L400	27	ARGR	424	935	s	AN	27	149.948
08-Jul	L400	28	LKTR	495	1567	s,f	AN	29	
08-Jul	L400	29	RNWH	419	909	s	GN	30	
08-Jul	L400	30	RNWH	415	848	s,o	GN		
08-Jul	L400	31	LKTR	548	1576	s,f	GN	67	
08-Jul	L400		LKTR	63	3	--	MT		
09-Jul	L400	32	ARGR	158	40	s	HN		
09-Jul	L400	33	ARGR	150	31	s	HN		
09-Jul	L400	34	RNWH	127	17	s	HN		
09-Jul	L400	35	ARGR	170	47	s	GN		
09-Jul	L400	36	RNWH	430	882	s,f	GN		
09-Jul	L400	37	LKTR	520	1367	?	AN	31	
09-Jul	L400	38	ARGR	412	803	s	AN	32	149.808

Date	Water body	Sample	Species	F.L. (mm)	Weight (g)	Age structure*	Capture method	Tag #	Transmitter
09-Jul	L400	39	ARGR	438	1024	s	AN	33	149.718
09-Jul	L400	40	ARGR	412	919	s	AN	34	149.928
09-Jul	L400	41	LKTR	525	1536	s,f	AN	35	
10-Jul	L300	42	LKTR	690	2720	s,f	GN	37	
10-Jul	L300	43	LKTR	470	1011	s,f	GN	43	
10-Jul	L300		BURB	97	4	--	MT		
10-Jul	L300	44	LKTR	520	1506	s,f	AN	36	
10-Jul	L300	45	ARGR	260	180	s	AN	38	
10-Jul	L300	46	ARGR	285	301	s	AN	39	
10-Jul	L300	47	LKTR	660	2465	s,f	AN	40	
10-Jul	L300	48	ARGR	245	161	s	AN	41	
10-Jul	L300	49	ARGR	280	221	s	AN	42	
11-Jul	L300		BURB	97	4	--			
14-Jul	D401	50	LKTR	499	1490	s,f	AN	44	
14-Jul	D401	51	LKTR	518	1463	s,f	AN	45	
14-Jul	D401	52	LKTR	518	1420	s,f	AN	46	
14-Jul	D401	53	LKTR	490	1180	s,f	AN	48	
14-Jul	D401	54	ARGR	454	1230	s	AN	49	149.868
14-Jul	D401	55	ARGR	400	759	s	AN	50	149.829
14-Jul	D401	56	ARGR	338	500	s	AN	51	149.558
15-Jul	D401	57	ARGR	403	739	s	AN	52	149.468
15-Jul	D401	58	ARGR	398	750	s	AN	53	149.519
15-Jul	D401	59	ARGR	414	997	s	AN	54	149.638
15-Jul	D401	60	ARGR	427	1028	s	AN	56	149.848
15-Jul	D401	61	ARGR	425	880	s,o	AN	57	149.628
15-Jul	D401	62	ARGR	391	801	s,o	AN	58	149.748
15-Jul	D401	63	ARGR	457	1120	s	AN	59	149.659
15-Jul	D401	64	LKTR	494	1443	s,f	AN	60	
15-Jul	D401	65	ARGR	437	916	s	AN	63	149.499
15-Jul	D401	66	ARGR	428	929	s	AN	64	149.777
15-Jul	D401	67	ARGR	433	1050	s	AN	66	149.708
15-Jul	D401	68	ARGR	416	953	s	AN	67	149.787
15-Jul	D401	69	ARGR	378	701	s	AN	68	149.979
15-Jul	D401	70	ARGR	437	850	s,o	AN	69	149.957
15-Jul	D401	71	ARGR	463	1132	s	AN	71	149.628
15-Jul	D401	72	ARGR	422	953	s	AN	72	149.748
15-Jul	D401	73	ARGR	441	1030	s	AN	73	149.957
24-Aug	L300	74	LKTR	464	1114	s,f,o	AN		
24-Aug	L300	75	LKTR	373	553	s,f,o	AN		
24-Aug	L300	76	LKTR	385	547	s,f,o	AN		
24-Aug	L300	77	LKTR	456	978	s,f,o	AN		
27-Aug	D317		RNWH	139	21	--	EF		
27-Aug	D317		ARGR	66	3	--	EF		
27-Aug	L317	78	RNWH	329	390	s,f	GN		
27-Aug	L317		RNWH	205	75	--	GN		
27-Aug	L317		RNWH	135	21	--	GN		
28-Aug	L300	79	ARGR	319	388	?	EF		
28-Aug	L300		ARGR	55	2	--	EF		

Date	Water body	Sample	Species	F.L. (mm)	Weight (g)	Age structure*	Capture method	Tag #	Transmitter
02-Sep	L300	80	LNSC	485	1564	s,f			
02-Sep	L300	81	LNSC	409	961	s,f			
02-Sep	L300	82	LNSC	428	1060	s,f			
02-Sep	L300	83	LNSC	182	55	s,f			
02-Sep	L300	84	LKTR	534	1712	s,f,o			
02-Sep	L300	85	LKTR	465	1113	s,f,o			
02-Sep	L300	86	LKTR	892	5350	s,f,o			
02-Sep	L300	87	LKTR	514	1515	s,f,o			
02-Sep	L300	88	ARGR	434	1175	s,o			
02-Sep	L300	89	ARGR	450	1048	s,o			
02-Sep	L300	90	LKTR	366	560	s,f,o			
02-Sep	L300	91	LKTR	480	1468	s,f,o			
02-Sep	L300	92	LKTR	817	7050	s,f,o			

*S=scale, f= fine ray, o=otolith

Appendix G

Mine Site - Metals Fish Tissue Data

Table G-1. Itchen Lake (L300) Lake Trout Metal Concentrations Tissue Samples, August/September 2008.

Date Sampled	Fork Length (mm)	Weight (g)	Liver Weight (g)	Sex and Maturity	Age (years)	Gonad weight (g)	Sample ID
August 24	464	1114	10	Female - maturing	10	5.5	300-01-FSM (muscle), 300-01-FSL (liver)
August 24	373	553	5.7	Male - immature	11	-	300-02-FSM (muscle), 300-02-FSL (liver)
August 24	385	547	3.9	Male – immature	7	-	300-03-FSM (muscle), 300-03-FSL (liver)
August 24	456	978	7.3	Male - immature	12	-	300-04-FSM (muscle), 300-04-FSL (liver)
September 2	534	1712	27	Female - maturing	18	12	300-05-FSM (muscle), 300-05-FSL (liver)
September 2	465	1113	10	Male – mature	15	21	300-06-FSM (muscle), 300-06-FSL (liver)
September 2	892	5350	38	Male – mature	>20[1]	4	300-07-FSM (muscle), 300-07-FSL (liver)
September 2	514	1515	13	Male – immature	16	1	300-08-FSM (muscle), 300-08-FSL (liver)
September 2	366	560	6	Male – mature	9	-	300-09-FSM (muscle), 300-09-FSL (liver)
September 2	480	1408	8	Male – ripe	22	55	300-10-FSM (muscle), 300-10-FSL (liver)
September 2	817	7050	94	Male – spent	36	27	300-11-FSM (muscle), 300-11-FSL (liver)

"-" indicates no data available

Table G-2. Itchen Lake (L300) Lake Trout Metal Concentrations in Muscle Tissue, August/September 2008.

		Sample Number											Thresholds for the Protection of Fish (Jarvinen and Ankley, 1999)	
Parameter	M.D.L (ug/g)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	Lowest no-effects thresholds (ug/g)	Lowest effects thresholds lethal or sub lethal (ug/g)
Aluminum	2	<2	<2	3	<2	<2	<2	<2	<2	2	**4**	<2	**1.15**	**20**
Antimony	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**5**	**9**
Arsenic	0.05	0.06	0.06	0.08	0.08	<0.05	<0.05	<0.05	0.07	<0.05	0.1	<0.05	**2.6**	**3.1**
Barium	0.1	1.5	1.6	0.9	0.9	<0.1	0.1	<0.1	<0.1	0.2	<0.1	<0.1	**nd**	**nd**
Beryllium	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**nd**	**nd**
Cadmium	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**0.9**	<0.01	**0.09**	**0.12**
Chromium	0.1	0.3	0.3	0.4	0.4	<0.1	<0.1	0.1	0.2	0.2	0.6	0.4	**nd**	**nd**
Cobalt	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	**nd**	**nd**
Copper	0.05	**0.62**	0.34	0.38	0.31	0.47	**0.65**	0.39	**0.51**	0.33	**19.9**	**0.63**	**0.5**	**0.5**
Iron	5	<5	14	13	14	<5	5	12	<5	<5	882	<5	**nd**	**nd**
Lead	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**4.0**	**nd**
Manganese	0.5	<0.5	10.4	6.6	11.8	<0.5	<0.5	<0.5	<0.5	<0.5	2.0	<0.5	**nd**	**nd**
Mercury	0.01	<0.01	0.01	<0.01	<0.01	0.28	0.27	0.96	0.19	0.07	0.28	0.74	**2.28**	**6.2**
Molybdenum	0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	<0.05	**nd**	**nd**
Nickel	0.02	0.49	0.55	0.29	0.25	0.03	0.05	0.04	0.04	0.03	0.19	0.12	**0.82**	**118.1**
Selenium	0.05	0.19	0.2	0.25	**0.31**	0.22	0.22	**0.38**	**0.36**	**0.33**	**1.93**	**0.53**	**0.28**	**0.92**
Silver	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.003**	**nd**
Strontium	0.05	11.0	12.7	9.04	6.63	0.24	0.56	0.14	0.15	0.36	0.18	0.2	**nd**	**nd**
Thallium	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	**nd**	**nd**
Tin	0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**nd**	**nd**
Titanium	0.2	<0.2	<0.2	0.3	0.3	0.4	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	**nd**	**nd**
Vanadium	0.1	0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	**5.33**	**nd**
Zinc	0.5	13.9	14.8	18.8	14.1	7.4	6.4	8.9	7.0	6.7	31.4	8.8	**60**	**nd**

Bold and shaded cells indicate exceedance of Threshold for the Protection of Fish (Jarvinen and Ankley, 1999).

Table G-3. Itchen Lake (L300) Lake Trout Metal Concentrations in Liver Tissue, September 2008.

		Sample Number											Thresholds for the Protection of Fish (Jarvinen and Ankley, 1999)	
Parameter	M.D.L (ug/g)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	Lowest no-effects thresholds (ug/g)	Lowest effects thresholds lethal or sub lethal (ug/g)
Aluminum	2	<2	**5**	<2	**4.4**	<2	<2	**3**	**9**	**4**	<2	**12**	**1.15**	**20**
Antimony	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	**5**	**9**
Arsenic	0.05	<0.05	0.08	0.08	0.07	0.08	0.08	0.08	0.07	0.07	0.15	0.1	**2.6**	**3.1**
Barium	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.2	**nd**	**nd**
Beryllium	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**nd**	**nd**
Cadmium	0.01	**0.31**	**0.28**	**0.34**	**0.33**	**0.31**	**0.34**	**0.87**	**0.4**	**0.28**	<0.01	**0.26**	**0.09**	**0.12**
Chromium	0.1	0.2	2.8	1.5	0.2	0.2	0.3	0.5	0.4	0.5	0.5	1.0	**nd**	**nd**
Cobalt	0.1	<0.1	0.1	0.2	<0.1	0.9	0.3	0.2	0.2	0.1	<0.1	0.2	**nd**	**nd**
Copper	0.05	**11.7**	**7.96**	**6.58**	**10.7**	**8.82**	**14.2**	**20.4**	**7.69**	**3.61**	**0.73**	**11.8**	**0.5**	**0.5**
Iron	5	220	268	412	386	356	330	464	58	204	18	170	**nd**	**nd**
Lead	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.47	<0.02	**4.0**	**nd**
Manganese	0.5	1.9	1.9	2.5	2.2	1.7	2.2	1.2	2.3	1.4	2.1	1.7	**nd**	**nd**
Mercury	0.01	0.14	0.14	0.25	0.12	0.37	0.56	**2.92**	0.38	0.13	<0.01	1.54	**2.28**	**6.2**
Molybdenum	0.05	0.15	0.19	0.22	0.22	0.11	0.22	0.16	0.18	0.13	<0.05	0.18	**nd**	**nd**
Nickel	0.02	0.07	**1.46**	0.72	0.08	0.16	0.22	0.21	0.17	0.25	0.03	0.48	**0.82**	**118.1**
Selenium	0.05	**1.33**	**1.16**	**2.29**	**1.55**	**1.3**	**1.67**	**3.61**	**2.39**	**0.99**	**0.42**	**2.06**	**0.28**	**0.92**
Silver	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.08**	<0.05	<0.05	<0.05	<0.05	**0.003**	**nd**
Strontium	0.05	0.19	0.42	0.21	0.22	0.28	0.25	0.13	0.24	0.6	2.03	0.41	**nd**	**nd**
Thallium	0.05	0.10	<0.05	0.13	0.09	0.10	0.18	0.07	0.07	0.05	<0.05	0.08	**nd**	**nd**
Tin	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**nd**	**nd**
Titanium	0.2	0.2	<0.2	<0.2	1.1	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	0.3	**nd**	**nd**
Vanadium	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	0.1	0.2	**5.33**	**nd**
Zinc	0.5	31.4	26.6	30.5	28.5	22.4	29.2	26.4	28.1	21.9	**1270**	21.5	**60**	**nd**

Bold and shaded cells indicate exceedance of Threshold for the Protection of Fish (Jarvinen and Ankley, 1999)

Appendix D Potential Water Intake Location (PWI01) Memorandum

NUNAMI
STANTEC LIMITED

Memo

To:	Gavin Law	From:	Emily Hulley, Amy Nielsen and Stephanie Nabess
	West Kitikmeot Resources Corp 30B Mitik Street Cambridge Bay, NU X0B 0C0		Nunami Stantec Limited 11-2042 Mills Road Sidney, BC V8L 5X4
File:	123514868	Date:	December 3, 2024

Reference: Potential Water Intake Location (PWI-1) Memorandum

1 Introduction

West Kitikmeot Resources Inc (WKR) is proposing the Grays Bay Road and Port Project (GBRP; the Project). The Project is a proposed deep-sea port on the Coronation Gulf in Grays Bay, and a 230 kilometer (km) all season-controlled access road from Grays Bay to the site of the former Jericho Mine in Nunavut.

The purpose of the Project is to create infrastructure to support exploration and mine development in the Kitikmeot Region, and to facilitate transport of mineral concentrate from future mines such as Izok, High Lake and Hackett River to overseas markets using a deep-water port at Grays Bay. The Project's location and current design is based on siting studies and designs previously undertaken by MMG Resources Inc. for their Izok Corridor Project, Government of Nunavut (GN), and Kitikmeot Inuit Association (KIA), who was the proponent of the Project until 2020. The Project previously underwent screening by the Nunavut Impact Review Board (NIRB), which led to the commencement of an environmental impact review. The KIA terminated the review of the project in 2020, at which time the NIRB had issued draft Environmental Impact Statement (DEIS) Guidelines and had initiated scoping of the review.

While the Project benefits from designs, studies, and data previously undertaken by MMG, KIA and GN, unfortunately, many of the environmental studies are more than 10 years old. To support a future environmental review of the Project, and namely, the preparation of a DEIS, some of the environmental studies need to be supplemented with more recent data. A Freshwater Fish and Fish Habitat 2024 field program was completed in August 2024. This memorandum presents results from the assessment of a potential freshwater source near the Port site, referred to as the potential water intake location (PWI-1) portion of the field program.

2 Methods

The following sections describe the methods used during the PWI-1 assessment, which included bathymetry, water and sediment quality sampling, fish habitat mapping and fish sampling.

2.1 Bathymetry

2.1.1 Field Sampling

Bathymetric data was collected following the Bathymetric Standards for Lake Inventories (RISC, 2009) to determine maximum lake depth, surface area, total volume and to produce a bathymetric figure showing depth contours.

Bathymetric data was collected in the field using a Cee-Line Single Beam Eco Sounder, with an accuracy 0.01 m +/- 0.1% of depth. Spatial data (latitude and longitude, m) were collected using a pole-mounted Hemisphere global positioning system unit, while the corresponding depth value (m) was collected using a CEE-LINE™ 200 kHZ echosounder. An exploratory line (e-line) was set along the major axis of the lake. The lake perimeter, e-line, and transects perpendicular to the e-line were surveyed to ensure adequate coverage over the lake.

2.1.2 Data Analysis

Field data were processed using Hydromagic hydrographic survey software (Hydromagic, 2024). Raw positional and depth data were analyzed, and obvious spikes were manually removed using echogram analysis and filtering options. Using the Hydromagic survey software, depth and spatial data were then used to create a Triangulated Irregular Network (TIN), which was then converted to gridded data known as a Digital Terrain Model (DTM) with a horizontal resolution of 1 m. Contours and matrices were then imported into Esri Arc GIS to produce the final bathymetric figure and were used to calculate the perimeter of the lake (km).

The Hydromagic Survey software matrix volume calculation tool was used to calculate total lake volume. The calculation tool overlays the DTM with a matrix set at a fixed level (0.00 m) for each cell, and the depth is multiplied by the area, resulting in a volume for each 1 m-by-1 m cell. The cell volumes are then summed to obtain total lake volume (m^3). Total area of the lake (m^2) was also obtained using the matrix volume calculation tool.

2.1.3 Quality Assurance and Quality Control

Quality assurance and quality control (QAQC) procedures were followed throughout data collection and analysis process. In the field, depth sounding equipment was calibrated prior to beginning data collection. Equipment was manually checked using a meter stick to ensure the appropriate offsets were applied and depth measurements were recorded accurately. During data collection, the field crew maintained a speed of less than 5 km/hr to reduce interference resulting from turbulence from the boat motor.

Prior to creation of the bathymetric figure and final calculations, data was manually filtered using echogram analysis and filtering options in the Hydromagic Survey software to remove inaccurate high or low values caused by interference with the transducer. Interference with the transducer can be caused by vegetation, turbulence from the boat motor or insufficient depth beneath the transducer.

2.2 Water Quality

2.2.1 Field Sampling

Vertical water column profiles were collected at three water quality sampling locations using a YSI EXO sonde (Figure 1). In situ measurements of water temperature (ºC), dissolved oxygen (mg/L and percent saturation), specific conductivity (µS/cm), turbidity (NTU), and pH were recorded at each profile location at 0.5 m intervals during the downcast through the water column to approximately 0.5 m above lake bottom.

Water quality samples for laboratory analysis were collected at the three water quality sampling locations using a line-mounted water sampling device (Van Dorne). At each of the sampling locations, samples were collected at two depths: 0.5 m below the surface and 0.5 m above the lake bottom. The sampler was rinsed with lake water, lowered off the opposite side of the boat to the water column profiles to the required depth as to not disturb sediment, triggered by the messenger to collect a sample, retrieved to the surface and used to fill the laboratory sample bottles. Samples were placed and stored in a cooler with ice packs until shipment to the laboratory. Samples were sent to ALS Environmental Limited (ALS) in Yellowknife, NWT, a Canadian Association for Laboratory Accreditation (CALA) for analysis as soon as practical after sample collection and taking into consideration the holding time constraints prescribed by the laboratory for each specific parameter. Samples were analyzed for:

- Standard physical parameters (including temperature, dissolved oxygen, dissolved organic carbon, total alkalinity, conductivity, colour, total and dissolved hardness, pH, total suspended solids, and turbidity),
- Chloride, fluoride, sulphate, nitrogen species (including ammonia, total Kjeldahl nitrogen (TKN), and phosphorous),
- Total and dissolved metals (including mercury),
- Benzene, toluene, ethylbenzene, and xylene (BTEX),
- Polycyclic aromatic hydrocarbons (PAHs) and
- Volatile organic compounds (VOCs).

A detailed list of parameters and laboratory detection limits is presented in Appendix A.

2.2.2 Data Analysis

Descriptive statistics were calculated for water quality samples and included sample size, minimum, maximum, median, arithmetic mean and standard deviation. When calculating descriptive statistics for chemistry parameters, values below the analytical detection limit (DL) were conservatively calculated using the DL as the sample value.

Laboratory results for the water quality samples were compared to the Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines for Freshwater Aquatic Life (WQG-FAL) (CCME 2024) and Health Canada Drinking Water Guidelines (DWG) (Health Canada 2024).

2.2.3 Quality Assurance and Quality Control

QAQC procedures were applied to field sampling, laboratory analyses, data entry and analyses, and report preparations. Specific work instruments outlining each field task in detail were provided to the field personnel. The water quality meter was calibrated prior to use and maintained as per the manufacturer operational manual. Field equipment was calibrated throughout the field program following manufacturer guidelines and all samples were collected by experience and trained personnel. QAQC samples were collected during the field program and consisted of one field blank, one trip blank, and one duplicate sample. Chain of custody (COC) forms were used to track shipment and receipt of samples.

Water quality samples were subject to industry standard QC analyses (i.e., method blanks, method spikes, laboratory control sample, reference material, and laboratory duplicates) in the lab to assess precision and accuracy of analytical methods. The QC report of the laboratory certificate of analysis was reviewed upon receipt to confirm that the appropriate QA/QC information had been reported and that the laboratory data quality objectives (DQO) had been met.

2.3 Sediment Quality

2.3.1 Field Sampling

Sediment sampling was completed at the same three locations as the water quality sampling locations so that water quality and sediment quality data could be compared. Sediment samples were collected using a line-mounted sampling device (petite Ponar) lowered to the lake bottom with tension on the rope as to not set off the grab sampler until reached the bottom. The top 5 cm of the grab was collected and placed into a mixing bowl. Three grabs were completed at each sampling location to achieve adequate sample size. The sediment from the three grabs were combined and homogenized into a composite sample and placed into labelled sediment collection bottles provided by the laboratory. Physical description of the sediment samples such as texture, colour, odour, presence of biota, presence of detritus, depth of sediment horizon sampled, grab penetration depth were recorded on the field datasheet and photographs of samples taken to provide visual documentation. The sediment containers were then closed tight, and the excess of sediment washed off on the outside of the container. Samples were placed in a cooler with ice packs as soon as they were collected to keep them cool during shipping.

Samples were shipped by air to ALS as soon as practical after sample collection and taking into consideration the holding time constraints prescribed by the laboratory for each specific parameter. Samples were analyzed for particle size distribution and moisture content, TOC (total organic carbon), total metals (including mercury), BTEX, PAHs and VOCs. A detailed list of parameters and laboratory detection limits is presented in
Appendix A.

2.3.2 Data Analysis

Descriptive statistics were calculated for sediment quality samples and included sample size, minimum, maximum, median, arithmetic mean and standard deviation. When calculating descriptive statistics for chemistry parameters, values below the analytical DL were conservatively calculated using the DL as the sample value.

Laboratory results for the sediment samples were compared to the CCME Interim Sediment Quality Guidelines (ISQG) and the Probable Effect Level (PEL) Sediment Quality Guidelines for the Protection of Freshwater Aquatic Life (SQG-FAL) (CCME 2024).

2.3.3 Quality Assurance and Quality Control

As described in Section 2.2.3, QAQC procedures were applied to all aspects of the field program, laboratory analysis, data entry and analyses, and report preparation. One duplicate sediment sample was collected and “field split” for 10% of the total number of sediment samples submitted to laboratory analysis.

Sediment samples were subject to industry standard QC analyses (i.e., method blanks, method spikes, laboratory control sample, reference material, and laboratory duplicates) in the lab to assess precision and accuracy of analytical methods. The QC report of the laboratory certificate of analysis was reviewed upon receipt to confirm that the appropriate QA/QC information had been reported and that the laboratory DQO had been met.

2.4 Fish and Fish Habitat

2.4.1 Fish Habitat Assessment

Fish habitat mapping was completed following the Reconnaissance (1:20,000) Fish and Fish Habitat: Lake Inventory Standards and Procedures methods (BC FISB, 2001) to quantify and qualify existing fish habitat in PWI-1.

Data collected during the habitat assessment included descriptions of surrounding terrain, shoreline characteristics, lake access, and locations of inlet and outlet watercourses. Observations of aquatic vegetation and wildlife were recorded, and physical and biological features of the lake were photographed. A list detailing field methods for fish habitat parameters is presented in Table 1.

Table 1 Field Methods for Assessing Fish Habitat Parameters in PWI-1

Parameter	Field and Analysis Method
Shoreline characteristics	Visually assessed shorelines for riparian bank stability, riparian vegetation cover, and riparian vegetation type.
Shoreline cover	Visually categorized percentage of debris and overhanging vegetation within 1 m height of the shoreline.
Shoreline and littoral zone substrate	Visually estimated percent composition of substrates: organics, fines (<0.06 mm), sand (0.06–2 mm), small gravel (2–16 mm), large gravel (17–64 mm), cobble (65–256 mm), small boulder (>257–1,000 mm), large boulder (>1,000 mm) and bedrock.
Aquatic flora	Visually estimated percent composition of emergent and submergent vegetation. Included observations of floating algae.
Additional features	Additional observations during the survey including access, weather, wildlife observations, and inlets and outlets.

2.4.2 Fish Community Assessment

Fish sampling was conducted at PWI-1 to evaluate fish species presence and of different fish species and life stages using the lake. Fish were collected under Fisheries and Oceans Canada Permit S-24/25-1034-NU.

Fish sampling consisted of backpack electrofishing sections of the shoreline, minnow trapping, angling, and gill netting. Captured fish were identified to species and measured for fork length or total length (depending on species). Lengths were recorded for up to 10 individuals per fish species. Fish were examined externally for the presence of any deformities, parasites, or injuries. Handling was kept to a minimum and fish were released at capture site after data collection.

Catch per unit effort (CPUE) provides an estimate of abundance by standardizing catch data by fishing effort. Total CPUE was calculated for each fishing method to provide a measure of relative abundance of fish in PWI-1. The CPUE for electrofishing was calculated as the number of fish captured per 60 seconds of effort. The CPUE for minnow trapping was calculated as the number of fish captured per minnow trap per day (24 hours). The CPUE for gill netting was calculated as the number of fish captured per 100 m^2 per hour. The CPUE for angling was calculated as the number of fish captured per angler hour.

2.4.3 Quality Assurance and Quality Control

As described in Section 2.2.3, QAQC procedures were applied to all aspects of the field program. Specific work instruments outlining each field task in detail were provided to the field personnel. Data was collected digitally in the field, reviewed and uploaded to the server at the end of each field day for completeness and accuracy. Use of digital data tools reduces the potential for human transcription error. Following the field program data was reviewed by a Qualified Professional prior to reporting.

3 Results

The Freshwater Fish and Fish Habitat 2024 field program was completed between August 1 and 10, 2024 by two aquatic biologists accompanied by a wildlife monitor from Cambridge Bay, NU.

3.1 Bathymetry

The total volume of PWI-1 was calculated as 1,184,813 m^3, with a surface area of 45.6 ha (456,930 m^2) and perimeter of 2.83 km. The deepest surveyed point was 5.5 m below the water surface and the average depth was 2.6 m. A summary of area and volume calculations from the Hydromagic Survey software are included in Appendix B. The bathymetric contour map for PWI-1 is presented in Figure 1.

3.2 Water Quality

Depth profiles from the three sampling locations in PWI-1 are summarized in Figure 2 and Appendix C, Table C-1. Water temperature was highest at the surface and decreased with depth (range 11.8 to 14.0ºC). Dissolved oxygen and pH met the CCME WQG-FAL at all depths, and both were observed to decrease slightly with depth, (DO range from 11.0 mg/L at the surface to 9.9 mg/L at lake bottom; (pH range from 7.87 at surface to 7.46 at lake bottom). Turbidity was observed to increase with depth (range from 3.3 NTU at the surface to 8.8 NTU at lake bottom). Specific conductivity was consistent with depth and ranged from 182.2 to 184.7 µS/cm.

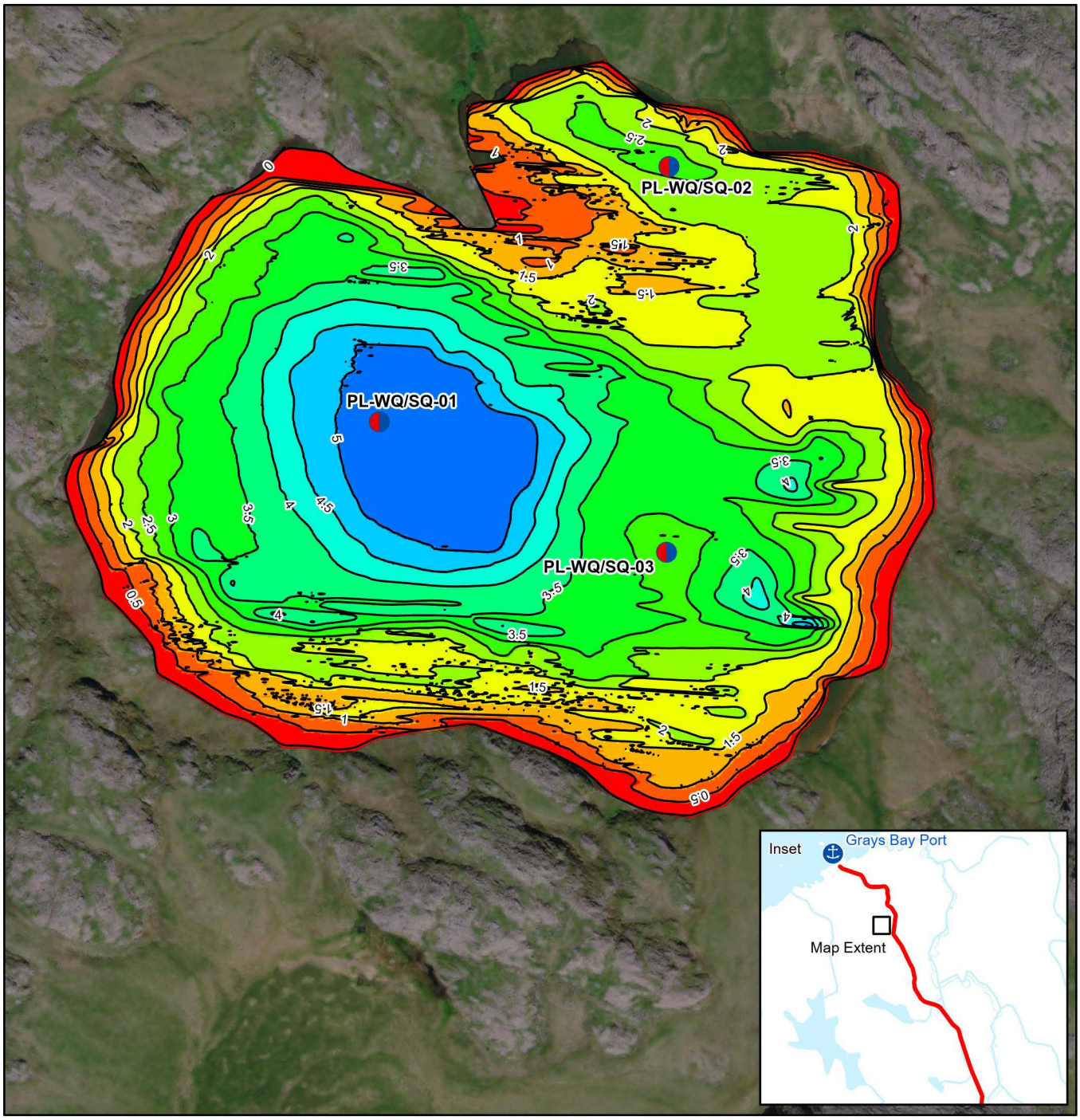
Water quality data collected at the three sampling locations during the field program are summarized in Appendix C, Table C-2. Water quality samples were compared to the CCME WQG-FAL (CCME 2024), and Health Canada DWG (CCME 2024) and summary results are provided in Table 2. All samples were analyzed for the same parameters (see Section 2.2.1).

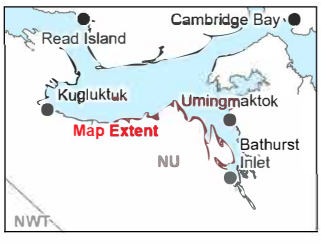
Nine anions and nutrients were analyzed. Of these nine, ammonia, chloride, fluoride, nitrate, and nitrate have CCME WQG-FAL and Health Canada DWG. Water concentrations for these parameters in samples from PWI-1 were below guidelines for all sampling locations (Table 2).

Of the 40 total and dissolved metal analyzed, total and dissolved concentrations for 18 metals were below DL in all samples: antimony, beryllium, bismuth, boron, cadmium, chromium, cobalt, mercury, phosphorus, selenium, silver, tellurium, thallium, thorium, tin, tungsten, vanadium, and zirconium. Additionally, total zinc and dissolved cesium, lead, molybdenum, and titanium were below their respective analytical DLs. Twenty metals have CCME WQG-FAL and/or Health Canada DWG; sample results for these parameters indicated concentrations were below guidelines for all samples (Table 2).

A total of 37 VOCs were analyzed. All sample results for VOCs were below DLs and below CCME WQG-FAL and Health Canada DWG (Table 2, Appendix C, Table C-2).

Twenty-one PAHs were analyzed with all sample results for short and long-chain PAHs below their respective DLs and below CCME WQG-FAL and Health Canada DWG (Table 2).





Depth Range

- 0.00-0.50
- 0.50-1.00
- 1.00-1.50
- 1.50-2.00
- 2.00-2.50
- 2.50-3.00
- 3.00-3.50
- 3.50-4.00
- 4.00-4.50
- 4.50-5.00
- 5.00-5.50

- Proposed Port Location
- Water and Sediment Quality Sampling Location
- Proposed Grays Bay Road and Port Route
- Bathymetric Contour

0 100 200 Metres

(At original document size of 11x17) 1:6,000

N

Notes

1. Coordinate System: WGS 1984 UTM Zone 12N

2. Data Sources: Government of Canada, Stantec, Maxar

NUNAMI STANTEC LIMITED

WEST KITIKMEOT RESOURCES CORP

Project Location
~~West Kitikmeot~~ Region
Nunavut

Prepared by SL on 2024-09-26
TR by EH on 2024-09-30

Client/Project
123514868_021

West Kitikmeot Resources Corp
Grays Bay Road and Port

Figure No.
1

Title

Bathymetry, Water Quality and Sediment Quality Sampling Locations for PWI-1

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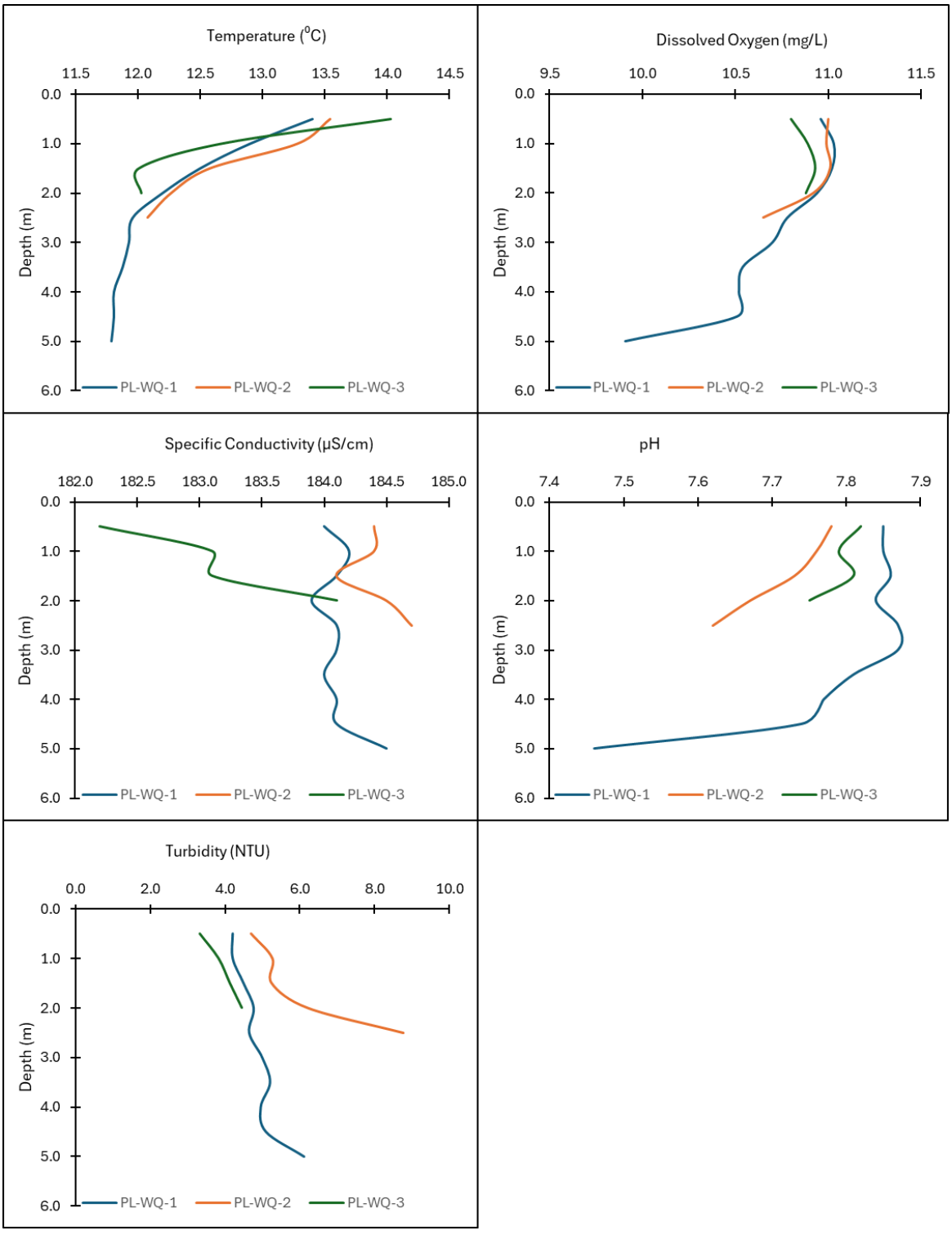
Reference: Potential Water Intake Location (PWI-1) Memorandum

Figure 2 Vertical Water Column Profiles for PWI-1 Water Quality Sampling Locations, August 2024



Reference: Potential Water Intake Location (PWI-1) Memorandum

Table 2 Water Quality Results from PWI-1 Sampling Locations, August 2024

Parameter	Units	Health Canada[1]	CCME WQG-FAL[2]		Mean[3]	±	Standard Deviation
			Short-term	Long-term			
Anions and Nutrients							
Ammonia, total (as N)	mg/L	-	-	0.715	0.0052	±	0.0005
Chloride	mg/L	250	640	120	46.9	±	0.4
Fluoride	mg/L	1.50	-	-	0.027	±	0.001
Nitrate (as N)	mg/L	45	550	13	0.0052	±	0.0003
Nitrite (as N)	mg/L	3.0	-	0.197	<0.0010		N/A
Total Metals							
Aluminum	mg/L	2.9	-	0.10	0.0547	±	0.0074
Antimony	mg/L	0.006	-	-	<0.00010	±	N/A
Arsenic	mg/L	0.010	-	0.005	0.00037	±	0.00002
Barium	mg/L	2.0	-	-	0.00272	±	0.00014
Boron	mg/L	5.0	29	1.5	<0.010	±	N/A
Cadmium	mg/L	0.0070	0.00067	0.000060	<0.0000050	±	N/A
Chromium	mg/L	0.050	-	0.001 (CrVI); 0.0089 (CrIII)	<0.00050	±	N/A
Copper	mg/L	2.0	-	0.0020	0.0012	±	0.0001
Iron	mg/L	0.30	-	0.30	0.104	±	0.016
Lead	mg/L	0.005	-	0.0010	0.000051	±	0.000002
Manganese	mg/L	0.12	-	-	0.0436	±	0.0085
Mercury	mg/L	0.0010	-	0.000026	<0.0000050	±	N/A
Nickel	mg/L	-	-	0.025	0.00058	±	0.00010
Selenium	mg/L	0.050	-	0.0010	<0.000050	±	N/A
Silver	mg/L	-	-	0.00025	<0.000010	±	N/A
Sodium	mg/L	200	-	-	25.1	±	0.6
Thallium	mg/L	-	-	0.0008	<0.000010	±	N/A
Uranium	mg/L	0.020	0.033	0.0015	0.000024	±	0.000000
Zinc	mg/L	5.0	-	-	<0.0030	±	N/A
Dissolved Metals							
Manganese	mg/L	-	2.47	-	0.00055	±	0.00009
Zinc	mg/L	-	0.044	0.0090	0.0011	±	0.0002

Reference: Potential Water Intake Location (PWI-1) Memorandum

Parameter	Units	Health Canada[1]	CCME WQG-FAL[2]		Mean[3]	±	Standard Deviation
			Short-term	Long-term			
Volatile Organic Compounds							
Dichlorobenzene, 1,2-	µg/L	-	-	0.70	<0.50	±	N/A
Dichlorobenzene, 1,3-	µg/L	-	-	150	<0.50	±	N/A
Dichlorobenzene, 1,4-	µg/L	5.0	-	26	<0.50	±	N/A
Trichlorofluoromethane	µg/L	-	-	13.3	<0.50	±	N/A
Carbon tetrachloride	µg/L	2.0	-	-	<0.50	±	N/A
Dichloroethane, 1,2-	µg/L	5.0	-	100	<0.50	±	N/A
Dichloromethane	µg/L	50	-	98.1	<1.0	±	N/A
Tetrachloroethylene	µg/L	10	-	-	<0.50	±	N/A
Trichloroethylene	µg/L	5.0	-	-	<0.50	±	N/A
Benzene	µg/L	5.0	-	370	<0.50	±	N/A
Ethylbenzene	µg/L	140	-	90	<0.50	±	N/A
Methyl-tert-butyl ether [MTBE]	µg/L	15	-	10000	<0.50	±	N/A
Styrene	µg/L	-	-	72	<0.50	±	N/A
Toluene	µg/L	60	-	2.0	<0.40	±	N/A
Xylenes, total	µg/L	90	-	-	<0.50	±	N/A
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	µg/L	-	-	5.8	<0.010	±	N/A
Acridine	µg/L	-	-	4.4	<0.010	±	N/A
Anthracene	µg/L	-	-	0.012	<0.010	±	N/A
Benz(a)anthracene	µg/L	-	-	0.018	<0.010	±	N/A
Benzo(a)pyrene	µg/L	0.040	-	0.015	<0.0050	±	N/A
Fluoranthene	µg/L	-	-	0.040	<0.010	±	N/A
Fluorene	µg/L	-	-	3.0	<0.010	±	N/A
Naphthalene	µg/L	-	-	1.1	<0.050	±	N/A
Phenanthrene	µg/L	-	-	0.40	<0.020	±	N/A
Pyrene	µg/L	-	-	0.025	<0.010	±	N/A
Quinoline	µg/L	-	-	3.40	<0.050	±	N/A

Notes:

Bold denotes exceedance of the short-term CCME WQG-FAL; Italics denotes exceedance of the long term CCME WQG-FAL; underline denotes exceedance of the Health Canada WQG.

[1] Health Canada Drinking Water Guidelines (Health Canada 2024)

[2] CCME WQG-FAL (CCME 2024)

[3] Summary statistics were calculated using the DL as the value for results below DL

The QAQC results indicated that, overall, the water quality data collected was high quality. Key outcomes included:

- The QC analyses met the laboratory DQO.
- Holding times recommended by the laboratory were exceeded for some parameters (i.e., nitrite, nitrate, TKN, and ammonia by fluorescence) due to logistical constraints of the remoteness of the Project. Holding times exceedances should be taken into consideration during interpretation of the results.
- The field blank and trip blank were below DL for all parameters.
- The relative percent difference (RPD) between the parent sample (PL-WQ-03-S) and the duplicate sample were below 20% (BC ENV 2024), indicating field precision was excellent.

3.3 Sediment Quality

Lab analysis for sediment samples from PWI-1 are included in Appendix C. At all sampling locations, silt was the dominant substrate, and clay was the sub-dominant substrate (Figure 3; Table 3). Gravel and sand represented less than two percent of the substrate composition.

Physical parameters measured included moisture content, pH, and TOC. Moisture content ranged from 72.0 (PL-SQ-03) to 74.7 (PL-SQ-02). Sediment pH was measured by diluting the sediment in water at a 1:2 ratio (soil: water). Sample pH ranged between from 5.76 (PL-SQ-01) to 6.05 (PL-SQ-03). TOC ranged from 3.16% (PL-SQ-03) to 4.38% (PL-SQ-02).

Sediment chemistry results with CCME SQG-FAL are summarized in Table 3. Total mercury and tungsten concentrations were below the analytical DLs in all samples. Total cadmium, lead, mercury, and zinc were below the CCME ISQG-FAL in all samples. The CCME SQG-FAL for total arsenic, chromium, and copper were exceeded in all samples

A total of 37 VOCs were analyzed in the samples (Appendix C, Table C-3), all were below the analytical DL, with the exception of dichloromethane in one sample (PL-SQ-01).

A total of 22 PAHs were analyzed in the PWI-1 sediment samples (Appendix C, Table C-3). PAH concentrations were below the DL in the sediment samples from PL-SQ-02 and PL-SQ-03, with the exception of naphthalene. Results for the 13 PAHs with CCME SQG-FAL indicated sample concentrations for acenaphthene, acenaphthylene, dibenz(a,h) anthracene and naphthalene exceeded the guideline for all three sampling locations

However, for three of the four PAH exceedances, the analytical DL was above the CCME ISQG-FAL resulting in exceedances of the guideline (Table 3).

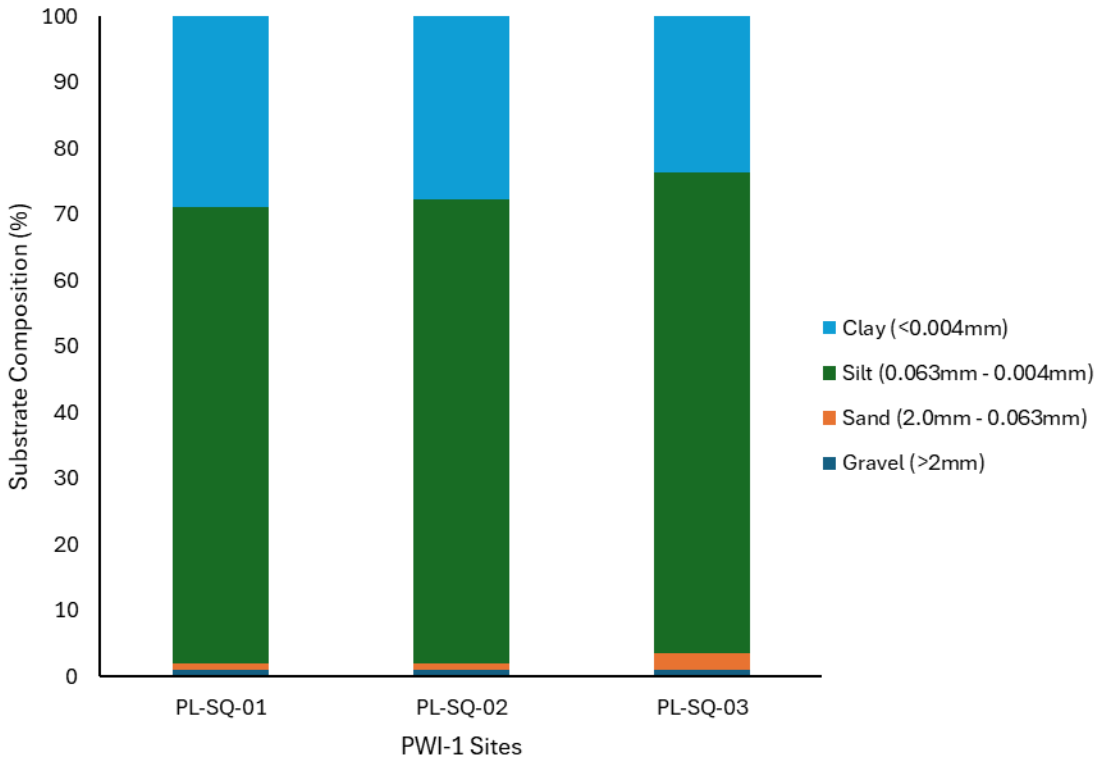
Sediment samples from PWI-1 did not exceed the CCME PEL any parameters.

Reference: Potential Water Intake Location (PWI-1) Memorandum

The QAQC results indicated that, overall, the sediment quality data collected was good quality. Key outcomes included:

- The QC analyses met the laboratory DQO.
- Holding times recommended by the laboratory were met for all parameters.
- The RPD between the parent sample (PL-SQ-01) and the duplicate sample were below 20%, with the exception of 18 PAHs (13% of the total parameters analyzed). The greater variability observed for PAHs is likely attributed to residual heterogeneity in the samples. Subtle differences in the distribution of fine substrates and associated PAHs amongst the split sample may exist even after homogenization in the field. In addition, the transfer of sample material from one container (the bin which samples were homogenized in) to another (laboratory sample jars) may introduce variability (Weiner 2013).

Figure 3 Substrate Composition of Sediment Samples Collected at PWI-1 Sampling Locations, August 2024



Reference: Potential Water Intake Location (PWI-1) Memorandum

Table 3 Particle Size, Metal, and Polycyclic Aromatic Hydrocarbon Concentrations in Sediments from PWI-1 Sampling Location, 2024

Parameter	Units	CCME SQG-FAL[1]		PWI-1		
		ISQG	PEL	PL-SQ-01	PL-SQ-02	PL-SQ-03
Physical Tests						
Moisture	%	-	-	73.5	74.7	72.0
pH	pH units	-	-	5.76	5.82	6.05
Total organic carbon	%	-	-	3.67	4.38	3.16
Particle Size						
Gravel (>2mm)	%	-	-	<1.0	<1.0	<1.0
Sand (2.0mm - 0.063mm)	%	-	-	<1.0	<1.0	2.6
Silt (0.063mm - 0.004mm)	%	-	-	69.1	70.3	72.7
Clay (<0.004mm)	%	-	-	30.2	29.2	24.7
Total Metals						
Arsenic	mg/kg	5.90	17.0	**12.5**	**8.76**	**9.65**
Cadmium	mg/kg	0.60	3.50	0.140	0.121	0.127
Chromium	mg/kg	37.3	90.0	**69.4**	**67.7**	**64.0**
Copper	mg/kg	35.7	197	**52.5**	**47.6**	**44.0**
Lead	mg/kg	35.0	91.3	14.6	13.0	13.7
Mercury	mg/kg	0.170	0.486	<0.0500	<0.0500	<0.0500
Zinc	mg/kg	123	315	106	99.0	99.4
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	mg/kg	0.0067	0.0889	**<0.0105**	**<0.0108**	**<0.0090**
Acenaphthylene	mg/kg	0.0059	0.128	**<0.0105**	**<0.0108**	**<0.0090**
Anthracene	mg/kg	0.047	0.245	<0.0160	<0.0108	<0.0090
Benz(a)anthracene	mg/kg	0.032	0.385	0.025	<0.011	<0.010
Benzo(a)pyrene	mg/kg	0.032	0.782	0.021	<0.011	<0.010
Chrysene	mg/kg	0.057	0.862	0.024	<0.011	<0.010
Dibenz(a,h)anthracene	mg/kg	0.0062	0.135	**0.0259**	**<0.0108**	**<0.0090**
Fluoranthene	mg/kg	0.111	2.36	0.026	<0.011	<0.010
Fluorene	mg/kg	0.021	0.144	0.013	<0.011	<0.010
Methylnaphthalene, 2-	mg/kg	0.020	0.201	0.020	<0.011	<0.010
Naphthalene	mg/kg	0.035	0.391	**0.041**	**0.024**	**0.012**
Phenanthrene	mg/kg	0.042	0.515	0.020	<0.011	<0.010
Pyrene	mg/kg	0.053	0.875	0.018	<0.011	<0.010

Notes:

Bold denotes exceedance of the CCME ISQG; Italics denotes exceedance of the CCME PEL.

[1] CCME SQG-FAL (CCME 2024)

3.4 Fish and Fish Habitat

3.4.1 Fish Habitat

A total of 10 habitat units were assessed along the perimeter of PWI-1 in the riparian and littoral zones (Figure 4, Table 4). Detailed fish habitat data are presented in Appendix D, Table D-1 and photographs of each lake habitat unit and additional physical features are presented in Appendix E.

The lake shoreline was stable, and the riparian zone was predominantly rocky, comprised of coarse substrates (i.e., cobble, boulder, bedrock) (Table 4, Appendix E: Photo 2, 5, 6, 9, 11 and 12). Shrubs and grasses were the subdominant riparian types along the shoreline (Appendix E: Photo 1, 4, 8 and 10). Littoral overhead cover provided by riparian vegetation was sparse along the perimeter of the lake, which when present, was provided by shrubs.

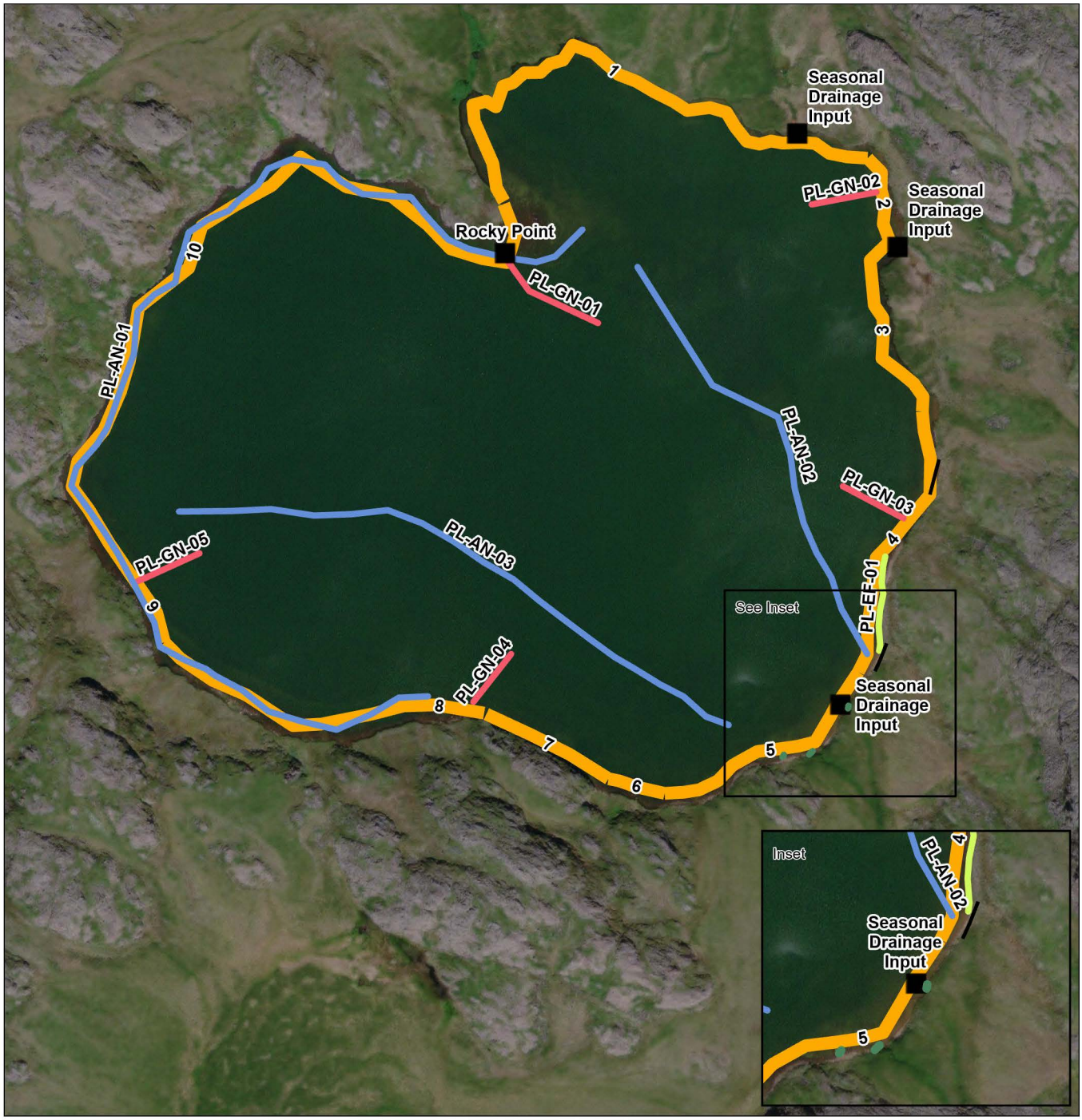
The dominant substrate within the littoral zone was boulders, and fines were subdominant (Table 4, Appendix E: Photo 3). In-lake cover in the littoral zone was variable throughout the 10 habitat units and ranged from 0-85%. Boulders were the dominant and vegetation was the subdominant in-lake cover type identified in the littoral zone (Table 4). In-lake vegetation was primarily comprised of emergent and submerged vegetation; some macrophytic algae was observed in Habitat Unit 4 and no in-lake vegetation was observed in Habitat Units 6, 7, 9 and 10.

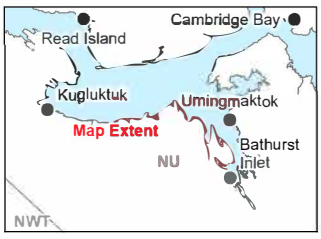
Three seasonal drainage inputs were identified on the east side of PWI-1 which were dry at the time of the site visit (Figure 4).

3.4.2 Fish Community

Ninespine stickleback were the only fish captured and observed in PWI-1. During the fishing community survey, a total of 1,155 ninespine stickleback (*Pungitius pungitius*) were captured from PWI-1 (Table 5). Detailed fish capture data are presented in Appendix D, Table D-2.

Minnow trapping was most effective for capturing ninespine stickleback (CPUE 42.9; Table 5), however thousands of fish were visually observed throughout the lake while conducting fish and fish habitat surveys.





Notes
1. Coordinate System: WGS 1984 UTM Zone 12N
2. Data Sources: Government of Canada, Stantec, Maxar

- Generic Point

Fishing Method
- Angling
- Backpack Electrofisher
- Gill Net
- Minnow Trap
- Lake Habitat
- Sandy Beach

- Proposed Grays Bay Road and Port Route
- Proposed Port Location

0 100 200 Metres
(At original document size of 11x17) 1:6,000

N

NUNAMI STANTEC LIMITED

WEST KITIKMEOT RESOURCES CORP

Project Location
~~West Kitikmeot~~ Region
Nunavut

Prepared by SL on 2024-09-26
TR by EH on 2024-09-30

Client/Project
123514868_022
West Kitikmeot Resources Corp
Grays Bay Road and Port

Figure No.
4

Title
Fish and Fish Habitat Assessment at PWI-1

\\CA0002-PPFSS05\GEOMATICS\Clients\Nunami_Stantec\GBRP\Figures\123514868_022_FishHabitatAssessment_Port_Intake_Lake.pagx Revised: 2024-10-29 By: slemay

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

Reference: Potential Water Intake Location (PWI-1) Memorandum

Table 4 Summary of Riparian and Littoral Zone Survey for PWI-1 Habitat Assessment, 2024

	Riparian Composition (%)					Littoral Zone Substrate Composition (%)							Littoral Zone in Lake Cover (%)					Aquatic Vegetation (%)		
Habitat Unit	Rocky[1]	Grass	Shrub	Wetland	Shoreline Stability	Organics	Fines	Sand	Gravel	Cobble	Boulder	Bedrock	Total	SWD	Cobble	Boulder	Vegetation	Emergent	Submerged	Macrophytic Algae
1	0	15	75	10	Stable	45	40	0	0	0	10	0	80	15	0	10	50	25	75	0
2	50	25	25	0	Stable	0	10	10	10	30	30	0	30	0	20	10	0	100	0	0
3	0	25	75	0	Stable	40	40	0	0	5	15	0	80	25	5	10	45	25	75	0
4	40	30	30	0	Stable	0	25	10	30	15	20	0	30	0	20	10	5	50	0	50
5	20	20	60	0	Stable	10	20	20	10	10	30	0	20	0	0	15	5	100	0	0
6	25	25	25	25	Stable	20	10	10	0	30	30	0	10	0	0	30	20	0	0	0
7	90	0	10	0	Stable	0	20	20	0	0	30	30	0	0	0	30	0	0	0	0
8	10	40	25	25	Stable	20	20	20	0	0	40	0	15	0	0	10	5	100	0	0
9	80	0	20	0	Stable	10	30	5	0	5	20	30	30	0	0	30	0	0	0	0
10	70	5	25	0	Stable	0	10	0	0	0	55	30	40	10	0	40	0	0	0	0

Note:

[1] Rocky shorelines were comprised of coarse substrates (i.e., cobble, boulder, bedrock).

Reference: Potential Water Intake Location (PWI-1) Memorandum

Table 5 Catch Per Unit Effort for Fish Captured from PWI-1, August 2024

Sampling Method	Sampling Effort		Ninespine Stickleback
Backpack Electrofishing	456 s	Abundance	125
		CPUE (#fish/min)	16.4
Minnow Trapping	35.8 h	Abundance	1,030
		CPUE (#fish/ 24 h)	42.9
Gill Netting	7.7 h	Abundance	-
		CPUE (#fish/100m^2/h)	-
Angling	0.7 h	Abundance	-
		CPUE (#fish/angler/h)	-

4 Closure

We trust that this memorandum meets your requirements, if you have any questions or would like to discuss the contents of this memorandum, please contact the undersigned.

Regards,

Nunami Stantec Limited

Digitally signed
by Hulley, Emily
Date: 2025.01.28
09:28:30 -08'00'

Emily Hulley M.Sc., R.P.Bio
Aquatic Biologist
Phone: (250) 655-6981
Mobile: 226-962-0512
emily.hulley@stantec.com

Attachments: Appendix A – Water and Sediment Laboratory and QA/QC Results
Appendix B – Hydromagic Volume Calculation
Appendix C – Water and Sediment Quality Results
Appendix D – Fish and Fish Habitat Results
Appendix E – PWI-1 Photolog

5 References

British Columbia Ministry of the Environment and Climate Change Strategy (BC ENV). 2024. British Columbia Field Sampling Manual. Available at: https://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/laboratory-standards-quality-assurance/bc-field-sampling-manual. Accessed September 2024.

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Weiner, E. R. 2013. Applications of Environmental Aquatic Chemistry: A Practical Guide, Third Addition. CRC Press, Boca Raton, FL.

Reference: Potential Water Intake Location (PWI-1) Memorandum

Appendix A Water and Sediment Laboratory and QA/QC Results

CERTIFICATE OF ANALYSIS

Work Order	: **YL2401093**	Page	: 1 of 20
Client	: **Stantec Consulting Ltd.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Amy Nielsen	Account Manager	: Brent Mack
Address	: 500 - 4730 Kingsway Burnaby BC Canada V5H 0C6	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 778-370-3279
Project	: 123514868	Date Samples Received	: 07-Aug-2024 13:05
PO	: 4000.101.102	Date Analysis Commenced	: 13-Aug-2024
C-O-C number	: ----	Issue Date	: 20-Aug-2024 15:44
Sampler	: ----		
Site	: ----		
Quote number	: VA24-STAC100-010		
No. of samples received	: 13		
No. of samples analysed	: 13		

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.

Signatories	*Position*	*Laboratory Department*
Cynthia Bauer	Organic Supervisor	Organics, Calgary, Alberta
George Huang	Supervisor - Inorganic	Metals, Calgary, Alberta
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Sask Soils, Saskatoon, Saskatchewan
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Marsha Calero	Laboratory Assistant	Organics, Calgary, Alberta
Mervat Lamose	Lab Assistant	Inorganics, Calgary, Alberta
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Shirley Li	Team Leader - Inorganics	Metals, Calgary, Alberta
Sorina Motea	Laboratory Analyst	Organics, Calgary, Alberta

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
CU	colour units (1 cu = 1 mg/l pt)
mg/kg	milligrams per kilogram
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.

Sample Comments

Sample	Client Id	*Comment*
YL2401093-011	TB	Water sample for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Qualifiers

Qualifier	*Description*
DLCI	*Detection Limit Raised: Chromatographic interference due to co-elution.*
DLIS	*Detection Limit Adjusted due to insufficient sample.*

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-SQ-01	PL-SQ-02	PL-SQ-03	PL-SQ-DUP	----
					Client sampling date / time	06-Aug-2024 11:19	06-Aug-2024 12:15	06-Aug-2024 13:15	06-Aug-2024 11:19	----
						YL2401093-007	YL2401093-008	YL2401093-009	YL2401093-013	--------
						Result	Result	Result	Result	----
Physical Tests										
Moisture	----	E144/CG	0.25	%		73.5	74.7	72.0	70.8	----
pH (1:2 soil:water)	----	E108/CG	0.10	pH units		5.76	5.82	6.04	5.61	----
Particle Size										
Gravel (>2mm)	----	EC184E/SK	1.0	%		<1.0	<1.0	<1.0	<1.0	----
Sand (2.0mm - 0.063mm)	----	EC184E/SK	1.0	%		<1.0	<1.0	2.6	<1.0	----
Silt (0.063mm - 0.004mm)	----	EC184E/SK	1.0	%		69.1	70.3	72.7	67.7	----
Clay (<0.004mm)	----	EC184E/SK	1.0	%		30.2	29.2	24.7	31.6	----
Percent Passing										
Passing (0.002mm)	----	E184/SK	1.0	%		24.7	22.1	19.2	25.6	----
Passing (0.004mm)	----	E184/SK	1.0	%		30.2	29.2	24.7	31.6	----
Passing (0.005mm)	----	E184/SK	1.0	%		33.0	32.7	27.4	34.7	----
Passing (0.020mm)	----	E184/SK	1.0	%		63.5	68.2	58.3	66.5	----
Passing (0.0312mm)	----	E184/SK	1.0	%		76.8	79.8	72.7	78.7	----
Passing (0.05mm)	----	E182/SK	1.0	%		99.2	99.5	96.9	99.2	----
Passing (0.063mm)	----	E182/SK	1.0	%		99.3	99.5	97.4	99.3	----
Passing (0.075mm)	----	E182/SK	1.0	%		99.4	99.6	97.8	99.4	----
Passing (0.125mm)	----	E182/SK	1.0	%		99.9	99.8	99.7	99.8	----
Passing (0.149mm)	----	E182/SK	1.0	%		99.9	99.8	99.8	99.8	----
Passing (0.250mm)	----	E182/SK	1.0	%		100	99.9	99.8	99.9	----
Passing (0.420mm)	----	E182/SK	1.0	%		100	99.9	99.9	99.9	----
Passing (0.50mm)	----	E182/SK	1.0	%		100	100	99.9	100	----
Passing (0.841mm)	----	E182/SK	1.0	%		100	100	100	100	----
Passing (1.0mm)	----	E182/SK	1.0	%		100	100	100	100	----
Passing (19mm)	----	E181/SK	1.0	%		100	100	100	100	----
Passing (2.0mm)	----	E181/SK	1.0	%		100	100	100	100	----
Passing (25.4mm)	----	E181/SK	1.0	%		100	100	100	100	----
Passing (38.1mm)	----	E181/SK	1.0	%		100	100	100	100	----
Passing (4.75mm)	----	E181/SK	1.0	%		100	100	100	100	----
Passing (50.8mm)	----	E181/SK	1.0	%		100	100	100	100	----

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	PL-SQ-01	PL-SQ-02	PL-SQ-03	PL-SQ-DUP	----
					Client sampling date / time	06-Aug-2024 11:19	06-Aug-2024 12:15	06-Aug-2024 13:15	06-Aug-2024 11:19	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2401093-007	YL2401093-008	YL2401093-009	YL2401093-013	--------
						Result	Result	Result	Result	----
Percent Passing										
Passing (76.2mm)	----	E181/SK	1.0	%		100	100	100	100	----
Passing (9.5mm)	----	E181/SK	1.0	%		100	100	100	100	----
Organic / Inorganic Carbon										
Carbon, total [TC]	----	E351/SK	0.050	%		3.79	4.49	3.25	4.02	----
Carbon, inorganic [IC]	----	E354/SK	0.050	%		0.120	0.112	0.085	0.116	----
Carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354/SK	0.40	%		1.00	0.94	0.71	0.97	----
Carbon, total organic [TOC]	----	EC356/SK	0.050	%		3.67	4.38	3.16	3.90	----
Organic matter	----	EC356/SK	0.10	%		6.33	7.55	5.45	6.72	----
Metals										
Aluminum	7429-90-5	E440/CG	50	mg/kg		26000	25500	22900	29300	----
Antimony	7440-36-0	E440/CG	0.10	mg/kg		0.17	0.14	0.14	0.19	----
Arsenic	7440-38-2	E440/CG	0.10	mg/kg		12.5	8.76	9.65	13.2	----
Barium	7440-39-3	E440/CG	0.50	mg/kg		120	115	115	134	----
Beryllium	7440-41-7	E440/CG	0.10	mg/kg		0.84	0.82	0.77	0.96	----
Bismuth	7440-69-9	E440/CG	0.20	mg/kg		0.60	0.54	0.53	0.70	----
Boron	7440-42-8	E440/CG	5.0	mg/kg		12.5	10.5	9.9	13.9	----
Cadmium	7440-43-9	E440/CG	0.020	mg/kg		0.140	0.121	0.127	0.148	----
Calcium	7440-70-2	E440/CG	50	mg/kg		2460	2510	2780	2730	----
Chromium	7440-47-3	E440/CG	0.50	mg/kg		69.4	67.7	64.0	79.6	----
Cobalt	7440-48-4	E440/CG	0.10	mg/kg		18.4	17.4	16.0	21.1	----
Copper	7440-50-8	E440/CG	0.50	mg/kg		52.5	47.6	44.0	59.4	----
Iron	7439-89-6	E440/CG	50	mg/kg		53800	44800	38100	61700	----
Lead	7439-92-1	E440/CG	0.50	mg/kg		14.6	13.0	13.7	16.6	----
Lithium	7439-93-2	E440/CG	2.0	mg/kg		50.1	47.8	46.0	59.0	----
Magnesium	7439-95-4	E440/CG	20	mg/kg		14200	13800	12900	16100	----
Manganese	7439-96-5	E440/CG	1.0	mg/kg		443	425	500	510	----
Mercury	7439-97-6	E510/CG	0.0500	mg/kg		<0.0500	<0.0500	<0.0500	<0.0500	----
Molybdenum	7439-98-7	E440/CG	0.10	mg/kg		0.92	0.91	0.92	1.12	----
Nickel	7440-02-0	E440/CG	0.50	mg/kg		43.9	42.3	39.2	50.0	----
Phosphorus	7723-14-0	E440/CG	50	mg/kg		972	701	723	1100	----

Analytical Results

Sub-Matrix: Soil/Solid (Matrix: Soil/Solid)					Client sample ID	PL-SQ-01	PL-SQ-02	PL-SQ-03	PL-SQ-DUP	----
					Client sampling date / time	06-Aug-2024 11:19	06-Aug-2024 12:15	06-Aug-2024 13:15	06-Aug-2024 11:19	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2401093-007	YL2401093-008	YL2401093-009	YL2401093-013	--------
						Result	Result	Result	Result	----
Metals										
Potassium	7440-09-7	E440/CG	100	mg/kg		6010	5850	5160	6860	----
Selenium	7782-49-2	E440/CG	0.20	mg/kg		0.29	0.20	0.21	0.34	----
Silver	7440-22-4	E440/CG	0.10	mg/kg		0.13	0.12	0.11	0.15	----
Sodium	7440-23-5	E440/CG	50	mg/kg		517	506	470	581	----
Strontium	7440-24-6	E440/CG	0.50	mg/kg		17.0	17.8	17.8	18.6	----
Sulfur	7704-34-9	E440/CG	1000	mg/kg		1600	1700	<1000	1800	----
Thallium	7440-28-0	E440/CG	0.050	mg/kg		0.292	0.276	0.269	0.331	----
Tin	7440-31-5	E440/CG	2.0	mg/kg		<2.0	<2.0	<2.0	<2.0	----
Titanium	7440-32-6	E440/CG	1.0	mg/kg		878	770	868	1050	----
Tungsten	7440-33-7	E440/CG	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	----
Uranium	7440-61-1	E440/CG	0.050	mg/kg		2.44	2.44	2.29	2.81	----
Vanadium	7440-62-2	E440/CG	0.20	mg/kg		67.2	61.8	62.2	78.1	----
Zinc	7440-66-6	E440/CG	2.0	mg/kg		106	99.0	99.4	122	----
Zirconium	7440-67-7	E440/CG	1.0	mg/kg		16.0	17.9	13.3	18.6	----
Volatile Organic Compounds										
Chlorobenzene	108-90-7	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Chloromethane	74-87-3	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloropropane, 1,2-	78-87-5	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/CG	0.075	mg/kg		<0.075	<0.075	<0.075	<0.075	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Trichlorofluoromethane	75-69-4	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
Chloroethane	75-00-3	E611C/CG	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	PL-SQ-01	PL-SQ-02	PL-SQ-03	PL-SQ-DUP	----
Client sample ID									
Client sampling date / time					06-Aug-2024 11:19	06-Aug-2024 12:15	06-Aug-2024 13:15	06-Aug-2024 11:19	----
					YL2401093-007	YL2401093-008	YL2401093-009	YL2401093-013	--------
					Result	Result	Result	Result	----
Volatile Organic Compounds [Drycleaning]									
Dichloroethane, 1,1-	75-34-3	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Dichloromethane	75-09-2	E611C/CG	0.045	mg/kg	0.165	<0.135 DLIS	<0.180 DLIS	<0.135 DLIS	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Tetrachloroethylene	127-18-4	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Trichloroethylene	79-01-6	E611C/CG	0.010	mg/kg	<0.033	<0.037	<0.032	<0.028	----
Vinyl chloride	75-01-4	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Volatile Organic Compounds [Fuels]									
Benzene	71-43-2	E611C/CG	0.0050	mg/kg	<0.0132	<0.0148	<0.0127	<0.0112	----
Ethylbenzene	100-41-4	E611C/CG	0.015	mg/kg	<0.033	<0.037	<0.032	<0.028	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/CG	0.040	mg/kg	<0.040	<0.040	<0.040	<0.040	----
Styrene	100-42-5	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Toluene	108-88-3	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Xylene, m+p-	179601-23-1	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Xylene, o-	95-47-6	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Xylenes, total	1330-20-7	E611C/CG	0.075	mg/kg	<0.075	<0.075	<0.075	<0.075	----
Volatile Organic Compounds [THMs]									
Bromodichloromethane	75-27-4	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Bromoform	75-25-2	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Chloroform	67-66-3	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Dibromochloromethane	124-48-1	E611C/CG	0.050	mg/kg	<0.050	<0.050	<0.050	<0.050	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611C/CG	0.10	%	122	76.6	127	119	----
Difluorobenzene, 1,4-	540-36-3	E611C/CG	0.10	%	122	97.6	115	120	----
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	E641A-L/CG	0.0050	mg/kg	<0.0105	<0.0108	<0.0090	<0.0095	----

Analytical Results

Sub-Matrix: Soil/Solid
(Matrix: Soil/Solid)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-SQ-01	PL-SQ-02	PL-SQ-03	PL-SQ-DUP	----
					Client sampling date / time	06-Aug-2024 11:19	06-Aug-2024 12:15	06-Aug-2024 13:15	06-Aug-2024 11:19	----
						YL2401093-007	YL2401093-008	YL2401093-009	YL2401093-013	--------
						Result	Result	Result	Result	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthylene	208-96-8	E641A-L/CG	0.0050	mg/kg		<0.0105	<0.0108	<0.0090	<0.0095	----
Acridine	260-94-6	E641A-L/CG	0.010	mg/kg		0.022	<0.011	<0.010	<0.010	----
Anthracene	120-12-7	E641A-L/CG	0.0040	mg/kg		<0.0160 DLCI	<0.0108	<0.0090	<0.0095	----
Benz(a)anthracene	56-55-3	E641A-L/CG	0.010	mg/kg		0.025	<0.011	<0.010	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L/CG	0.010	mg/kg		0.021	<0.011	<0.010	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L/CG	0.010	mg/kg		0.025	<0.011	<0.010	<0.010	----
Benzo(b+j+k)fluoranthene	n/a	E641A-L/CG	0.015	mg/kg		0.046	<0.016	<0.015	<0.015	----
Benzo(g,h,i)perylene	191-24-2	E641A-L/CG	0.010	mg/kg		0.036	<0.011	<0.010	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L/CG	0.010	mg/kg		0.021	<0.011	<0.010	<0.010	----
Chrysene	218-01-9	E641A-L/CG	0.010	mg/kg		0.024	<0.011	<0.010	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L/CG	0.0050	mg/kg		0.0259	<0.0108	<0.0090	<0.0095	----
Fluoranthene	206-44-0	E641A-L/CG	0.010	mg/kg		0.026	<0.011	<0.010	<0.010	----
Fluorene	86-73-7	E641A-L/CG	0.010	mg/kg		0.013	<0.011	<0.010	0.016	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L/CG	0.010	mg/kg		0.038	<0.011	<0.010	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L/CG	0.010	mg/kg		0.013	<0.011	<0.010	<0.010	----
Methylnaphthalene, 1+2-	----	E641A-L/CG	0.015	mg/kg		0.033	<0.016	<0.015	0.018	----
Methylnaphthalene, 2-	91-57-6	E641A-L/CG	0.010	mg/kg		0.020	<0.011	<0.010	0.018	----
Naphthalene	91-20-3	E641A-L/CG	0.010	mg/kg		0.041	0.024	0.012	0.028	----
Phenanthrene	85-01-8	E641A-L/CG	0.010	mg/kg		0.020	<0.011	<0.010	<0.010	----
Pyrene	129-00-0	E641A-L/CG	0.010	mg/kg		0.018	<0.011	<0.010	<0.010	----
Quinoline	91-22-5	E641A-L/CG	0.010	mg/kg		<0.010	<0.011	<0.010	<0.010	----
B(a)P total potency equivalents [B(a)P TPE]	----	E641A-L/CG	0.020	mg/kg		0.058	<0.020	<0.020	<0.020	----
IACR (CCME)	----	E641A-L/CG	0.150	-		0.563	<0.150	<0.150	<0.150	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Acridine-d9	34749-75-2	E641A-L/CG	0.1	%		106	102	95.1	99.8	----
Chrysene-d12	1719-03-5	E641A-L/CG	0.1	%		127	99.0	103	114	----
Naphthalene-d8	1146-65-2	E641A-L/CG	0.1	%		115	90.0	92.9	104	----
Phenanthrene-d10	1517-22-2	E641A-L/CG	0.1	%		134	106	105	119	----

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**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B
					Client sampling date / time	06-Aug-2024 10:40	06-Aug-2024 11:55	06-Aug-2024 12:50	06-Aug-2024 11:00	06-Aug-2024 12:05
						YL2401093-001	YL2401093-002	YL2401093-003	YL2401093-004	YL2401093-005
						Result	Result	Result	Result	Result
Physical Tests										
Colour, true	----	E329/VA	5.0	CU		7.2	<5.0	6.0	7.9	7.4
Conductivity	----	E100/VA	2.0	µS/cm		196	196	197	199	198
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		29.4	29.6	29.4	30.8	29.6
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		32.9	32.4	33.1	34.0	32.9
pH	----	E108/VA	0.10	pH units		7.42	7.42	7.41	7.41	7.41
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		4.0	4.6	4.0	4.2	5.2
Turbidity	----	E121/VA	0.10	NTU		2.68	2.31	2.30	2.69	2.40
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		15.4	15.4	15.2	15.2	15.2
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	0.0062
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		0.162	0.163	0.164	0.166	0.163
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		46.6	46.7	46.6	47.6	46.8
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.029	0.027	0.028	0.027	0.025
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.326	0.326	0.308	0.349	0.329
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		<0.0050	0.0058	<0.0050	<0.0050	<0.0050
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0136	0.0127	0.0134	0.0153	0.0183
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		3.33	3.29	3.30	3.49	3.30
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		4.88	5.30	5.72	4.51	4.42
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.0507	0.0467	0.0517	0.0604	0.0640
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00035	0.00035	0.00038	0.00038	0.00040
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00255	0.00260	0.00272	0.00293	0.00280
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	<0.010	<0.010	<0.010

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B
					Client sampling date / time	06-Aug-2024 10:40	06-Aug-2024 11:55	06-Aug-2024 12:50	06-Aug-2024 11:00	06-Aug-2024 12:05
						YL2401093-001	YL2401093-002	YL2401093-003	YL2401093-004	YL2401093-005
						Result	Result	Result	Result	Result
Total Metals										
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		4.60	4.58	4.60	4.70	4.59
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000010	<0.000010	<0.000010	0.000011	0.000012
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<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
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00115	0.00113	0.00116	0.00116	0.00132
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.094	0.086	0.095	0.126	0.118
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	0.000053	0.000054
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0015	0.0015	0.0015	0.0016	0.0016
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		5.20	5.08	5.26	5.42	5.20
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0372	0.0356	0.0390	0.0583	0.0480
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		0.000063	0.000066	0.000062	0.000057	<0.000050
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00050	<0.00050	<0.00050	0.00074	0.00065
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		1.02	1.02	1.05	1.06	1.05
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00105	0.00109	0.00111	0.00115	0.00122
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		0.29	0.28	0.28	0.32	0.32
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		24.6	24.8	25.6	25.8	24.9
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0247	0.0247	0.0246	0.0250	0.0255
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		1.19	1.22	1.32	1.09	1.17
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		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
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		0.00119	0.00100	0.00115	0.00144	0.00158
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		0.000024	0.000024	0.000024	0.000024	0.000024

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B
					Client sampling date / time	06-Aug-2024 10:40	06-Aug-2024 11:55	06-Aug-2024 12:50	06-Aug-2024 11:00	06-Aug-2024 12:05
						YL2401093-001	YL2401093-002	YL2401093-003	YL2401093-004	YL2401093-005
						Result	Result	Result	Result	Result
Total Metals										
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0123	0.0145	0.0135	0.0132	0.0153
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00028	0.00027	0.00027	0.00029	0.00028
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00205	0.00196	0.00195	0.00201	0.00200
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		4.28	4.34	4.33	4.40	4.42
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00114	0.00102	0.00099	0.00107	0.00108
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.012	0.014	0.013	0.015	0.016
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0014	0.0014	0.0014	0.0014	0.0015
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		4.54	4.57	4.51	4.80	4.50
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00049	0.00064	0.00052	0.00056	0.00052
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	0.00070	<0.00050
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		1.00	1.00	1.00	1.08	1.03
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00097	0.00100	0.00103	0.00103	0.00095
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		0.165	0.172	0.178	0.186	0.187

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B
					Client sampling date / time	06-Aug-2024 10:40	06-Aug-2024 11:55	06-Aug-2024 12:50	06-Aug-2024 11:00	06-Aug-2024 12:05
						YL2401093-001	YL2401093-002	YL2401093-003	YL2401093-004	YL2401093-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		23.3	23.3	23.5	25.3	23.4
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0227	0.0230	0.0230	0.0251	0.0229
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		1.02	1.12	1.06	1.19	1.08
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000020	0.000020	0.000020	0.000018	0.000020
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	0.0014	<0.0010
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field
Volatile Organic Compounds										
Chlorobenzene	108-90-7	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	74-87-3	E611C/VA	5.0	µg/L		<5.0	<5.0	<5.0	<5.0	<5.0
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.75	µg/L		<0.75	<0.75	<0.75	<0.75	<0.75
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	75-69-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds [Drycleaning]										

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B
					Client sampling date / time	06-Aug-2024 10:40	06-Aug-2024 11:55	06-Aug-2024 12:50	06-Aug-2024 11:00	06-Aug-2024 12:05
						YL2401093-001	YL2401093-002	YL2401093-003	YL2401093-004	YL2401093-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	75-00-3	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloromethane	75-09-2	E611C/VA	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	127-18-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	79-01-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	75-01-4	E611C/VA	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	100-41-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	100-42-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	108-88-3	E611C/VA	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
Xylene, m+p-	179601-23-1	E611C/VA	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
Xylene, o-	95-47-6	E611C/VA	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Xylenes, total	1330-20-7	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	75-25-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	67-66-3	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	124-48-1	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%		82.3	80.9	80.9	81.4	81.6
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%		97.2	96.3	97.8	96.5	97.6

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B
					Client sampling date / time	06-Aug-2024 10:40	06-Aug-2024 11:55	06-Aug-2024 12:50	06-Aug-2024 11:00	06-Aug-2024 12:05
						YL2401093-001	YL2401093-002	YL2401093-003	YL2401093-004	YL2401093-005
						Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	<0.020	<0.020	<0.020	<0.020
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		90.2	95.0	91.8	93.0	91.0
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		97.1	98.5	101	101	105
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		112	108	106	107	112

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**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-WQ-03-B	EB	TB	PL-WQ-DUP	----
					Client sampling date / time	06-Aug-2024 13:05	06-Aug-2024 17:20	06-Aug-2024 17:20	06-Aug-2024 12:50	----
						YL2401093-006	YL2401093-010	YL2401093-011	YL2401093-012	--------
						Result	Result	Result	Result	----
Physical Tests										
Colour, true	----	E329/VA	5.0	CU		6.5	<5.0	<5.0	7.9	----
Conductivity	----	E100/VA	2.0	µS/cm		197	<2.0	<2.0	197	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		29.6	<0.60	<0.60	29.2	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		33.7	<0.60	<0.60	32.2	----
pH	----	E108/VA	0.10	pH units		7.41	5.25	5.17	7.40	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		5.2	<3.0	<3.0	3.8	----
Turbidity	----	E121/VA	0.10	NTU		2.31	<0.10	<0.10	2.26	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		15.4	<2.0	<2.0	15.4	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		0.164	<0.050	<0.050	0.164	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		46.8	<0.50	<0.50	46.6	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.027	<0.020	<0.020	0.026	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.339	<0.050	<0.050	0.333	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0140	<0.0020	<0.0020	0.0158	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		3.32	<0.30	<0.30	3.29	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		5.27	<0.50	<0.50	4.94	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.0634	<0.0030	<0.0030	0.0508	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00037	<0.00010	<0.00010	0.00035	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00267	<0.00010	<0.00010	0.00254	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<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	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-WQ-03-B	EB	TB	PL-WQ-DUP	----
					Client sampling date / time	06-Aug-2024 13:05	06-Aug-2024 17:20	06-Aug-2024 17:20	06-Aug-2024 12:50	----
						YL2401093-006	YL2401093-010	YL2401093-011	YL2401093-012	--------
						Result	Result	Result	Result	----
Total Metals										
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		4.58	<0.050	<0.050	4.59	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000011	<0.000010	<0.000010	<0.000010	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<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	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00120	<0.00050	<0.00050	0.00113	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.113	<0.010	<0.010	0.093	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0016	<0.0010	<0.0010	0.0016	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		5.40	<0.0050	<0.0050	5.05	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0453	<0.00010	<0.00010	0.0372	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000052	<0.000050	<0.000050	0.000054	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00056	<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	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		1.05	<0.050	<0.050	1.03	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00120	<0.00020	<0.00020	0.00114	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		0.34	<0.10	<0.10	0.26	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		25.9	<0.050	<0.050	25.0	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0238	<0.00020	<0.00020	0.0246	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		1.20	<0.50	<0.50	1.19	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<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	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.00159	<0.00030	<0.00030	0.00115	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000024	<0.000010	<0.000010	0.000023	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PL-WQ-03-B	EB	TB	PL-WQ-DUP	----
					Client sampling date / time	06-Aug-2024 13:05	06-Aug-2024 17:20	06-Aug-2024 17:20	06-Aug-2024 12:50	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2401093-006	YL2401093-010	YL2401093-011	YL2401093-012	--------
						Result	Result	Result	Result	----
Total Metals										
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0139	<0.0010	<0.0010	0.0136	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00026	<0.00010	<0.00010	0.00028	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.00192	<0.00010	<0.00010	0.00202	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	<0.000100	<0.000100	<0.000100	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		4.35	<0.050	<0.050	4.28	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00104	<0.00020	<0.00020	0.00101	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.014	<0.010	<0.010	0.013	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0014	<0.0010	<0.0010	0.0014	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		4.54	<0.0050	<0.0050	4.50	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00038	<0.00010	<0.00010	0.00048	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		0.984	<0.050	<0.050	1.01	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00096	<0.00020	<0.00020	0.00101	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		0.170	<0.050	<0.050	0.170	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PL-WQ-03-B	EB	TB	PL-WQ-DUP	----
					Client sampling date / time	06-Aug-2024 13:05	06-Aug-2024 17:20	06-Aug-2024 17:20	06-Aug-2024 12:50	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2401093-006	YL2401093-010	YL2401093-011	YL2401093-012	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		23.3	<0.050	<0.050	23.2	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.0230	<0.00020	<0.00020	0.0232	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		1.13	<0.50	<0.50	1.10	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000020	<0.000010	<0.000010	0.000020	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Laboratory	Field	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	----
Volatile Organic Compounds										
Chlorobenzene	108-90-7	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloromethane	74-87-3	E611C/VA	5.0	µg/L		<5.0	<5.0	<5.0	<5.0	----
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.75	µg/L		<0.75	<0.75	<0.75	<0.75	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	----
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichlorofluoromethane	75-69-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Volatile Organic Compounds [Drycleaning]										

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-WQ-03-B	EB	TB	PL-WQ-DUP	----
					Client sampling date / time	06-Aug-2024 13:05	06-Aug-2024 17:20	06-Aug-2024 17:20	06-Aug-2024 12:50	----
						YL2401093-006	YL2401093-010	YL2401093-011	YL2401093-012	--------
						Result	Result	Result	Result	----
Volatile Organic Compounds [Drycleaning]										
Carbon tetrachloride	56-23-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloroethane	75-00-3	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloromethane	75-09-2	E611C/VA	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethylene	127-18-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichloroethylene	79-01-6	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Vinyl chloride	75-01-4	E611C/VA	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	----
Volatile Organic Compounds [Fuels]										
Benzene	71-43-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Ethylbenzene	100-41-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Styrene	100-42-5	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Toluene	108-88-3	E611C/VA	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	----
Xylene, m+p-	179601-23-1	E611C/VA	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	----
Xylene, o-	95-47-6	E611C/VA	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	----
Xylenes, total	1330-20-7	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Volatile Organic Compounds [THMs]										
Bromodichloromethane	75-27-4	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Bromoform	75-25-2	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloroform	67-66-3	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dibromochloromethane	124-48-1	E611C/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%		80.7	80.7	79.5	80.9	----
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%		98.2	97.1	97.7	96.8	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PL-WQ-03-B	EB	TB	PL-WQ-DUP	----
					Client sampling date / time	06-Aug-2024 13:05	06-Aug-2024 17:20	06-Aug-2024 17:20	06-Aug-2024 12:50	----
						YL2401093-006	YL2401093-010	YL2401093-011	YL2401093-012	--------
						Result	Result	Result	Result	----
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	83-32-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Acenaphthylene	208-96-8	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Acridine	260-94-6	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Anthracene	120-12-7	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benz(a)anthracene	56-55-3	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benzo(a)pyrene	50-32-8	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benzo(b+j+k)fluoranthene	n/a	E641A/VA	0.015	µg/L		<0.015	<0.015	<0.015	<0.015	----
Benzo(g,h,i)perylene	191-24-2	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Chrysene	218-01-9	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Fluoranthene	206-44-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Fluorene	86-73-7	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Naphthalene	91-20-3	E641A/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	----
Phenanthrene	85-01-8	E641A/VA	0.020	µg/L		<0.020	<0.020	<0.020	<0.020	----
Pyrene	129-00-0	E641A/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Quinoline	91-22-5	E641A/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	----
Polycyclic Aromatic Hydrocarbons Surrogates										
Chrysene-d12	1719-03-5	E641A/VA	0.1	%		90.6	86.7	89.9	97.8	----
Naphthalene-d8	1146-65-2	E641A/VA	0.1	%		98.3	97.9	102	107	----
Phenanthrene-d10	1517-22-2	E641A/VA	0.1	%		105	102	108	111	----

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.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2401093**	Page	: 1 of 41
Client	: **Stantec Consulting Ltd.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Amy Nielsen	Account Manager	: Brent Mack
Address	: 500 - 4730 Kingsway Burnaby BC Canada V5H 0C6	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 778-370-3279
Project	: 123514868	Date Samples Received	: 07-Aug-2024 13:05
PO	: 4000.101.102	Issue Date	: 20-Aug-2024 15:45
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: VA24-STAC100-010		
No. of samples received	: 13		
No. of samples analysed	: 13		

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.
- Test sample Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers: Reference Material (RM) Samples

- Reference Material (RM) Sample outliers occur - please see the following pages for full details.

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.

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Reference Material (RM) Sample								
Metals	QC-MRG2-1602984 003	----	Uranium	7440-61-1	E440	69.5 % MES	70.0-130%	Recovery less than lower control limit

Result Qualifiers

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

Regular Sample Surrogates

Sub-Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Result	Limits	Comment
Samples Submitted							
Polycyclic Aromatic Hydrocarbons Surrogates	YL2401093-007	PL-SQ-01	Phenanthrene-d10	1517-22-2	134 %	60.0-130 %	Recovery greater than upper data quality objective

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: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
PL-SQ-01	E510	06-Aug-2024	18-Aug-2024	28 days	12 days	✓	19-Aug-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
PL-SQ-02	E510	06-Aug-2024	18-Aug-2024	28 days	12 days	✓	19-Aug-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
PL-SQ-03	E510	06-Aug-2024	18-Aug-2024	28 days	12 days	✓	19-Aug-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
PL-SQ-DUP	E510	06-Aug-2024	18-Aug-2024	28 days	12 days	✓	19-Aug-2024	28 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
PL-SQ-01	E440	06-Aug-2024	18-Aug-2024	180 days	12 days	✓	19-Aug-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
PL-SQ-02	E440	06-Aug-2024	18-Aug-2024	180 days	12 days	✓	19-Aug-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
PL-SQ-03	E440	06-Aug-2024	18-Aug-2024	180 days	12 days	✓	19-Aug-2024	180 days	13 days	✓

Matrix: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
PL-SQ-DUP	E440	06-Aug-2024	18-Aug-2024	180 days	12 days	✓	19-Aug-2024	180 days	13 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
PL-SQ-01	E351	06-Aug-2024	15-Aug-2024	----	----		15-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
PL-SQ-02	E351	06-Aug-2024	15-Aug-2024	----	----		15-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
PL-SQ-03	E351	06-Aug-2024	15-Aug-2024	----	----		15-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag										
PL-SQ-DUP	E351	06-Aug-2024	15-Aug-2024	----	----		15-Aug-2024	0 days	0 days	✓
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag										
PL-SQ-01	E354	06-Aug-2024	----	----	----		15-Aug-2024	----	9 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag										
PL-SQ-02	E354	06-Aug-2024	----	----	----		15-Aug-2024	----	9 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag										
PL-SQ-03	E354	06-Aug-2024	----	----	----		15-Aug-2024	----	9 days	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag										
PL-SQ-DUP	E354	06-Aug-2024	----	----	----		15-Aug-2024	----	9 days	

Matrix: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag PL-SQ-01	E184	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag PL-SQ-02	E184	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag PL-SQ-03	E184	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Percent Passing : Particle Size Analysis - Pipette Method										
LDPE bag PL-SQ-DUP	E184	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag PL-SQ-01	E182	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag PL-SQ-02	E182	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag PL-SQ-03	E182	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Percent Passing : Particle Size Analysis - Sieve <2mm										
LDPE bag PL-SQ-DUP	E182	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag PL-SQ-01	E181	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓

Matrix: **Soil/Solid**

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*	
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag PL-SQ-02	E181	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag PL-SQ-03	E181	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Percent Passing : Particle Size Analysis - Sieve >2mm										
LDPE bag PL-SQ-DUP	E181	06-Aug-2024	14-Aug-2024	365 days	8 days	✓	14-Aug-2024	365 days	8 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap PL-SQ-01	E144	06-Aug-2024	----	----	----		14-Aug-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap PL-SQ-02	E144	06-Aug-2024	----	----	----		14-Aug-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap PL-SQ-03	E144	06-Aug-2024	----	----	----		14-Aug-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap PL-SQ-DUP	E144	06-Aug-2024	----	----	----		14-Aug-2024	----	8 days	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap PL-SQ-01	E108	06-Aug-2024	19-Aug-2024	30 days	13 days	✓	19-Aug-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap PL-SQ-02	E108	06-Aug-2024	19-Aug-2024	30 days	13 days	✓	19-Aug-2024	30 days	13 days	✓

Matrix: **Soil/Solid**

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*	
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
PL-SQ-03	E108	06-Aug-2024	19-Aug-2024	30 days	13 days	✓	19-Aug-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:Water Extraction)										
Glass soil jar/Teflon lined cap										
PL-SQ-DUP	E108	06-Aug-2024	19-Aug-2024	30 days	13 days	✓	19-Aug-2024	30 days	13 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
PL-SQ-01	E641A-L	06-Aug-2024	14-Aug-2024	14 days	8 days	✓	14-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
PL-SQ-02	E641A-L	06-Aug-2024	14-Aug-2024	14 days	8 days	✓	14-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
PL-SQ-03	E641A-L	06-Aug-2024	14-Aug-2024	14 days	8 days	✓	14-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)										
Glass soil jar/Teflon lined cap										
PL-SQ-DUP	E641A-L	06-Aug-2024	14-Aug-2024	14 days	8 days	✓	14-Aug-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
PL-SQ-01	E611C	06-Aug-2024	14-Aug-2024	40 days	8 days	✓	14-Aug-2024	40 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
PL-SQ-02	E611C	06-Aug-2024	14-Aug-2024	40 days	8 days	✓	14-Aug-2024	40 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial										
PL-SQ-03	E611C	06-Aug-2024	14-Aug-2024	40 days	8 days	✓	14-Aug-2024	40 days	8 days	✓

Matrix: **Soil/Solid**

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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass soil methanol vial PL-SQ-DUP	E611C	06-Aug-2024	14-Aug-2024	40 days	8 days	✓	14-Aug-2024	40 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) EB	E298	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PL-WQ-01-B	E298	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PL-WQ-01-S	E298	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PL-WQ-02-B	E298	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PL-WQ-02-S	E298	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PL-WQ-03-B	E298	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PL-WQ-03-S	E298	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PL-WQ-DUP	E298	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (lab preserved) TB	E298	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	14-Aug-2024	28 days	0 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE EB	E235.Br-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PL-WQ-01-B	E235.Br-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PL-WQ-01-S	E235.Br-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PL-WQ-02-B	E235.Br-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PL-WQ-02-S	E235.Br-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PL-WQ-03-B	E235.Br-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PL-WQ-03-S	E235.Br-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 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	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
PL-WQ-DUP	E235.Br-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
TB	E235.Br-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
EB	E235.Cl	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
PL-WQ-01-B	E235.Cl	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
PL-WQ-01-S	E235.Cl	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
PL-WQ-02-B	E235.Cl	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
PL-WQ-02-S	E235.Cl	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
PL-WQ-03-B	E235.Cl	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
PL-WQ-03-S	E235.Cl	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE PL-WQ-DUP	E235.Cl	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE TB	E235.Cl	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE EB	E235.F	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PL-WQ-01-B	E235.F	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PL-WQ-01-S	E235.F	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PL-WQ-02-B	E235.F	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PL-WQ-02-S	E235.F	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PL-WQ-03-B	E235.F	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PL-WQ-03-S	E235.F	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE PL-WQ-DUP	E235.F	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE TB	E235.F	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE EB	E235.NO3-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PL-WQ-01-B	E235.NO3-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PL-WQ-01-S	E235.NO3-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PL-WQ-02-B	E235.NO3-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PL-WQ-02-S	E235.NO3-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PL-WQ-03-B	E235.NO3-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PL-WQ-03-S	E235.NO3-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PL-WQ-DUP	E235.NO3-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE TB	E235.NO3-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE EB	E235.NO2-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PL-WQ-01-B	E235.NO2-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PL-WQ-01-S	E235.NO2-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PL-WQ-02-B	E235.NO2-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PL-WQ-02-S	E235.NO2-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PL-WQ-03-B	E235.NO2-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PL-WQ-03-S	E235.NO2-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 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	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
PL-WQ-DUP	E235.NO2-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
TB	E235.NO2-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
EB	E235.SO4	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
PL-WQ-01-B	E235.SO4	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
PL-WQ-01-S	E235.SO4	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
PL-WQ-02-B	E235.SO4	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
PL-WQ-02-S	E235.SO4	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
PL-WQ-03-B	E235.SO4	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
PL-WQ-03-S	E235.SO4	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
PL-WQ-DUP	E235.SO4	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
TB	E235.SO4	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
EB	E318	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
PL-WQ-01-B	E318	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
PL-WQ-01-S	E318	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
PL-WQ-02-B	E318	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
PL-WQ-02-S	E318	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
PL-WQ-03-B	E318	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
PL-WQ-03-S	E318	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-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	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
PL-WQ-DUP	E318	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (lab preserved)										
TB	E318	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	14-Aug-2024	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
EB	E372-U	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
PL-WQ-01-B	E372-U	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
PL-WQ-01-S	E372-U	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
PL-WQ-02-B	E372-U	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
PL-WQ-02-S	E372-U	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
PL-WQ-03-B	E372-U	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
PL-WQ-03-S	E372-U	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-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*	
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
PL-WQ-DUP	E372-U	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (lab preserved)										
TB	E372-U	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	14-Aug-2024	28 days	1 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
EB	E509	06-Aug-2024	14-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
TB	E509	06-Aug-2024	14-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
PL-WQ-01-B	E509	06-Aug-2024	14-Aug-2024	28 days	8 days	✓	14-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
PL-WQ-01-S	E509	06-Aug-2024	14-Aug-2024	28 days	8 days	✓	14-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
PL-WQ-02-B	E509	06-Aug-2024	14-Aug-2024	28 days	8 days	✓	14-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
PL-WQ-02-S	E509	06-Aug-2024	14-Aug-2024	28 days	8 days	✓	14-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
PL-WQ-03-B	E509	06-Aug-2024	14-Aug-2024	28 days	8 days	✓	14-Aug-2024	28 days	8 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) PL-WQ-03-S	E509	06-Aug-2024	14-Aug-2024	28 days	8 days	✓	14-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) PL-WQ-DUP	E509	06-Aug-2024	14-Aug-2024	28 days	8 days	✓	14-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) EB	E421	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	13-Aug-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PL-WQ-02-B	E421	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	13-Aug-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PL-WQ-02-S	E421	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	13-Aug-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PL-WQ-03-B	E421	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	13-Aug-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PL-WQ-03-S	E421	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	13-Aug-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PL-WQ-DUP	E421	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	13-Aug-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) TB	E421	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	13-Aug-2024	180 days	7 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PL-WQ-01-B	E421	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	13-Aug-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) PL-WQ-01-S	E421	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	13-Aug-2024	180 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) EB	E358-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PL-WQ-01-B	E358-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PL-WQ-01-S	E358-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PL-WQ-02-B	E358-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PL-WQ-02-S	E358-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PL-WQ-03-B	E358-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PL-WQ-03-S	E358-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PL-WQ-DUP	E358-L	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) TB	E358-L	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	28 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE EB	E290	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PL-WQ-01-B	E290	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PL-WQ-01-S	E290	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PL-WQ-02-B	E290	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PL-WQ-02-S	E290	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PL-WQ-03-B	E290	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PL-WQ-03-S	E290	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE PL-WQ-DUP	E290	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE TB	E290	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE EB	E329	06-Aug-2024	13-Aug-2024	3 days	6 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE TB	E329	06-Aug-2024	13-Aug-2024	3 days	6 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE PL-WQ-01-B	E329	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE PL-WQ-01-S	E329	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE PL-WQ-02-B	E329	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE PL-WQ-02-S	E329	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE PL-WQ-03-B	E329	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE PL-WQ-03-S	E329	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE PL-WQ-DUP	E329	06-Aug-2024	13-Aug-2024	3 days	7 days	× EHT	13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Conductivity in Water										
HDPE EB	E100	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE PL-WQ-01-B	E100	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE PL-WQ-01-S	E100	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE PL-WQ-02-B	E100	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE PL-WQ-02-S	E100	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE PL-WQ-03-B	E100	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE PL-WQ-03-S	E100	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE PL-WQ-DUP	E100	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE TB	E100	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	14-Aug-2024	28 days	8 days	✓
Physical Tests : pH by Meter										
HDPE EB	E108	06-Aug-2024	13-Aug-2024	0.25 hrs	168 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	185 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE TB	E108	06-Aug-2024	13-Aug-2024	0.25 hrs	168 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	185 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PL-WQ-03-B	E108	06-Aug-2024	13-Aug-2024	0.25 hrs	172 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	189 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PL-WQ-03-S	E108	06-Aug-2024	13-Aug-2024	0.25 hrs	172 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	189 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PL-WQ-DUP	E108	06-Aug-2024	13-Aug-2024	0.25 hrs	172 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	189 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PL-WQ-02-B	E108	06-Aug-2024	13-Aug-2024	0.25 hrs	173 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	190 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PL-WQ-02-S	E108	06-Aug-2024	13-Aug-2024	0.25 hrs	173 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	190 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE PL-WQ-01-B	E108	06-Aug-2024	13-Aug-2024	0.25 hrs	174 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	191 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PL-WQ-01-S	E108	06-Aug-2024	13-Aug-2024	0.25 hrs	174 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	192 hrs	× EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE EB	E160	06-Aug-2024	----	----	----		13-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PL-WQ-01-B	E160	06-Aug-2024	----	----	----		13-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PL-WQ-01-S	E160	06-Aug-2024	----	----	----		13-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PL-WQ-02-B	E160	06-Aug-2024	----	----	----		13-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PL-WQ-02-S	E160	06-Aug-2024	----	----	----		13-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PL-WQ-03-B	E160	06-Aug-2024	----	----	----		13-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PL-WQ-03-S	E160	06-Aug-2024	----	----	----		13-Aug-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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE PL-WQ-DUP	E160	06-Aug-2024	----	----	----		13-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE TB	E160	06-Aug-2024	----	----	----		13-Aug-2024	7 days	7 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE EB	E121	06-Aug-2024	----	----	----		13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE PL-WQ-01-B	E121	06-Aug-2024	----	----	----		13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE PL-WQ-01-S	E121	06-Aug-2024	----	----	----		13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE PL-WQ-02-B	E121	06-Aug-2024	----	----	----		13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE PL-WQ-02-S	E121	06-Aug-2024	----	----	----		13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE PL-WQ-03-B	E121	06-Aug-2024	----	----	----		13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE PL-WQ-03-S	E121	06-Aug-2024	----	----	----		13-Aug-2024	3 days	7 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*	
Physical Tests : Turbidity by Nephelometry										
HDPE PL-WQ-DUP	E121	06-Aug-2024	----	----	----		13-Aug-2024	3 days	7 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE TB	E121	06-Aug-2024	----	----	----		13-Aug-2024	3 days	7 days	× EHT
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) EB	E641A	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) PL-WQ-02-B	E641A	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) PL-WQ-02-S	E641A	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) PL-WQ-03-B	E641A	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) PL-WQ-03-S	E641A	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) PL-WQ-DUP	E641A	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) TB	E641A	06-Aug-2024	13-Aug-2024	14 days	7 days	✓	14-Aug-2024	40 days	0 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) PL-WQ-01-B	E641A	06-Aug-2024	13-Aug-2024	14 days	8 days	✓	14-Aug-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) PL-WQ-01-S	E641A	06-Aug-2024	13-Aug-2024	14 days	8 days	✓	14-Aug-2024	40 days	0 days	✓
Total Metals : Total Mercury in Water by CVAAS										
HDPE - total (lab preserved) TB	E508	06-Aug-2024	14-Aug-2024	0 hrs	176 hrs	× UCP	14-Aug-2024	0 hrs	176 hrs	× UCP
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) EB	E508	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) PL-WQ-01-B	E508	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) PL-WQ-01-S	E508	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) PL-WQ-02-B	E508	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) PL-WQ-02-S	E508	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) PL-WQ-03-B	E508	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) PL-WQ-03-S	E508	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) PL-WQ-DUP	E508	06-Aug-2024	13-Aug-2024	28 days	7 days	✓	13-Aug-2024	28 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) EB	E420	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	14-Aug-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PL-WQ-02-B	E420	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	14-Aug-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PL-WQ-03-B	E420	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	14-Aug-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PL-WQ-03-S	E420	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	14-Aug-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PL-WQ-DUP	E420	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	14-Aug-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) TB	E420	06-Aug-2024	13-Aug-2024	180 days	7 days	✓	14-Aug-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PL-WQ-01-B	E420	06-Aug-2024	13-Aug-2024	180 days	8 days	✓	14-Aug-2024	180 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PL-WQ-01-S	E420	06-Aug-2024	13-Aug-2024	180 days	8 days	✓	14-Aug-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) PL-WQ-02-S	E420	06-Aug-2024	13-Aug-2024	180 days	8 days	✓	14-Aug-2024	180 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) EB	E611C	06-Aug-2024	14-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	7 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) TB	E611C	06-Aug-2024	14-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	7 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) PL-WQ-03-B	E611C	06-Aug-2024	14-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) PL-WQ-03-S	E611C	06-Aug-2024	14-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) PL-WQ-DUP	E611C	06-Aug-2024	14-Aug-2024	14 days	7 days	✓	14-Aug-2024	14 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) PL-WQ-01-B	E611C	06-Aug-2024	14-Aug-2024	14 days	8 days	✓	14-Aug-2024	14 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) PL-WQ-01-S	E611C	06-Aug-2024	14-Aug-2024	14 days	8 days	✓	14-Aug-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*	
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) PL-WQ-02-B	E611C	06-Aug-2024	14-Aug-2024	14 days	8 days	✓	14-Aug-2024	14 days	8 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) PL-WQ-02-S	E611C	06-Aug-2024	14-Aug-2024	14 days	8 days	✓	14-Aug-2024	14 days	8 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).

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.

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: **Soil/Solid**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Mercury in Soil/Solid by CVAAS	E510	1602984	1	20	5.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1602985	1	20	5.0	5.0	✓
Moisture Content by Gravimetry	E144	1594824	1	6	16.6	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1594893	1	6	16.6	5.0	✓
Particle Size Analysis - Pipette Method	E184	1595872	1	4	25.0	5.0	✓
Particle Size Analysis - Sieve <2mm	E182	1595874	1	4	25.0	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1604483	1	17	5.8	5.0	✓
Total Carbon by Combustion	E351	1597497	1	20	5.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1597128	2	40	5.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1595454	1	4	25.0	5.2	✓
Laboratory Control Samples (LCS)							
Mercury in Soil/Solid by CVAAS	E510	1602984	2	20	10.0	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1602985	2	20	10.0	10.0	✓
Moisture Content by Gravimetry	E144	1594824	1	6	16.6	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1594893	1	6	16.6	5.0	✓
Particle Size Analysis - Pipette Method	E184	1595872	1	4	25.0	5.0	✓
Particle Size Analysis - Sieve <2mm	E182	1595874	1	4	25.0	5.0	✓
Particle Size Analysis - Sieve >2mm	E181	1595873	1	4	25.0	5.0	✓
pH by Meter (1:2 Soil:Water Extraction)	E108	1604483	2	17	11.7	10.0	✓
Total Carbon by Combustion	E351	1597497	2	20	10.0	10.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1597128	4	40	10.0	10.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1595454	1	4	25.0	5.2	✓
Method Blanks (MB)							
Mercury in Soil/Solid by CVAAS	E510	1602984	1	20	5.0	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	1602985	1	20	5.0	5.0	✓
Moisture Content by Gravimetry	E144	1594824	1	6	16.6	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1594893	1	6	16.6	5.0	✓
Total Carbon by Combustion	E351	1597497	1	20	5.0	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	1597128	2	40	5.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1595454	1	4	25.0	5.2	✓
Matrix Spikes (MS)							
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L	1594893	1	6	16.6	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1594009	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1593859	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1593963	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1593962	1	9	11.1	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1593967	1	9	11.1	5.0	✓
Conductivity in Water	E100	1594010	1	9	11.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1594502	2	18	11.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1593810	1	11	9.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1593857	1	16	6.2	5.0	✓
Fluoride in Water by IC	E235.F	1593961	1	9	11.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1593964	1	9	11.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1593965	1	9	11.1	5.0	✓
pH by Meter	E108	1594008	1	9	11.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1593966	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1593856	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1594077	2	32	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1593803	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1593858	1	14	7.1	5.0	✓
TSS by Gravimetry	E160	1594247	2	23	8.7	5.0	✓
Turbidity by Nephelometry	E121	1594061	2	24	8.3	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1594402	1	15	6.6	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1594009	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1593859	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1593963	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1593962	1	9	11.1	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1593967	1	9	11.1	5.0	✓
Conductivity in Water	E100	1594010	1	9	11.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1594502	2	18	11.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1593810	1	11	9.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1593857	1	16	6.2	5.0	✓
Fluoride in Water by IC	E235.F	1593961	1	9	11.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1593964	1	9	11.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1593965	1	9	11.1	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1594280	1	17	5.8	5.0	✓
pH by Meter	E108	1594008	1	9	11.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1593966	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1593856	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1594077	2	32	6.2	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Metals in Water by CRC ICPMS	E420	1593803	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1593858	1	14	7.1	5.0	✓
TSS by Gravimetry	E160	1594247	2	23	8.7	5.0	✓
Turbidity by Nephelometry	E121	1594061	2	24	8.3	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1594402	1	15	6.6	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1594009	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1593859	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1593963	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1593962	1	9	11.1	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1593967	1	9	11.1	5.0	✓
Conductivity in Water	E100	1594010	1	9	11.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1594502	2	18	11.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1593810	1	11	9.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1593857	1	16	6.2	5.0	✓
Fluoride in Water by IC	E235.F	1593961	1	9	11.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1593964	1	9	11.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1593965	1	9	11.1	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1594280	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1593966	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1593856	1	12	8.3	5.0	✓
Total Mercury in Water by CVAAS	E508	1594077	2	32	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1593803	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1593858	1	14	7.1	5.0	✓
TSS by Gravimetry	E160	1594247	2	23	8.7	5.0	✓
Turbidity by Nephelometry	E121	1594061	2	24	8.3	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1594402	1	15	6.6	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1593859	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1593963	1	9	11.1	5.0	✓
Chloride in Water by IC	E235.Cl	1593962	1	9	11.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1594502	2	18	11.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1593810	1	11	9.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1593857	1	16	6.2	5.0	✓
Fluoride in Water by IC	E235.F	1593961	1	9	11.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1593964	1	9	11.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1593965	1	9	11.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1593966	1	9	11.1	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1593856	1	12	8.3	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Mercury in Water by CVAAS	E508	1594077	2	32	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1593803	1	12	8.3	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1593858	1	14	7.1	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1594402	1	15	6.6	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
pH by Meter (1:2 Soil:Water Extraction)	E108 ALS Environmental - Calgary	Soil/Solid	BC Lab Manual	pH is determined by potentiometric measurement with a pH electrode at ambient laboratory temperature (normally 20 ± 5°C), and is carried out in accordance with procedures described in the BC Lab Manual (prescriptive method). The procedure involves mixing the dried (at <60 ºC) and sieved (10mesh/2mm) sample with ultra pure water at a 1:2 ratio of sediment to water. The pH is then measured by a standard pH probe.
Moisture Content by Gravimetry	E144 ALS Environmental - Calgary	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Particle Size Analysis - Sieve >2mm	E181 ALS Environmental - Saskatoon	Soil/Solid	ASTM D6913-17 (mod)	Soil samples are disaggregated and sieved through a 2mm sieve. Material retained on the sieve is then further sieved through a series of sieves. The amount passing through the sieves is measured gravimetrically.
Particle Size Analysis - Sieve <2mm	E182 ALS Environmental - Saskatoon	Soil/Solid	ASTM D6913-17 (mod)	Soil samples are disaggregated and sieved through a 2mm sieve. Material passed through the sieve is then further disaggregated using calgon solution and passed through a series of sieves. The amount passing through the sieves is measured gravimetrically.
Particle Size Analysis - Pipette Method	E184 ALS Environmental - Saskatoon	Soil/Solid	SSIR-51 Method 3.2.1	Soil material is separated from coarse material (>2mm). A specimen is then disaggregated through mixing with Calgon solution. The material is then suspended in solution wherein regular aliquots are taken using a mechanical pipette at specific time intervals. The aliquots are dried and material in suspension determined gravimetrically. The principles of Stokes' Law are applied to determine the amount of material remaining in solution as well as the maximum particle size remaining in solution at the specified time.
Total Carbon by Combustion	E351 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals in Soil/Solid by CRC ICPMS	E440 ALS Environmental - Calgary	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Mercury in Soil/Solid by CVAAS	E510 ALS Environmental - Calgary	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
VOCs (BC List) by Headspace GC-MS	E611C ALS Environmental - Calgary	Soil/Solid	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. Total Xylenes is the sum of m,p-Xylene & o-Xylene. Total BTEX is the sum of Benzene, Toluene, Ethylbenzene, & Total Xylenes. Total BTEX+Styrene is the sum of Total BTEX & Styrene. Total Trihalomethanes [THMs] is the sum of Bromodichloromethane, Bromoform, Chloroform, & Dibromochloromethane.
PAHs in Soil/solid by Hex:Ace GC-MS (Low Level CCME)	E641A-L ALS Environmental - Calgary	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
Particle Size Analysis (Pipette) - MMER Classification	EC184E ALS Environmental - Saskatoon	Soil/Solid	Metal Mining Technical Guidance for Environmental Effects Monitoring (2012)	The particle size determination is performed by various methods to generate a Grain Size curve. The data from the curve is then used to produce particle size ranges based on the Metal Mining Effluent Regulations (MMER) classification system for Environmental Effects Monitoring.
Total Organic Carbon (Calculated) in soil	EC356 ALS Environmental - Saskatoon	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
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.
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).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Colour (True) by Spectrometer (5 CU)	E329 ALS Environmental - Vancouver	Water	APHA 2120 C (mod)	Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	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 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.
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
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
VOCs (BC List) by Headspace GC-MS	E611C 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. Total Xylenes is the sum of m,p-Xylene & o-Xylene. Total BTEX is the sum of Benzene, Toluene, Ethylbenzene, & Total Xylenes. Total BTEX+Styrene is the sum of Total BTEX & Styrene. Total Trihalomethanes [THMs] is the sum of Bromodichloromethane, Bromoform, Chloroform, & Dibromochloromethane.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
PAHs in Water by Hexane LVI GC-MS	E641A ALS Environmental - Vancouver	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved 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 (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
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Calgary	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Digestion for Metals and Mercury	EP440 ALS Environmental - Calgary	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Calgary	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then 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.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Calgary	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.
Dry and Grind in Soil/Solid <60°C	EPP442 ALS Environmental - Calgary	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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 - Vancouver	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.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
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 the GC/MS-FID system.
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.

QUALITY CONTROL REPORT

Work Order	: **YL2401093**	Page	: 1 of 37
Client	: Stantec Consulting Ltd.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Amy Nielsen	Account Manager	: Brent Mack
Address	: 500 - 4730 Kingsway Burnaby BC Canada V5H 0C6	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 778-370-3279
Project	: 123514868	Date Samples Received	: 07-Aug-2024 13:05
PO	: 4000.101.102	Date Analysis Commenced	: 13-Aug-2024
C-O-C number	: ----	Issue Date	: 20-Aug-2024 15:45
Sampler	: ----		
Site	: ----		
Quote number	: VA24-STAC100-010		
No. of samples received	: 13		
No. of samples analysed	: 13		

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
- Reference Material (RM) 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.

Signatories	*Position*	*Laboratory Department*
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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

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

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: **Soil/Solid**

					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*
Physical Tests (QC Lot: 1594824)											
YL2401093-013	PL-SQ-DUP	Moisture	----	E144	0.25	%	70.8	69.0	2.69%	20%	----
Physical Tests (QC Lot: 1604483)											
EO2406972-001	Anonymous	pH (1:2 soil:water)	----	E108	0.10	pH units	7.66	7.68	0.261%	5%	----
Percent Passing (QC Lot: 1595872)											
YL2401093-009	PL-SQ-03	Passing (0.002mm)	----	E184	1.0	%	19.2	19.3	0.549%	15%	----
		Passing (0.004mm)	----	E184	1.0	%	24.7	24.9	0.992%	15%	----
		Passing (0.005mm)	----	E184	1.0	%	27.4	27.7	1.15%	15%	----
		Passing (0.020mm)	----	E184	1.0	%	58.3	58.8	0.898%	15%	----
		Passing (0.0312mm)	----	E184	1.0	%	72.7	72.6	0.0515%	15%	----
Percent Passing (QC Lot: 1595874)											
YL2401093-009	PL-SQ-03	Passing (0.05mm)	----	E182	1.0	%	96.9	95.9	1.02%	15%	----
		Passing (0.063mm)	----	E182	1.0	%	97.4	96.5	0.853%	15%	----
		Passing (0.075mm)	----	E182	1.0	%	97.8	97.1	0.701%	15%	----
		Passing (0.125mm)	----	E182	1.0	%	99.7	99.6	0.0848%	15%	----
		Passing (0.149mm)	----	E182	1.0	%	99.8	99.7	0.0526%	15%	----
		Passing (0.250mm)	----	E182	1.0	%	99.8	99.9	0.0823%	15%	----
		Passing (0.420mm)	----	E182	1.0	%	99.9	100	0.0934%	15%	----
		Passing (0.50mm)	----	E182	1.0	%	99.9	100	0.0986%	15%	----
		Passing (0.841mm)	----	E182	1.0	%	100	100	0.0313%	15%	----
		Passing (1.0mm)	----	E182	1.0	%	100	100	0.00%	15%	----
Organic / Inorganic Carbon (QC Lot: 1597128)											
FJ2402347-001	Anonymous	Carbon, inorganic [IC]	----	E354	0.050	%	0.433	0.440	0.006	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1597131)											
CG2411247-001	Anonymous	Carbon, inorganic [IC]	----	E354	0.050	%	0.092	0.102	0.011	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1597497)											
FJ2402347-001	Anonymous	Carbon, total [TC]	----	E351	0.050	%	1.74	1.70	2.58%	20%	----
Metals (QC Lot: 1602984)											
FJ2402354-001	Anonymous	Mercury	7439-97-6	E510	0.0500	mg/kg	0.0968	0.107	0.0104	Diff <2x LOR	----
Metals (QC Lot: 1602985)											
FJ2402354-001	Anonymous	Aluminum	7429-90-5	E440	50	mg/kg	13800	12600	8.60%	40%	----

Sub-Matrix: **Soil/Solid**

					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*
Metals (QC Lot: 1602985) - continued											
FJ2402354-001	Anonymous	Antimony	7440-36-0	E440	0.10	mg/kg	0.82	0.95	14.9%	30%	----
		Arsenic	7440-38-2	E440	0.10	mg/kg	10.6	10.2	3.67%	30%	----
		Barium	7440-39-3	E440	0.50	mg/kg	577	564	2.34%	40%	----
		Beryllium	7440-41-7	E440	0.10	mg/kg	0.79	0.78	0.700%	30%	----
		Bismuth	7440-69-9	E440	0.20	mg/kg	0.21	0.20	0.006	Diff <2x LOR	----
		Boron	7440-42-8	E440	5.0	mg/kg	6.1	6.0	0.1	Diff <2x LOR	----
		Cadmium	7440-43-9	E440	0.020	mg/kg	1.20	1.15	4.54%	30%	----
		Calcium	7440-70-2	E440	50	mg/kg	30600	31100	1.63%	30%	----
		Chromium	7440-47-3	E440	0.50	mg/kg	30.7	27.0	13.0%	30%	----
		Cobalt	7440-48-4	E440	0.10	mg/kg	12.4	12.1	1.86%	30%	----
		Copper	7440-50-8	E440	0.50	mg/kg	27.5	26.6	3.24%	30%	----
		Iron	7439-89-6	E440	50	mg/kg	29500	28500	3.40%	30%	----
		Lead	7439-92-1	E440	0.50	mg/kg	13.5	13.2	2.22%	40%	----
		Lithium	7439-93-2	E440	2.0	mg/kg	20.2	19.2	5.09%	30%	----
		Magnesium	7439-95-4	E440	20	mg/kg	7230	6800	6.12%	30%	----
		Manganese	7439-96-5	E440	1.0	mg/kg	436	434	0.301%	30%	----
		Molybdenum	7439-98-7	E440	0.10	mg/kg	1.95	1.97	0.980%	40%	----
		Nickel	7440-02-0	E440	0.50	mg/kg	41.1	39.1	5.02%	30%	----
		Phosphorus	7723-14-0	E440	50	mg/kg	1060	973	9.01%	30%	----
		Potassium	7440-09-7	E440	100	mg/kg	1940	1840	5.11%	40%	----
		Selenium	7782-49-2	E440	0.20	mg/kg	0.62	0.58	0.03	Diff <2x LOR	----
		Silver	7440-22-4	E440	0.10	mg/kg	0.24	0.25	0.0004	Diff <2x LOR	----
		Sodium	7440-23-5	E440	50	mg/kg	273	254	7.32%	40%	----
		Strontium	7440-24-6	E440	0.50	mg/kg	82.4	81.1	1.61%	40%	----
		Sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		Thallium	7440-28-0	E440	0.050	mg/kg	0.254	0.251	0.003	Diff <2x LOR	----
		Tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		Titanium	7440-32-6	E440	1.0	mg/kg	9.9	11.5	14.6%	40%	----
		Tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Uranium	7440-61-1	E440	0.050	mg/kg	1.22	1.20	1.93%	30%	----
		Vanadium	7440-62-2	E440	0.20	mg/kg	48.4	45.5	6.06%	30%	----
		Zinc	7440-66-6	E440	2.0	mg/kg	131	126	3.80%	30%	----
		Zirconium	7440-67-7	E440	1.0	mg/kg	3.4	3.5	0.1	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1595454)											

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1595454) - continued											
YL2401093-007	PL-SQ-01	Benzene	71-43-2	E611C	0.0141	mg/kg	<0.0132	<0.0141	0.0141	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611C	0.100	mg/kg	<0.050	<0.100	0.050	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611C	0.045	mg/kg	0.165	0.058	0.107	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611C	0.035	mg/kg	<0.033	<0.035	0.035	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611C	0.035	mg/kg	<0.033	<0.035	0.035	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1595454) - continued											
YL2401093-007	PL-SQ-01	Xylene, o-	95-47-6	E611C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1594893)											
CG2411328-001	Anonymous	Acenaphthene	83-32-9	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Acridine	260-94-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A-L	0.0041	mg/kg	<0.0044	<0.0041	0.0044	Diff <2x LOR	----
		Benz(a)anthracene	56-55-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.010	mg/kg	0.010	0.012	0.002	Diff <2x LOR	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Chrysene	218-01-9	E641A-L	0.010	mg/kg	0.011	0.011	0.0002	Diff <2x LOR	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A-L	0.010	mg/kg	0.018	0.016	0.002	Diff <2x LOR	----
		Fluorene	86-73-7	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A-L	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Phenanthrene	85-01-8	E641A-L	0.010	mg/kg	0.012	0.011	0.0004	Diff <2x LOR	----
		Pyrene	129-00-0	E641A-L	0.010	mg/kg	0.015	0.014	0.0008	Diff <2x LOR	----
		Quinoline	91-22-5	E641A-L	0.010	mg/kg	<0.010	<0.010	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*
Physical Tests (QC Lot: 1593967)											
YL2401093-001	PL-WQ-01-S	Colour, true	----	E329	5.0	CU	7.2	<5.0	2.2	Diff <2x LOR	----
Physical Tests (QC Lot: 1594008)											
YL2401093-001	PL-WQ-01-S	pH	----	E108	0.10	pH units	7.42	7.40	0.270%	4%	----
Physical Tests (QC Lot: 1594009)											
YL2401093-001	PL-WQ-01-S	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	15.4	15.0	0.3	Diff <2x LOR	----
Physical Tests (QC Lot: 1594010)											
YL2401093-001	PL-WQ-01-S	Conductivity	----	E100	2.0	µS/cm	196	195	0.460%	10%	----
Physical Tests (QC Lot: 1594061)											

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*
Physical Tests (QC Lot: 1594061) - continued											
FJ2402351-001	Anonymous	Turbidity	----	E121	0.10	NTU	10.4	9.40	9.71%	15%	----
Physical Tests (QC Lot: 1594062)											
YL2401093-006	PL-WQ-03-B	Turbidity	----	E121	0.10	NTU	2.31	2.52	8.68%	15%	----
Physical Tests (QC Lot: 1594247)											
VA24B9747-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	19.2	20.6	1.4	Diff <2x LOR	----
Physical Tests (QC Lot: 1594248)											
YL2401093-010	EB	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1593856)											
KS2403154-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.339	0.326	0.012	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1593858)											
KS2403116-005	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0400	mg/L	2.64	2.63	0.590%	20%	----
Anions and Nutrients (QC Lot: 1593859)											
KS2403116-005	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0500	mg/L	1.91	1.93	1.10%	20%	----
Anions and Nutrients (QC Lot: 1593961)											
YL2401093-001	PL-WQ-01-S	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.029	0.027	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1593962)											
YL2401093-001	PL-WQ-01-S	Chloride	16887-00-6	E235.Cl	0.50	mg/L	46.6	46.6	0.0213%	20%	----
Anions and Nutrients (QC Lot: 1593963)											
YL2401093-001	PL-WQ-01-S	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	0.162	0.161	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1593964)											
YL2401093-001	PL-WQ-01-S	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1593965)											
YL2401093-001	PL-WQ-01-S	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1593966)											
YL2401093-001	PL-WQ-01-S	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	3.33	3.31	0.591%	20%	----
Organic / Inorganic Carbon (QC Lot: 1593857)											
VA24B9623-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.88	2.81	0.07	Diff <2x LOR	----
Total Metals (QC Lot: 1593803)											
FJ2402274-005	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0129	0.0122	0.0007	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00032	0.00032	0.000002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00015	0.00015	0.000004	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0593	0.0583	1.67%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1593803) - continued											
FJ2402274-005	Anonymous	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	0.083	0.083	0.00002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000100	0.0000071	0.0000030	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	116	116	0.487%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	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	0.00011	0.00012	0.000004	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	0.028	0.027	0.0010	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	0.0393	0.0384	2.50%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	83.2	82.0	1.45%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0126	0.0122	3.78%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000884	0.000898	1.53%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00185	0.00179	0.00005	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	2.39	2.30	3.72%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00183	0.00189	0.00005	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.00376	0.00378	0.528%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	0.25	0.22	0.03	Diff <2x LOR	----
		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	14.4	14.3	1.22%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.251	0.255	1.54%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	175	172	1.81%	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	<0.000010	<0.000010	0	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	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		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	0.00232	0.00230	0.824%	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	0.0040	0.0038	0.0001	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1594077)											
VA24B9693-006	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1594448)											
VA24C0164-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1593810)											
FJ2402274-005	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0080	0.0076	0.0004	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00027	0.00027	0.000003	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	0.00012	0.00002	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0579	0.0597	3.06%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.076	0.077	0.001	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	112	112	0.323%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.015	0.016	0.0008	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0377	0.0381	1.01%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	70.1	70.7	0.853%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0113	0.0115	1.51%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000755	0.000784	3.88%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00161	0.00159	0.00002	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	2.34	2.36	0.612%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00185	0.00191	0.00005	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00221	0.00236	6.81%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	0.162	0.167	0.004	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	13.1	13.2	0.464%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.234	0.232	1.16%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	159	164	2.88%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1593810) - continued											
FJ2402274-005	Anonymous	Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00230	0.00228	1.14%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1594502)											
VA24B9432-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1594504)											
VA24C0164-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1594402)											
VA24C0295-001	Anonymous	Benzene	71-43-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611C	5.0	µg/L	<5.0	<5.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611C	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1594402) - continued											
VA24C0295-001	Anonymous	Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611C	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611C	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611C	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611C	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611C	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: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1594824)						
Moisture	----	E144	0.25	%	<0.25	----
Organic / Inorganic Carbon (QCLot: 1597128)						
Carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1597131)						
Carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 1597497)						
Carbon, total [TC]	----	E351	0.05	%	<0.050	----
Metals (QCLot: 1602984)						
Mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1602985)						
Aluminum	7429-90-5	E440	50	mg/kg	<50	----
Antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
Bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
Boron	7440-42-8	E440	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
Calcium	7440-70-2	E440	50	mg/kg	<50	----
Chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
Iron	7439-89-6	E440	50	mg/kg	<50	----
Lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
Lithium	7439-93-2	E440	2	mg/kg	<2.0	----
Magnesium	7439-95-4	E440	20	mg/kg	<20	----
Manganese	7439-96-5	E440	1	mg/kg	<1.0	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
Phosphorus	7723-14-0	E440	50	mg/kg	<50	----
Potassium	7440-09-7	E440	100	mg/kg	<100	----
Selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1602985) - continued						
Silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
Sodium	7440-23-5	E440	50	mg/kg	<50	----
Strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
Sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
Thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
Tin	7440-31-5	E440	2	mg/kg	<2.0	----
Titanium	7440-32-6	E440	1	mg/kg	<1.0	----
Tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
Uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Volatile Organic Compounds (QCLot: 1595454)						
Benzene	71-43-2	E611C	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611C	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	<0.050	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611C	0.05	mg/kg	<0.050	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	<0.050	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	<0.050	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	<0.015	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1595454) - continued						
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	<0.050	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	<0.050	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1594893)						
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	<0.0050	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	<0.0050	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	<0.010	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	<0.0040	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	<0.010	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	<0.010	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	<0.010	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	<0.0050	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	<0.010	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	<0.010	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	<0.010	----
Pyrene	129-00-0	E641A-L	0.01	mg/kg	<0.010	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1593967)						
Colour, true	----	E329	5	CU	<5.0	----
Physical Tests (QCLot: 1594009)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1594010)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1594061)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1594062)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1594247)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1594248)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1593856)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1593858)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1593859)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1593961)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1593962)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1593963)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1593964)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1593965)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1593966)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Organic / Inorganic Carbon (QCLot: 1593857)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1593803)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1593803) - continued						
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	----
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	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1593803) - continued						
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	----
Total Metals (QCLot: 1594077)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1594448)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1593810)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1593810) - continued						
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1594502)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1594504)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Volatile Organic Compounds (QCLot: 1594402)						
Benzene	71-43-2	E611C	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611C	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	<0.50	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611C	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611C	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611C	5	µg/L	<5.0	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611C	1	µg/L	<1.0	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1594402) - continued						
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	<0.50	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	<0.50	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611C	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	<0.20	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611C	0.4	µg/L	<0.40	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	<0.40	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	<0.30	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1594280)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Acridine	260-94-6	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1594280) - continued						
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----
Quinoline	91-22-5	E641A	0.05	µg/L	<0.050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1594824)									
Moisture	----	E144	0.25	%	50 %	92.6	90.0	110	----
Physical Tests (QCLot: 1604483)									
pH (1:2 soil:water)	----	E108	----	pH units	7 pH units	101	97.0	103	----
Organic / Inorganic Carbon (QCLot: 1597128)									
Carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	95.3	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1597131)									
Carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	93.9	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1597497)									
Carbon, total [TC]	----	E351	0.05	%	48 %	99.1	90.0	110	----
Metals (QCLot: 1602984)									
Mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	114	80.0	120	----
Metals (QCLot: 1602985)									
Aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	111	80.0	120	----
Antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	113	80.0	120	----
Arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	113	80.0	120	----
Barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
Beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	101	80.0	120	----
Bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	105	80.0	120	----
Boron	7440-42-8	E440	5	mg/kg	100 mg/kg	104	80.0	120	----
Cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	106	80.0	120	----
Calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	100	80.0	120	----
Chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	110	80.0	120	----
Cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	108	80.0	120	----
Copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	105	80.0	120	----
Iron	7439-89-6	E440	50	mg/kg	100 mg/kg	108	80.0	120	----
Lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	107	80.0	120	----
Lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	101	80.0	120	----
Magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	112	80.0	120	----
Manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	107	80.0	120	----
Molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	110	80.0	120	----
Nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	107	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1602985) - continued									
Phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	113	80.0	120	----
Potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	114	80.0	120	----
Selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	108	80.0	120	----
Silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	100	80.0	120	----
Sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	112	80.0	120	----
Strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	111	80.0	120	----
Sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	114	80.0	120	----
Thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	105	80.0	120	----
Tin	7440-31-5	E440	2	mg/kg	50 mg/kg	109	80.0	120	----
Titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	108	80.0	120	----
Tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	105	80.0	120	----
Uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	104	80.0	120	----
Vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	111	80.0	120	----
Zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	106	80.0	120	----
Zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	105	80.0	120	----
Volatile Organic Compounds (QCLot: 1595454)									
Benzene	71-43-2	E611C	0.005	mg/kg	2.5 mg/kg	96.2	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.05	mg/kg	2.5 mg/kg	84.4	70.0	130	----
Bromoform	75-25-2	E611C	0.05	mg/kg	2.5 mg/kg	82.4	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.05	mg/kg	2.5 mg/kg	100	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.05	mg/kg	2.5 mg/kg	86.9	70.0	130	----
Chloroethane	75-00-3	E611C	0.05	mg/kg	2.5 mg/kg	101	60.0	140	----
Chloroform	67-66-3	E611C	0.05	mg/kg	2.5 mg/kg	99.9	70.0	130	----
Chloromethane	74-87-3	E611C	0.05	mg/kg	2.5 mg/kg	104	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.05	mg/kg	2.5 mg/kg	86.2	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.05	mg/kg	2.5 mg/kg	70.4	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611C	0.05	mg/kg	2.5 mg/kg	93.4	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.05	mg/kg	2.5 mg/kg	96.3	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.05	mg/kg	2.5 mg/kg	91.7	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.05	mg/kg	2.5 mg/kg	92.9	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.05	mg/kg	2.5 mg/kg	94.4	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.05	mg/kg	2.5 mg/kg	98.2	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.05	mg/kg	2.5 mg/kg	89.7	70.0	130	----
Dichloromethane	75-09-2	E611C	0.045	mg/kg	2.5 mg/kg	89.1	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611C	0.05	mg/kg	2.5 mg/kg	86.9	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1595454) - continued									
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.05	mg/kg	2.5 mg/kg	82.2	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.05	mg/kg	2.5 mg/kg	80.3	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.015	mg/kg	2.5 mg/kg	82.5	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.04	mg/kg	2.5 mg/kg	84.9	70.0	130	----
Styrene	100-42-5	E611C	0.05	mg/kg	2.5 mg/kg	82.8	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.05	mg/kg	2.5 mg/kg	88.3	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.05	mg/kg	2.5 mg/kg	86.2	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.05	mg/kg	2.5 mg/kg	82.7	70.0	130	----
Toluene	108-88-3	E611C	0.05	mg/kg	2.5 mg/kg	83.3	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.05	mg/kg	2.5 mg/kg	105	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.05	mg/kg	2.5 mg/kg	87.5	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.01	mg/kg	2.5 mg/kg	87.6	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.05	mg/kg	2.5 mg/kg	75.8	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.05	mg/kg	2.5 mg/kg	116	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.05	mg/kg	5 mg/kg	87.8	70.0	130	----
Xylene, o-	95-47-6	E611C	0.05	mg/kg	2.5 mg/kg	85.4	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1594893)									
Acenaphthene	83-32-9	E641A-L	0.005	mg/kg	0.476 mg/kg	91.3	60.0	130	----
Acenaphthylene	208-96-8	E641A-L	0.005	mg/kg	0.476 mg/kg	91.9	60.0	130	----
Acridine	260-94-6	E641A-L	0.01	mg/kg	0.476 mg/kg	73.0	60.0	130	----
Anthracene	120-12-7	E641A-L	0.004	mg/kg	0.476 mg/kg	76.6	60.0	130	----
Benz(a)anthracene	56-55-3	E641A-L	0.01	mg/kg	0.476 mg/kg	77.9	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A-L	0.01	mg/kg	0.476 mg/kg	85.1	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A-L	0.01	mg/kg	0.476 mg/kg	76.8	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A-L	0.01	mg/kg	0.476 mg/kg	84.9	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A-L	0.01	mg/kg	0.476 mg/kg	82.9	60.0	130	----
Chrysene	218-01-9	E641A-L	0.01	mg/kg	0.476 mg/kg	86.9	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A-L	0.005	mg/kg	0.476 mg/kg	80.6	60.0	130	----
Fluoranthene	206-44-0	E641A-L	0.01	mg/kg	0.476 mg/kg	87.3	60.0	130	----
Fluorene	86-73-7	E641A-L	0.01	mg/kg	0.476 mg/kg	79.1	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.01	mg/kg	0.476 mg/kg	85.6	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A-L	0.01	mg/kg	0.476 mg/kg	83.7	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A-L	0.01	mg/kg	0.476 mg/kg	91.5	60.0	130	----
Naphthalene	91-20-3	E641A-L	0.01	mg/kg	0.476 mg/kg	82.5	50.0	130	----
Phenanthrene	85-01-8	E641A-L	0.01	mg/kg	0.476 mg/kg	77.8	60.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Target Concentration	Recovery (%) LCS	Recovery Limits (%) Low	Recovery Limits (%) High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1594893) - continued									
Pyrene	129-00-0	E641A-L	0.01	mg/kg	0.476 mg/kg	84.6	60.0	130	----
Quinoline	91-22-5	E641A-L	0.01	mg/kg	0.476 mg/kg	83.2	60.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Target Concentration	Recovery (%) LCS	Recovery Limits (%) Low	Recovery Limits (%) High	Qualifier
Physical Tests (QCLot: 1593967)									
Colour, true	----	E329	5	CU	100 CU	104	85.0	115	----
Physical Tests (QCLot: 1594008)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1594009)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1594010)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	99.6	90.0	110	----
Physical Tests (QCLot: 1594061)									
Turbidity	----	E121	0.1	NTU	200 NTU	98.0	85.0	115	----
Physical Tests (QCLot: 1594062)									
Turbidity	----	E121	0.1	NTU	200 NTU	98.0	85.0	115	----
Physical Tests (QCLot: 1594247)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	90.0	85.0	115	----
Physical Tests (QCLot: 1594248)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	89.3	85.0	115	----
Anions and Nutrients (QCLot: 1593856)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	99.5	75.0	125	----
Anions and Nutrients (QCLot: 1593858)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	103	80.0	120	----
Anions and Nutrients (QCLot: 1593859)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1593961)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.1	90.0	110	----
Anions and Nutrients (QCLot: 1593962)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1593963)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1593964)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1593965)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1593966)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1593857)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	98.9	80.0	120	----
Total Metals (QCLot: 1593803)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	99.5	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	109	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	99.0	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	99.7	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	94.0	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	97.4	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.7	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	98.8	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	98.4	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	97.7	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.2	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	93.5	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	97.5	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	101	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	100	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.8	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	98.5	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	105	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	98.2	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	99.1	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	99.3	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	91.5	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
Total Metals (QCLot: 1593803) - continued									
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	105	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	95.6	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	95.7	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	95.2	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	94.7	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	90.3	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	99.2	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	93.2	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	94.6	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	91.9	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.2	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	97.2	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	96.0	80.0	120	----
Total Metals (QCLot: 1594077)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	87.3	80.0	120	----
Total Metals (QCLot: 1594448)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	100	80.0	120	----
Dissolved Metals (QCLot: 1593810)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	93.7	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	97.2	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	98.8	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	94.1	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	92.7	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	89.2	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	90.4	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	93.0	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	92.5	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	96.3	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	92.6	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	89.7	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	93.5	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	92.2	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	97.4	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	90.6	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	92.6	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
Dissolved Metals (QCLot: 1593810) - continued									
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	91.7	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	95.4	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	91.8	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	95.3	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	94.0	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	92.4	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	93.7	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	91.5	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	88.2	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	95.6	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	95.3	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	87.1	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	97.3	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	97.7	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	90.2	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	93.3	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	89.1	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	91.9	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	97.2	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	93.4	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	93.2	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	95.2	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	95.0	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	102	80.0	120	----
Volatile Organic Compounds (QCLot: 1594402)									
Benzene	71-43-2	E611C	0.5	µg/L	100 µg/L	100	70.0	130	----
Bromodichloromethane	75-27-4	E611C	0.5	µg/L	100 µg/L	99.6	70.0	130	----
Bromoform	75-25-2	E611C	0.5	µg/L	100 µg/L	120	70.0	130	----
Carbon tetrachloride	56-23-5	E611C	0.5	µg/L	100 µg/L	122	70.0	130	----
Chlorobenzene	108-90-7	E611C	0.5	µg/L	100 µg/L	101	70.0	130	----
Chloroethane	75-00-3	E611C	0.5	µg/L	100 µg/L	128	60.0	140	----
Chloroform	67-66-3	E611C	0.5	µg/L	100 µg/L	102	70.0	130	----
Chloromethane	74-87-3	E611C	5	µg/L	100 µg/L	110	60.0	140	----
Dibromochloromethane	124-48-1	E611C	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	100 µg/L	102	70.0	130	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1594402) - continued									
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	100 µg/L	111	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	100 µg/L	111	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E611C	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611C	0.5	µg/L	100 µg/L	88.4	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	µg/L	100 µg/L	96.6	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	µg/L	100 µg/L	115	70.0	130	----
Dichloromethane	75-09-2	E611C	1	µg/L	100 µg/L	102	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611C	0.5	µg/L	100 µg/L	96.7	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	µg/L	100 µg/L	130	70.0	130	----
Ethylbenzene	100-41-4	E611C	0.5	µg/L	100 µg/L	101	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	µg/L	100 µg/L	107	70.0	130	----
Styrene	100-42-5	E611C	0.5	µg/L	100 µg/L	95.2	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	µg/L	100 µg/L	105	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	µg/L	100 µg/L	90.9	70.0	130	----
Tetrachloroethylene	127-18-4	E611C	0.5	µg/L	100 µg/L	118	70.0	130	----
Toluene	108-88-3	E611C	0.4	µg/L	100 µg/L	103	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	µg/L	100 µg/L	120	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	µg/L	100 µg/L	87.0	70.0	130	----
Trichloroethylene	79-01-6	E611C	0.5	µg/L	100 µg/L	105	70.0	130	----
Trichlorofluoromethane	75-69-4	E611C	0.5	µg/L	100 µg/L	137	60.0	140	----
Vinyl chloride	75-01-4	E611C	0.4	µg/L	100 µg/L	120	60.0	140	----
Xylene, m+p-	179601-23-1	E611C	0.4	µg/L	200 µg/L	112	70.0	130	----
Xylene, o-	95-47-6	E611C	0.3	µg/L	100 µg/L	96.6	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1594280)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.5 µg/L	104	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.5 µg/L	110	60.0	130	----
Acridine	260-94-6	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.5 µg/L	78.8	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.5 µg/L	86.1	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.5 µg/L	87.5	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.5 µg/L	109	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.5 µg/L	108	60.0	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
Polycyclic Aromatic Hydrocarbons (QCLot: 1594280) - continued									
Chrysene	218-01-9	E641A	0.01	µg/L	0.5 µg/L	104	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.5 µg/L	98.0	60.0	130	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.5 µg/L	108	60.0	130	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.5 µg/L	104	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.5 µg/L	85.7	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.5 µg/L	101	60.0	130	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.5 µg/L	97.4	50.0	130	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.5 µg/L	112	60.0	130	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.5 µg/L	102	60.0	130	----
Quinoline	91-22-5	E641A	0.05	µg/L	0.5 µg/L	111	60.0	130	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1594893)										
CG2411328-001	Anonymous	Acenaphthene	83-32-9	E641A-L	0.305 mg/kg	0.367 mg/kg	83.2	50.0	140	----
		Acenaphthylene	208-96-8	E641A-L	0.298 mg/kg	0.367 mg/kg	81.3	50.0	140	----
		Acridine	260-94-6	E641A-L	0.311 mg/kg	0.367 mg/kg	84.6	50.0	140	----
		Anthracene	120-12-7	E641A-L	0.286 mg/kg	0.367 mg/kg	77.9	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A-L	0.280 mg/kg	0.367 mg/kg	76.4	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A-L	0.266 mg/kg	0.367 mg/kg	72.4	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A-L	0.276 mg/kg	0.367 mg/kg	75.0	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A-L	0.437 mg/kg	0.367 mg/kg	119	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A-L	0.300 mg/kg	0.367 mg/kg	81.6	50.0	140	----
		Chrysene	218-01-9	E641A-L	0.292 mg/kg	0.367 mg/kg	79.6	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A-L	0.288 mg/kg	0.367 mg/kg	78.4	50.0	140	----
		Fluoranthene	206-44-0	E641A-L	0.331 mg/kg	0.367 mg/kg	90.2	50.0	140	----
		Fluorene	86-73-7	E641A-L	0.290 mg/kg	0.367 mg/kg	79.0	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A-L	0.295 mg/kg	0.367 mg/kg	80.4	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A-L	0.288 mg/kg	0.367 mg/kg	78.5	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A-L	0.306 mg/kg	0.367 mg/kg	83.3	50.0	140	----
		Naphthalene	91-20-3	E641A-L	0.289 mg/kg	0.367 mg/kg	78.7	50.0	140	----
		Phenanthrene	85-01-8	E641A-L	0.288 mg/kg	0.367 mg/kg	78.5	50.0	140	----
		Pyrene	129-00-0	E641A-L	0.323 mg/kg	0.367 mg/kg	87.8	50.0	140	----
		Quinoline	91-22-5	E641A-L	0.289 mg/kg	0.367 mg/kg	78.7	50.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1593856)										
KS2403154-002	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.40 mg/L	2.5 mg/L	96.0	70.0	130	----
Anions and Nutrients (QCLot: 1593858)										
KS2403154-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1593859)										
KS2403154-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0950 mg/L	0.1 mg/L	95.0	75.0	125	----
Anions and Nutrients (QCLot: 1593961)										
YL2401093-002	PL-WQ-02-S	Fluoride	16984-48-8	E235.F	1.01 mg/L	1 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1593962)										
YL2401093-002	PL-WQ-02-S	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1593963)										
YL2401093-002	PL-WQ-02-S	Bromide	24959-67-9	E235.Br-L	0.532 mg/L	0.5 mg/L	106	75.0	125	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1593964)										
YL2401093-002	PL-WQ-02-S	Nitrate (as N)	14797-55-8	E235.NO3-L	2.58 mg/L	2.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1593965)										
YL2401093-002	PL-WQ-02-S	Nitrite (as N)	14797-65-0	E235.NO2-L	0.517 mg/L	0.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1593966)										
YL2401093-002	PL-WQ-02-S	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1593857)										
VA24B9681-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.02 mg/L	5 mg/L	100	70.0	130	----
Total Metals (QCLot: 1593803)										
FJ2402274-008	Anonymous	Aluminum, total	7429-90-5	E420	0.190 mg/L	0.2 mg/L	94.8	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0368 mg/L	0.04 mg/L	91.9	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00907 mg/L	0.01 mg/L	90.7	70.0	130	----
		Boron, total	7440-42-8	E420	0.095 mg/L	0.1 mg/L	94.6	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00389 mg/L	0.004 mg/L	97.2	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00998 mg/L	0.01 mg/L	99.8	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0397 mg/L	0.04 mg/L	99.4	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	----
		Copper, total	7440-50-8	E420	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	----
		Iron, total	7439-89-6	E420	2.00 mg/L	2 mg/L	100	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	0.0861 mg/L	0.1 mg/L	86.1	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0374 mg/L	0.04 mg/L	93.6	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.1 mg/L	10 mg/L	101	70.0	130	----
		Potassium, total	7440-09-7	E420	4.06 mg/L	4 mg/L	101	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0193 mg/L	0.02 mg/L	96.3	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0432 mg/L	0.04 mg/L	108	70.0	130	----
		Silicon, total	7440-21-3	E420	9.67 mg/L	10 mg/L	96.7	70.0	130	----
		Silver, total	7440-22-4	E420	0.00388 mg/L	0.004 mg/L	97.0	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	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00370 mg/L	0.004 mg/L	92.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0166 mg/L	0.02 mg/L	82.9	70.0	130	----
		Tin, total	7440-31-5	E420	0.0198 mg/L	0.02 mg/L	99.1	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1593803) - continued										
FJ2402274-008	Anonymous	Tungsten, total	7440-33-7	E420	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00376 mg/L	0.004 mg/L	94.0	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0994 mg/L	0.1 mg/L	99.4	70.0	130	----
		Zinc, total	7440-66-6	E420	0.366 mg/L	0.4 mg/L	91.5	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
Total Metals (QCLot: 1594077)										
VA24B9845-001	Anonymous	Mercury, total	7439-97-6	E508	0.000100 mg/L	0 mg/L	100	70.0	130	----
Total Metals (QCLot: 1594448)										
VA24C0164-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000903 mg/L	0 mg/L	90.3	70.0	130	----
Dissolved Metals (QCLot: 1593810)										
FJ2402274-008	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.185 mg/L	0.2 mg/L	92.4	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0351 mg/L	0.04 mg/L	87.9	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00868 mg/L	0.01 mg/L	86.8	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.093 mg/L	0.1 mg/L	92.6	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00372 mg/L	0.004 mg/L	93.1	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00947 mg/L	0.01 mg/L	94.7	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0178 mg/L	0.02 mg/L	89.3	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0182 mg/L	0.02 mg/L	91.0	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.82 mg/L	2 mg/L	91.1	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0183 mg/L	0.02 mg/L	91.5	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0873 mg/L	0.1 mg/L	87.3	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0186 mg/L	0.02 mg/L	92.9	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0356 mg/L	0.04 mg/L	89.1	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.86 mg/L	10 mg/L	98.6	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.63 mg/L	4 mg/L	90.6	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	8.54 mg/L	10 mg/L	85.4	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00372 mg/L	0.004 mg/L	92.9	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0397 mg/L	0.04 mg/L	99.2	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00356 mg/L	0.004 mg/L	89.1	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0184 mg/L	0.02 mg/L	92.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1593810) - continued										
FJ2402274-008	Anonymous	Titanium, dissolved	7440-32-6	E421	0.0372 mg/L	0.04 mg/L	93.1	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0182 mg/L	0.02 mg/L	91.0	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00380 mg/L	0.004 mg/L	95.0	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0978 mg/L	0.1 mg/L	97.8	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.353 mg/L	0.4 mg/L	88.2	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
Dissolved Metals (QCLot: 1594502)										
VA24B9432-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000936 mg/L	0 mg/L	93.6	70.0	130	----
Dissolved Metals (QCLot: 1594504)										
VA24C0295-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000100 mg/L	0 mg/L	100	70.0	130	----
Volatile Organic Compounds (QCLot: 1594402)										
VA24C0295-003	Anonymous	Benzene	71-43-2	E611C	100 µg/L	100 µg/L	100	60.0	140	----
		Bromodichloromethane	75-27-4	E611C	100 µg/L	100 µg/L	100	60.0	140	----
		Bromoform	75-25-2	E611C	120 µg/L	100 µg/L	120	60.0	140	----
		Carbon tetrachloride	56-23-5	E611C	124 µg/L	100 µg/L	124	60.0	140	----
		Chlorobenzene	108-90-7	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Chloroethane	75-00-3	E611C	124 µg/L	100 µg/L	124	50.0	150	----
		Chloroform	67-66-3	E611C	104 µg/L	100 µg/L	104	60.0	140	----
		Chloromethane	74-87-3	E611C	105 µg/L	100 µg/L	105	50.0	150	----
		Dibromochloromethane	124-48-1	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611C	116 µg/L	100 µg/L	116	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611C	115 µg/L	100 µg/L	115	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611C	108 µg/L	100 µg/L	108	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611C	88.6 µg/L	100 µg/L	88.6	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611C	109 µg/L	100 µg/L	109	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611C	96.5 µg/L	100 µg/L	96.5	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611C	115 µg/L	100 µg/L	115	60.0	140	----
		Dichloromethane	75-09-2	E611C	102 µg/L	100 µg/L	102	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611C	98.0 µg/L	100 µg/L	98.0	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	105 µg/L	100 µg/L	105	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	128 µg/L	100 µg/L	128	60.0	140	----
		Ethylbenzene	100-41-4	E611C	99.8 µg/L	100 µg/L	99.8	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	110 µg/L	100 µg/L	110	60.0	140	----
		Styrene	100-42-5	E611C	93.9 µg/L	100 µg/L	93.9	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	108 µg/L	100 µg/L	108	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	90.6 µg/L	100 µg/L	90.6	60.0	140	----
		Tetrachloroethylene	127-18-4	E611C	122 µg/L	100 µg/L	122	60.0	140	----
		Toluene	108-88-3	E611C	103 µg/L	100 µg/L	103	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611C	120 µg/L	100 µg/L	120	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611C	87.8 µg/L	100 µg/L	87.8	60.0	140	----
		Trichloroethylene	79-01-6	E611C	106 µg/L	100 µg/L	106	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611C	131 µg/L	100 µg/L	131	50.0	150	----

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
Volatile Organic Compounds (QCLot: 1594402) - continued										
VA24C0295-003	Anonymous	Vinyl chloride	75-01-4	E611C	113 µg/L	100 µg/L	113	50.0	150	----
		Xylene, m+p-	179601-23-1	E611C	232 µg/L	200 µg/L	116	60.0	140	----
		Xylene, o-	95-47-6	E611C	96.1 µg/L	100 µg/L	96.1	60.0	140	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1604483)									
QC-1604483-002	RM	pH (1:2 soil:water)	----	E108	7.78 pH units	103	96.0	104	----
Percent Passing (QCLot: 1595872)									
QC-1595872-001	RM	Passing (0.002mm)	----	E184	22.5 %	103	74.1	126	----
QC-1595872-001	RM	Passing (0.004mm)	----	E184	25.1 %	102	76.8	123	----
QC-1595872-001	RM	Passing (0.005mm)	----	E184	26.5 %	102	77.9	122	----
QC-1595872-001	RM	Passing (0.020mm)	----	E184	41.8 %	97.7	85.8	114	----
QC-1595872-001	RM	Passing (0.0312mm)	----	E184	45.6 %	102	88.0	112	----
Percent Passing (QCLot: 1595873)									
QC-1595873-001	RM	Passing (19mm)	----	E181	100 %	100	90.0	110	----
QC-1595873-001	RM	Passing (2.0mm)	----	E181	100 %	100	90.0	110	----
QC-1595873-001	RM	Passing (25.4mm)	----	E181	100 %	100	90.0	110	----
QC-1595873-001	RM	Passing (38.1mm)	----	E181	100 %	100	90.0	110	----
QC-1595873-001	RM	Passing (4.75mm)	----	E181	100 %	100	90.0	110	----
QC-1595873-001	RM	Passing (50.8mm)	----	E181	100 %	100	90.0	110	----
QC-1595873-001	RM	Passing (76.2mm)	----	E181	100 %	100	90.0	110	----
QC-1595873-001	RM	Passing (9.5mm)	----	E181	100 %	100	90.0	110	----
Percent Passing (QCLot: 1595874)									
QC-1595874-001	RM	Passing (0.05mm)	----	E182	54.1 %	103	90.0	110	----
QC-1595874-001	RM	Passing (0.063mm)	----	E182	57.1 %	101	90.8	109	----
QC-1595874-001	RM	Passing (0.075mm)	----	E182	60.2 %	100.0	91.4	109	----
QC-1595874-001	RM	Passing (0.125mm)	----	E182	68.2 %	102	92.7	107	----
QC-1595874-001	RM	Passing (0.149mm)	----	E182	72 %	99.7	93.1	107	----
QC-1595874-001	RM	Passing (0.250mm)	----	E182	82.3 %	100	94.1	106	----
QC-1595874-001	RM	Passing (0.420mm)	----	E182	89.9 %	98.4	94.6	105	----
QC-1595874-001	RM	Passing (0.50mm)	----	E182	91.2 %	100	94.7	105	----
QC-1595874-001	RM	Passing (0.841mm)	----	E182	95.6 %	99.1	94.9	105	----
QC-1595874-001	RM	Passing (1.0mm)	----	E182	96.3 %	100	94.9	105	----
Organic / Inorganic Carbon (QCLot: 1597128)									
QC-1597128-003	RM	Carbon, inorganic [IC]	----	E354	0.383 %	92.5	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1597131)									
QC-1597131-003	RM	Carbon, inorganic [IC]	----	E354	0.383 %	92.5	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1597497)									

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report: RM Target Concentration	Recovery (%): RM	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Organic / Inorganic Carbon (QCLot: 1597497) - continued									
QC-1597497-003	RM	Carbon, total [TC]	----	E351	1.4 %	102	80.0	120	----
Metals (QCLot: 1602984)									
QC-1602984-003	RM	Mercury	7439-97-6	E510	0.068 mg/kg	112	70.0	130	----
Metals (QCLot: 1602985)									
QC-1602985-003	RM	Aluminum	7429-90-5	E440	22500 mg/kg	86.9	70.0	130	----
QC-1602985-003	RM	Antimony	7440-36-0	E440	24.8 mg/kg	94.4	70.0	130	----
QC-1602985-003	RM	Arsenic	7440-38-2	E440	21.2 mg/kg	89.1	70.0	130	----
QC-1602985-003	RM	Barium	7440-39-3	E440	788 mg/kg	87.9	70.0	130	----
QC-1602985-003	RM	Beryllium	7440-41-7	E440	1.82 mg/kg	94.5	70.0	130	----
QC-1602985-003	RM	Bismuth	7440-69-9	E440	1.78 mg/kg	79.0	70.0	130	----
QC-1602985-003	RM	Cadmium	7440-43-9	E440	2.15 mg/kg	90.0	70.0	130	----
QC-1602985-003	RM	Calcium	7440-70-2	E440	4900 mg/kg	86.4	70.0	130	----
QC-1602985-003	RM	Chromium	7440-47-3	E440	56.9 mg/kg	89.9	70.0	130	----
QC-1602985-003	RM	Cobalt	7440-48-4	E440	32 mg/kg	89.7	70.0	130	----
QC-1602985-003	RM	Copper	7440-50-8	E440	969 mg/kg	88.8	70.0	130	----
QC-1602985-003	RM	Iron	7439-89-6	E440	32700 mg/kg	92.0	70.0	130	----
QC-1602985-003	RM	Lead	7439-92-1	E440	919 mg/kg	87.3	70.0	130	----
QC-1602985-003	RM	Lithium	7439-93-2	E440	47.3 mg/kg	91.5	70.0	130	----
QC-1602985-003	RM	Magnesium	7439-95-4	E440	7780 mg/kg	92.1	70.0	130	----
QC-1602985-003	RM	Manganese	7439-96-5	E440	8640 mg/kg	87.3	70.0	130	----
QC-1602985-003	RM	Molybdenum	7439-98-7	E440	25.1 mg/kg	88.9	70.0	130	----
QC-1602985-003	RM	Nickel	7440-02-0	E440	1000 mg/kg	87.6	70.0	130	----
QC-1602985-003	RM	Phosphorus	7723-14-0	E440	660 mg/kg	84.7	70.0	130	----
QC-1602985-003	RM	Potassium	7440-09-7	E440	10800 mg/kg	92.0	70.0	130	----
QC-1602985-003	RM	Selenium	7782-49-2	E440	1.04 mg/kg	95.7	60.0	140	----
QC-1602985-003	RM	Silver	7440-22-4	E440	8.98 mg/kg	86.3	70.0	130	----
QC-1602985-003	RM	Sodium	7440-23-5	E440	1770 mg/kg	90.6	70.0	130	----
QC-1602985-003	RM	Strontium	7440-24-6	E440	41 mg/kg	86.7	70.0	130	----
QC-1602985-003	RM	Sulfur	7704-34-9	E440	3940 mg/kg	105	50.0	150	----
QC-1602985-003	RM	Thallium	7440-28-0	E440	0.907 mg/kg	91.2	70.0	130	----
QC-1602985-003	RM	Tin	7440-31-5	E440	3.79 mg/kg	90.1	40.0	160	----
QC-1602985-003	RM	Titanium	7440-32-6	E440	2790 mg/kg	93.6	70.0	130	----
QC-1602985-003	RM	Tungsten	7440-33-7	E440	6.99 mg/kg	90.4	70.0	130	----
QC-1602985-003	RM	Uranium	7440-61-1	E440	3.97 mg/kg	# 69.5	70.0	130	MES
QC-1602985-003	RM	Vanadium	7440-62-2	E440	66.2 mg/kg	89.6	70.0	130	----
QC-1602985-003	RM	Zinc	7440-66-6	E440	828 mg/kg	90.0	70.0	130	----
QC-1602985-003	RM	Zirconium	7440-67-7	E440	6.91 mg/kg	88.5	70.0	130	----

Qualifiers

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

Chain of Custody (COC) / Analytical Request Form

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Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 14 -

Page 1 of 2

Report To		Report Format / Distribution	Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	Stantec Consulting	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3 pm - business days)
Contact:	Stephanie Nabess	Quality Control (QC) Report with Report ☑ Yes ☐ No	P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	11-2042 Mills Road Sidney, BC, V8L 5X4	☑ Criteria on Report - provide details below if box checked	E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
Phone:	(250) 216-1267	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
		Email 1 or Fax: stephanie.nabess@stantec.com	Specify Date Required for E2,E or P:
		Email 2: emily.hulley@stantec.com	

Invoice To		Invoice Distribution
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☑ Yes ☐ No	Email 1 or Fax
Company:		Email 2
Contact:		

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	VA24-STAC100-010	Approver ID:	Cost Center:
Job #:	123514868	GL Account:	Routing Code:
PO / AFE:	4000.101.102	Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type		Number of Containers
1	PL-WQ-01-S	06-AUG-24	10:40	WATER	F/P	11
2	PL-WQ-02-S	06-AUG-24	11:55	WATER	F/P	11
3	PL-WQ-03-S	06-AUG-24	12:50	WATER	F/P	11
4	PL-WQ-01-B	06-Aug-24	11:00	WATER	F/P	11
5	PL-WQ-02-B	06-Aug-24	12:05	WATER	F/P	11
6	PL-WQ-03-B	06-Aug-24	13:05	WATER	F/P	11
7	PL-SQ-01	06-Aug-24	11:19	SED	P	5
8	PL-SQ-02	06-Aug-24	12:15	SED	P	5
9	PL-SQ-03	06-Aug-24	13:15	SED	P	5
10	EB	06-Aug-24	17:20	WATER	F/P	11
11	TB	06-Aug-24	17:20	WATER	F/P	11
12	PL-WQ-DUP	06-Aug-24	12:50	WATER	F/P	11

Environmental Division
Yellowknife
Work Order Reference
YL2401093

Telephone : +1 867 873 5593

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☑ No Are samples for human drinking water use? ☐ Yes ☑ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen		SIF Observations	Yes ☐	No ☐
Ice packs	Yes ☐ No ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐			

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
6.5					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
E Hulley	Aug 7/24	9:00		Aug 7/24	13:05			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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COC Number: 14 -

Page 2 of 2

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	Stantec Consulting	Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	R ☑ Regular (Standard TAT if received by 3 pm - business days)
Contact:	Stephanie Nabess	Quality Control (QC) Report with Report	☑ Yes ☐ No	P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT
Address:	11-2042 Mills Road	☑ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT
	Sidney, BC, V8L 5X4	Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge
Phone:	(250) 216-1267	Email 1 or Fax	stephanie.nabess@stantec.com	Specify Date Required for E2,E or P:
		Email 2	emily.hulley@stantec.com	

Invoice To		Invoice Distribution	
	Same as Report To ☑ Yes ☐ No	Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☑ Yes ☐ No	Email 1 or Fax	
Company:		Email 2	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	VA24-STAC100-010	Approver ID:	Cost Center:
Job #:	123514868	GL Account:	Routing Code:
PO / AFE:	4000.101.102	Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type		Number of Containers
13	PL-SQ-DUP	06-AUG-24	11:19	SED	P	5

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☑ No	
Are samples for human drinking water use? ☐ Yes ☑ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐			SIF Observations	Yes ☐	No ☐	
Ice packs	Yes ☐	No ☐		Custody seal intact	Yes ☐	No ☐	
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
E.Hulley	AUG-7/24	9:00						

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Table A.2-1 Field Duplicate Results for Water Quality Anlyses, August 2024

Parameter	LDL	Units	PL-WQ-03-S 06-Aug-2024	PL-WQ-DUP 06-Aug-2024	RPD (%)[a]
Physical Tests					
Conductivity	2.0	µS/cm	197	197	0
Alkalinity, total (as CaCO3)	2.0	mg/L	15.2	15.4	1.3
Hardness (as CaCO3), dissolved	0.60	mg/L	29.4	29.2	0.7
Hardness (as CaCO3), from total	0.60	mg/L	33.1	32.2	2.8
Total suspended solids	3.0	mg/L	4.0	3.8	5.1
Turbidity	0.10	NTU	2.30	2.26	1.8
Anions and Nutrients					
Ammonia, total (as N)	0.0050	mg/L	<0.0050	<0.0050	-
Bromide	0.050	mg/L	0.164	0.164	0
Chloride	0.50	mg/L	46.6	46.6	0
Fluoride	0.020	mg/L	0.028	0.026	7.4
Total kjeldahl nitrogen	0.050	mg/L	0.308	0.333	7.8
Nitrate (as N)	0.0050	mg/L	<0.0050	<0.0050	-
Nitrite (as N)	0.0010	mg/L	<0.0010	<0.0010	-
Phosphorus, total	0.0020	mg/L	0.0134	0.0158	16
Sulfate (as SO4)	0.30	mg/L	3.30	3.29	0.3
Organic / Inorganic Carbon					
Dissolved organic carbon	0.50	mg/L	5.72	4.94	15
Total Metals					
Aluminum	0.0030	mg/L	0.0517	0.0508	1.8
Antimony	0.00010	mg/L	<0.00010	<0.00010	-
Arsenic	0.00010	mg/L	0.00038	0.00035	8.2
Barium	0.00010	mg/L	0.00272	0.00254	6.8
Beryllium	0.000100	mg/L	<0.000100	<0.000100	-
Bismuth	0.000050	mg/L	<0.000050	<0.000050	-
Boron	0.010	mg/L	<0.010	<0.010	-
Cadmium	0.0000050	mg/L	<0.0000050	<0.0000050	-
Calcium	0.050	mg/L	4.6	4.59	0.2
Cesium	0.000010	mg/L	<0.000010	<0.000010	-
Chromium	0.00050	mg/L	<0.00050	<0.00050	-
Cobalt	0.00010	mg/L	<0.00010	<0.00010	-
Copper	0.00050	mg/L	0.00116	0.00113	2.6
Iron	0.010	mg/L	0.095	0.093	2.1
Lead	0.000050	mg/L	<0.000050	<0.000050	-
Lithium	0.0010	mg/L	0.0015	0.0016	6.5
Magnesium	0.0050	mg/L	5.26	5.05	4.1
Manganese	0.00010	mg/L	0.039	0.0372	4.7
Mercury	0.0000050	mg/L	<0.0000050	<0.0000050	-
Molybdenum	0.000050	mg/L	0.000062	0.000054	14
Nickel	0.00050	mg/L	<0.00050	<0.00050	-
Phosphorus	0.050	mg/L	<0.050	<0.050	-
Potassium	0.050	mg/L	1.05	1.03	1.9
Rubidium	0.00020	mg/L	0.00111	0.00114	2.7
Selenium	0.000050	mg/L	<0.000050	<0.000050	-
Silicon	0.10	mg/L	0.28	0.26	7.4
Silver	0.000010	mg/L	<0.000010	<0.000010	-
Sodium	0.050	mg/L	25.6	25	2.4
Strontium	0.00020	mg/L	0.0246	0.0246	0
Sulfur	0.50	mg/L	1.32	1.19	10
Tellurium	0.00020	mg/L	<0.00020	<0.00020	-
Thallium	0.000010	mg/L	<0.000010	<0.000010	-
Thorium	0.00010	mg/L	<0.00010	<0.00010	-
Tin	0.00010	mg/L	<0.00010	<0.00010	-
Titanium	0.00030	mg/L	0.00115	0.00115	0
Tungsten	0.00010	mg/L	<0.00010	<0.00010	-
Uranium	0.000010	mg/L	0.000024	0.000023	4.3
Vanadium	0.00050	mg/L	<0.00050	<0.00050	-
Zinc	0.0030	mg/L	<0.0030	<0.0030	-
Zirconium	0.00020	mg/L	<0.00020	<0.00020	-
Dissolved Metals					
Aluminum	0.0010	mg/L	0.0135	0.0136	0.7
Antimony	0.00010	mg/L	<0.00010	<0.00010	-
Arsenic	0.00010	mg/L	0.00027	0.00028	3.6
Barium	0.00010	mg/L	0.00195	0.00202	3.5
Beryllium	0.000100	mg/L	<0.000100	<0.000100	-
Bismuth	0.000050	mg/L	<0.000050	<0.000050	-
Boron	0.010	mg/L	<0.010	<0.010	-
Cadmium	0.0000050	mg/L	<0.0000050	<0.0000050	-
Calcium	0.050	mg/L	4.33	4.28	1.2
Cesium	0.000010	mg/L	<0.000010	<0.000010	-
Chromium	0.00050	mg/L	<0.00050	<0.00050	-
Cobalt	0.00010	mg/L	<0.00010	<0.00010	-

Table A.2-1 Field Duplicate Results for Water Quality Anlyses, August 2024

Parameter	LDL	Units	PL-WQ-03-S 06-Aug-2024	PL-WQ-DUP 06-Aug-2024	RPD (%)[a]
Copper	0.00020	mg/L	0.00099	0.00101	2.0
Iron	0.010	mg/L	0.013	0.013	0
Lead	0.000050	mg/L	<0.000050	<0.000050	-
Lithium	0.0010	mg/L	0.0014	0.0014	0
Magnesium	0.0050	mg/L	4.51	4.5	0.2
Manganese	0.00010	mg/L	0.00052	0.00048	8.0
Mercury	0.0000050	mg/L	<0.0000050	<0.0000050	-
Molybdenum	0.000050	mg/L	<0.000050	<0.000050	-
Nickel	0.00050	mg/L	<0.00050	<0.00050	-
Phosphorus	0.050	mg/L	<0.050	<0.050	-
Potassium	0.050	mg/L	1	1.01	1.0
Rubidium	0.00020	mg/L	0.00103	0.00101	2.0
Selenium	0.000050	mg/L	<0.000050	<0.000050	-
Silicon	0.050	mg/L	0.178	0.17	4.6
Silver	0.000010	mg/L	<0.000010	<0.000010	-
Sodium	0.050	mg/L	23.5	23.2	1.3
Strontium	0.00020	mg/L	0.023	0.0232	0.9
Sulfur	0.50	mg/L	1.06	1.1	3.7
Tellurium	0.00020	mg/L	<0.00020	<0.00020	-
Thallium	0.000010	mg/L	<0.000010	<0.000010	-
Thorium	0.00010	mg/L	<0.00010	<0.00010	-
Tin	0.00010	mg/L	<0.00010	<0.00010	-
Titanium	0.00030	mg/L	<0.00030	<0.00030	-
Tungsten	0.00010	mg/L	<0.00010	<0.00010	-
Uranium	0.000010	mg/L	0.00002	0.00002	0
Vanadium	0.00050	mg/L	<0.00050	<0.00050	-
Zinc	0.0010	mg/L	<0.0010	<0.0010	-
Zirconium	0.00020	mg/L	<0.00020	<0.00020	-
Volatile Organic Compounds					
Chlorobenzene	0.50	µg/L	<0.50	<0.50	-
Chloromethane	5.0	µg/L	<5.0	<5.0	-
Dichlorobenzene, 1,2-	0.50	µg/L	<0.50	<0.50	-
Dichlorobenzene, 1,3-	0.50	µg/L	<0.50	<0.50	-
Dichlorobenzene, 1,4-	0.50	µg/L	<0.50	<0.50	-
Dichloropropane, 1,2-	0.50	µg/L	<0.50	<0.50	-
Dichloropropylene, cis+trans-1,3-	0.75	µg/L	<0.75	<0.75	-
Dichloropropylene, cis-1,3-	0.50	µg/L	<0.50	<0.50	-
Tetrachloroethane, 1,1,1,2-	0.50	µg/L	<0.50	<0.50	-
Tetrachloroethane, 1,1,2,2-	0.20	µg/L	<0.20	<0.20	-
Trichloroethane, 1,1,2-	0.50	µg/L	<0.50	<0.50	-
Trichlorofluoromethane	0.50	µg/L	<0.50	<0.50	-
Volatile Organic Compounds [Drycleaning]					
Carbon tetrachloride	0.50	µg/L	<0.50	<0.50	-
Chloroethane	0.50	µg/L	<0.50	<0.50	-
Dichloroethane, 1,1-	0.50	µg/L	<0.50	<0.50	-
Dichloroethane, 1,2-	0.50	µg/L	<0.50	<0.50	-
Dichloroethylene, 1,1-	0.50	µg/L	<0.50	<0.50	-
Dichloroethylene, cis-1,2-	0.50	µg/L	<0.50	<0.50	-
Dichloroethylene, trans-1,2-	0.50	µg/L	<0.50	<0.50	-
Dichloromethane	1.0	µg/L	<1.0	<1.0	-
Dichloropropylene, trans-1,3-	0.50	µg/L	<0.50	<0.50	-
Tetrachloroethylene	0.50	µg/L	<0.50	<0.50	-
Trichloroethane, 1,1,1-	0.50	µg/L	<0.50	<0.50	-
Trichloroethylene	0.50	µg/L	<0.50	<0.50	-
Vinyl chloride	0.40	µg/L	<0.40	<0.40	-
Volatile Organic Compounds [Fuels]					
Benzene	0.50	µg/L	<0.50	<0.50	-
Ethylbenzene	0.50	µg/L	<0.50	<0.50	-
Methyl-tert-butyl ether [MTBE]	0.50	µg/L	<0.50	<0.50	-
Styrene	0.50	µg/L	<0.50	<0.50	-
Toluene	0.40	µg/L	<0.40	<0.40	-
Xylene, m+p-	0.40	µg/L	<0.40	<0.40	-
Xylene, o-	0.30	µg/L	<0.30	<0.30	-
Xylenes, total	0.50	µg/L	<0.50	<0.50	-
Volatile Organic Compounds [THMs]					
Bromodichloromethane	0.50	µg/L	<0.50	<0.50	-
Bromoform	0.50	µg/L	<0.50	<0.50	-
Chloroform	0.50	µg/L	<0.50	<0.50	-
Dibromochloromethane	0.50	µg/L	<0.50	<0.50	-
Volatile Organic Compounds Surrogates					
Bromofluorobenzene, 4-	1.0	%	80.9	80.9	0
Difluorobenzene, 1,4-	1.0	%	97.8	96.8	1.0

Table A.2-1 Field Duplicate Results for Water Quality Anlyses, August 2024

Parameter	LDL	Units	PL-WQ-03-S 06-Aug-2024	PL-WQ-DUP 06-Aug-2024	RPD (%)[a]
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.010	µg/L	<0.010	<0.010	-
Acenaphthylene	0.010	µg/L	<0.010	<0.010	-
Acridine	0.010	µg/L	<0.010	<0.010	-
Anthracene	0.010	µg/L	<0.010	<0.010	-
Benz(a)anthracene	0.010	µg/L	<0.010	<0.010	-
Benzo(a)pyrene	0.0050	µg/L	<0.0050	<0.0050	-
Benzo(b+j)fluoranthene	0.010	µg/L	<0.010	<0.010	-
Benzo(b+j+k)fluoranthene	0.015	µg/L	<0.015	<0.015	-
Benzo(g,h,i)perylene	0.010	µg/L	<0.010	<0.010	-
Benzo(k)fluoranthene	0.010	µg/L	<0.010	<0.010	-
Chrysene	0.010	µg/L	<0.010	<0.010	-
Dibenz(a,h)anthracene	0.0050	µg/L	<0.0050	<0.0050	-
Fluoranthene	0.010	µg/L	<0.010	<0.010	-
Fluorene	0.010	µg/L	<0.010	<0.010	-
Indeno(1,2,3-c,d)pyrene	0.010	µg/L	<0.010	<0.010	-
Methylnaphthalene, 1-	0.010	µg/L	<0.010	<0.010	-
Methylnaphthalene, 2-	0.010	µg/L	<0.010	<0.010	-
Naphthalene	0.050	µg/L	<0.050	<0.050	-
Phenanthrene	0.020	µg/L	<0.020	<0.020	-
Pyrene	0.010	µg/L	<0.010	<0.010	-
Quinoline	0.050	µg/L	<0.050	<0.050	-
Polycyclic Aromatic Hydrocarbons Surrogates					
Chrysene-d12	0.1	%	91.8	97.8	6.3
Naphthalene-d8	0.1	%	101	107	5.8
Phenanthrene-d10	0.1	%	106	111	4.6

Notes: LDL = lowest detection limit; RPD = relative percent difference

Grey highlighted text indicates a RPD greater than 20%.

[a] The RPD was calculated using < LRL results at the LRL if one result in a duplicate pair was below the LRL. The RPD was not calculated if both results were <LDL.

Table A.2-2 Field Duplicate Results for Sediment Quality Anlyses, August 2024

Parameter	LDL	Units	PL-SQ-01 06-Aug-2024	PL-SQ-DUP 06-Aug-2024	RPD (%)[a]
Physical Tests					
Moisture	0.25	%	73.5	70.8	3.7
pH (1:2 soil:water)	0.10	pH units	5.76	5.61	2.6
Particle Size					
Gravel (>2mm)	1.0	%	<1.0	<1.0	-
Sand (2.0mm - 0.063mm)	1.0	%	<1.0	<1.0	-
Silt (0.063mm - 0.004mm)	1.0	%	69.1	67.7	2.0
Clay (<0.004mm)	1.0	%	30.2	31.6	4.5
Percent Passing					
Passing (0.0312mm)	1.0	%	76.8	78.7	2.4
Passing (9.5mm)	1.0	%	100	100	0
Passing (0.020mm)	1.0	%	63.5	66.5	4.6
Passing (1.0mm)	1.0	%	100	100	0
Passing (4.75mm)	1.0	%	100	100	0
Passing (0.005mm)	1.0	%	33	34.7	5.0
Passing (0.841mm)	1.0	%	100	100	0
Passing (19mm)	1.0	%	100	100	0
Passing (0.004mm)	1.0	%	30.2	31.6	4.5
Passing (0.50mm)	1.0	%	100	100	0
Passing (25.4mm)	1.0	%	100	100	0
Passing (0.002mm)	1.0	%	24.7	25.6	3.6
Passing (0.420mm)	1.0	%	100	99.9	0.1
Passing (38.1mm)	1.0	%	100	100	0
Passing (0.250mm)	1.0	%	100	99.9	0.1
Passing (50.8mm)	1.0	%	100	100	0
Passing (0.149mm)	1.0	%	99.9	99.8	0.1
Passing (76.2mm)	1.0	%	100	100	0
Passing (0.125mm)	1.0	%	99.9	99.8	0.1
Passing (2.0mm)	1.0	%	100	100	0
Passing (0.075mm)	1.0	%	99.4	99.4	0
Passing (0.063mm)	1.0	%	99.3	99.3	0
Passing (0.05mm)	1.0	%	99.2	99.2	0
Organic / Inorganic Carbon					
Carbon, inorganic [IC]	0.050	%	0.12	0.116	3.4
Carbon, total [TC]	0.050	%	3.79	4.02	5.9
Carbon, total organic [TOC]	0.050	%	3.67	3.9	6.1
Carbon, inorganic [IC], (as $CaCO_3$ equivalent)	0.40	%	1	0.97	3.0
Organic matter	0.10	%	6.33	6.72	6.0
Metals					
Aluminum	50	mg/kg	26000	29300	12
Antimony	0.10	mg/kg	0.17	0.19	11
Arsenic	0.10	mg/kg	12.5	13.2	5.4
Barium	0.50	mg/kg	120	134	11
Beryllium	0.10	mg/kg	0.84	0.96	13
Bismuth	0.20	mg/kg	0.6	0.7	15
Boron	5.0	mg/kg	12.5	13.9	11
Cadmium	0.020	mg/kg	0.14	0.148	5.6
Calcium	50	mg/kg	2460	2730	10
Chromium	0.50	mg/kg	69.4	79.6	14
Cobalt	0.10	mg/kg	18.4	21.1	14
Copper	0.50	mg/kg	52.5	59.4	12
Iron	50	mg/kg	53800	61700	14
Lead	0.50	mg/kg	14.6	16.6	13
Lithium	2.0	mg/kg	50.1	59	16
Magnesium	20	mg/kg	14200	16100	13
Manganese	1.0	mg/kg	443	510	14
Mercury	0.0500	mg/kg	<0.0500	<0.0500	-
Molybdenum	0.10	mg/kg	0.92	1.12	20
Nickel	0.50	mg/kg	43.9	50	13
Phosphorus	50	mg/kg	972	1100	12
Potassium	100	mg/kg	6010	6860	13
Selenium	0.20	mg/kg	0.29	0.34	16
Silver	0.10	mg/kg	0.13	0.15	14
Sodium	50	mg/kg	517	581	12
Strontium	0.50	mg/kg	17	18.6	9.0
Sulfur	1000	mg/kg	1600	1800	12
Thallium	0.050	mg/kg	0.292	0.331	13
Tin	2.0	mg/kg	<2.0	<2.0	-
Titanium	1.0	mg/kg	878	1050	18
Tungsten	0.50	mg/kg	<0.50	<0.50	-
Uranium	0.050	mg/kg	2.44	2.81	14

Table A.2-2 Field Duplicate Results for Sediment Quality Anlyses, August 2024

Parameter	LDL	Units	PL-SQ-01 06-Aug-2024	PL-SQ-DUP 06-Aug-2024	RPD (%)[a]
Vanadium	0.20	mg/kg	67.2	78.1	15
Zinc	2.0	mg/kg	106	122	14
Zirconium	1.0	mg/kg	16	18.6	15
Volatile Organic Compounds					
Chlorobenzene	0.050	mg/kg	<0.050	<0.050	-
Chloromethane	0.050	mg/kg	<0.050	<0.050	-
Dichlorobenzene, 1,2-	0.050	mg/kg	<0.050	<0.050	-
Dichlorobenzene, 1,3-	0.050	mg/kg	<0.050	<0.050	-
Dichlorobenzene, 1,4-	0.050	mg/kg	<0.050	<0.050	-
Dichloropropane, 1,2-	0.050	mg/kg	<0.050	<0.050	-
Dichloropropylene, cis+trans-1,3-	0.075	mg/kg	<0.075	<0.075	-
Dichloropropylene, cis-1,3-	0.050	mg/kg	<0.050	<0.050	-
Tetrachloroethane, 1,1,1,2-	0.050	mg/kg	<0.050	<0.050	-
Tetrachloroethane, 1,1,2,2-	0.050	mg/kg	<0.050	<0.050	-
Trichloroethane, 1,1,2-	0.050	mg/kg	<0.050	<0.050	-
Trichlorofluoromethane	0.050	mg/kg	<0.050	<0.050	-
Volatile Organic Compounds [Drycleaning]					
Carbon tetrachloride	0.050	mg/kg	<0.050	<0.050	-
Chloroethane	0.050	mg/kg	<0.050	<0.050	-
Dichloroethane, 1,1-	0.050	mg/kg	<0.050	<0.050	-
Dichloroethane, 1,2-	0.050	mg/kg	<0.050	<0.050	-
Dichloroethylene, 1,1-	0.050	mg/kg	<0.050	<0.050	-
Dichloroethylene, cis-1,2-	0.050	mg/kg	<0.050	<0.050	-
Dichloroethylene, trans-1,2-	0.050	mg/kg	<0.050	<0.050	-
Dichloromethane	0.045	mg/kg	0.165	<0.135	20
Dichloropropylene, trans-1,3-	0.050	mg/kg	<0.050	<0.050	-
Tetrachloroethylene	0.050	mg/kg	<0.050	<0.050	-
Trichloroethane, 1,1,1-	0.050	mg/kg	<0.050	<0.050	-
Trichloroethylene	0.010	mg/kg	<0.033	<0.028	16
Vinyl chloride	0.050	mg/kg	<0.050	<0.050	-
Volatile Organic Compounds [Fuels]					
Benzene	0.0050	mg/kg	<0.0132	<0.0112	16
Ethylbenzene	0.015	mg/kg	<0.033	<0.028	16
Methyl-tert-butyl ether [MTBE]	0.040	mg/kg	<0.040	<0.040	-
Styrene	0.050	mg/kg	<0.050	<0.050	-
Toluene	0.050	mg/kg	<0.050	<0.050	-
Xylene, m+p-	0.050	mg/kg	<0.050	<0.050	-
Xylene, o-	0.050	mg/kg	<0.050	<0.050	-
Xylenes, total	0.075	mg/kg	<0.075	<0.075	-
Volatile Organic Compounds [THMs]					
Bromodichloromethane	0.050	mg/kg	<0.050	<0.050	-
Bromoform	0.050	mg/kg	<0.050	<0.050	-
Chloroform	0.050	mg/kg	<0.050	<0.050	-
Dibromochloromethane	0.050	mg/kg	<0.050	<0.050	-
Volatile Organic Compounds Surrogates					
Bromofluorobenzene, 4-	0.10	%	122	119	2.5
Difluorobenzene, 1,4-	0.10	%	122	120	1.7
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	0.0050	mg/kg	<0.0105	<0.0095	-
Acenaphthylene	0.0050	mg/kg	<0.0105	<0.0095	-
Acridine	0.010	mg/kg	0.022	<0.010	75
Anthracene	0.0040	mg/kg	<0.0160	<0.0095	-
Benz(a)anthracene	0.010	mg/kg	0.025	<0.010	86
Benzo(a)pyrene	0.010	mg/kg	0.021	<0.010	71
Benzo(b+j)fluoranthene	0.010	mg/kg	0.025	<0.010	86
Benzo(b+j+k)fluoranthene	0.0150	mg/kg	0.046	<0.010	129
Benzo(g,h,i)perylene	0.010	mg/kg	0.036	<0.010	113
Benzo(k)fluoranthene	0.010	mg/kg	0.021	<0.010	71
Chrysene	0.010	mg/kg	0.024	<0.010	82
Dibenz(a,h)anthracene	0.0050	mg/kg	0.0259	<0.0095	93
Fluoranthene	0.010	mg/kg	0.026	<0.010	89
Fluorene	0.010	mg/kg	0.013	0.016	21
Indeno(1,2,3-c,d)pyrene	0.010	mg/kg	0.038	<0.010	117
Methylnaphthalene, 1+2-	0.0150	mg/kg	0.033	0.018	59
Methylnaphthalene, 1-	0.010	mg/kg	0.013	<0.010	26
Methylnaphthalene, 2-	0.010	mg/kg	0.02	0.018	11
Naphthalene	0.010	mg/kg	0.041	0.028	38
Phenanthrene	0.010	mg/kg	0.020	<0.010	67
Pyrene	0.010	mg/kg	0.018	<0.010	57
Quinoline	0.010	mg/kg	<0.010	<0.010	-
B(a)P total potency equivalents [B(a)P TPE]	0.020	mg/kg	0.058	<0.020	97

Table A.2-2 Field Duplicate Results for Sediment Quality Anlyses, August 2024

Parameter	LDL	Units	PL-SQ-01 06-Aug-2024	PL-SQ-DUP 06-Aug-2024	RPD (%)[a]
Polycyclic Aromatic Hydrocarbons Surrogates					
Acridine-d9	0.1	%	106	99.8	6.0
Chrysene-d12	0.1	%	127	114	11
Naphthalene-d8	0.1	%	115	104	10
Phenanthrene-d10	0.1	%	134	119	12

Notes: LDL = lowest detection limit; RPD = relative percent difference

Grey highlighted text indicates a RPD greater than 20%.

[a] The RPD was calculated using < LRL results at the LRL if one result in a duplicate pair was below the LRL. The RPD was not calculated if both results were <LDL.

Reference: Potential Water Intake Location (PWI-1) Memorandum

Appendix B PWI-1 Hydromagic Volume Calculation

Eye4Software Hydromagic Survey 8.4
Volumes Report - Matrices

Metadata

Name	Value
Project Name	Grays Bay Port Lake
Surveyor	
Date	September 4, 2024
Horizontal Units	Meter
Vertical Units	Meter
Projection	NAD83(CSRS) / UTM zone 12N

Matrix Information

Name	Value
Matrix 1	Fixed Level (0.00)
Matrix 2	Grays Bay Matrix.mtx
Cell Size	1.00 m
Average level difference	2.59 m

Matrix Coverage

	Area (m2)	Area (%)
Overlapped area	456930	100.0
Non overlapped area	0.000	0.0
Total area	**456930**	**100.0**

Volumes

	Area (m2)	Area (%)	Volume (m3)	Volume (%)
Below reference	453549	99.3	1184813	100.0
Above reference	3381	0.7	0.000	0.0
Equals reference				
Total volume	**456930**	**100.0**	**1184813**	**100.0**

Reference: Potential Water Intake Location (PWI-1) Memorandum

Appendix C Water and Sediment Quality Results

Table C-1 Vertical Water Column Profiles for PWI-1 Quality Sampling Locations, August 2024

PL-WQ-1						
Depth	**Temperature (ºC)**	**DO (mg/L)**	**DO (%)**	**SPC (µS/cm)**	**Turbidity (NTU)**	**pH**
0.5	13.40	10.96	105.1	184.0	4.20	7.85
1.0	12.90	11.03	105.0	184.2	4.20	7.85
1.5	12.50	11.02	103.8	184.1	4.49	7.86
2.0	12.20	10.94	101.9	183.9	4.76	7.84
2.5	11.96	10.78	100.3	184.1	4.64	7.87
3.0	11.93	10.70	99.2	184.1	4.99	7.87
3.5	11.88	10.54	97.5	184.0	5.20	7.81
4.0	11.81	10.52	97.3	184.1	4.95	7.77
4.5	11.81	10.51	97.1	184.1	5.09	7.74
5.0	11.79	9.91	90.8	184.5	6.11	7.46
PL-WQ-2						
Depth	**Temperature (ºC)**	**DO (mg/L)**	**DO (%)**	**SPC (µS/cm)**	**Turbidity (NTU)**	**pH**
0.5	13.54	11.00	105.7	184.4	4.70	7.78
1.0	13.28	10.99	104.1	184.4	5.27	7.76
1.5	12.58	11.01	103.0	184.1	5.25	7.73
2.0	12.27	10.92	101.5	184.5	6.22	7.67
2.5	12.08	10.65	99.3	184.7	8.76	7.62
PL-WQ-3						
Depth	**Temperature (ºC)**	**DO (mg/L)**	**DO (%)**	**SPC (µS/cm)**	**Turbidity (NTU)**	**pH**
0.5	14.03	10.80	100.2	182.2	3.32	7.82
1.0	12.67	10.89	102.6	183.1	3.82	7.79
1.5	12.01	10.93	102.1	183.1	4.12	7.81
2.0	12.03	10.88	101.0	184.1	4.44	7.75

Notes:
DO = dissolved oxygen; SPC = specific conductivity.

Table C-2 Water Quality Data for PWI-1 Sampling Locations, August 2024

Parameter	LDL	Units	Health Canada[a]	CCME WQG-FAL[b]		PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B	PL-WQ-03-B	Summary Statistics[c]					
				Short-term	Long-term	06-Aug-2024	06-Aug-2024	06-Aug-2024	06-Aug-2024	06-Aug-2024	06-Aug-2024	n	min	max	median	mean	std dev
Physical Tests																	
Alkalinity, total (as CaCO3)	2.0	mg/L	-	-	-	15.4	15.4	15.2	15.2	15.2	15.4	6	15.2	15.4	15.3	15.3	0.1
Hardness (as CaCO3), dissolved	0.60	mg/L	-	-	-	29.4	29.6	29.4	30.8	29.6	29.6	6	29.4	30.8	29.6	29.8	0.5
Hardness (as CaCO3), from total	0.60	mg/L	-	-	-	32.9	32.4	33.1	34.0	32.9	33.7	6	32.4	34.0	33.0	33.1	0.6
Total suspended solids	3.0	mg/L	-	-	-	4.0	4.6	4.0	4.2	5.2	5.2	6	4.0	5.2	4.4	4.4	0.6
Anions and Nutrients																	
Ammonia, total (as N)	0.0050	mg/L	-	-	0.715	<0.0050	<0.0050	<0.0050	<0.0050	0.0062	<0.0050	6	<0.0050	<0.0062	0.0050	0.0052	0.0005
Bromide	0.050	mg/L	-	-	-	0.162	0.163	0.164	0.166	0.163	0.164	6	0.162	0.166	0.164	0.164	0.001
Chloride	0.50	mg/L	250	640	120	46.6	46.7	46.6	47.6	46.8	46.8	6	46.6	47.6	46.8	46.9	0.4
Fluoride	0.020	mg/L	1.50	-	-	0.029	0.027	0.028	0.027	0.025	0.027	6	0.025	0.029	0.027	0.027	0.001
Total kjeldahl nitrogen	0.050	mg/L	-	-	-	0.326	0.326	0.308	0.349	0.329	0.339	6	0.308	0.349	0.328	0.328	0.014
Nitrate (as N)	0.0050	mg/L	45	550	13	<0.0050	0.0058	<0.0050	<0.0050	<0.0050	<0.0050	6	<0.0050	0.0058	0.0050	0.0052	0.0003
Nitrite (as N)	0.0010	mg/L	3.0	-	0.197	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	6	<0.0010	<0.0010	<0.0010	<0.0010	-
Phosphorus, total	0.0020	mg/L	-	-	-	0.0136	0.0127	0.0134	0.0153	0.0183	0.014	6	0.0127	0.0183	0.0138	0.0147	0.0020
Sulfate (as SO4)	0.30	mg/L	-	-	-	3.33	3.29	3.30	3.49	3.30	3.32	6	3.29	3.49	3.31	3.34	0.08
Organic / Inorganic Carbon																	
Dissolved organic carbon	0.50	mg/L	-	-	-	4.88	5.30	5.72	4.51	4.42	5.27	6	4.42	5.72	5.08	4.97	0.50
Total Metals																	
Aluminum	0.0030	mg/L	2.9	-	0.10	0.0507	0.0467	0.0517	0.0604	0.064	0.0634	6	0.0467	0.0640	0.0561	0.0547	0.0074
Antimony	0.00010	mg/L	0.006	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	<0.00010	<0.00010	-
Arsenic	0.00010	mg/L	0.010	-	0.005	0.00035	0.00035	0.00038	0.00038	0.00040	0.00037	6	0.00035	0.00040	0.00038	0.00037	0.00002
Barium	0.00010	mg/L	2.0	-	-	0.00255	0.0026	0.00272	0.00293	0.0028	0.00267	6	0.00255	0.00293	0.00270	0.00272	0.00014
Beryllium	0.000100	mg/L	-	-	-	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	6	<0.000100	<0.000100	<0.000100	<0.000100	-
Bismuth	0.000050	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	6	<0.000050	<0.000050	<0.000050	<0.000050	-
Boron	0.010	mg/L	5.0	29	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Cadmium	0.0000050	mg/L	0.0070	0.00067	0.000060	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	6	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-
Calcium	0.050	mg/L	-	-	-	4.60	4.58	4.60	4.70	4.59	4.58	6	4.58	4.70	4.60	4.61	0.05
Cesium	0.000010	mg/L	-	-	-	0.000010	<0.000010	<0.000010	0.000011	0.000012	0.000011	6	<0.000010	0.000012	0.000011	0.00001	0.000001
Chromium	0.00050	mg/L	0.050	-	0.001 (CrVI); 0.0089 (CrIII)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	6	<0.00050	<0.00050	<0.00050	<0.00050	-
Cobalt	0.00010	mg/L	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	<0.00010	<0.00010	-
Copper	0.00050	mg/L	2.0	-	0.0020	0.00115	0.00113	0.00116	0.00116	0.00132	0.0012	6	0.0011	0.0013	0.0012	0.0012	0.0001
Iron	0.010	mg/L	0.30	-	0.30	0.094	0.086	0.095	0.126	0.118	0.113	6	0.086	0.126	0.104	0.104	0.016
Lead	0.000050	mg/L	0.005	-	0.0010	<0.000050	<0.000050	<0.000050	0.000053	0.000054	<0.000050	6	<0.000050	0.000054	0.000050	0.000051	0.000002
Lithium	0.0010	mg/L	-	-	-	0.0015	0.0015	0.0015	0.0016	0.0016	0.0016	6	0.0015	0.0016	0.0016	0.0015	0.0001
Magnesium	0.0050	mg/L	-	-	-	5.20	5.08	5.26	5.42	5.20	5.40	6	5.08	5.42	5.23	5.23	0.13
Manganese	0.00010	mg/L	0.12	-	-	0.0372	0.0356	0.039	0.0583	0.048	0.0453	6	0.0356	0.0583	0.0422	0.0436	0.0085
Mercury	0.0000050	mg/L	0.0010	-	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	6	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-
Molybdenum	0.000050	mg/L	-	-	-	0.000063	0.000066	0.000062	0.000057	<0.000050	0.000052	6	<0.000050	0.000066	0.000060	0.000060	0.000006
Nickel	0.00050	mg/L	-	-	0.025	0.00050	<0.00050	<0.00050	0.00074	0.00065	0.00056	6	<0.00050	0.00074	0.00053	0.00058	0.00010
Phosphorus	0.050	mg/L	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	6	<0.050	<0.050	<0.050	<0.050	-
Potassium	0.050	mg/L	-	-	-	1.02	1.02	1.05	1.06	1.05	1.05	6	1.02	1.06	1.05	1.04	0.02
Rubidium	0.00020	mg/L	-	-	-	0.00105	0.00109	0.00111	0.00115	0.00122	0.0012	6	0.00105	0.00122	0.00113	0.00112	0.00007
Selenium	0.000050	mg/L	0.050	-	0.0010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	6	<0.000050	<0.000050	<0.000050	<0.000050	-
Silicon	0.10	mg/L	-	-	-	0.29	0.28	0.28	0.32	0.32	0.34	6	0.28	0.34	0.31	0.30	0.03
Silver	0.000010	mg/L	-	-	0.00025	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	<0.000010	<0.000010	-
Sodium	0.050	mg/L	200	-	-	24.6	24.8	25.6	25.8	24.9	25.9	6	24.6	25.9	25.3	25.1	0.6
Strontium	0.00020	mg/L	7.0	-	-	0.0247	0.0247	0.0246	0.025	0.0255	0.0238	6	0.0238	0.0255	0.0247	0.0249	0.0006
Sulfur	0.50	mg/L	-	-	-	1.19	1.22	1.32	1.09	1.17	1.20	6	1.09	1.32	1.20	1.20	0.07
Tellurium	0.00020	mg/L	-	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	6	<0.00020	<0.00020	<0.00020	<0.00020	-
Thallium	0.000010	mg/L	-	-	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	<0.000010	<0.000010	-
Thorium	0.00010	mg/L	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	<0.00010	<0.00010	-
Tin	0.00010	mg/L	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	<0.00010	<0.00010	-
Titanium	0.00030	mg/L	-	-	-	0.00119	0.00100	0.00115	0.00144	0.00158	0.00159	6	0.00100	0.00159	0.00132	0.00127	0.00025
Tungsten	0.00010	mg/L	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	<0.00010	<0.00010	-
Uranium	0.000010	mg/L	0.020	0.033	0.0015	0.000024	0.000024	0.000024	0.000024	0.000024	0.000024	6	0.000024	0.000024	0.000024	0.000024	0.000000
Vanadium	0.00050	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	6	<0.00050	<0.00050	<0.00050	<0.00050	-
Zinc	0.0030	mg/L	5.0	-	-	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	6	<0.0030	<0.0030	<0.0030	<0.0030	-
Zirconium	0.00020	mg/L	-	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	6	<0.00020	<0.00020	<0.00020	<0.00020	-

Table C-2 Water Quality Data for PWI-1 Sampling Locations, August 2024

Parameter	LDL	Units	Health Canada[a]	CCME WQG-FAL[b]		PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B	PL-WQ-03-B	Summary Statistics[c]					
				Short-term	Long-term	06-Aug-2024	06-Aug-2024	06-Aug-2024	06-Aug-2024	06-Aug-2024	06-Aug-2024	n	min	max	median	mean	std dev
Dissolved Metals																	
Aluminum	0.0010	mg/L	-	-	-	0.0123	0.0145	0.0135	0.0132	0.0153	0.0139	6	0.0123	0.0153	0.0137	0.0138	0.0010
Antimony	0.00010	mg/L	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	<0.00010	<0.00010	-
Arsenic	0.00010	mg/L	-	-	-	0.00028	0.00027	0.00027	0.00029	0.00028	0.00026	6	0.00026	0.00029	0.00028	0.00028	0.00001
Barium	0.00010	mg/L	-	-	-	0.00205	0.00196	0.00195	0.00201	0.002	0.00192	6	0.00192	0.00205	0.00198	0.00199	0.00005
Beryllium	0.000100	mg/L	-	-	-	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	6	<0.000100	<0.000100	<0.000100	<0.000100	-
Bismuth	0.000050	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	6	<0.000050	<0.000050	<0.000050	<0.000050	-
Boron	0.010	mg/L	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Cadmium	0.0000050	mg/L	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	6	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-
Calcium	0.050	mg/L	-	-	-	4.28	4.34	4.33	4.40	4.42	4.35	6	4.28	4.42	4.35	4.35	0.05
Cesium	0.000010	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	<0.000010	<0.000010	-
Chromium	0.00050	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	6	<0.00050	<0.00050	<0.00050	<0.00050	-
Cobalt	0.00010	mg/L	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	<0.00010	<0.00010	-
Copper	0.00020	mg/L	-	-	-	0.00114	0.00102	0.00099	0.00107	0.00108	0.00104	6	0.00099	0.00114	0.00106	0.00106	0.00005
Iron	0.010	mg/L	-	-	-	0.012	0.014	0.013	0.015	0.016	0.014	6	0.012	0.016	0.014	0.014	0.001
Lead	0.000050	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	6	<0.000050	<0.000050	<0.000050	<0.000050	-
Lithium	0.0010	mg/L	-	-	-	0.0014	0.0014	0.0014	0.0014	0.0015	0.0014	6	0.0014	0.0015	0.0014	0.0014	0.0000
Magnesium	0.0050	mg/L	-	-	-	4.54	4.57	4.51	4.80	4.50	4.54	6	4.50	4.80	4.54	4.58	0.11
Manganese	0.00010	mg/L	-	2.47	-	0.00049	0.00064	0.00052	0.00056	0.00052	0.00038	6	0.00038	0.00064	0.00052	0.00055	0.00009
Mercury	0.0000050	mg/L	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	6	<0.0000050	<0.0000050	<0.0000050	<0.0000050	-
Molybdenum	0.000050	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	6	<0.000050	<0.000050	<0.000050	<0.000050	-
Nickel	0.00050	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	0.0007	<0.00050	<0.00050	6	<0.00050	0.00070	0.00050	0.00054	0.00008
Phosphorus	0.050	mg/L	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	6	<0.050	<0.050	<0.050	<0.050	-
Potassium	0.050	mg/L	-	-	-	1.00	1.00	1.00	1.08	1.03	0.984	6	0.984	1.08	1.00	1.02	0.03
Rubidium	0.00020	mg/L	-	-	-	0.00097	0.00100	0.00103	0.00103	0.00095	0.00096	6	0.00095	0.00103	0.00099	0.00100	0.00004
Selenium	0.000050	mg/L	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	6	<0.000050	<0.000050	<0.000050	<0.000050	-
Silicon	0.050	mg/L	-	-	-	0.165	0.172	0.178	0.186	0.187	0.170	6	0.165	0.187	0.175	0.178	0.009
Silver	0.000010	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	<0.000010	<0.000010	-
Sodium	0.050	mg/L	-	-	-	23.3	23.3	23.5	25.3	23.4	23.3	6	23.3	25.3	23.4	23.8	0.8
Strontium	0.00020	mg/L	-	-	-	0.0227	0.023	0.023	0.0251	0.0229	0.023	6	0.0227	0.0251	0.0230	0.0233	0.0009
Sulfur	0.50	mg/L	-	-	-	1.02	1.12	1.06	1.19	1.08	1.13	6	1.02	1.19	1.10	1.09	0.06
Tellurium	0.00020	mg/L	-	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	6	<0.00020	<0.00020	<0.00020	<0.00020	-
Thallium	0.000010	mg/L	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	<0.000010	<0.000010	-
Thorium	0.00010	mg/L	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	<0.00010	<0.00010	-
Tin	0.00010	mg/L	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	<0.00010	<0.00010	-
Titanium	0.00030	mg/L	-	-	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	6	<0.00030	<0.00030	<0.00030	<0.00030	-
Tungsten	0.00010	mg/L	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	<0.00010	<0.00010	-
Uranium	0.000010	mg/L	-	-	-	0.000020	0.000020	0.000020	0.000018	0.000020	0.000020	6	0.000018	0.000020	0.000020	0.000020	0.000001
Vanadium	0.00050	mg/L	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	6	<0.00050	<0.00050	<0.00050	<0.00050	-
Zinc	0.0010	mg/L	-	0.044	0.0090	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	6	<0.0010	0.0014	0.0010	0.0011	0.0002
Zirconium	0.00020	mg/L	-	-	-	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	6	<0.00020	<0.00020	<0.00020	<0.00020	-
Volatile Organic Compounds																	
Chlorobenzene	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Chloromethane	5.0	µg/L	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6	<5.0	<5.0	<5.0	<5.0	-
Dichlorobenzene, 1,2-	0.50	µg/L	-	-	0.70	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dichlorobenzene, 1,3-	0.50	µg/L	-	-	150	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dichlorobenzene, 1,4-	0.50	µg/L	5.0	-	26	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dichloropropane, 1,2-	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dichloropropylene, cis+trans-1,3-	0.75	µg/L	-	-	-	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	6	<0.75	<0.75	<0.75	<0.75	-
Dichloropropylene, cis-1,3-	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Tetrachloroethane, 1,1,1,2-	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Tetrachloroethane, 1,1,2,2-	0.20	µg/L	-	-	-	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	6	<0.20	<0.20	<0.20	<0.20	-
Trichloroethane, 1,1,2-	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Trichlorofluoromethane	0.50	µg/L	-	-	13.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Volatile Organic Compounds [Drycleaning]																	
Carbon tetrachloride	0.50	µg/L	2.0	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Chloroethane	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dichloroethane, 1,1-	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dichloroethane, 1,2-	0.50	µg/L	5.0	-	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dichloroethylene, 1,1-	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dichloroethylene, cis-1,2-	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dichloroethylene, trans-1,2-	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dichloromethane	1.0	µg/L	50	-	98.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6	<1.0	<1.0	<1.0	<1.0	-
Dichloropropylene, trans-1,3-	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Tetrachloroethylene	0.50	µg/L	10	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Trichloroethane, 1,1,1-	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-

Table C-2 Water Quality Data for PWI-1 Sampling Locations, August 2024

Parameter	LDL	Units	Health Canada[a]	CCME WQG-FAL[b]		PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B	PL-WQ-03-B	Summary Statistics[c]					
				Short-term	Long-term	06-Aug-2024	06-Aug-2024	06-Aug-2024	06-Aug-2024	06-Aug-2024	06-Aug-2024	n	min	max	median	mean	std dev
Trichloroethylene	0.50	µg/L	5.0	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Vinyl chloride	0.40	µg/L	-	-	-	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	6	<0.40	<0.40	<0.40	<0.40	-
Volatile Organic Compounds [Fuels]																	
Benzene	0.50	µg/L	5.0	-	370	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Ethylbenzene	0.50	µg/L	140	-	90	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Methyl-tert-butyl ether [MTBE]	0.50	µg/L	15	-	10000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Styrene	0.50	µg/L	-	-	72	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Toluene	0.40	µg/L	60	-	2.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	6	<0.40	<0.40	<0.40	<0.40	-
Xylene, m+p-	0.40	µg/L	-	-	-	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	6	<0.40	<0.40	<0.40	<0.40	-
Xylene, o-	0.30	µg/L	-	-	-	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	6	<0.30	<0.30	<0.30	<0.30	-
Xylenes, total	0.50	µg/L	90	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Volatile Organic Compounds [THMs]																	
Bromodichloromethane	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Bromoform	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Chloroform	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Dibromochloromethane	0.50	µg/L	-	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6	<0.50	<0.50	<0.50	<0.50	-
Volatile Organic Compounds Surrogates																	
Bromofluorobenzene, 4-	1.0	%	-	-	-	82.3	80.9	80.9	81.4	81.6	80.7	6	80.7	82.3	81.2	81.4	0.6
Difluorobenzene, 1,4-	1.0	%	-	-	-	97.2	96.3	97.8	96.5	97.6	98.2	6	96.3	98.2	97.4	97.1	0.7
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	0.010	µg/L	-	-	5.8	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Acenaphthylene	0.010	µg/L	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Acridine	0.010	µg/L	-	-	4.4	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Anthracene	0.010	µg/L	-	-	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Benz(a)anthracene	0.010	µg/L	-	-	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Benzo(a)pyrene	0.0050	µg/L	0.040	-	0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	6	<0.0050	<0.0050	<0.0050	<0.0050	-
Benzo(b+j)fluoranthene	0.010	µg/L	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Benzo(b+j+k)fluoranthene	0.015	µg/L	-	-	-	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	6	<0.015	<0.015	<0.015	<0.015	-
Benzo(g,h,i)perylene	0.010	µg/L	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Benzo(k)fluoranthene	0.010	µg/L	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Chrysene	0.010	µg/L	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Dibenz(a,h)anthracene	0.0050	µg/L	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	6	<0.0050	<0.0050	<0.0050	<0.0050	-
Fluoranthene	0.010	µg/L	-	-	0.040	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Fluorene	0.010	µg/L	-	-	3.0	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Indeno(1,2,3-c,d)pyrene	0.010	µg/L	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Methylnaphthalene, 1-	0.010	µg/L	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Methylnaphthalene, 2-	0.010	µg/L	-	-	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Naphthalene	0.050	µg/L	-	-	1.1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	6	<0.050	<0.050	<0.050	<0.050	-
Phenanthrene	0.020	µg/L	-	-	0.40	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	6	<0.020	<0.020	<0.020	<0.020	-
Pyrene	0.010	µg/L	-	-	0.025	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	6	<0.010	<0.010	<0.010	<0.010	-
Quinoline	0.050	µg/L	-	-	3.40	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	6	<0.050	<0.050	<0.050	<0.050	-
Polycyclic Aromatic Hydrocarbons Surrogates																	
Chrysene-d12	0.1	%	-	-	-	90.2	95.0	91.8	93.0	91.0	90.6	6	90.2	95.0	91.4	92.2	1.8
Naphthalene-d8	0.1	%	-	-	-	97.1	98.5	101.0	101.0	105.0	98.3	6	97.1	105.0	99.8	100.5	2.8
Phenanthrene-d10	0.1	%	-	-	-	112.0	108.0	106.0	107.0	112.0	105.0	6	105.0	112.0	107.5	109.0	3.0

Notes:
LDL = lowest detection limit; WQG-FAL = water quality guidelines for the protection of aquatic life; n = sample size; min = minimum; max = maximum; std dev = standard deviation
Blue highlighted text indicates an exceedance of the Health Canada Guideline for Canadian Drinking Water Quality.
Dark grey highlighted text indicates an exceedance of the short term CCME WQG-FAL.
Light grey highlighted text indicates an exceedance of the long term CCME WQG-FAL.

[a] Health Canada. 2024. Guidelines for Canadian Drinking Water Quality—Summary Tables. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.

[b] Canadian Council of Ministers of the Environment (CCME). 2024. Water and Sediment Quality Guidelines for the Protection of Aquatic Life. Available at: https://ccme.ca/en/summary-table. Accessed September 2024.

[c] Summary statistics were calculated using <LRL results at the LRL.

Table C-3 Sediment Quality Data for PWI-1 Sampling Locations, August 2024

Parameter	LDL	Units	CCME SQG-FAL		PL-SQ-01	PL-SQ-02	PL-SQ-03	Summary Statistics[b]					
			ISQG	PEL	06-Aug-2024	06-Aug-2024	06-Aug-2024	n	min	max	median	mean	std dev
Physical Tests													
Moisture	0.25	%	-	-	73.5	74.7	72.0	3	72	74.7	73.5	73.4	1.35
Particle Size													
Gravel (>2mm)	1.0	%	-	-	<1.0	<1.0	<1.0	3	<1.0	<1.0	<1.0	<1.0	-
Sand (2.0mm - 0.063mm)	1.0	%	-	-	<1.0	<1.0	2.6	3	<1.0	2.6	1.0	1.53	0.92
Silt (0.063mm - 0.004mm)	1.0	%	-	-	69.1	70.3	72.7	3	69.1	72.7	70.3	70.7	1.83
Clay (<0.004mm)	1.0	%	-	-	30.2	29.2	24.7	3	24.7	30.2	29.2	28.0	2.93
Organic / Inorganic Carbon													
Carbon, inorganic	0.050	%	-	-	0.120	0.112	0.085	3	0.085	0.12	0.112	0.106	0.02
Carbon, total	0.050	%	-	-	3.79	4.49	3.25	3	3.25	4.49	3.79	3.84	0.62
Carbon, total organic	0.050	%	-	-	3.67	4.38	3.16	3	3.16	4.38	3.67	3.74	0.61
Carbon, inorganic (as CaCO3 equivalent)	0.40	%	-	-	1.00	0.94	0.71	3	0.71	1.00	0.94	0.88	0.15
Organic matter	0.10	%	-	-	6.33	7.55	5.45	3	5.45	7.55	6.33	6.44	1.05
Metals													
Aluminum	50	mg/kg	-	-	26000	25500	22900	3	22900	26000	25500	24800	1664
Antimony	0.10	mg/kg	-	-	0.17	0.14	0.14	3	0.14	0.17	0.14	0.15	0.02
Arsenic	0.10	mg/kg	5.90	17.0	12.5	8.76	9.65	3	8.76	12.5	9.65	10.3	1.95
Barium	0.50	mg/kg	-	-	120	115	115	3	115	120	115	117	2.89
Beryllium	0.10	mg/kg	-	-	0.84	0.82	0.77	3	0.77	0.84	0.82	0.81	0.04
Bismuth	0.20	mg/kg	-	-	0.60	0.54	0.53	3	0.53	0.60	0.54	0.56	0.04
Boron	5.0	mg/kg	-	-	12.5	10.5	9.9	3	9.9	12.5	10.5	11.0	1.36
Cadmium	0.020	mg/kg	0.60	3.50	0.140	0.121	0.127	3	0.121	0.140	0.127	0.13	0.01
Calcium	50	mg/kg	-	-	2460	2510	2780	3	2460	2780	2510	2583	172
Chromium	0.50	mg/kg	37.3	90.0	69.4	67.7	64.0	3	64.0	69.4	67.7	67.0	2.8
Cobalt	0.10	mg/kg	-	-	18.4	17.4	16.0	3	16.0	18.4	17.4	17.3	1.2
Copper	0.50	mg/kg	35.7	197	52.5	47.6	44.0	3	44.0	52.5	47.6	48.0	4.3
Iron	50	mg/kg	-	-	53800	44800	38100	3	38100	53800	44800	45567	7878
Lead	0.50	mg/kg	35.0	91.3	14.6	13.0	13.7	3	13.0	14.6	13.7	13.8	0.8
Lithium	2.0	mg/kg	-	-	50.1	47.8	46.0	3	46.0	50.1	47.8	48.0	2.1
Magnesium	20	mg/kg	-	-	14200	13800	12900	3	12900	14200	13800	13633	666
Manganese	1.0	mg/kg	-	-	443	425	500	3	425	500	443	456	39
Mercury	0.0500	mg/kg	0.170	0.486	<0.0500	<0.0500	<0.0500	3	<0.0500	<0.0500	<0.0500	<0.0500	-
Molybdenum	0.10	mg/kg	-	-	0.92	0.91	0.92	3	0.91	0.92	0.92	0.92	0.01
Nickel	0.50	mg/kg	-	-	43.9	42.3	39.2	3	39.2	43.9	42.3	41.8	2.4
Phosphorus	50	mg/kg	-	-	972	701	723	3	701	972	723	799	151
Potassium	100	mg/kg	-	-	6010	5850	5160	3	5160	6010	5850	5673	452
Selenium	0.20	mg/kg	-	-	0.29	0.20	0.21	3	0.20	0.29	0.21	0.23	0.05
Silver	0.10	mg/kg	-	-	0.13	0.12	0.11	3	0.11	0.13	0.12	0.12	0.01
Sodium	50	mg/kg	-	-	517	506	470	3	470	517	506	498	25
Strontium	0.50	mg/kg	-	-	17	17.8	17.8	3	17	17.8	17.8	18	0.46
Sulfur	1000	mg/kg	-	-	1600	1700	<1000	3	<1000	1700	1600	1433	379
Thallium	0.050	mg/kg	-	-	0.292	0.276	0.269	3	0.269	0.292	0.276	0.279	0.012
Tin	2.0	mg/kg	-	-	<2.0	<2.0	<2.0	3	<2.0	<2.0	<2.0	<2.0	-
Titanium	1.0	mg/kg	-	-	878	770	868	3	770	878	868	838.67	59.68
Tungsten	0.50	mg/kg	-	-	<0.50	<0.50	<0.50	3	<0.50	<0.50	<0.50	<0.50	-
Uranium	0.050	mg/kg	-	-	2.44	2.44	2.29	3	2.29	2.44	2.44	2.39	0.09
Vanadium	0.20	mg/kg	-	-	67.2	61.8	62.2	3	61.8	67.2	62.2	63.73	3.01
Zinc	2.0	mg/kg	123	315	106	99.0	99.4	3	99.0	106	99.4	101	3.93
Zirconium	1.0	mg/kg	-	-	16	17.9	13.3	3	13.3	17.9	16.0	15.7	2.31
Volatile Organic Compounds													
Chlorobenzene	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Chloromethane	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichlorobenzene, 1,2-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichlorobenzene, 1,3-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichlorobenzene, 1,4-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichloropropane, 1,2-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichloropropylene, cis+trans-1,3-	0.075	mg/kg	-	-	<0.075	<0.075	<0.075	3	<0.075	<0.075	<0.075	<0.075	-
Dichloropropylene, cis-1,3-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Tetrachloroethane, 1,1,1,2-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Tetrachloroethane, 1,1,2,2-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Trichloroethane, 1,1,2-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Trichlorofluoromethane	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Volatile Organic Compounds [Drycleaning]													
Carbon tetrachloride	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Chloroethane	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichloroethane, 1,1-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichloroethane, 1,2-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichloroethylene, 1,1-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichloroethylene, cis-1,2-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichloroethylene, trans-1,2-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dichloromethane	0.045	mg/kg	-	-	0.165	<0.135	<0.180	3	<0.135	<0.180	0.165	0.160	0.023
Dichloropropylene, trans-1,3-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Tetrachloroethylene	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Trichloroethane, 1,1,1-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Trichloroethylene	0.010	mg/kg	-	-	<0.033	<0.037	<0.032	3	<0.032	<0.037	0.033	0.034	0.003
Vinyl chloride	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Volatile Organic Compounds [Fuels]													
Benzene	0.0050	mg/kg	-	-	<0.0132	<0.0148	<0.0127	3	<0.0127	<0.0148	0.0132	0.0136	0.0011
Ethylbenzene	0.015	mg/kg	-	-	<0.033	<0.037	<0.032	3	<0.032	<0.037	0.033	0.034	0.003
Methyl-tert-butyl ether [MTBE]	0.040	mg/kg	-	-	<0.040	<0.040	<0.040	3	<0.040	<0.040	<0.040	<0.040	-
Styrene	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Toluene	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Xylene, m+p-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Xylene, o-	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Xylenes, total	0.075	mg/kg	-	-	<0.075	<0.075	<0.075	3	<0.075	<0.075	<0.075	<0.075	-
Volatile Organic Compounds [THMs]													
Bromodichloromethane	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Bromoform	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Chloroform	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Dibromochloromethane	0.050	mg/kg	-	-	<0.050	<0.050	<0.050	3	<0.050	<0.050	<0.050	<0.050	-
Volatile Organic Compounds Surrogates													
Bromofluorobenzene, 4-	0.10	%	-	-	122	76.6	127	3	76.6	127	122	109	28
Difluorobenzene, 1,4-	0.10	%	-	-	122	97.6	115	3	97.6	122	115	112	13
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	0.0050	mg/kg	0.0067	0.0889	<0.0105	<0.0108	<0.0090	3	<0.0090	<0.0108	0.0105	0.0101	0.0010
Acenaphthylene	0.0050	mg/kg	0.0059	0.128	<0.0105	<0.0108	<0.0090	3	<0.0090	<0.0108	0.0105	0.0101	0.0010
Acridine	0.010	mg/kg	-	-	0.022	<0.011	<0.010	3	<0.010	0.022	0.011	0.014	0.007
Anthracene	0.0040	mg/kg	0.047	0.245	<0.0160	<0.0108	<0.0090	3	<0.0090	<0.0160	0.0108	0.012	0.004
Benz(a)anthracene	0.010	mg/kg	0.032	0.385	0.025	<0.011	<0.010	3	<0.010	0.025	0.011	0.015	0.008
Benzo(a)pyrene	0.010	mg/kg	0.032	0.782	0.021	<0.011	<0.010	3	<0.010	0.021	0.011	0.014	0.006
Benzo(b+j)fluoranthene	0.010	mg/kg	-	-	0.025	<0.011	<0.010	3	<0.010	0.025	0.011	0.015	0.008
Benzo(b+j+k)fluoranthene	0.015	mg/kg	-	-	0.046	<0.011	<0.015	3	<0.011	0.046	0.015	0.024	0.019
Benzo(g,h,i)perylene	0.010	mg/kg	-	-	0.036	<0.011	<0.010	3	<0.010	0.036	0.011	0.019	0.015
Benzo(k)fluoranthene	0.010	mg/kg	-	-	0.021	<0.011	<0.010	3	<0.010	0.021	0.011	0.014	0.006
Chrysene	0.010	mg/kg	0.057	0.862	0.024	<0.011	<0.010	3	<0.010	0.024	0.011	0.015	0.008
Dibenz(a,h)anthracene	0.0050	mg/kg	0.0062	0.135	0.0259	<0.0108	<0.0090	3	<0.0090	0.0259	0.0108	0.0152	0.0093
Fluoranthene	0.010	mg/kg	0.111	2.36	0.026	<0.011	<0.010	3	<0.010	0.026	0.011	0.016	0.009
Fluorene	0.010	mg/kg	0.021	0.144	0.013	<0.011	<0.010	3	<0.010	0.013	0.011	0.011	0.002

Table C-3 Sediment Quality Data for PWI-1 Sampling Locations, August 2024

Parameter	LDL	Units	CCME SQG-FAL		PL-SQ-01	PL-SQ-02	PL-SQ-03	Summary Statistics[b]					
			ISQG	PEL	06-Aug-2024	06-Aug-2024	06-Aug-2024	n	min	max	median	mean	std dev
Indeno(1,2,3-c,d)pyrene	0.010	mg/kg	-	-	0.038	<0.011	<0.010	3	<0.010	0.038	0.011	0.020	0.016
Methylnaphthalene, 1+2-	0.015	mg/kg	-	-	0.033	<0.016	<0.015	3	<0.015	0.033	0.016	0.021	0.010
Methylnaphthalene, 1-	0.010	mg/kg	-	-	0.013	<0.011	<0.010	3	<0.010	0.013	0.011	0.011	0.002
Methylnaphthalene, 2-	0.010	mg/kg	0.020	0.201	0.020	<0.011	<0.010	3	<0.010	0.020	0.011	0.014	0.006
Naphthalene	0.010	mg/kg	0.035	0.391	0.041	0.024	0.012	3	0.012	0.041	0.024	0.026	0.015
Phenanthrene	0.010	mg/kg	0.042	0.515	0.020	<0.011	<0.010	3	<0.010	0.020	0.011	0.014	0.006
Pyrene	0.010	mg/kg	0.053	0.875	0.018	<0.011	<0.010	3	<0.010	0.018	0.011	0.013	0.004
Quinoline	0.010	mg/kg	-	-	<0.010	<0.011	<0.010	3	<0.010	0.011	0.010	0.010	0.001
B(a)P total potency equivalents [B(a)P TPE]	0.020	mg/kg	-	-	0.058	<0.020	<0.020	3	<0.020	0.058	0.020	0.033	0.022
Polycyclic Aromatic Hydrocarbons Surrogates													
Acridine-d9	0.1	%	-	-	106	102	95.1	3	95.1	106	102	101	5.5
Chrysene-d12	0.1	%	-	-	127	99.0	103	3	99.0	127	103	110	15.1
Naphthalene-d8	0.1	%	-	-	115	90.0	92.9	3	90.0	115	92.9	99.3	13.7
Phenanthrene-d10	0.1	%	-	-	134	106	105	3	105	134	106	115	16.5

Notes:

LDL = lowest detection limit; SQG-FAL = sediment quality guidelines for the protection of aquatic life; ISQG = interim sediment quality guidelines; PEL = probable effect level; n = sample size; min = minimum; max = maximum; std dev = standard deviation

Dark grey highlighted text indicates an exceedance of the CCME PEL.

Light grey highlighted text indicates an exceedance of the CCME ISQG.

[a] Canadian Council of Ministers of the Environment (CCME). 2024. Water and Sediment Quality Guidelines for the Protection of Aquatic Life. Available at: https://ccme.ca/en/summary-table. Accessed September 2024.

[b] Summary statistics were calculated using <LRL results at the LRL.

Reference: Potential Water Intake Location (PWI-1) Memorandum

Appendix D Fish and Fish Habitat Results

Table D-1 Fish Capture Records for PWI-1, August 2024

Habitat Unit	Riparian Composition (%)				Riparian Bank Stability	Substrate Composition (%)									Overhead Cover (%)		Instream Cover (%)					Instream Vegetation (%)						Comments
	Rocky[1]	Grass	Shrub	Wetland		Organics	Fines	Sand	Small Gravel	Large Gravel	Cobble	Small Boulder	Larger Boulder	Bedrock	Total	Riparian	Total	SWD	Cobble	Boulder	Vegetation	Emergent	Floating Leafed	Free Floating	Submerged	Filamentous Algae	Macrophytic Algae	
1	0	15	75	10	Stable	45	40	0	0	0	0	5	5	0	10	10	80	15	0	10	50	25	0	0	75	0	0	Organic substrates with occasional boulder. Shrubs and grass riparian. Lots of aquatic vegetation. Water quite turbid, difficult to see substrates and habitat. Lots of NNST observed.
2	50	25	25	0	Stable	0	10	10	10	10	30	15	15	0	10	5	30	0	20	10	0	100	0	0	0	0	0	Cobble, boulder riparian and littoral area. Fine sediment overlaying coarse. lots of NNST observed.
3	0	25	75	0	Stable	40	40	0	0	0	5	10	5	0	10	20	80	25	5	10	45	25	0	0	75	0	0	Similar habitat to habitat unit 1, NNST everywhere.
4	40	30	30	0	Stable	0	25	10	15	15	15	10	10	0	5	5	30	0	20	10	5	50	0	0	0	0	50	Boulder, shrub and grass riparian. Predominantly coarse substrates with fines overlaying. Three sandy beaches in surveyed area. Lots of NNST.
5	20	20	60	0	Stable	10	20	20	0	10	10	10	20	0	10	10	20	0	0	15	5	100	0	0	0	0	0	Boulder, shrub and grass riparian. Sandy beach located within habitat unit 5.
6	25	25	25	25	Stable	20	10	10	0	0	30	20	10	0	20	10	10	0	0	30	20	0	0	0	0	0	0	Riparian is wetland grasses, boulders and shrubs. Similar substrate to other transects, different riparian.
7	90	0	10	0	Stable	0	20	20	0	0	0	15	15	30	5	0	0	0	0	30	0	0	0	0	0	0	0	Bedrock shoreline with traces of shrubs. Cliff/drop to >1 m depth.
8	15	40	25	25	Stable	20	20	20	0	0	0	20	20	0	20	0	15	0	0	10	5	100	0	0	0	0	0	-
9	80	0	20	0	Stable	10	30	5	0	0	5	10	10	30	5	0	30	0	0	30	0	0	0	0	0	0	0	Mostly bedrock shoreline, some small and large boulders.
10	70	5	25	0	Stable	0	10	0	0	0	0	25	30	30	10	10	40	10	0	40	0	0	0	0	0	0	0	Shoreline alternates between bedrock and small/large boulders.

Notes:
[1] Rocky shorelines were comprised of coarse substrates (i.e., cobble, boulder, bedrock).

Table D-1 Fish Fish Capture Records for PWI-1, August 2024

Sampling Effort	Sampling ID	Sampling Date	Set Time (hh:mm)	Lift Time (hh:mm)	Fishing Hours (h)	# of Traps	Set Depth/Site Length (m)	Net Dimensions	Electrofishing Details	Effort[1]	Ninespine Stickleback	
											Catch	CPUE
Backpack Electrofishing	PL-EF-01	2024-08-05	16:48:58	17:15:12	-	-	95	-	350 V, 40 Hz, 2 ms	456	125	16.4
Minnow Trapping	PL-MT-01	2024-08-05	16:12:00	21:23:16	5.19	2	0.4	-	-	10.4	450	43.4
	PL-MT-02	2024-08-05	16:18:39	21:25:24	5.11	2	0.3	-	-	10.2	160	15.6
	PL-MT-03	2024-08-05	16:25:53	21:30:41	5.08	3	0.4	-	-	15.2	420	27.6
									TOTAL	35.8	1030	86.6
Gill Netting	PL-GN-01	2024-08-06	20:03:00	21:25:28	1.37	-	-	1/2 to 4 inch mesh 200 m x 1.5 m	-	1.4	0	0
	PL-GN-02	2024-08-07	16:11:18	17:58:58	1.79	-	-	1/2 to 4 inch mesh 200 m x 1.5 m	-	1.8	0	0
	PL-GN-03	2024-08-07	16:17:56	18:09:07	1.85	-	-	1/2 to 4 inch mesh 200 m x 1.5 m	-	1.9	0	0
	PL-GN-04	2024-08-07	18:18:27	19:37:32	1.32	-	-	1/2 to 4 inch mesh 200 m x 1.5 m	-	1.3	0	0
	PL-GN-05	2024-08-07	18:26:51	19:47:46	1.35	-	-	1/2 to 4 inch mesh 200 m x 1.5 m	-	1.3	0	0
									TOTAL	7.7	0	0
Angling	PL-AN-01	2024-08-07	16:50:22	17:14:39	0.40	1	1200	-		0.4	0	0
	PL-AN-02	2024-08-07	17:12:00	17:22:50	0.18	1	465	-	-	0.2	0	0
	PL-AN-03	2024-08-07	18:28:52	18:36:56	0.13	1	611	-	-	0.1	0	0
									TOTAL	0.7	0	0

Notes: CPUE = catch per unit effort.

[1] Units for effort for backpack electrofishing = seconds, minnow trapping, gill netting, and angling = hours.

Reference: Potential Water Intake Location (PWI-1) Memorandum

Appendix E PWI-1 Photolog

NUNAMI
STANTEC LIMITED

Photographic Log

Client:	**West Kitikmeot Resources Corp**	**Project:**	**Grays Bay Road and Port Project (GBRP)**
Site Name:	**PWI-1**	**Site Location:**	

Photograph ID: 1

Photo Location:
Habitat Unit 1

Survey Date:
8/6/2024

Comments:
Shrub riparian composition.

Photograph ID: 2

Photo Location:
Habitat Unit 2

Survey Date:
8/6/2024

Comments:
Rocky riparian composition.

Client:	**West Kitikmeot Resources Corp**	**Project:**	**Grays Bay Road and Port Project (GBRP)**
Site Name:	**PWI-1**	**Site Location:**	

Photograph ID: 3 **Photo Location:** Habitat Unit 2 **Survey Date:** 8/6/2024 **Comments:** Littoral substrate.	
Photograph ID: 4 **Photo Location:** Habitat Unit 3 **Survey Date:** 8/6/2024 **Comments:** Shrub riparian composition.	

Client:	**West Kitikmeot Resources Corp**	**Project:**	**Grays Bay Road and Port Project (GBRP)**
Site Name:	**PWI-1**	**Site Location:**	

Photograph ID: 5 **Photo Location:** Habitat Unit 4 **Survey Date:** 8/6/2024 **Comments:** Rocky riparian composition.	
Photograph ID: 6 **Photo Location:** Habitat Unit 5 **Survey Date:** 8/7/2024 **Comments:** Rocky riparian composition.	

Client:	**West Kitikmeot Resources Corp**	**Project:**	**Grays Bay Road and Port Project (GBRP)**
Site Name:	**PWI-1**	**Site Location:**	

Photograph ID: 7 **Photo Location:** Habitat Unit 5 **Survey Date:** 8/7/2024 **Comments:** Sandy beach.	
Photograph ID: 8 **Photo Location:** Habitat Unit 6 **Survey Date:** 8/7/2024 **Comments:** Wetland grasses.	

Client:	**West Kitikmeot Resources Corp**	**Project:**	**Grays Bay Road and Port Project (GBRP)**
Site Name:	**PWI-1**	**Site Location:**	

Photograph ID: 9 **Photo Location:** Habitat Unit 7 **Survey Date:** 8/7/2024 **Comments:** Rocky (bedrock) riparian composition.	
Photograph ID: 10 **Photo Location:** Habitat Unit 8 **Survey Date:** 8/7/2024 **Comments:** Wetland grasses.	

Client:	**West Kitikmeot Resources Corp**	**Project:**	**Grays Bay Road and Port Project (GBRP)**
Site Name:	**PWI-1**	**Site Location:**	

Photograph ID: 11

Photo Location:
Habitat Unit 9

Survey Date:
8/7/2024

Comments:
Rocky riparian composition.

Photograph ID: 12

Photo Location:
Habitat Unit 10

Survey Date:
8/7/2024

Comments:
Rocky (bedrock) riparian composition.

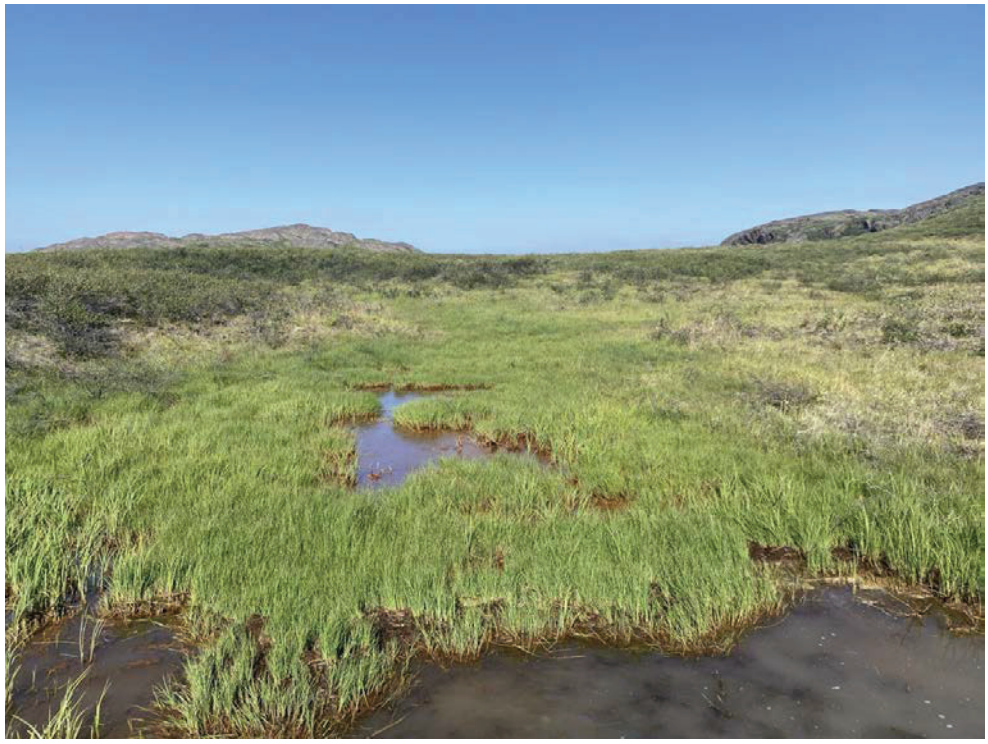
Client:	**West Kitikmeot Resources Corp**	**Project:**	**Grays Bay Road and Port Project (GBRP)**
Site Name:	**PWI-1**	**Site Location:**	

Photograph ID: 13

Photo Location:
Inlet 1

Survey Date:
8/7/2024

Comments:
Inlet to possible seasonal drainage.



Photograph ID: 14

Photo Location:
Inlet 2

Survey Date:
8/6/2024

Comments:
Inlet to possible seasonal drainage.

Client:	**West Kitikmeot Resources Corp**	**Project:**	**Grays Bay Road and Port Project (GBRP)**
Site Name:	**PWI-1**	**Site Location:**	

Photograph ID: 15

Photo Location:
Inlet 3

Survey Date:
8/7/2024

Comments:
Inlet to possible seasonal drainage.

Appendix E Compiled Laboratory Results for Surface Water and Sediment Quality (Screened Against Applicable Guidelines) with Summary Statistics

Table E.1 Summary of Water Quality Laboratory Data and Guideline Comparison – Kennarctic River

Parameter	Detection Limit	Units	Water Quality Guidelines				KN7-082712-1	KN8-082712-1	KN9a-082212-1	KN9b-082712-1	KN10-082212-1	KN10-082712-1	Summary Statistics					
					CCME		27-Aug-12	27-Aug-12	22-Aug-12	27-Aug-12	22-Aug-12	27-Aug-12						
			Health Canada DWQG	FEQG	Short-term	Long-term	Downstream of High Lake Influence	Downstream of High Lake Influence	Downstream of High Lake Influence	Downstream of High Lake Influence	Reference Site	Reference Site	n	Minimum	Maximum	Median	Mean	Standard Deviation
Physical Tests																		
Conductivity	0.2	µS/cm	-	-	-	-	76.8	70.2	78.6	77.3	70.4	76	6	70.2	78.6	76	74.9	3.33
Alkalinity, total (as CaCO3)	5.00	mg/L	-	-	-	-	24.1	22.8	24.9	24.4	23	25.4	6	22.8	25.4	24	24.1	0.94
Colour, true	5.0	CU	-	-	-	-	8.2	6.3	3	5.4	3.1	2.7	6	2.7	8.2	4	4.8	2.03
Hardness (as CaCO3), dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO3), from total	1	mg/L	-	-	-	-	31.4	29.2	30.2	32	27.3	30.3	6	27.3	32	30	30.1	1.53
Total Dissolved Solids	10	mg/L	500	-	-	-	51	48	42	46	46	46	6	42.0	51	46	46.5	2.69
Total suspended solids	3.0	mg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	6	<3.0	<3.0	3.0	3.0	0.00
Turbidity	0.10	NTU	-	-	-	-	0.46	0.29	0.27	0.22	0.23	0.43	6	0.22	0.46	0.28	0.3	0.09
pH	0.10	pH units	7 - 10.5	-	-	6.5 - 9	7.41	7.43	7.42	7.35	7.31	7.27	6	7.27	7.43	7.38	7.4	0.06
Anions and Nutrients																		
Ammonia, total (as N)	0.0050	mg/L	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	6	<0.0050	<0.0050	0	0.0	0.00
Bromide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	0.50	mg/L	250	-	600	150	2.73	2.12	2.21	2.45	2.08	2.12	6	2.08	2.73	2.165	2.3	0.23
Fluoride	0.05	mg/L	1.5	-	0.12	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	6	<0.050	<0.050	0.05	0.05	0.00
Total kjeldahl nitrogen	0.050	mg/L	-	-	-	-	0.094	<0.050	0.083	0.08	0.099	<0.050	6	<0.050	0.099	0.0815	0.0760	0.02
Nitrate (as N)	0.01	mg/L	10	-	32.8	3	0.0292	0.0462	0.0684	0.0612	0.053	0.0831	6	0.0292	0.0831	0.0571	0.0569	0.02
Nitrite (as N)	0.002	mg/L	1.0	-	0.06	0.02	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	6	<0.0020	<0.0020	0.002	0.0020	0.00
Phosphorus, total	0.001	mg/L	-	-	-	-	0.0027	0.0017	0.0022	0.0016	0.0014	0.0019	6	0.0014	0.0027	0.0018	0.0019	0.00
Orthophosphate-Dissolved (as P)	0.001	mg/L	-	-	-	-	0.0013	0.0014	0.0021	0.0014	0.0014	0.0013	6	0.0013	0.0021	0.0014	0.0015	0.00
Sulfate (as SO4)	0.05	mg/L	500	-	-	128	9.06	8.27	8.87	9.19	8.11	8.61	6	8.11	9.19	8.74	8.7	0.40
Cyanides																		
Total Cyanide	0.05	mg/L	0.2	-	-	0.005	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	6	<0.0020	<0.0020	0.002	0	0.00
Organic / Inorganic Carbon																		
Dissolved organic carbon	1	mg/L	-	-	-	-	1.7	1.5	1.3	1.4	1.4	1.2	6	1.2	1.7	1.4	1	0.16
Total organic carbon	1	mg/L	-	-	-	-	2.1	1.6	1.3	1.4	1.5	1.2	6	1.2	2.1	1.45		0.29

Parameter	Detection Limit	Units	Water Quality Guidelines				KN7-082712-1	KN8-082712-1	KN9a-082212-1	KN9b-082712-1	KN10-082212-1	KN10-082712-1	Summary Statistics					
					CCME		27-Aug-12	27-Aug-12	22-Aug-12	27-Aug-12	22-Aug-12	27-Aug-12						
			Health Canada DWQG	FEQG	Short-term	Long-term	Downstream of High Lake Influence	Downstream of High Lake Influence	Downstream of High Lake Influence	Downstream of High Lake Influence	Reference Site	Reference Site	n	Minimum	Maximum	Median	Mean	Standard Deviation
Total Metals																		
Aluminum	0.0003	mg/L	2.900	0.057	-	0.100	0.00903	0.00364	0.00372	0.00477	0.00294	0.00387	6	0.00294	0.00903	0.003795	0.00466	0.00
Antimony	0.00002	mg/L	0.006	-	-	-	0.00011	0.000096	0.000085	0.000135	0.000089	0.000093	6	0.000085	0.000135	0.0000945	0.00010	0.00
Arsenic	0.00002	mg/L	0.010	-	-	0.005	0.000812	0.000422	0.000347	0.000375	0.000333	0.000326	6	0.000326	0.000812	0.000361	0.00044	0.00
Barium	0.00005	mg/L	2.0	-	-	-	0.00324	0.00255	0.00274	0.0027	0.00255	0.00298	6	0.00255	0.00324	0.00272	0.00279	0.00
Beryllium	0.00001	mg/L	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	0.00001	0.00001	0.00
Bismuth	0.00001	mg/L	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	0.00001	0.00001	0.00
Boron	0.001	mg/L	5.0	-	29	1.5	0.0029	0.0026	0.0044	0.0027	0.0042	0.0026	6	0.0026	0.0044	0.0028	0.00323	0.00
Cadmium	0.000005	mg/L	0.0070	-	0.00022	0.000040	0.0000064	<0.0000050	<0.0000050	0.0000171	<0.0000050	0.0000058	6	<0.0000050	0.0000171	0.0000054	0.00001	0.00
Calcium	0.02	mg/L	-	-	-	-	8.44	7.62	8.49	8.3	7.63	8.07	6	7.62	8.49	8.185	8	0.36
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	0.00006	mg/L	0.050	0.0050	-	0.001	<0.000060	<0.000060	<0.000060	<0.000060	<0.000060	<0.000060	6	<0.000060	<0.000060	0.00006	0.00006	0.00
Cobalt	0.00001	mg/L	-	0.0004	-	-	0.000059	<0.000010	<0.000010	0.00001	<0.000010	<0.000010	6	<0.000010	0.000059	0.00001	0.00002	0.00
Copper	0.0006	mg/L	2.0	-	-	0.0020	0.00143	0.00089	0.00082	0.00129	0.00097	0.00078	6	0.00078	0.00143	0.00093	0.00103	0.00
Iron	0.001	mg/L	0.10	0.15	1.00	-	0.0548	0.0078	0.0031	0.0057	0.0038	0.0042	6	0.0031	0.0548	0.00495	0.01323	0.02
Lead	0.00001	mg/L	0.005	-	-	0.0010	<0.000010	<0.000010	0.000021	0.000019	<0.000010	<0.000010	6	<0.000010	0.000021	0.00001	0.00001	0.00
Lithium	0.00050	mg/L	-	-	-	-	0.00051	0.00057	<0.00050	0.00058	<0.00050	0.00057	6	<0.00050	0.00058	0.00054	0.00054	0.00
Magnesium	0.004	mg/L	-	-	-	-	2.93	2.79	3.04	3.02	2.76	2.98	6	2.76	3.04	2.955	2.92000	0.11
Manganese	0.00005	mg/L	0.12	-	-	-	0.00673	0.000599	0.000206	0.000264	0.0002	0.000317	6	0.0002	0.00673	0.0002905	0.00139	0.00
Mercury	0.00002	mg/L	0.0010	-	-	0.000026	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	6	<0.000020	<0.000020	0.00002	0.00002	0.00
Molybdenum	0.00005	mg/L	-	-	-	0.073	0.000152	0.000127	0.000123	0.000144	0.000114	0.000135	6	0.000114	0.000152	0.000131	0.00013	0.00
Nickel	0.00006	mg/L	-	-	-	0.0250	0.000508	0.000347	0.000374	0.000345	0.000353	0.000405	6	0.000345	0.000508	0.0003635	0.00039	0.00
Phosphorus	0.001	mg/L	-	-	-	-	0.0027	0.0017	0.0022	0.0016	0.0014	0.0019	6	0.0014	0.0027	0.0018	0.00192	0.00
Potassium	0.02	mg/L	-	-	-	-	0.676	0.633	0.648	0.668	0.644	0.674	6	0.633	0.676	0.658	0.7	0.02
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	0.00004	mg/L	0.050	-	-	0.0010	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	6	<0.000040	<0.000040	0.00004	0.00004	0.00
Silicon	-	-	-	-	-	-	-	-	-	-	-	-	0					
Silver	0.000005	mg/L	-	-	-	0.00025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	6	<0.0000050	<0.0000050	0.000005	0.000005	0.00
Sodium	0.01	mg/L	200	-	-	-	1.53	1.25	1.35	1.36	1.29	1.29	6	1.25	1.53	1.32	1.35	0.09
Strontium	0.00005	mg/L	7.0	-	-	-	0.021	0.017	0.0195	0.0215	0.0173	0.0185	6	0.017	0.0215	0.019	0.0191	0.00
Sulfur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	0.00001	mg/L	-	-	-	0.00080	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	0.00001	0.00001	0.00

Parameter	Detection Limit	Units	Water Quality Guidelines				KN7-082712-1	KN8-082712-1	KN9a-082212-1	KN9b-082712-1	KN10-082212-1	KN10-082712-1	Summary Statistics					
					CCME		27-Aug-12	27-Aug-12	22-Aug-12	27-Aug-12	22-Aug-12	27-Aug-12						
			Health Canada DWQG	FEQG	Short-term	Long-term	Downstream of High Lake Influence	Downstream of High Lake Influence	Downstream of High Lake Influence	Downstream of High Lake Influence	Reference Site	Reference Site	n	Minimum	Maximum	Median	Mean	Standard Deviation
Thorium	-	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	0.00005	mg/L	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	6	<0.000050	<0.000050	0.00005	0.00005	0.00
Titanium	0.0001	mg/L	-	-	-	-	0.00023	<0.00010	<0.00010	0.00015	<0.00010	<0.00010	6	<0.00010	0.00023	0.0001	0.0001	0.00
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	0.00001	mg/L	0.020	-	0.033	0.0150	0.000046	0.000029	0.000026	0.000028	0.000025	0.00002	6	0.00002	0.000046	0.000027	0.00003	0.00
Vanadium	0.00	mg/L	-	0.120	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	6	<0.000050	<0.000050	0.00005	0.00005	0.00
Zinc	0.0008	mg/L	5.0	-	-	-	0.00424	0.00139	0.00274	0.00459	0.00204	0.00143	6	0.00139	0.00459	0.00239	0.00274	0.00
Zirconium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																		
Aluminum	0.0003	mg/L	-	-	-	-	0.00236	0.0025	0.00154	0.00251	0.00168	0.00175	6	0.00154	0.00251	0.002055	0.00206	0.00
Antimony	0.00002	mg/L	-	-	-	-	0.00011	0.000089	0.0001	0.000144	0.0001	0.000091	6	0.000089	0.000144	0.0001	0.00011	0.00
Arsenic	0.00002	mg/L	-	-	-	-	0.000614	0.000401	0.000352	0.00037	0.000346	0.000336	6	0.000336	0.000614	0.000361	0.00040	0.00
Barium	0.00005	mg/L	-	-	-	-	0.003	0.00246	0.00278	0.00307	0.00263	0.00303	6	0.00246	0.00307	0.00289	0.00283	0.00
Beryllium	0.00001	mg/L	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	0.00001	0.00001	0.00
Bismuth	0.00001	mg/L	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	0.00001	0.00001	0.00
Boron	0.001	mg/L	-	-	-	-	0.0064	0.0046	0.0074	0.0078	0.0063	0.0075	6	0.0046	0.0078	0.0069	0.00667	0.00
Cadmium	0.000005	mg/L	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	0.0000157	<0.0000050	0.000005	6	<0.0000050	0.0000157	0.000005	0.00001	0.00
Calcium	0.02	mg/L	-	-	-	-	8.34	7.52	7.81	8.34	7.04	7.86	6	7.04	8.34	7.84	7.82	0.45
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	0.00006	mg/L	-	-	-	-	<0.000060	<0.000060	<0.000060	<0.000060	<0.000060	<0.000060	6	<0.000060	<0.000060	0.00006	0.00006	0.00
Cobalt	0.00001	mg/L	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	0.00001	0.00001	0.00
Copper	0.0006	mg/L	-	0.0002	-	-	**0.00098**	**0.00073**	**0.00071**	**0.00112**	**0.00087**	**0.00063**	6	0.00063	0.00112	0.0008	0.00084	0.00
Iron	0.001	mg/L	-	-	-	-	0.0013	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	6	<0.0010	0.0013	0.001	0.001	0.00
Lead	0.00001	mg/L	-	0.003	-	-	<0.000010	<0.000010	0.000251	<0.000010	0.000014	0.000041	6	<0.000010	0.000251	0.000012	0.00006	0.00
Lithium	0.0005	mg/L	-	-	-	-	<0.00050	<0.00050	<0.00050	0.00054	<0.00050	0.00051	6	<0.00050	0.00054	0.0005	0.00051	0.00
Magnesium	0.004	mg/L	-	-	-	-	2.56	2.53	2.59	2.72	2.35	2.59	6	2.35	2.72	2.575	2.56	0.11
Manganese	0.00005	mg/L	-	-	0.960	0.330	0.000079	<0.000050	<0.000050	0.000055	0.000068	<0.000050	6	<0.000050	0.000079	0.0000525	0.00006	0.00
Mercury	0.00002	mg/L	-	-	-	-	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	6	<0.000020	<0.000020	0.00002	0.00002	0.00
Molybdenum	0.00005	mg/L	-	-	-	-	0.000147	0.00013	0.000152	0.000158	0.000124	0.000166	6	0.000124	0.000166	0.0001495	0.00015	0.00
Nickel	0.00006	mg/L	-	-	-	-	0.000386	0.00034	0.000352	0.000342	0.000317	0.000395	6	0.000317	0.000395	0.000347	0.00036	0.00
Phosphorus	0.001	mg/L	-	-	-	-	0.0013	0.0014	0.0021	0.0014	0.0014	0.0013	6	0.0013	0.0021	0.0014	0.00148	0.00
Potassium	0.02	mg/L	-	-	-	-	0.59	0.56	0.57	0.62	0.52	0.68	6	0.52	0.68	0.58	0.59000	0.05
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Parameter	Detection Limit	Units	Water Quality Guidelines				KN7-082712-1	KN8-082712-1	KN9a-082212-1	KN9b-082712-1	KN10-082212-1	KN10-082712-1	Summary Statistics					
			Health Canada DWQG	FEQG	CCME		27-Aug-12	27-Aug-12	22-Aug-12	27-Aug-12	22-Aug-12	27-Aug-12						
					Short-term	Long-term	Downstream of High Lake Influence	Downstream of High Lake Influence	Downstream of High Lake Influence	Downstream of High Lake Influence	Reference Site	Reference Site	n	Minimum	Maximum	Median	Mean	Standard Deviation
Selenium	0.00004	mg/L	-	-	-	-	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	6	<0.000040	<0.000040	0.00004	0.00004	0.00
Silicon	-	-	-	-	-	-	0.57	0.56	0.55	0.6	0.5	0.64	6	0.5	0.64	0.565	0.57	0.04
Silver	0.000005	mg/L	-	-	-	-	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	6	<0.0000050	<0.0000050	0.000005	0.000005	0.00
Sodium	0.01	mg/L	-	-	-	-	1.4	1.2	1.2	1.4	1	1.2	6	1	1.4	1.2	1.233	0.14
Strontium	0.00005	mg/L	-	2.5	-	-	0.0206	0.0168	0.0199	0.0214	0.0174	0.0185	6	0.0168	0.0214	0.0192	0.01910	0.00
Sulfur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium	0.00001	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	0.00001	mg/L	-	-	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	6	<0.000010	<0.000010	0.00001	0.00001	0.00
Thorium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	0.00005	mg/L	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	6	<0.000050	<0.000050	0.00005	0.00005	0.00
Titanium	0.0001	mg/L	-	-	-	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	6	<0.00010	<0.00010	0.0001	0.0001	0.00
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	0.00001	mg/L	-	-	-	-	0.000035	0.000026	0.000027	0.000025	0.000022	0.000019	6	0.000019	0.000035	0.0000255	0.00003	0.00
Vanadium	0.00005	mg/L	-	-	-	-	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	6	<0.000050	<0.000050	0.00005	0.00005	0.00
Zinc	0.0008	mg/L	-	-	0.015	0.0100	<0.00080	0.00083	0.00184	0.00357	0.0014	0.00251	6	<0.00080	0.00357	0.00162	0.00	0.00
Zirconium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
FEQG - Federal Environment Quality Guideline
CCME - Canadian Council of Ministers of the Environment
HC - Health Canada
WQG- FAL - Water Quality Guidelines Freshwater Aquatic Life
DWQG - Drinking Water Quality Guideline
LDL - lower detection limit
n - sample count
mg/L - milligrams per litre; m - metre, °C - degrees Celcius; µS/cm - microseimens per centimetre; g/L - grams per litre; % - percent; mV - millivolts,
N/A - not applicable, meq/L - milliequivalents per litre; µg/L - micrograms per litre; NTU - Nephelometric Turbidity unit; CFU/mL - colony forming unit per millilitre
0.01 red value is above Health Canada guidelines
0.001 orange values is above short-term CCME WQG-FAL
0.1 blue value is above FEQG
0.001 purple value is above long-term CCME WQG-FAL
Guideline is variable. Presented guidelines based on pH of 6.5, water temperature of 10, water hardness of 11 mg/L, and DOC of 1 mg/L.

Table E.2 Summary of Water Quality Laboratory Data and Guideline Comparisons – Results from the Izok Mine Corridor Project (Road Corridor Streams in the Burnside River, Hood River, James River, and Wentzel River Watersheds)

Parameter	Detection Limit	Units	Water Quality Guidelines				Burnside River				Hood River			James River	Wentzel River		Summary Statistics					
			Health Canada DWQG	FEQG	CCME		X03-055A	X03-062A	X03-069A	X01-072	X01-085	X01-094	X01-104	X01-115	X03-123A	X01-130-ALT						
					Short-term	Long-term	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	28-Aug-12	28-Aug-12	29-Aug-12	29-Aug-12	n	Minimum	Maximum	Median	Mean	Standard Deviation
Physical Tests																						
Conductivity	0.2	µS/cm	-	-	-	-	13	16	28	25	27	15	18	24	90	99	10	13	99	25	35.5	29.98
Alkalinity, total (as CaCO3)	5.00	mg/L	-	-	-	-	5	7	9	11	6	<5	6	7	36	33	10	5	36	7	12.5	11.16
Colour, true	5.0	CU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0					
Hardness (as CaCO3), dissolved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO3), from total	1	mg/L	-	-	-	-	6	7	12	11	9	6	7	10	37	40	10	6.0	40	10	14.5	12.18
Total Dissolved Solids	3	mg/L	500	-	-	-	24	20	46	<10	20	<10	15	17	54	61	10	<10	61	20	27.7	17.80
Total suspended solids	3.0	mg/L	-	-	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	10	<3.0	<3.0	3.0	3.0	0.00
Turbidity	0.10	NTU	-	-	-	-	0.5	0.4	1	0.6	0.5	0.4	0.4	0.3	0.3	0.3	10	0.3	1	0.4	0.5	0.20
pH	0.10	pH units	7 - 10.5	-	-	6.5 - 9	-	-	-	-	-	-	-	-	-	-	0					
Anions and Nutrients																						
Ammonia, total (as N)	0.0050	mg/L	-	-	-	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	10	<0.0050	<0.0050	0	0.0	0.00
Bromide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloride	0.50	mg/L	250	-	600	150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	1	2	2	10	<0.5	2	0.5	0.9	0.58
Fluoride	0.05	mg/L	1.50	-	0.12	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	10	<0.05	<0.05	0.05	0.05	0.00
Total kjeldahl nitrogen	0.050	mg/L	-	-	-	-	0.2	0.2	0.5	0.3	0.2	0.1	0.1	0.1	0.06	<0.05	10	<0.05	0.5	0.15	0.1810	0.13
Nitrate (as N)	0.01	mg/L	10	-	32.8	3	0.012	0.018	0.008	0.027	0.01	<0.006	<0.006	0.007	0.064	0.148	10	<0.006	0.148	0.011	0.0306	0.04
Nitrite (as N)	0.002	mg/L	1.0	-	0.06	0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	10	<0.002	<0.002	0.002	0.0020	0.00
Phosphorus, total	0.001	mg/L	-	-	-	-	0.005	0.004	0.008	0.007	0.006	0.004	0.002	0.001	<0.001	0.002	10	0.001	0.008	0.004	0.0040	0.00
Orthophosphate-Dissolved (as P)	0.001	mg/L	-	-	-	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	10	<0.0010	<0.0010	0.001	0.0010	0.00
Sulfate (as SO4)	0.05	mg/L	500	-	-	128	1	1	3	1	5	1	2	3	6	11	10	1	11	2.5	3.4	3.04
Cyanides																						
Total Cyanide	0.002	mg/L	0.2	-	-	0.005	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	10	<0.0020	<0.0020	0.002	0.0020	0.00
Organic / Inorganic Carbon																						
Dissolved organic carbon	1	mg/L	-	-	-	-	4	4	10	5	3	3	3	2	2	2	10	2	10	3	4	2.27
Total organic carbon	1	mg/L	-	-	-	-	3.5	3.1	9.5	4.6	2.6	2.5	2.4	1.9	1.3	1.4	10	1.3	9.5	2.55	3.2800	2.27
Total Metals																						
Aluminum	0.00030	mg/L	2.900	0.057	-	0.100	0.0148	0.0064	**0.0766**	0.0078	0.0088	0.0089	0.009	0.0047	0.0016	0.002	10	0.0016	0.0766	0.0083	0.01406	0.02
Antimony	0.00002	mg/L	0.006	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00007	0.0001	10	<0.00002	0.0001	0.00002	0.00003	0.00
Arsenic	0.00002	mg/L	0.010	-	-	0.005	0.0002	0.0001	0.0003	0.0001	0.0001	0.00007	0.0001	0.0001	0.0005	0.0005	10	0.00007	0.0005	0.0001	0.00021	0.00
Barium	0.00005	mg/L	2.0	-	-	-	0.0017	0.0015	0.0066	0.0023	0.0025	0.0017	0.0021	0.0017	0.0026	0.0025	10	0.0015	0.0066	0.0022	0.00252	0.00

Parameter	Detection Limit	Units	Water Quality Guidelines				Burnside River				Hood River			James River	Wentzel River		Summary Statistics					
			Health Canada DWQG	FEQG	CCME		X03-055A	X03-062A	X03-069A	X01-072	X01-085	X01-094	X01-104	X01-115	X03-123A	X01-130-ALT						
					Short-term	Long-term	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	28-Aug-12	28-Aug-12	29-Aug-12	29-Aug-12	n	Minimum	Maximum	Median	Mean	Standard Deviation
Beryllium	0.00001	mg/L	-	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	10	<0.00001	<0.00001	0.00001	0.00001	0.00
Bismuth	0.00001	mg/L	-	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	10	<0.00001	<0.00001	0.00001	0.00001	0.00
Boron	0.001	mg/L	5.0	-	29	1.5	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.001	0.001	0.002	0.002	10	<0.001	0.002	0.001	0.00130	0.00
Cadmium	0.000005	mg/L	0.0070	-	0.00022	0.000040	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	10	<0.000005	<0.000005	0.000005	0.00001	0.00
Calcium	0.02	mg/L	-	-	-	-	1	2	3	2	2	1	2	3	11	12	10	1	12	2	4	3.86
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	0.00006	mg/L	0.050	0.0050	-	0.001	<0.00006	<0.00006	0.0003	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	10	<0.00006	0.0003	0.00006	0.00008	0.00
Cobalt	0.00001	mg/L	-	0.0004	-	-	0.00003	<0.00001	0.0001	0.00002	0.00004	0.00001	0.00002	0.00001	<0.00001	<0.00001	10	<0.00001	0.0001	0.000015	0.00003	0.00
Copper	0.0006	mg/L	2.0	-	-	0.0020	0.0009	0.0008	**0.0021**	0.0007	0.0011	0.0007	0.0006	0.0007	0.0006	0.0008	10	0.0006	0.0021	0.00075	0.00090	0.00
Iron	0.001	mg/L	0.10	0.15	1.00	-	0.03	0.02	**0.32**	0.08	0.05	0.02	0.06	0.02	0.003	0.002	10	0.002	0.32	0.025	0.06050	0.09
Lead	0.00001	mg/L	0.005	-	-	0.0010	<0.00001	<0.00001	0.00002	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	10	<0.00001	0.00002	0.00001	0.00001	0.00
Lithium	0.00050	mg/L	-	-	-	-	0.0006	<0.0005	0.002	<0.0005	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	10	<0.0005	0.002	0.0005	0.00070	0.00
Magnesium	0.004	mg/L	-	-	-	-	0.6	0.7	1	1	1	0.6	0.8	0.9	4	4	10	0.6	4	0.95	1.46000	1.28
Manganese	0.00005	mg/L	0.12	-	-	-	0.0033	0.0019	0.0095	0.0081	0.0033	0.0017	0.0037	0.0021	0.00007	0.0004	10	0.00007	0.0095	0.0027	0.00341	0.00
Mercury	0.00002	mg/L	0.0010	-	-	0.000026	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	10	<0.00002	<0.00002	0.00002	0.00002	0.00
Molybdenum	0.00005	mg/L	-	-	-	0.07	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0002	0.0001	10	<0.00005	0.0002	0.00005	0.00007	0.00
Nickel	0.00006	mg/L	-	-	-	0.0250	0.0002	0.0002	0.0011	0.0003	0.0012	0.0002	0.0003	0.0002	0.0002	0.0002	10	0.0002	0.0012	0.0002	0.00041	0.00
Phosphorus	0.001	mg/L	-	-	-	-	0.005	0.004	0.008	0.007	0.006	0.004	0.002	0.001	<0.001	0.002	10	0.001	0.008	0.004	0.00400	0.00
Potassium	0.02	mg/L	-	-	-	-	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.6	0.7	10	0.3	0.7	0.4	0.4	0.13
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	0.00004	mg/L	0.050	-	-	0.0010	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	10	<0.00004	<0.00004	0.00004	0.00004	0.00
Silicon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	#N/A	#N/A	#NUM!	#DIV/0!	#DIV/0!
Silver	0.000005	mg/L	-	-	-	0.00025	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	10	<0.000005	<0.000005	0.000005	0.000005	0.00
Sodium	0.01	mg/L	200	-	-	-	0.5	0.4	0.9	0.6	0.6	0.4	0.7	0.8	1	1	10	0.4	1	0.65	0.69	0.22
Strontium	0.00005	mg/L	7.0	-	-	-	0.0052	0.0046	0.0081	0.0054	0.0049	0.0041	0.0049	0.0052	0.0262	0.0161	10	0.0041	0.0262	0.0052	0.0085	0.01
Sulfur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	0.00001	mg/L	-	-	-	0.00080	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	10	<0.00001	<0.00001	0.00001	0.00001	0.00
Thorium	-	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	0.00005	mg/L	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	10	<0.00005	<0.00005	0.00005	0.00005	0.00
Titanium	0.0001	mg/L	-	-	-	-	0.0002	0.0001	0.001	0.0002	0.0002	0.0002	0.0001	<0.0001	<0.0001	<0.0001	10	0.0001	0.001	0.00015	0.0002	0.00
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	0.00001	mg/L	0.020	-	0.033	0.0150	0.00013	0.00005	0.0001	0.00014	0.00004	0.00008	0.00006	0.00007	0.00004	0.00001	10	0.00001	0.00014	0.000065	0.00007	0.00
Vanadium	0.00	mg/L	-	0.120	-	-	0.00005	0.00005	0.0002	0.00005	<0.00005	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	10	0.00005	0.0002	0.00005	0.00007	0.00

Parameter	Detection Limit	Units	Water Quality Guidelines				Burnside River				Hood River			James River	Wentzel River		Summary Statistics					
			Health Canada DWQG	FEQG	CCME		X03-055A	X03-062A	X03-069A	X01-072	X01-085	X01-094	X01-104	X01-115	X03-123A	X01-130-ALT						
					Short-term	Long-term	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	28-Aug-12	28-Aug-12	29-Aug-12	29-Aug-12	n	Minimum	Maximum	Median	Mean	Standard Deviation
Zinc	0.0008	mg/L	5.0	-	-	-	<0.0008	<0.0008	0.002	<0.0008	0.002	0.003	<0.0008	0.002	<0.0008	<0.0008	10	<0.0008	0.003	0.0008	0.00138	0.00
Zirconium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																						
Aluminum	0.0003	mg/L	-	-	-	-	0.0113	0.0046	0.0605	0.0043	0.0049	0.0062	0.005	0.0031	0.0009	0.0018	10	0.0009	0.0605	0.00475	0.01026	0.02
Antimony	0.00002	mg/L	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00008	0.0001	10	<0.00002	0.0001	0.00002	0.00003	0.00
Arsenic	0.00002	mg/L	-	-	-	-	0.0002	0.0001	0.0003	0.0001	0.0001	0.00007	0.0001	0.0001	0.0004	0.0005	10	0.00007	0.0005	0.0001	0.00020	0.00
Barium	0.00005	mg/L	-	-	-	-	0.0017	0.0015	0.0086	0.0023	0.0024	0.0017	0.0019	0.0015	0.0026	0.0025	10	0.0015	0.0086	0.0021	0.00267	0.00
Beryllium	0.00001	mg/L	-	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	10	<0.00001	<0.00001	0.00001	0.00001	0.00
Bismuth	0.00001	mg/L	-	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	10	<0.00001	<0.00001	0.00001	0.00001	0.00
Boron	0.001	mg/L	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.006	0.002	10	<0.001	0.006	0.001	0.00170	0.00
Cadmium	0.000005	mg/L	-	-	-	-	<0.000005	<0.000005	0.000006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.000006	0.000005	10	<0.000005	0.000006	0.000005	0.00001	0.00
Calcium	0.02	mg/L	-	-	-	-	1.4	1.79	2.82	2.73	1.95	1.52	1.59	2.35	9.14	10.3	10	1.4	10.3	2.15	3.56	3.13
Cesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	0.00006	mg/L	-	-	-	-	<0.00006	<0.00006	0.0002	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	<0.00006	10	<0.00006	0.0002	0.00006	0.00007	0.00
Cobalt	0.00001	mg/L	-	-	-	-	0.00002	<0.00001	0.00013	0.00002	0.00003	<0.00001	0.00002	<0.00001	<0.00001	<0.00001	10	<0.00001	0.00013	0.000015	0.00003	0.00
Copper	0.0006	mg/L	-	0.0002	-	-	**0.0009**	**0.0009**	**0.0021**	**0.0006**	**0.0011**	**0.0007**	**0.0006**	**0.0007**	**0.0006**	**0.0008**	10	0.0006	0.0021	0.00075	0.00090	0.00
Iron	0.001	mg/L	-	-	-	-	0.016	0.015	0.23	0.042	0.03	0.006	0.037	0.008	0.002	0.002	10	0.002	0.23	0.0155	0.039	0.07
Lead	0.00001	mg/L	-	0.003	-	-	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	10	<0.00001	0.00002	0.00001	0.00001	0.00
Lithium	0.0005	mg/L	-	-	-	-	0.0052	<0.0005	0.0015	<0.0005	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	10	<0.0005	0.0052	0.0005	0.00112	0.00
Magnesium	0.004	mg/L	-	-	-	-	0.51	0.7	1.26	1.12	1.09	0.633	0.83	0.88	3.42	3.47	10	0.51	3.47	0.985	1.39	1.05
Manganese	0.00005	mg/L	-	-	0.960	0.330	0.0021	0.0011	0.0081	0.0066	0.0028	0.0007	0.0029	0.0013	0.0001	0.0003	10	0.0001	0.0081	0.0017	0.00260	0.00
Mercury	0.00002	mg/L	-	-	-	-	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	10	<0.00002	<0.00002	0.00002	0.00002	0.00
Molybdenum	0.00005	mg/L	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00007	0.0002	0.0001	10	<0.00005	0.0002	0.00005	0.00007	0.00
Nickel	0.00006	mg/L	-	-	-	-	0.0002	0.0002	0.0011	0.0003	0.0012	0.0002	0.0002	0.0002	0.0002	0.0002	10	0.0002	0.0012	0.0002	0.00040	0.00
Phosphorus	0.001	mg/L	-	-	-	-	0.003	0.003	0.005	0.003	0.003	0.002	<0.001	<0.001	<0.001	<0.001	10	<0.001	0.005	0.0025	0.00230	0.00
Potassium	0.02	mg/L	-	-	-	-	0.293	0.3	0.36	0.355	0.45	0.28	0.33	0.38	0.44	0.62	10	0.28	0.62	0.3575	0.38080	0.10
Rubidium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	0.00004	mg/L	-	-	-	-	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	10	<0.00004	<0.00004	0.00004	0.00004	0.00
Silicon	-	-	-	-	-	-	0.31	0.3	0.36	0.36	0.28	0.21	0.24	0.26	0.74	0.64	10	0.21	0.74	0.305	0.37	0.17
Silver	0.000005	mg/L	-	-	-	-	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	10	<0.000005	<0.000005	0.000005	0.000005	0.00
Sodium	0.01	mg/L	-	-	-	-	0.518	0.441	0.855	0.568	0.571	0.462	0.657	0.793	1.13	1.27	10	0.441	1.27	0.614	0.727	0.27
Strontium	0.00005	mg/L	-	2.5	-	-	0.0051	0.0046	0.008	0.0053	0.0048	0.0041	0.0048	0.0053	0.0261	0.0161	10	0.0041	0.0261	0.0052	0.00842	0.01
Sulfur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tellurium	0.00001	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Parameter	Detection Limit	Units	Water Quality Guidelines				Burnside River				Hood River			James River	Wentzel River		Summary Statistics					
			Health Canada DWQG	FEQG	CCME		X03-055A	X03-062A	X03-069A	X01-072	X01-085	X01-094	X01-104	X01-115	X03-123A	X01-130-ALT						
					Short-term	Long-term	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	28-Aug-12	28-Aug-12	29-Aug-12	29-Aug-12	n	Minimum	Maximum	Median	Mean	Standard Deviation
Thallium	0.00001	mg/L	-	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	10	<0.00001	<0.00001	0.00001	0.00001	0.00
Thorium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	0.00005	mg/L	-	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	10	<0.00005	<0.00005	0.00005	0.00005	0.00
Titanium	0.0001	mg/L	-	-	-	-	<0.0001	<0.0001	0.0005	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	10	<0.0001	0.0005	0.0001	0.0002	0.00
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	0.00001	mg/L	-	-	-	-	0.00011	0.00004	0.00009	0.00011	0.00003	0.000007	0.00005	0.00006	0.00004	0.00002	10	0.000007	0.00011	0.000045	0.00006	0.00
Vanadium	0.00005	mg/L	-	-	-	-	<0.00005	<0.00005	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	10	<0.00005	0.0001	0.00005	0.00006	0.00
Zinc	0.0008	mg/L	-	-	0.015	0.01	0.001	<0.0008	0.001	<0.0008	0.002	0.001	<0.0008	0.0002	<0.0008	0.001	10	0.0002	0.002	0.0009	0.00	0.00
Zirconium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
FEQG - Federal Environment Quality Guideline
CCME - Canadian Council of Ministers of the Environment
HC - Health Canada
WQG- FAL - Water Quality Guidelines Freshwater Aquatic Life
DWQG - Drinking Water Quality Guideline
LDL - lower detection limit
n - sample count
mg/L - milligrams per litre; m - metre, °C - degrees Celcius; µS/cm - microseimens per centimetre; g/L - grams per litre; % - percent; mV - millivolts, N/A - not applicable, meq/L - milliequivalents per litre; µg/L - micrograms per litre; NTU - Nephelometric Turbidity unit; CFU/mL - colony forming unit per millilitre
0.01 red value is above Health Canada guidelines
0.001 orange values is above short-term CCME WQG-FAL
0.1 blue value is above FEQG
0.001 purple value is above long-term CCME WQG-FAL
Guideline is variable. Presented guidelines based on pH of 6.5, water temperature of 10, water hardness of 11 mg/L, and DOC of 1 mg/L

Table E.3: Summary of Water Quality Laboratory Data and Guideline Comparison – Lakes in the Area of the High Lake Mine

Watershed		Water Quality Guidelines				Lakes within the High Lake Area						High Lake										High Lake Reference Site		Stantec Potential Water Intake Location (PWI-1)						Stantec Potential Water Intake Location (PWI-2)						Summary Statistics					
Station ID				CCME		L908-T	L908-B	L904	L905	L906-B	L906-T	L16a-T	L16b-T(a)	L16b-B(a)	L16b-T(b)	L16a-B	L16b-T(c)	L16b-B(b)	L31(a)	L31(b)	HLC3-T	HLC3-B	PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B	PL-WQ-03-B	PWI-2-1-S	PWI-2-1-B	PWI-2-2-S	PWI-2-2-B	PWI-2-3-S	PWI-2-3-B						
Date Sampled				Short-term	Long-Term	26-Aug-12	26-Aug-12	23-Aug-12	23-Aug-12	24-Aug-12	24-Aug-12	23-Aug-12	22-Aug-12	22-Aug-12	24-Aug-12	23-Aug-12	22-Aug-12	22-Aug-12	28-Aug-12	28-Aug-12	25-Aug-12	25-Aug-12	Aug-24	Aug-24	Aug-24	Aug-24	Aug-24	Aug-24	29-Jul-25	29-Jul-25	29-Jul-25	29-Jul-25	29-Jul-25	29-Jul-25						
Easting (NAD 83, 12W)						505687	505687	506208	505938	505584	505584	506727	506610	506610	506587	506727	506610	506610	506419	506419	505549	505549	508427	508716	508713	508427	508716	508713	509898	509898	210255	210255	510225	510225						
Northing (NAD 83, 12W)	Units	Health Canada DWQG	FEQG			7472535	7472535	7471604	7471324	7471214	7471214	7474565	7475280	7475280	7475240	7474565	7475280	7475280	7473262	7473262	7464006	7464006	7516535	7516789	7516405	7516535	7516789	7516405	7512469	7512469	7512893	7512893	7512724	7512724	n	Minimum	Maximum	Median	Mean	Standard Deviation
Field Data																																									
Sample Depth	m	-	-	-	-	3	9	3	2	5	3	3	3	22	3	30	3	29	1	1	3	8	0.5	0.5	0.5	5.0	2.5	2.0	0.5	10.0	0.5	9.0	0.5	11.0	29	0.5	30.0	3	6.0	8.0
Total Depth	m	-	-	-	-	11.0	11.0	5.0	4.0	8.0	8.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	2.0	2.0	9.0	9.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0	9.0	9.0	11.0	11.0	29	2.0	30.0	9	12.7	10.2
Temperature at surface	°C	-	-	-	-	10.05	10.05	10.1	9.75	11.22	11.22	10.1	10.14	10.14	10.14	10.1	10.14	10.14	11.42	11.42	10.81	10.81	13.4	13.54	14.03	-	-	-	9.8	-	9.7	-	9.9	-	24	9.74	14.03	10.14	10.79	1.25
Temperature at depth	°C	-	-	-	-	8.31	8.31	9.28	9.45	9.82	9.82	7.15	5.02	5.02	5.02	7.15	5.02	5.02	11.39	11.39	10.21	10.21	-	-	-	11.79	12.08	12.03	-	9.4	-	9.5	-	9.5	25	5.02	12.08	9.45	8.78	2.42
pH at surface	N/A	7.0-10.5	-	-	6.5 - 9.0	7.91	7.91	7.65	7.51	7.68	7.68	7.16	7.68	7.68	7.68	7.16	7.68	7.68	7.91	7.91	7.94	7.94	7.85	7.78	7.82	-	-	-	7.0	-	6.8	-	6.9	-	26	6.77	7.94	7.68	7.60	0.35
Conductivity at surface	µS/cm	-	-	-	-	39	39	45	42	39	39	70	69	69	69	70	69	69	156	156	36	36	184	184.4	182.2	-	-	-	60.3	-	59.7	-	59.8	-	26	36.0	184.4	69	80.1	51.8
TDS at the surface	g/L	-	-	-	-	0.035	0.035	0.041	0.039	0.035	0.035	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.137	0.137	0.032	0.032	-	-	-	-	-	-	-	-	-	-	-	-	17	0.032	0.14	0.063	0.06	0.032
Dissolved oxygen saturation	%	-	-	-	-	104.8	104.8	102	99.5	100.1	100.1	99.9	99.4	99.4	99.4	99.9	99.4	99.4	102.5	102.5	99.3	99.3	105.1	105.7	100.2	90.8	99.3	101	99.7	97.4	99.7	98.9	100.9	98.8	29	90.8	105.7	99.7	100.3	2.8
ORP at the surface	mV	-	-	-	-	141.1	141.1	151.3	127	146.3	146.3	170	173.3	173.3	173.3	170	173.3	173.3	111.3	111.3	141.6	141.6	-	-	-	-	-	-	-	-	-	-	-	-	18	111.3	173.3	146.3	150.9	21.4
Conventional Parameters																																									
Conductivity	µS/cm	-	-	-	-	55	54	62	58	53	53	98	100	100	98	99	98	100	219	221	53	50	196	196	197	199	198	197	63.5	67.8	62.3	71.3	62.4	63.4	29	50	221	98	108.4	62
pH	N/A	7.0-10.5	-	-	6.5 - 9.0	7.3	7.4	.	7.2	7.1	7.1	6.7	6.8	6.8	6.7	6.7	6.8	6.7	7.7	7.7	7.2	7.1	7.42	7.42	7.41	7.41	7.41	7.41	7.23	7.24	7.24	7.21	7.25	7.24	29	6.7	7.7	7.235	7.2	0.3
Total alkalinity (as CaCO3)	mg/L	-	-	-	-	22	22	16	14	11	11	7	8	8	8	7	8	8	36	38	14	13	15.4	15.4	15.2	15.2	15.2	15.4	8.9	9.2	9.0	8.7	9.0	9.1	29	7.0	38.0	11.0	13.7	7.7
Gran Alkalinity (as H+)	meq/L	-	-	-	-	-	-	-	-	-	-	0.3	<0.1	0.2	0.2	0.3	0.1	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	0.1	0.3	0.2	0.2	0.1
Hardness (as CaCO3)	mg/L	-	-	-	-	21	21	23	21	19	19	33	34	34	35	33	35	35	89	86	19	20	32.9	32.4	33.1	34	32.9	33.7	13.0	13.6	13.3	13.5	13.1	13.2	29	13.0	89.0	32.4	29.5	18.2
Total dissolved solids	mg/L	500	-	-	-	31	36	43	42	40	28	58	61	61	61	64	65	74	145	149	28	35	-	-	-	-	-	-	-	-	-	-	-	-	17	28	149	58	60.1	35.8
TDS (Calculated)	mg/L	-	-	-	-	-	-	-	-	-	-	49	50	50	51	50	52	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	49	52	50	50	1.0
Total suspended solids	mg/L	-	-	-	-	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	4	4.6	4	4.2	5.2	5.2	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	29	4.0	5.2	4.4	4.5	0.56
Turbidity	NTU	-	-	-	-	0.7	0.6	0.5	0.8	0.4	0.6	0.4	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.6	2.68	2.31	2.3	2.69	2.4	2.31	1.45	1.5	1.09	1.39	1.42	1.36	29	0.40	2.7	0.60	1.1	0.79
Major ions																																									
Bicarbonate	mg/L	-	-	-	-	-	-	-	-	-	-	9	10	10	10	9	10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	9.00	10	10	10	0.5
Calcium	mg/L	-	-	-	-	6	6	7	7	6	6	9	9	9	9	9	9	9	29	27	5	5	5	5	5	5	5	5	2.17	2.25	2.25	2.29	2.23	2.24	29	2.17	29	6	7	6
Carbonate	mg/L	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-
Chloride	mg/L	250	-	640	120	3	2	3	3	3	3	4	4	4	4	4	5	4	32	35	2	2	47	47	47	48	47	47	9.97	11.30	9.90	12.30	9.89	10.00	29	2.00	48	5	16	18
Fluoride	mg/L	1.5	-	-	0.12	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	-	0.03	0.03	0.03	0.03	0.03	0.03	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	19	0.03	0.03	0.03	0.03	0.001
Hydroxide	mg/L	-	-	-	-	-	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-
Magnesium	mg/L	-	-	-	-	2	2	2	2	1	1	3	4	3	4	4	4	4	5	5	2	2	5.2	5.1	5.3	5.4	5.2	5.4	1.8	1.9	1.9	1.9	1.8	1.9	29	1.00	5.4	3.0	3.2	1.5
Potassium	mg/L	-	-	-	-	0.7	0.7	0.6	0.5	0.6	0.6	-	-	-	-	-	-	-	2	2	0.5	0.5	1.0	1.0	1.1	1.1	1.1	1.1	0.6	0.6	0.7	0.6	0.6	0.6	22	0.50	2.0	0.7	0.9	0.4
Sodium	mg/L	200	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	-	-	1	1	24.7	24.8	25.6	25.8	24.9	25.9	6.2	6.7	6.2	6.6	6.3	6.3	21	1.00	25.9	6.2	9.5	10.5
Sulphate	mg/L	500	-	-	128	2	2	8	8	8	8	28	28	28	28	28	28	28	14	14	7	7	3.3	3.3	3.3	3.5	3.3	3.3	3.4	3.6	3.4	3.7	3.4	3.4	29	2.00	28.0	7.0	10.9	10.3
Nutrients																																									
Nitrate + nitrite	mg/L	-	-	-	-	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.007	0.01	0.007	<0.006	<0.006	<0.006	0.03	0.03	<0.006	<0.006	-	-	-	-	-	-	-	-	-	-	-	-	17	0.007	0.03	0.01	0.02	0.01
Nitrate	mg/L	10	-	32.8	3	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.013	0.007	<0.006	<0.006	<0.006	0.029	0.03	<0.006	<0.006	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	29	0.007	0.03	0.02	0.02	0.01
Nitrite	mg/L	1	-	0.06	0.02	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	29	0.003	0.003	0.003	0.00	-
Nitrogen - ammonia	mg/L	-	-	-	-	0.091	0.208	0.159	0.132	0.151	0.158	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.411	0.331	0.078	0.216	<0.0050	<0.0050	<0.0050	<0.0050	0.0062	<0.0050	<0.0050	0.0073	<0.0050	<0.0050	<0.0050	<0.0050	29	0.005	0.4	0.1	0.1	0.1
Nitrogen - Kjeldahl	mg/L	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	0.06	-	-	-	-	0.33	0.33	0.31	0.35	0.33	0.34	0.206	0.187	0.215	0.189	0.211	0.295	19	0.06	0.3	0.3	0.2	0.1
Phosphorus - total	mg/L	-	-	-	-	0.003	0.004	0.011	0.004	0.003	0.002	0.002	0.003	0.003	0.002	0.001	0.001	<0.001	0.004	0.004	0.003	0.005	0.014	0.013	0.013	0.015	0.018	0.014	0.0054	0.0062	0.0050	0.0052	0.0053	0.0069	29	0.001	0.02	0.0045	0.01	0.00
Phosphorus - dissolved	mg/L	-	-	-	-	0.0003	0.0004	0.0004	0.0004	0.0003	0.0003	0.002	0.002	0.002	0.001	0.002	<0.001	<0.001	0.0005	0.0006	0.0003	0.0003	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	29	0.0003	0.002	0.0004	0.001	0.001
Phosphorus - dissolved orthophosphate	mg/L	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	0.000	-	-	-	-
Si (as SiO2) - dissolved	mg/L	-	-	-	-	-	-	-	-	-	-	1.45	1.44	1.47	1.48	1.63	1.72	1.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	1.44	1.72	1.48	1.56	0.13
Dissolved organic carbon	mg/L	-	-	-	-	4.0	4.0	5.0	4.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	3.0	4.9	5.3	5.7	4.5	4.4	5.3	3.5	3.8	3.6	3.7	3.7	3.7	29	2	6	4	4	1
Total organic carbon	mg/L	-	-	-	-	4.0	4.0	4.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	5.0	5.0	2.0	2.0	-	-	-	-	-	-	-	-	-	-	-	-	17	2	5	2	3	1
Chlorophyll a	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-

Watershed		Water Quality Guidelines				Lakes within the High Lake Area						High Lake									High Lake Reference Site		Stantec Potential Water Intake Location (PWI-1)						Stantec Potential Water Intake Location (PWI-2)						Summary Statistics					
Station ID				CCME		L908-T	L908-B	L904	L905	L906-B	L906-T	L16a-T	L16b-T(a)	L16b-B(a)	L16b-T(b)	L16a-B	L16b-T(c)	L16b-B(b)	L31(a)	L31(b)	HLC3-T	HLC3-B	PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B	PL-WQ-03-B	PWI-2-1-S	PWI-2-1-B	PWI-2-2-S	PWI-2-2-B	PWI-2-3-S	PWI-2-3-B						
Date Sampled						26-Aug-12	26-Aug-12	23-Aug-12	23-Aug-12	24-Aug-12	24-Aug-12	23-Aug-12	22-Aug-12	22-Aug-12	24-Aug-12	23-Aug-12	22-Aug-12	22-Aug-12	28-Aug-12	28-Aug-12	25-Aug-12	25-Aug-12	Aug-24	Aug-24	Aug-24	Aug-24	Aug-24	Aug-24	29-Jul-25	29-Jul-25	29-Jul-25	29-Jul-25	29-Jul-25	29-Jul-25						
Easting (NAD 83, 12W)		Health Canada DWQG	FEQG	Short-term	Long-Term	505687	505687	506208	505938	505584	505584	506727	506610	506610	506587	506727	506610	506610	506419	506419	505549	505549	508427	508716	508713	508427	508716	508713	509898	509898	210255	210255	510225	510225						
Northing (NAD 83, 12W)	Units					7472535	7472535	7471604	7471324	7471214	7471214	7474565	7475280	7475280	7475240	7474565	7475280	7475280	7473262	7473262	7464006	7464006	7516535	7516789	7516405	7516535	7516789	7516405	7512469	7512469	7512893	7512893	7512724	7512724	n	Minimum	Maximum	Median	Mean	Standard Deviation
Cyanide																																									
Cyanide	mg/L	0.2	-	-	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	-	-	-
Total Metals	**Units**																																								
Aluminum	mg/L	2.9	0.057	-	0.1	0.0065	0.0032	0.0042	0.0069	0.0107	0.0112	0.0656	0.067	0.0647	0.0687	0.0724	0.0735	0.077	0.006	0.0074	0.0089	0.008	0.0507	0.0467	0.0517	0.0604	0.064	0.0634	0.0606	0.0599	0.0551	0.0548	0.0551	0.0642	29	0.003	0.08	0.06	0.04	0.03
Antimony	mg/L	0.006	-	-	-	0.00003	0.00003	0.00001	0.00001	0.00002	0.00001	0.00003	0.00004	0.00003	0.00004	0.00004	0.00004	0.00003	0.00005	0.00005	0.00001	0.00001	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	29	0.00001	0.00005	0.00004	0.00003	0.00002
Arsenic	mg/L	0.01	-	-	0.005	0.0009	0.0009	0.0004	0.0004	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.00008	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001	0.00035	0.00035	0.00038	0.00038	0.00040	0.00037	0.00019	0.00020	0.00018	0.00017	0.00017	0.00018	29	0.0001	0.0009	0.0002	0.0003	0.0002
Barium	mg/L	2	-	-	-	0.0016	0.0015	0.0022	0.002	0.0023	0.0025	0.0046	0.0046	0.0048	0.0045	0.0045	0.0046	0.0046	0.0085	0.009	0.002	0.0019	0.00255	0.0026	0.00272	0.00293	0.0028	0.00267	0.00214	0.00217	0.00203	0.00206	0.00204	0.00226	29	0.002	0.009	0.003	0.003	0.002
Beryllium	mg/L	-	-	-	-	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	29	0.00001	0.00005	0.00001	0.00002	0.00002
Bismuth	mg/L	-	-	-	-	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	29	0.00001	0.00003	0.00001	0.00001	0.00001
Boron	mg/L	5	-	29	1.5	0.003	0.003	0.003	0.001	0.002	0.002	0.004	0.004	0.005	0.005	0.004	0.004	0.005	0.004	0.005	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	29	0.001	0.005	0.004	0.004	0.001
Cadmium	mg/L	0.007	-	0.00022	0.00004	0.0000025	0.0000025	0.000007	0.000005	0.000008	0.000007	0.00186	0.00188	0.00188	0.00186	0.00191	0.00197	0.00211	0.000013	0.000012	0.000005	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	29	0.000003	0.002	0.00001	0.001	0.001
Chromium	mg/L	0.05	0.005	-	0.001	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00007	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00050	0.00050	0.00067	0.00050	0.00050	0.00050	29	0.00003	0.00067	0.00003	0.00014	0.00020
Cobalt	mg/L	-	0.0004	-	-	0.00003	0.00003	0.00002	0.00003	0.00002	0.00001	0.0039	0.004	0.0039	0.0039	0.004	0.004	0.0041	0.00003	0.00003	0.000005	0.000005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	29	0.00001	0.004	0.0001	0.001	0.002
Copper	mg/L	2	-	-	0.002	0.0011	0.001	0.0018	0.0016	0.0016	0.0015	0.268	0.269	0.264	0.268	0.286	0.269	0.325	0.0026	0.003	0.0014	0.0012	0.00115	0.00113	0.00116	0.00116	0.00132	0.0012	0.00252	0.0026	0.00263	0.00268	0.00263	0.00268	29	0.001	0.3	0.003	0.07	0.1
Iron	mg/L	0.1	0.2	1	-	0.12	0.14	0.05	0.07	0.02	0.02	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.01	0.01	0.094	0.086	0.095	0.126	0.118	0.113	0.081	0.087	0.076	0.07	0.07	0.076	29	0.01	0.1	0.07	0.07	0.04
Lead	mg/L	0.005	-	-	0.001	0.000005	0.000005	0.00009	0.00003	0.00001	0.00002	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002	0.0003	0.00003	0.00004	0.00002	0.0002	0.00003	0.00003	0.00003	0.00005	0.00005	0.00003	0.000052	0.000091	0.00005	0.000073	0.000052	0.000062	29	0.00001	0.0003	0.00005	0.0001	0.0001
Lithium	mg/L	-	-	-	-	0.0008	0.0008	0.00025	0.00025	0.00025	0.00025	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.003	0.00025	0.00025	0.0015	0.0015	0.0015	0.0016	0.0016	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	29	0.0003	0.004	0.0010	0.001	0.0009
Manganese	mg/L	0.12	-	-	-	0.0055	0.0055	0.0072	0.0083	0.0023	0.0023	0.0462	0.0468	0.0465	0.0467	0.0472	0.0472	0.0486	0.0039	0.0044	0.0024	0.0024	0.0372	0.0356	0.039	0.0583	0.048	0.0453	0.00591	0.00594	0.00554	0.00553	0.00523	0.00538	29	0.002	0.06	0.01	0.02	0.02
Mercury	mg/L	0.001	-	-	0.000026	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	29	0.000003	0.00001	0.00001	0.00001	0.000003
Molybdenum	mg/L	-	-	-	0.073	0.000025	0.00006	0.000025	0.000025	0.000025	0.000025	0.00007	0.00007	0.00007	0.00007	0.00008	0.00006	0.00007	0.000025	0.0001	<0.00005	0.000025	0.000063	0.000066	0.000062	0.000057	0.000025	0.000052	0.0001	0.000104	0.000128	0.000088	0.000096	0.000095	29	0.00003	0.0001	0.00006	0.00006	0.00003
Nickel	mg/L	-	-	-	0.025	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0022	0.0022	0.0023	0.0023	0.0023	0.0023	0.0024	0.0004	0.0005	0.0003	0.0003	0.00050	0.00025	0.00025	0.00074	0.00065	0.00056	0.00057	0.00054	0.00053	0.00053	0.00051	0.00053	29	0.0003	0.002	0.0005	0.001	0.0008
Selenium	mg/L	0.05	-	-	0.001	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.00002	0.00002	0.00002	0.00002	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000056	<0.000050	0.000052	0.000058	<0.000050	0.000050	29	0.00002	0.0001	0.00003	0.00005	0.00003
Silicon	mg/L	-	-	-	-	0.4	0.4	1.1	0.9	0.5	0.5			-	-	-	-	-	0.4	0.4	0.7	0.7	0.29	0.28	0.28	0.32	0.32	0.34	0.52	0.54	0.52	0.56	0.57	0.59	24	0.28	1.10	0.50	0.51	0.21
Silver	mg/L	-	-	-	0.00025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	29	0.000003	0.000005	0.000003	0.000003	0.000001
Strontium	mg/L	7	-	-	-	0.0097	0.0097	0.0091	0.0085	0.0069	0.0069	0.0124	0.0126	0.0124	0.0124	0.0124	0.0122	0.0126	0.124	0.123	0.0081	0.008	0.0247	0.0247	0.0246	0.025	0.0255	0.0238	0.00852	0.009	0.00853	0.00892	0.00903	0.00905	29	0.007	0.1	0.01	0.02	0.03
Titanium	mg/L	-	-	-	-	0.00005	0.0001	0.00005	0.00005	0.00005	0.00005	0.00005	0.0001	0.0003	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00119	0.00100	0.00115	0.00144	0.00158	0.00159	0.0017	0.00174	0.00165	0.00149	0.00136	0.00155	29	0.0001	0.002	0.0001	0.0006	0.0007
Uranium	mg/L	0.02	-	0.033	0.015	0.00001	0.00001	0.00001	0.000005	0.000005	0.000005	0.00001	0.00003	0.00002	0.00001	0.00001	0.00001	0.00001	0.00007	0.00007	0.00001	0.00001	0.000024	0.000024	0.000024	0.000024	0.000024	0.000024	0.000123	0.000123	0.000134	0.000136	0.000136	0.000133	29	0.00001	0.00014	0.00002	0.00004	0.00005
Vanadium	mg/L	-	0.120	-	-	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	29	0.00003	0.0003	0.00003	0.0001	0.0001
Zinc	mg/L	5	-	-	-	0.005	0.002	0.002	0.002	0.003	0.001	0.662	0.661	0.654	0.654	0.68	0.679	0.72	0.004	0.004	0.002	0.002	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	29	0.001	0.7	0.002	0.2	0.3
Dissolved Metals		-	-	-	-																																			
Aluminum	mg/L	-	-	-	-	0.002	0.0023	0.0036	0.0037	0.0075	0.0081	0.0211	0.0211	0.021	0.0196	0.0174	0.0247	0.0153	0.0049	0.005	0.0059	0.0062	0.0123	0.0145	0.0135	0.0132	0.0153	0.0139	0.0166	0.0173	0.018	0.0173	0.0163	0.0176	29	0.002	0.025	0.015	0.013	0.0066
Antimony	mg/L	-	-	-	-	0.00004	0.00003	0.00002	0.00002	0.00001	0.00001	0.00003	0.00004	0.00003	0.00004	0.00004	0.00003	0.00003	0.00006	0.00006	0.00001	0.00001	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	29	0.00001	0.000060	0.000040	0.000035	0.000016
Arsenic	mg/L	-	-	-	-	0.0007	0.0007	0.0003	0.0003	0.0001	0.0001	0.0001	0.00009	0.0003	0.0001	0.0001	0.00009	0.0001	0.0003	0.0002	0.0001	0.0001	0.00028	0.00027	0.00027	0.00029	0.00028	0.00026	0.00016	0.00017	0.00019	0.00018	0.00015	0.00017	29	0.00009	0.00070	0.00018	0.00022	0.00015
Barium	mg/L	-	-	-	-	0.0015	0.0015	0.002	0.002	0.0022	0.0023	0.0046	0.0048	0.0052	0.0048	0.0047	0.0045	0.0045	0.009	0.009	0.0019	0.0019	0.00205	0.00196	0.00195	0.00201	0.002	0.00192	0.00189	0.0019	0.00182	0.00188	0.00177	0.00179	29	0.002	0.0090	0.0020	0.0031	0.0020
Beryllium	mg/L	-	-	-	-	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	29	0.000005	0.000050	0.000005	0.000017	0.000020
Bismuth	mg/L	-	-	-	-	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	29	0.000005	0.000025	0.0000050	0.000010	0.0000090
Boron	mg/L	-	-	-	-	0.009	0.003	0.003	0.004	0.004	0.003	0.007	0.007	0.007	0.008	0.01	0.009	0.008	0.006	0.005	0.005	0.004	0.005	0.005	0.005	0.005	0.005	0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	29	0.003	0.010	0.0050	0.0057	0.0020
Cadmium	mg/L	-	-	-	-	0.0000025	0.0000025	0.0000025	0.000009	0.000006	0.000005	0.00186	0.00186	0.00184	0.00183	0.00187	0.00188	0.00202	0.00001	0.00001	0.000007	0.0000025	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	29	0.000003	0.0020	0.0000060	0.00058	0.00088
Chromium	mg/L	-	-	-	-	0.0001	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	29	0.00003	0.00025	0.00003	0.00009	0.000098
Cobalt	mg/L	-	-	-	-	0.00002	0.00002	0.000005	0.00001	0.000005	0.000005	0.00397	0.0039	0.00383	0.00388	0.00406	0.00398	0.00406	0.00002	0.00002	0.000005	0.000005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	29	0.000005	0.0041	0.000050	0.0012	0.0018
Copper	mg/L	-	0.000200	-	-	0.0012	0.0014	0.0014	0.0019	0.0016	0.0016	0.185	0.185	0.172	0.176	0.199	0.185	0.243	0.0029	0.0037	0.002	0.0015	0.00114	0.00102	0.00099	0.00107	0.00108	0.00104	0.00235	0.00244	0.00241	0.00244	0.00244	0.00241	29	0.00099	0.24	0.0024	0.048	0.084
Iron	mg/L	-	-	-	-	0.061	0.064	0.015	0.023	0.009	0.008	0.001	0.001	0.001	0.0005	0.0005	0.002	0.002	0.019	0.019	0.003	0.003	0.012	0.014	0.013	0.015	0.016	0.014	0.016	0.017	0.016	0.016	0.015	0.015	29	0.0005	0.064	0.014	0.014	0.015
Lead	mg/L	-	0.003	-	-	0.000005	0.000005	0.00008	0.000005	0.000005	0.000005	0.00004	0.00004	0.00009	0.00003	0.00004	0.00001	0.00002	0.00002	0.00002	0.000005	0.00003	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	29	0.000005	0.00009	0.000025	0.000025	0.000022
Lithium	mg/L	-	-	-	-	0.0006	0.0007	0.00025	0.00025	0.00025	0.00025	0.0015	0.0016	0.0014	0.0013	0.0014	0.0014	0.0013	0.0033	0.0033	0.00025	0.00025	0.0014	0.0014	0.0014	0.0014	0.0015	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	29	0.00025	0.0033	0.0014	0.0012	0.00084
Manganese	mg/L	-	-	0.96	0.33	0.0009	0.002	0.001	0.0019	0.0009	0.0007	0.0469	0.0461	0.0459	0.0461	0.0476	0.0474	0.0478	0.0018	0.0019	0.0003	0.0003	0.00049	0.00064	0.00052	0.00056	0.00052	0.00038	0.00108	0.00102	0.00115	0.00112	0.00108	0.0009	29	0.00030	0.048	0.0011	0.012	0.020
Mercury	mg/L	-	-	-	-	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	29	0.0000025	0.000010	0.000010	0.0000080	0.0000034
Molybdenum	mg/L	-	-	-	-	0.0002	0.00009	0.000025	0.000025	0.00007	0.00008	0.00007	0.00007	0.00009	0.00008	0.00007	0.00008	0.00008	0.0001	0.0002	0.00006	0.00007	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.00011	0.000102	0.000088	0.000095	0.00009	0.000091	29	0.000025	0.00020	0.000080	0.000075	0.000045
Nickel	mg/L	-	-	-	-	0.0018	0.0018	0.0013	0.0013	0.0005	0.0005	0.0022	0.0023	0.0023	0.0022	0.0023	0.0022	0.0023	0.0005	0.001	0.0015	0.0019	0.00025	0.00025	0.00025	0.00070	0.00025	0.00025	0.00066	0.00068	0.00064	0.00070	0.00073	0.00069	29	0.00025	0.0023	0.0007	0.0012	0.00078

Watershed		Water Quality Guidelines				Lakes within the High Lake Area						High Lake									High Lake Reference Site		Stantec Potential Water Intake Location (PWI-1)						Stantec Potential Water Intake Location (PWI-2)						Summary Statistics						
Station ID				CCME		L908-T	L908-B	L904	L905	L906-B	L906-T	L16a-T	L16b-T(a)	L16b-B(a)	L16b-T(b)	L16a-B	L16b-T(c)	L16b-B(b)	L31(a)	L31(b)	HLC3-T	HLC3-B	PL-WQ-01-S	PL-WQ-02-S	PL-WQ-03-S	PL-WQ-01-B	PL-WQ-02-B	PL-WQ-03-B	PWI-2-1-S	PWI-2-1-B	PWI-2-2-S	PWI-2-2-B	PWI-2-3-S	PWI-2-3-B							
Date Sampled						26-Aug-12	26-Aug-12	23-Aug-12	23-Aug-12	24-Aug-12	24-Aug-12	23-Aug-12	22-Aug-12	22-Aug-12	24-Aug-12	23-Aug-12	22-Aug-12	22-Aug-12	28-Aug-12	28-Aug-12	25-Aug-12	25-Aug-12	Aug-24	Aug-24	Aug-24	Aug-24	Aug-24	Aug-24	29-Jul-25	29-Jul-25	29-Jul-25	29-Jul-25	29-Jul-25	29-Jul-25							
Easting (NAD 83, 12W)		Health Canada DWQG	FEQG	Short-term	Long-Term	505687	505687	506208	505938	505584	505584	506727	506610	506610	506587	506727	506610	506610	506419	506419	505549	505549	508427	508716	508713	508427	508716	508713	509898	509898	210255	210255	510225	510225							
Northing (NAD 83, 12W)	Units					7472535	7472535	7471604	7471324	7471214	7471214	7474565	7475280	7475280	7475240	7474565	7475280	7475280	7473262	7473262	7464006	7464006	7516535	7516789	7516405	7516535	7516789	7516405	7512469	7512469	7512893	7512893	7512724	7512724	n	Minimum	Maximum	Median	Mean	Standard Deviation
Selenium	mg/L	-	-	-	-	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.00002	0.00002	0.00002	0.00002	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	29	0.000020	0.00010	0.000025	0.000046	0.000037
Silicon	mg/L	-	-	-	-	0.19	0.19	0.49	0.41	0.21	0.21	0.68	0.67	0.68	0.69	0.76	0.8	0.8	0.19	0.18	0.3	0.32	0.165	0.172	0.178	0.186	0.187	0.170	0.415	0.419	0.433	0.428	0.403	0.406	29	0.17	0.80	0.40	0.39	0.22
Silver	mg/L	-	-	-	-	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.0000025	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	29	0.0000025	0.0000050	0.0000025	0.0000032	0.0000011
Strontium	mg/L	-	2.5	-	-	0.0097	0.0098	0.0092	0.0086	0.0071	0.007	0.0125	0.0126	0.0125	0.0125	0.0125	0.0123	0.0125	0.123	0.122	0.0082	0.0081	0.0227	0.023	0.023	0.0251	0.0229	0.023	0.00891	0.00912	0.0085	0.00957	0.00848	0.00867	29	0.0070	0.12	0.012	0.020	0.029
Thallium	mg/L	-	-	-	-	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.00002	0.00002	0.00003	0.00002	0.00002	0.00003	0.00003	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	29	0.000005	0.00003	0.000005	0.00001	0.000009
Tin	mg/L	-	-	-	-	0.00345	0.00428	0.00348	0.00857	0.00261	0.00151	0.00027	0.00036	0.00737	0.00018	0.0026	0.00045	0.00047	0.0032	0.00195	0.00524	0.0101	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	29	0.00005	0.010	0.0015	0.0025	0.0030
Titanium	mg/L	-	-	-	-	0.00005	0.00005	0.0003	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	29	0.00005	0.0003	0.00005	0.00009	0.00006
Uranium	mg/L	-	-	-	-	0.00001	0.00001	0.00001	0.000005	0.000005	0.000005	0.000005	0.00002	0.00001	0.00001	0.00001	0.000005	0.000005	0.00007	0.00007	0.00001	0.00001	0.000020	0.000020	0.000020	0.000018	0.000020	0.000020	0.000106	0.000106	0.000115	0.000116	0.000114	0.000118	29	0.0000050	0.000118	0.000018	0.000037	0.000043
Vanadium	mg/L	-	-	-	-	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	29	0.000025	0.00025	0.000025	0.000084	0.00010
Zinc	mg/L	-	-	0.015	0.01	0.0004	0.001	0.001	0.003	0.001	0.001	0.65	0.641	0.628	0.637	0.655	0.651	0.689	0.004	0.005	0.003	0.0009	0.0005	0.0005	0.0005	0.0014	0.0005	0.0005	<0.0010	0.0021	<0.0010	0.0016	<0.0010	<0.0010	29	0.00040	0.69	0.0016	0.18	0.30

Notes:
FEQG - Federal Environment Quality Guideline
CCME - Canadian Council of Ministers of the Environment
HC - Health Canada
DWQG - Drinking Water Quality Guideline
mg/L - milligrams per litre; m - metre, °C - degrees Celcius; µS/cm - microseimens per centimetre; g/L - grams per litre; % - percent; mV - millivolts, N/A - not applicable, meq/L - milliequivalents per litre; µg/L - micrograms per litre; NTU - Nephelometric Turbidity unit; CFU/mL - colony forming unit per millilitre
0.01 red value is above Health Canada guidelines
0.001 orange values is above short-term CCME WQG-FAL
0.1 blue value is above FEQG
0.001 purple value is above long-term CCME WQG-FAL
Guideline is variable. Presented guidelines based on pH of 6.5, water temperature of 10, water hardness of 11 mg/L, and a DOC of 1 mg/L.

Table E.4 Summary of Sediment Laboratory Data and Guideline Comparison

Watershed	Units	Sediment Quality Guidelines		Burnside River	Hood River	Hood River	Wentzel River	Wentzel River	Wentzel River	n	Summary Statistics				
Site Type				Stream	Stream	Stream	Lake	Lake	Lake						
Station ID		CCME		X03-055A	X01-085	X01-094	PL-SQ-01	PL-SQ-02	PL-SQ-03						
Date Sampled				25-Aug-12	24-Aug-12	24-Aug-12	06-Aug-2024	06-Aug-2024	06-Aug-2024		Minimum	Maximum	Median	Mean	Standard Deviation
Physical Parameters															
Gravel (>2.00 mm)	%	-	-	7.07	39.3	<0.1	<1.0	<1.0	<1.0	6	7.1	39.3	23.2	23.2	22.8
Sand (2.00 - 0.63 mm)	%	-	-	-	-	-	<1.0	<1.0	2.6	3	2.6	2.6	2.6	2.6	-
Coarse Sand (2.0 mm - 0.2 mm)	%	-	-	51.2	46.7	45.4	-	-	-	3	45.4	51.2	46.7	47.8	3.0
Fine Sand (0.2 mm - 0.063 mm)	%	-	-	15.9	6.92	48.9	-	-	-	3	6.9	48.9	15.9	23.9	22.1
Silt (0.063 mm - 4 mm)	%	-	-	24.5	6.27	5.37	69.1	70.3	72.7	6	5.4	72.7	46.8	41.4	32.9
Clay (< 4 um)	%	-	-	1.38	0.78	0.35	30.2	29.2	24.7	6	0.4	30.2	13.0	14.4	15.0
Carbon Content															
Loss on Ignition @ 375°C	%	-	-	<1.0	2.7	<1.0	-	-	-	3	2.7	2.7	2.7	2.7	-
Organic Matter	%	-	-	<1.0	2.4	<1.0	6.3	7.6	5.5	6	2.4	7.6	5.9	5.4	2.2
% Moisture	%	-	-	-	28.5	28.2	73.5	74.7	72	5	28.2	74.7	72.0	55.4	24.7
pH	-	-	-	5.39	5.42	5.6	5.76	5.82	6.04	6	5.4	6.0	5.7	5.7	0.3
Total Metals															
Aluminum (Al)	mg/kg	-	-	4720	4380	4470	26000	25500	22900	6	4380	26000	13810	14662	11156
Antimony (Sb)	mg/kg	-	-	<0.1	0.13	<0.1	0.17	0.14	0.14	6	0.1	0.2	0.1	0.1	0.0
Arsenic (As)	mg/kg	5.9	17	1.51	1.72	1.34	**12.5**	**8.76**	**9.65**	6	1.3	12.5	5.2	5.9	5.0
Barium (Ba)	mg/kg	-	-	22.9	19.5	22.6	120	115	115	6	19.5	120.0	69.0	69.2	52.1
Beryllium (Be)	mg/kg	-	-	<0.5	<0.5	<0.5	0.84	0.82	0.77	6	0.8	0.8	0.8	0.8	0.0
Bismuth (Bi)	mg/kg	-	-	<1.0	<1.0	<1.0	0.60	0.54	0.53	6	0.5	0.6	0.5	0.6	0.0
Cadmium (Cd)	mg/kg	0.6	3.5	<0.1	<0.1	<0.1	0.140	0.121	0.127	6	0.1	0.1	0.1	0.1	0.0
Calcium (Ca)	mg/kg	-	-	1170	880	930	2460	2510	2780	6	880	2780	1815	1788	883
Chromium (Cr)	mg/kg	37.3	90	15.2	11.7	16	**69.4**	**67.7**	**64.0**	6	11.7	69.4	40.0	40.7	29.0
Cobalt (Co)	mg/kg	-	-	3.4	3.3	3.7	18.4	17.4	16.0	6	3.3	18.4	9.9	10.4	7.6
Copper (Cu)	mg/kg	35.7	197	8.2	10.1	4.3	**52.5**	**47.6**	**44.0**	6	4.3	52.5	27.1	27.8	22.4
Iron (Fe)	mg/kg	21200	43800	8010	7680	10500	**53800**	**44800**	**38100**	6	7680	53800	24300	27148	20805
Lead (Pb)	mg/kg	35	91.3	1.8	4.4	2.8	14.6	13.0	13.7	6	1.8	14.6	8.7	8.4	6.0
Lithium (Li)	mg/kg	-	-	16.6	10.2	11.6	50.1	47.8	46.0	6	10.2	50.1	31.3	30.4	19.4
Magnesium (Mg)	mg/kg	-	-	2970	2560	3170	14200	13800	12900	6	2560	14200	8035	8267	5897
Manganese (Mn)	mg/kg	460	1100	84.8	71.4	85.4	443	425	**500**	6	71.4	500.0	255.2	268.3	207.2
Mercury (Hg)	mg/kg	0.17	0.486	<0.005	0.011	<0.005	0.025	0.025	0.025	6	0.011	0.025	0.025	0.022	0.007
Molybdenum (Mo)	mg/kg	25	23000	<1.0	<1.0	<1.0	0.92	0.91	0.92	6	0.91	0.92	0.92	0.92	0.01
Nickel (Ni)	mg/kg	16	75	9.4	.11.5	8.7	**43.9**	**42.3**	**39.2**	6	8.7	43.9	39.2	28.7	18.0
Phosphorus	mg/kg	-	-	406	323	327	972	701	723	6	323	972	554	575	264

Watershed		Sediment Quality Guidelines		Burnside River	Hood River	Hood River	Wentzel River	Wentzel River	Wentzel River		Summary Statistics				
Site Type				Stream	Stream	Stream	Lake	Lake	Lake						
Station ID		CCME		X03-055A	X01-085	X01-094	PL-SQ-01	PL-SQ-02	PL-SQ-03						
Date Sampled	Units			25-Aug-12	24-Aug-12	24-Aug-12	06-Aug-2024	06-Aug-2024	06-Aug-2024	n	Minimum	Maximum	Median	Mean	Standard Deviation
Potassium (K)	mg/kg	-	-	920	430	940	6010	5850	5160	6	430	6010	3050	3218	2711
Selenium (Se)	mg/kg	2	-	<0.2	<0.2	<0.2	0.29	0.20	0.21	6	0.20	0.29	0.21	0.23	0.049
Silver (Ag)	mg/kg	0.5	-	<0.2	<0.2	<0.2	0.13	0.12	0.11	6	0.11	0.13	0.12	0.12	0.010
Sodium	mg/kg	-	-	<100	<100	<100	517	506	470	6	470	517	506	498	24.6
Strontium (Sr)	mg/kg	-	-	3.9	3.4	3.4	17	17.8	17.8	6	3.4	17.8	10.5	10.6	7.7
Thallium (Tl)	mg/kg	-	-	<0.1	<0.1	<0.1	0.292	0.276	0.269	6	0.269	0.292	0.276	0.279	0.0118
Tin (Sn)	mg/kg	-	-	<2.0	<2.0	<2.0	1	1	1	6	1	1	1	1	0
Titanium (Ti)	mg/kg	-	-	310	184	327	878	770	868	6	184	878	549	556	316
Uranium (U)	mg/kg	-	-	1.15	1.49	0.82	2.44	2.44	2.29	6	0.82	2.44	1.89	1.77	0.71
Vanadium (V)	mg/kg	-	-	14.8	10.8	17.9	67.2	61.8	62.2	6	10.8	67.2	39.9	39.1	27.1
Zinc (Zn)	mg/kg	123	315	21.2	23.5	21.2	106	99.0	99.4	6	21.2	106.0	61.3	61.7	43.6

Notes:
CCME - Canadian Council of Ministers of the Environment
ISQG - Interim Sediment Quality Guideline
PEL - probable effect level
% - percent; mg/kg - milligrams per kilogram
0.01 red value is above the CCME PEL
0.001 purple value is above the CCME ISQG