

# Appendix F

2022 Hope Bay Project – Effluent Monitoring Reports



**AGNICO EAGLE**

# Hope Bay Project - Annual effluent monitoring report - Version 1 - 2022

## Report details

<b>Facility name</b>	Hope Bay Project
<b>Reporting period</b>	2022
<b>Version</b>	1
<b>Status</b>	Submitted
<b>Last modified</b>	2023/03/11 15:45 (MST)
<b>Submission date</b>	2023/03/16 10:01 (MST)

## Parent company

Parent company	Physical address
Agnico Eagle Mines Limited	400, 145 King, Street, East, Toronto, Ontario, M3C 2Y7, Canada

## History

Status	Version	Last modified	Submission date
Submitted	1	2023/03/11 15:45 (MST)	2023/03/16 10:01 (MST)

## Identifying information

<b>Reporting period</b>	<b>2022</b>
<b>Facility name</b>	<b>Hope Bay Project</b>
<b>Facility physical address</b>	<b>Cambridge Bay, Nunavut, X0B 0C0, Canada</b>
<b>Operator name (required)</b>	Agnico Eagle Mines Ltd.
<b>Operator telephone number</b>	8197593555
<b>Operator extension</b>	4600101
<b>Operator e-mail address</b>	guillaume.dumont@agnicoeagle.com

<b>Note</b>	<b>Date</b>	<b>User name</b>
No data available		

## Test results

Final discharge point **RBD-1**  
 Final discharge point latitude **68.17699**  
 Final discharge point longitude **-106.63707**

## Monthly mean concentrations, pH and volume of effluent

Month	As (mg/L)	Cu (mg/L)	CN (mg/L)	Pb (mg/L)	Ni (mg/L)	Zn (mg/L)	TSS (mg/L)	Ra-226 (Bq/L)	NH <sub>3</sub> <sup>1</sup> (mg/L expressed as nitrogen (N))	Lowest pH	Highest pH	Effluent volume (m <sup>3</sup> )
Jan	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Feb	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Mar	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Apr	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
May	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Jun	0.0008	0.0079	0.0493	0.0013	0.0117	0.0304	14.2	0.017	0.01	7.72	7.79	15821
Jul	0.001	0.0069	0.0132	0.0015	0.0079	0.03	13.425	0.0265	0.0103	7.5	7.93	30824
Aug	0.002	0.0234	0.0163	0.0033	0.0104	0.0394	10.25	0.0085	0.0224	7.81	7.84	5735
Sep	0.0008	0.0038	0.0205	0.0008	0.0109	0.0614	8.35	0.0158	0.0084	7.12	7.95	19598
Oct	0.0022	0.017	0.0142	0.0004	0.0106	0.0271	7.7667	0.0097	0.015	7.85	8.17	93429
Nov	0.0029	0.0235	0.003	0.0005	0.0093	0.0116	3.13	0.0048	0.0119	7.75	7.85	144291
Dec	0.0005	0.0084	0.017	0.002	0.0112	0.157	1	0.02	0.0108	7.41	7.41	6657

<sup>1</sup>Note: The monthly mean concentration for un-ionized ammonia is calculated for collection dates as of June 1st, 2021.

## Results of acute lethality tests

Date sample collected	Results for rainbow trout acute lethality tests (mean percentage mortality in 100% effluent test concentration)	Results for <i>Daphnia magna</i> monitoring / acute lethality tests (mean percentage mortality in 100% effluent test concentration)	Results for threespine stickleback acute lethality tests (mean percentage mortality in 100% effluent test concentration)
2022/06/15 15:45	0%		
2022/07/05 12:00			0%
2022/08/12 13:30	0%		

Date sample collected	Results for rainbow trout acute lethality tests (mean percentage mortality in 100% effluent test concentration)	Results for <i>Daphnia magna</i> monitoring / acute lethality tests (mean percentage mortality in 100% effluent test concentration)	Results for threespine stickleback acute lethality tests (mean percentage mortality in 100% effluent test concentration)
2022/08/22 17:15			0%
2022/09/06 13:50			0%
2022/10/11 11:40	0%		
2022/11/01 16:05	0%	0%	
2022/12/12 15:15			10%

If effluent was non-compliant with the authorized limits set out in Schedule 4, or if the pH was less than 6.0 or greater than 9.5, or if effluent was determined to be acutely lethal, indicate the cause(s) of non-compliance and remedial measures that are planned or have been implemented.

**Non-compliance information**



# Hope Bay Project - Information related to effluent and water quality monitoring studies - Version 1 - 2022

## Report details

<b>Facility name</b>	Hope Bay Project
<b>Reporting period</b>	2022
<b>Version</b>	1
<b>Status</b>	Submitted
<b>Last modified</b>	2023/03/16 09:33 (MST)
<b>Submission date</b>	2023/03/16 10:01 (MST)

## Parent company

Parent company	Physical address
Agnico Eagle Mines Limited	400, 145 King, Street, East, Toronto, Ontario, M3C 2Y7, Canada

## History

Status	Version	Last modified	Submission date
Submitted	1	2023/03/16 09:33 (MST)	2023/03/16 10:01 (MST)

## Effluent characterization

Final discharge point	Collection date
RBD-1	2022/06/28
RBD-1	2022/07/19
RBD-1	2022/09/13
RBD-1	2022/10/18

## Calculated Annual Average

Final discharge point	Mercury concentration	Selenium concentration
RBD-1	0.000002	0.000445



# Effluent characterization — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Final discharge point (required)** RBD-1

\* **Collection date (required)** 2022/06/28

\* **Collection method (required)** Grab

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

Required variables	<	Value	Method detection limit	Units
Alkalinity				mg/L as CaCO <sub>3</sub>
Electrical conductivity		18800	2	µS/cm
Hardness		2760	0.6	mg/L as CaCO <sub>3</sub>
Temperature		7.3		°C

Required variables	<	Concentration	Method detection limit	Units
Aluminum		2.1	0.003	mg/L
Cadmium	<	0.00005	0.00005	mg/L
Chloride		6320	0.5	mg/L
Chromium		0.005	0.0005	mg/L
Cobalt		0.00468	0.0001	mg/L
Iron		1.14	0.01	mg/L
Manganese		0.657	0.0001	mg/L
Mercury <sup>1</sup>	<	0.000005	0.000005	mg/L
Molybdenum		0.00671	0.00005	mg/L
Nitrate		4.25	0.005	mg/L expressed as nitrogen (N)
Phosphorus	<	0.5	0.5	mg/L as P
Selenium		0.000622	0.00005	mg/L
Sulphate		658	0.3	mg/L

Required variables	<	Concentration	Method detection limit	Units
Thallium	<	0.0001	0.0001	mg/L
Uranium		0.000155	0.00001	mg/L
Optional variables	<	Concentration	Method detection limit	Units
Calcium		492	0.05	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	2	2	mg/L
Magnesium		373	0.005	mg/L
Potassium		109	0.05	mg/L
Sodium		3470	0.05	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct effluent characterization, and to report QA/QC measures that were implemented and the data related to those measures, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting effluent characterization sampling. These documents have been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
Alkalinity was inadvertently omitted from the analysis request for the Q2 effluent characterization sample. The error was corrected for subsequent samples. Regulators were notified on August 22, 2022.	2023/03/11 16:03 (MST)	Guillaume Dumont-Vandewinkel
No discharge occurred at RBD-1 during Q1 2022 and an effluent characterization sample was not collected in Q1 of 2022.	2023/03/11 16:00 (MST)	Guillaume Dumont-Vandewinkel

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

# Effluent characterization — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Final discharge point (required)** RBD-1

\* **Collection date (required)** 2022/07/19

\* **Collection method (required)** Grab

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

Required variables	<	Value	Method detection limit	Units
Alkalinity		121	1	mg/L as CaCO <sub>3</sub>
Electrical conductivity		20600	2	µS/cm
Hardness		2690	0.6	mg/L as CaCO <sub>3</sub>
Temperature		7.26		°C

Required variables	<	Concentration	Method detection limit	Units
Aluminum		1.42	0.003	mg/L
Cadmium	<	0.0001	0.0001	mg/L
Chloride		7380	0.5	mg/L
Chromium	<	0.002	0.002	mg/L
Cobalt		0.00247	0.0001	mg/L
Iron		0.256	0.01	mg/L
Manganese		0.733	0.0001	mg/L
Mercury <sup>1</sup>	<	0.000005	0.000005	mg/L
Molybdenum		0.00486	0.00005	mg/L
Nitrate		9.55	0.005	mg/L expressed as nitrogen (N)
Phosphorus	<	1	1	mg/L as P
Selenium	<	0.001	0.001	mg/L
Sulphate		735	0.3	mg/L

Required variables	<	Concentration	Method detection limit	Units
Thallium	<	0.0002	0.0002	mg/L
Uranium	<	0.0002	0.0002	mg/L
Optional variables	<	Concentration	Method detection limit	Units
Calcium		444	0.05	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	2	2	mg/L
Magnesium		385	0.005	mg/L
Potassium		104	0.05	mg/L
Sodium		3450	0.05	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct effluent characterization, and to report QA/QC measures that were implemented and the data related to those measures, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting effluent characterization sampling. These documents have been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

# Effluent characterization — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Final discharge point (required)** RBD-1

\* **Collection date (required)** 2022/09/13

\* **Collection method (required)** Grab

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

Required variables	<	Value	Method detection limit	Units
Alkalinity		95.8	1	mg/L as CaCO <sub>3</sub>
Electrical conductivity		16400	2	µS/cm
Hardness		2540	0.6	mg/L as CaCO <sub>3</sub>
Temperature		8.7		°C

Required variables	<	Concentration	Method detection limit	Units
Aluminum		0.588	0.003	mg/L
Cadmium		0.000059	0.000005	mg/L
Chloride		5630	0.5	mg/L
Chromium	<	0.005	0.005	mg/L
Cobalt		0.00478	0.0001	mg/L
Iron	<	0.1	0.1	mg/L
Manganese		0.796	0.0001	mg/L
Mercury <sup>1</sup>	<	0.000005	0.000005	mg/L
Molybdenum		0.00366	0.00005	mg/L
Nitrate		6.46	0.005	mg/L expressed as nitrogen (N)
Phosphorus	<	0.5	0.5	mg/L as P
Selenium		0.000533	0.00005	mg/L
Sulphate		567	0.3	mg/L

Required variables	<	Concentration	Method detection limit	Units
Thallium	<	0.0001	0.0001	mg/L
Uranium	<	0.0001	0.0001	mg/L
Optional variables	<	Concentration	Method detection limit	Units
Calcium		474	0.05	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L
Magnesium		0.796	0.0001	mg/L
Potassium		89.7	0.05	mg/L
Sodium		2840	0.05	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct effluent characterization, and to report QA/QC measures that were implemented and the data related to those measures, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting effluent characterization sampling. These documents have been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

# Effluent characterization — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Final discharge point (required)** RBD-1

\* **Collection date (required)** 2022/10/18

\* **Collection method (required)** Grab

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

Required variables	<	Value	Method detection limit	Units
Alkalinity		118	1	mg/L as CaCO <sub>3</sub>
Electrical conductivity		7600	2	µS/cm
Hardness		1040	0.6	mg/L as CaCO <sub>3</sub>
Temperature		3.2		°C

Required variables	<	Concentration	Method detection limit	Units
Aluminum		0.126	0.003	mg/L
Cadmium	<	0.000025	0.000025	mg/L
Chloride		2020	0.5	mg/L
Chromium		0.00086	0.0005	mg/L
Cobalt		0.00346	0.0001	mg/L
Iron		0.363	0.01	mg/L
Manganese		0.559	0.0001	mg/L
Mercury <sup>1</sup>	<	0.000005	0.000005	mg/L
Molybdenum		0.00664	0.00005	mg/L
Nitrate		4.28	0.005	mg/L expressed as nitrogen (N)
Phosphorus	<	0.25	0.25	mg/L as P
Selenium	<	0.00025	0.00025	mg/L
Sulphate		536	0.3	mg/L

Required variables	<	Concentration	Method detection limit	Units
Thallium	<	0.00005	0.00005	mg/L
Uranium		0.000245	0.00001	mg/L
Optional variables	<	Concentration	Method detection limit	Units
Calcium		184	0.05	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L
Magnesium		140	0.005	mg/L
Potassium		49.2	0.05	mg/L
Sodium		1320	0.05	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct effluent characterization, and to report QA/QC measures that were implemented and the data related to those measures, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting effluent characterization sampling. These documents have been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.



## Sublethal toxicity test LC<sub>50</sub>

Final discharge point	Collection date	Species tested
RBD-1	2022/07/19	Menidia beryllina - Survival
RBD-1	2022/09/13	Atherinops affinis - Survival
RBD-1	2022/10/18	Atherinops affinis - Survival

# Sublethal toxicity test LC<sub>50</sub> — 2022 — Version 1

Facility name	Hope Bay Project	
* Final discharge point (required)	RBD-1	
* Collection date (required)	2022/07/19	
* Collection method (required)	Grab	
* Aquatic environment (required)	Marine water	
* Species tested (required)	Menidia beryllina - Survival	
Test start date	2022/07/26	
Consultant laboratory name	Nautilus Environmental Company Inc.	
* LC <sub>50</sub> flag (required)	>	
* LC <sub>50</sub> concentration (required)	100	%
* LC <sub>50</sub> lower 95% confidence limit (conditionally required)		%
* LC <sub>50</sub> upper 95% confidence limit (conditionally required)		%

**For the purpose of SLT, please indicate which data were used for determining the final discharge point that has potentially the most adverse environmental impact on the environment.**

RBD-1 is the only active FDP located at Hope Bay, therefore sublethal toxicity sampling is conducted on effluent discharged at this FDP as outlined in Schedule 5 Parts 5 and 6 of the MDMER.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting sublethal toxicity sampling. Laboratory Certificates of Analysis have been uploaded to the Sublethal Toxicity test section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
<p>Sublethal toxicity testing for all three required species was attempted on the aliquot taken on June 28, 2022 but could not be completed due to species availability. The testing suite was completed once the species became available, hence the separation of the test over two dates. In order to remain compliant with regulations, two further sublethal toxicity tests were carried out on the effluent characterization aliquots for Q3 and Q4 of 2022. All results for sublethal toxicity testing and the corresponding effluent characterization are presented in the current report.</p>	<p>2023/03/12 10:11 (MST)</p>	<p>Guillaume Dumont- Vandewinkel</p>

# Sublethal toxicity test LC<sub>50</sub> — 2022 — Version 1

Facility name	Hope Bay Project	
* Final discharge point (required)	RBD-1	
* Collection date (required)	2022/09/13	
* Collection method (required)	Grab	
* Aquatic environment (required)	Marine water	
* Species tested (required)	Atherinops affinis - Survival	
Test start date	2022/09/21	
Consultant laboratory name	Nautilus Environmental Company Inc.	
* LC <sub>50</sub> flag (required)	>	
* LC <sub>50</sub> concentration (required)	100	%
* LC <sub>50</sub> lower 95% confidence limit (conditionally required)		%
* LC <sub>50</sub> upper 95% confidence limit (conditionally required)		%
<b>For the purpose of SLT, please indicate which data were used for determining the final discharge point that has potentially the most adverse environmental impact on the environment.</b>	RBD-1 is the only active FDP located at Hope Bay, therefore sublethal toxicity sampling is conducted on effluent discharged at this FDP as outlined in Schedule 5 Parts 5 and 6 of the MDMER.	
<b>Please refer to the Methodologies &amp; QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided</b>	Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting sublethal toxicity sampling. Laboratory Certificates of Analysis have been uploaded to the Sublethal Toxicity test section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.	
<b>Note</b>	<b>Date</b>	<b>User name</b>
No data available		

# Sublethal toxicity test LC<sub>50</sub> — 2022 — Version 1

Facility name	Hope Bay Project	
* Final discharge point (required)	RBD-1	
* Collection date (required)	2022/10/18	
* Collection method (required)	Grab	
* Aquatic environment (required)	Marine water	
* Species tested (required)	Atherinops affinis - Survival	
Test start date	2022/10/27	
Consultant laboratory name	Nautilus Environmental Company Inc.	
* LC <sub>50</sub> flag (required)	>	
* LC <sub>50</sub> concentration (required)	100	%
* LC <sub>50</sub> lower 95% confidence limit (conditionally required)		%
* LC <sub>50</sub> upper 95% confidence limit (conditionally required)		%
<b>For the purpose of SLT, please indicate which data were used for determining the final discharge point that has potentially the most adverse environmental impact on the environment.</b>	RBD-1 is the only active FDP located at Hope Bay, therefore sublethal toxicity sampling is conducted on effluent discharged at this FDP as outlined in Schedule 5 Parts 5 and 6 of the MDMER.	
<b>Please refer to the Methodologies &amp; QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided</b>	Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting sublethal toxicity sampling. Laboratory Certificates of Analysis have been uploaded to the Sublethal Toxicity test section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.	

Note	Date	User name
No data available		

## Sublethal toxicity test IC<sub>25</sub>/EC<sub>25</sub>

Final discharge point	Collection date	Species tested
RBD-1	2022/06/28	Strongylocentrotus purpuratus - Reproduction
RBD-1	2022/07/19	Macrocystis pyrifera - Reproduction
RBD-1	2022/09/13	Strongylocentrotus purpuratus - Reproduction
RBD-1	2022/09/13	Macrocystis pyrifera - Reproduction
RBD-1	2022/10/18	Macrocystis pyrifera - Reproduction
RBD-1	2022/10/18	Strongylocentrotus purpuratus - Reproduction

# Sublethal toxicity test IC<sub>25</sub>/EC<sub>25</sub> — 2022 — Version 1

Facility name	Hope Bay Project	
* Final discharge point (required)	RBD-1	
* Collection date (required)	2022/06/28	
* Collection method (required)	Grab	
* Aquatic environment (required)	Marine water	
* Species tested (required)	Strongylocentrotus purpuratus - Reproduction	
Test start date	2022/07/07	
Consultant laboratory	Nautilus Environmental Company Inc.	
* IC <sub>25</sub> or EC <sub>25</sub> flag (required)	>	
* IC <sub>25</sub> or EC <sub>25</sub> concentration (required)	100	%
* IC <sub>25</sub> or EC <sub>25</sub> lower 95% confidence limit (conditionally required)		%
* IC <sub>25</sub> or EC <sub>25</sub> upper 95% confidence limit (conditionally required)		%
* Was there statistical stimulation of any concentration? (required)	No	

Percent stimulation	Effluent concentration with stimulation
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No data available

**For the purpose of SLT, please indicate which data were used for determining the final discharge point that has potentially the most adverse environmental impact on the environment.**

RBD-1 is the only active FDP located at Hope Bay, therefore sublethal toxicity sampling is conducted on effluent discharged at this FDP as outlined in Schedule 5 Parts 5 and 6 of the MDMER.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting sublethal toxicity sampling. Laboratory Certificates of Analysis have been uploaded to the Sublethal Toxicity test section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
<p>Sublethal toxicity testing for all three required species was attempted on the aliquot taken on June 28, 2022 but could not be completed due to species availability. The testing suite was completed once the species became available, hence the separation of the test over two dates. In order to remain compliant with regulations, two further sublethal toxicity tests were carried out on the effluent characterization aliquots for Q3 and Q4 of 2022. All results for sublethal toxicity testing and the corresponding effluent characterization are presented in the current report.</p>	<p>2023/03/12 10:12 (MST)</p>	<p>Guillaume Dumont- Vandewinkel</p>



# Sublethal toxicity test IC<sub>25</sub>/EC<sub>25</sub> — 2022 — Version 1

Facility name	Hope Bay Project	
* Final discharge point (required)	RBD-1	
* Collection date (required)	2022/07/19	
* Collection method (required)	Grab	
* Aquatic environment (required)	Marine water	
* Species tested (required)	Macrocystis pyrifera - Reproduction	
Test start date	2022/07/26	
Consultant laboratory	Nautilus Environmental Company Inc.	
* IC <sub>25</sub> or EC <sub>25</sub> flag (required)	>	
* IC <sub>25</sub> or EC <sub>25</sub> concentration (required)	100	%
* IC <sub>25</sub> or EC <sub>25</sub> lower 95% confidence limit (conditionally required)		%
* IC <sub>25</sub> or EC <sub>25</sub> upper 95% confidence limit (conditionally required)		%
* Was there statistical stimulation of any concentration? (required)	No	

<b>Percent stimulation</b>	<b>Effluent concentration with stimulation</b>
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No data available

**For the purpose of SLT, please indicate which data were used for determining the final discharge point that has potentially the most adverse environmental impact on the environment.**

RBD-1 is the only active FDP located at Hope Bay, therefore sublethal toxicity sampling is conducted on effluent discharged at this FDP as outlined in Schedule 5 Parts 5 and 6 of the MDMER.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting sublethal toxicity sampling. Laboratory Certificates of Analysis have been uploaded to the Sublethal Toxicity test section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2021 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
<p>Sublethal toxicity testing for all three required species was attempted on the aliquot taken on June 28, 2022 but could not be completed due to species availability. The testing suite was completed once the species became available, hence the separation of the test over two dates. In order to remain compliant with regulations, two further sublethal toxicity tests were carried out on the effluent characterization aliquots for Q3 and Q4 of 2022. All results for sublethal toxicity testing and the corresponding effluent characterization are presented in the current report.</p>	<p>2023/03/12 10:12 (MST)</p>	<p>Guillaume Dumont- Vandewinkel</p>

# Sublethal toxicity test IC<sub>25</sub>/EC<sub>25</sub> — 2022 — Version 1

Facility name	Hope Bay Project	
* Final discharge point (required)	RBD-1	
* Collection date (required)	2022/09/13	
* Collection method (required)	Grab	
* Aquatic environment (required)	Marine water	
* Species tested (required)	Strongylocentrotus purpuratus - Reproduction	
Test start date	2022/09/23	
Consultant laboratory	Nautilus Environmental Company Inc.	
* IC <sub>25</sub> or EC <sub>25</sub> flag (required)	>	
* IC <sub>25</sub> or EC <sub>25</sub> concentration (required)	100	%
* IC <sub>25</sub> or EC <sub>25</sub> lower 95% confidence limit (conditionally required)		%
* IC <sub>25</sub> or EC <sub>25</sub> upper 95% confidence limit (conditionally required)		%
* Was there statistical stimulation of any concentration? (required)	No	

Percent stimulation

Effluent concentration with stimulation

No data available

**For the purpose of SLT, please indicate which data were used for determining the final discharge point that has potentially the most adverse environmental impact on the environment.**

RBD-1 is the only active FDP located at Hope Bay, therefore sublethal toxicity sampling is conducted on effluent discharged at this FDP as outlined in Schedule 5 Parts 5 and 6 of the MDMER.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting sublethal toxicity sampling. Laboratory Certificates of Analysis have been uploaded to the Sublethal Toxicity test section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

# Sublethal toxicity test IC<sub>25</sub>/EC<sub>25</sub> — 2022 — Version 1

Facility name	Hope Bay Project	
* Final discharge point (required)	RBD-1	
* Collection date (required)	2022/09/13	
* Collection method (required)	Grab	
* Aquatic environment (required)	Marine water	
* Species tested (required)	Macrocystis pyrifera - Reproduction	
Test start date	2022/09/29	
Consultant laboratory	Nautilus Environmental Company Inc.	
* IC <sub>25</sub> or EC <sub>25</sub> flag (required)	>	
* IC <sub>25</sub> or EC <sub>25</sub> concentration (required)	100	%
* IC <sub>25</sub> or EC <sub>25</sub> lower 95% confidence limit (conditionally required)		%
* IC <sub>25</sub> or EC <sub>25</sub> upper 95% confidence limit (conditionally required)		%
* Was there statistical stimulation of any concentration? (required)	No	

<b>Percent stimulation</b>	<b>Effluent concentration with stimulation</b>
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No data available

**For the purpose of SLT, please indicate which data were used for determining the final discharge point that has potentially the most adverse environmental impact on the environment.**

RBD-1 is the only active FDP located at Hope Bay, therefore sublethal toxicity sampling is conducted on effluent discharged at this FDP as outlined in Schedule 5 Parts 5 and 6 of the MDMER.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting sublethal toxicity sampling. Laboratory Certificates of Analysis have been uploaded to the Sublethal Toxicity test section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

# Sublethal toxicity test IC<sub>25</sub>/EC<sub>25</sub> — 2022 — Version 1

Facility name	Hope Bay Project	
* Final discharge point (required)	RBD-1	
* Collection date (required)	2022/10/18	
* Collection method (required)	Grab	
* Aquatic environment (required)	Marine water	
* Species tested (required)	Macrocystis pyrifera - Reproduction	
Test start date	2022/10/27	
Consultant laboratory	Nautilus Environmental Company Inc.	
* IC <sub>25</sub> or EC <sub>25</sub> flag (required)	>	
* IC <sub>25</sub> or EC <sub>25</sub> concentration (required)	100	%
* IC <sub>25</sub> or EC <sub>25</sub> lower 95% confidence limit (conditionally required)		%
* IC <sub>25</sub> or EC <sub>25</sub> upper 95% confidence limit (conditionally required)		%
* Was there statistical stimulation of any concentration? (required)	No	

Percent stimulation

Effluent concentration with stimulation

No data available

**For the purpose of SLT, please indicate which data were used for determining the final discharge point that has potentially the most adverse environmental impact on the environment.**

RBD-1 is the only active FDP located at Hope Bay, therefore sublethal toxicity sampling is conducted on effluent discharged at this FDP as outlined in Schedule 5 Parts 5 and 6 of the MDMER.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting sublethal toxicity sampling. Laboratory Certificates of Analysis have been uploaded to the Sublethal Toxicity test section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		



# Sublethal toxicity test IC<sub>25</sub>/EC<sub>25</sub> — 2022 — Version 1

Facility name	Hope Bay Project	
* Final discharge point (required)	RBD-1	
* Collection date (required)	2022/10/18	
* Collection method (required)	Grab	
* Aquatic environment (required)	Marine water	
* Species tested (required)	Strongylocentrotus purpuratus - Reproduction	
Test start date	2022/10/27	
Consultant laboratory	Nautilus Environmental Company Inc.	
* IC <sub>25</sub> or EC <sub>25</sub> flag (required)	>	
* IC <sub>25</sub> or EC <sub>25</sub> concentration (required)	100	%
* IC <sub>25</sub> or EC <sub>25</sub> lower 95% confidence limit (conditionally required)		%
* IC <sub>25</sub> or EC <sub>25</sub> upper 95% confidence limit (conditionally required)		%
* Was there statistical stimulation of any concentration? (required)	No	

Percent stimulation

Effluent concentration with stimulation

No data available

**For the purpose of SLT, please indicate which data were used for determining the final discharge point that has potentially the most adverse environmental impact on the environment.**

RBD-1 is the only active FDP located at Hope Bay, therefore sublethal toxicity sampling is conducted on effluent discharged at this FDP as outlined in Schedule 5 Parts 5 and 6 of the MDMER.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting sublethal toxicity sampling. Laboratory Certificates of Analysis have been uploaded to the Sublethal Toxicity test section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

## Water quality monitoring data for exposure area

Exposure area name	Collection date	Aquatic environment
Roberts Bay	2022/07/23	Marine water
Roberts Bay	2022/07/23	Marine water
Roberts Bay	2022/07/23	Marine water
Roberts Bay	2022/09/03	Marine water
Roberts Bay	2022/09/03	Marine water
Roberts Bay	2022/09/03	Marine water

# Water quality monitoring data for exposure area — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Exposure area name (required)** Roberts Bay

\* **Collection date (required)** 2022/07/23

\* **Collection method (required)** Grab

\* **Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4140	1	mg/L as CaCO <sub>3</sub>
Alkalinity		86.7	1	mg/L
Electrical conductivity		36000	2	µS/cm
Salinity		23.1		Parts per thousand
Water temperature		9		°C
Dissolved oxygen		14.29		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum	<	0.005	0.005	mg/L
Ammonia <sup>2</sup>			0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000058		mg/L expressed as nitrogen (N)
Cadmium		0.000028	0.00001	mg/L
Chloride		12800	50	mg/L
Chromium	<	0.0005	0.0005	mg/L
Cobalt	<	0.00005	0.00005	mg/L

Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.01	0.01	mg/L
Manganese		0.00202	0.0002	mg/L
Mercury <sup>1</sup>	<	0.000005	0.000005	mg/L
Molybdenum		0.00727	0.00771	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus		0.0299	0.004	mg/L as P
Selenium	<	0.0005	0.0005	mg/L
Sulphate		1710	30	mg/L
Thallium	<	0.00005	0.00005	mg/L
Uranium		0.00192	0.00005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic		0.00099	0.0004	mg/L
Copper	<	0.0005	0.0005	mg/L
Cyanide		0.0048	0.003	mg/L
Lead	<	0.00005	0.00005	mg/L
Nickel	<	0.0005	0.0005	mg/L
Zinc	<	0.003	0.003	mg/L
Total suspended solids	<	2	2	mg/L
Radium 226	<	0.0069	0.0069	Bq/L
pH		7.85		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		297	1	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L

Optional variables	<	Concentration	Method detection limit	Units
Magnesium		826	1	mg/L
Potassium		302	1	mg/L
Sodium		7320	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		5		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The concentration and method detection limit fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the method detection limit is required.

<sup>3</sup>Note: The concentration field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

# Water quality monitoring data for exposure area — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Exposure area name (required)** Roberts Bay

\* **Collection date (required)** 2022/07/23

\* **Collection method (required)** Grab

\* **Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4380	1	mg/L as CaCO <sub>3</sub>
Alkalinity		91.4	1	mg/L
Electrical conductivity		37800	2	µS/cm
Salinity		24.4		Parts per thousand
Water temperature		5.7		°C
Dissolved oxygen		13.86		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum	<	0.005	0.005	mg/L
Ammonia <sup>2</sup>	<		0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000041		mg/L expressed as nitrogen (N)
Cadmium		0.000036	0.00001	mg/L
Chloride		13700	50	mg/L
Chromium	<	0.0005	0.0005	mg/L
Cobalt	<	0.00005	0.00005	mg/L

Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.01	0.01	mg/L
Manganese		0.00176	0.0002	mg/L
Mercury <sup>1</sup>	<	0.000005	0.000005	mg/L
Molybdenum		0.00771	0.0001	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus		0.0313	0.002	mg/L as P
Selenium	<	0.0005	0.0005	mg/L
Sulphate		1840	30	mg/L
Thallium	<	0.00005	0.00005	mg/L
Uranium		0.00198	0.00005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic		0.00099	0.0004	mg/L
Copper	<	0.0005	0.0005	mg/L
Cyanide	<	0.003	0.003	mg/L
Lead	<	0.00005	0.00005	mg/L
Nickel	<	0.0005	0.0005	mg/L
Zinc	<	0.003	0.003	mg/L
Total suspended solids		7.1	2	mg/L
Radium 226	<	0.011	0.011	Bq/L
pH		7.8		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		308	1	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L



Optional variables	<	Concentration	Method detection limit	Units
Magnesium		878	1	mg/L
Potassium		321	1	mg/L
Sodium		7700	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		8		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The concentration and method detection limit fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the method detection limit is required.

<sup>3</sup>Note: The concentration field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

# Water quality monitoring data for exposure area — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Exposure area name (required)** Roberts Bay

\* **Collection date (required)** 2022/07/23

\* **Collection method (required)** Grab

\* **Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4610	1	mg/L as CaCO <sub>3</sub>
Alkalinity		95.4	1	mg/L
Electrical conductivity		39400	2	µS/cm
Salinity		25.6		Parts per thousand
Water temperature		4.7		°C
Dissolved oxygen		12.44		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum	<	0.005	0.005	mg/L
Ammonia <sup>2</sup>	<		0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000047		mg/L expressed as nitrogen (N)
Cadmium		0.000043	0.00001	mg/L
Chloride		13600	50	mg/L
Chromium	<	0.0005	0.0005	mg/L
Cobalt	<	0.00005	0.00005	mg/L

Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.01	0.01	mg/L
Manganese		0.00198	0.0002	mg/L
Mercury <sup>1</sup>	<	0.000005	0.000005	mg/L
Molybdenum		0.00824	0.0001	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus		0.0331	0.002	mg/L as P
Selenium	<	0.0005	0.0005	mg/L
Sulphate		1850	30	mg/L
Thallium	<	0.00005	0.00005	mg/L
Uranium		0.00207	0.00005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic		0.00103	0.0004	mg/L
Copper	<	0.0005	0.0005	mg/L
Cyanide	<	0.003	0.003	mg/L
Lead	<	0.00005	0.00005	mg/L
Nickel	<	0.0005	0.0005	mg/L
Zinc	<	0.003	0.003	mg/L
Total suspended solids	<	2	2	mg/L
Radium 226	<	0.0083	0.0083	Bq/L
pH		7.89		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		326	1	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L

Optional variables	<	Concentration	Method detection limit	Units
Magnesium		921	1	mg/L
Potassium		331	1	mg/L
Sodium		8100	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		12		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The concentration and method detection limit fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the method detection limit is required.

<sup>3</sup>Note: The concentration field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

# Water quality monitoring data for exposure area — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Exposure area name (required)** Roberts Bay

\* **Collection date (required)** 2022/09/03

\* **Collection method (required)** Grab

\* **Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4720	1	mg/L as CaCO <sub>3</sub>
Alkalinity		86.3	1	mg/L
Electrical conductivity		36500	2	µS/cm
Salinity		24		Parts per thousand
Water temperature		7.7		°C
Dissolved oxygen		9.35		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum		0.05	0.05	mg/L
Ammonia <sup>2</sup>			0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000176		mg/L expressed as nitrogen (N)
Cadmium		0.0002	0.0002	mg/L
Chloride		12900	50	mg/L
Chromium		0.005	0.005	mg/L
Cobalt		0.001	0.001	mg/L

Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.2	0.2	mg/L
Manganese	<	0.0025	0.0025	mg/L
Mercury <sup>1</sup>		0.16	0.1	mg/L
Molybdenum		0.0079	0.0025	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus	<	1	1	mg/L as P
Selenium	<	0.002	0.002	mg/L
Sulphate		1780	30	mg/L
Thallium	<	0.0005	0.0005	mg/L
Uranium		0.00222	0.0005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic	<	0.003	0.003	mg/L
Copper	<	0.005	0.005	mg/L
Cyanide	<	0.003	0.003	mg/L
Lead	<	0.002	0.002	mg/L
Nickel	<	0.005	0.005	mg/L
Zinc	<	0.025	0.025	mg/L
Total suspended solids	<	2	2	mg/L
Radium 226	<	0.005	0.005	Bq/L
pH		8.3		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		296	1	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L

Optional variables	<	Concentration	Method detection limit	Units
Magnesium		967	0.25	mg/L
Potassium		277	2.5	mg/L
Sodium		7740	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		5		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
Mercury concentration given in ng/L	2023/03/12 08:30 (MST)	Guillaume Dumont-Vandewinkel

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The *concentration* and *method detection limit* fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the *method detection limit* is required.

<sup>3</sup>Note: The *concentration* field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

# Water quality monitoring data for exposure area — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Exposure area name (required)** Roberts Bay

\* **Collection date (required)** 2022/09/03

\* **Collection method (required)** Grab

\* **Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4710	1	mg/L as CaCO <sub>3</sub>
Alkalinity		87.2	1	mg/L
Electrical conductivity		36600	2	µS/cm
Salinity		24.1		Parts per thousand
Water temperature		7.5		°C
Dissolved oxygen		10.11		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum		0.05	0.05	mg/L
Ammonia <sup>2</sup>			0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000124		mg/L expressed as nitrogen (N)
Cadmium		0.0002	0.0002	mg/L
Chloride		13100	50	mg/L
Chromium		0.005	0.005	mg/L
Cobalt		0.001	0.001	mg/L



Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.2	0.2	mg/L
Manganese	<	0.0025	0.0025	mg/L
Mercury <sup>1</sup>		0.16	0.1	mg/L
Molybdenum		0.009	0.0025	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus		0.0139	0.002	mg/L as P
Selenium	<	0.002	0.002	mg/L
Sulphate		1820	30	mg/L
Thallium	<	0.0005	0.0005	mg/L
Uranium		0.00226	0.0005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic	<	0.003	0.003	mg/L
Copper	<	0.005	0.005	mg/L
Cyanide		0.0081	0.003	mg/L
Lead	<	0.002	0.002	mg/L
Nickel	<	0.005	0.005	mg/L
Zinc	<	0.025	0.025	mg/L
Total suspended solids	<	2	2	mg/L
Radium 226	<	0.005	0.005	Bq/L
pH		8.15		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		295	1	mg/L
Dissolved organic carbon		1.66	0.5	mg/L
Fluoride	<	1	1	mg/L

Optional variables	<	Concentration	Method detection limit	Units
Magnesium		965	0.25	mg/L
Potassium		288	2.5	mg/L
Sodium		7810	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		13		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
Mercury concentration given in ng/L	2023/03/12 08:39 (MST)	Guillaume Dumont-Vandewinkel

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The *concentration* and *method detection limit* fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the *method detection limit* is required.

<sup>3</sup>Note: The *concentration* field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

# Water quality monitoring data for exposure area — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Exposure area name (required)** Roberts Bay

\* **Collection date (required)** 2022/09/03

\* **Collection method (required)** Grab

\* **Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4590	1	mg/L as CaCO <sub>3</sub>
Alkalinity		87.8	1	mg/L
Electrical conductivity		4590	0.5	µS/cm
Salinity		24.4		Parts per thousand
Water temperature		7.7		°C
Dissolved oxygen		9.92		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum	<	0.05	0.05	mg/L
Ammonia <sup>2</sup>	<		0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000144		mg/L expressed as nitrogen (N)
Cadmium	<	0.0002	0.0002	mg/L
Chloride		13000	50	mg/L
Chromium	<	0.005	0.005	mg/L
Cobalt	<	0.001	0.001	mg/L

Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.2	0.2	mg/L
Manganese	<	0.0025	0.0025	mg/L
Mercury <sup>1</sup>		0.12	0.1	mg/L
Molybdenum		0.008	0.0025	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus	<	1	1	mg/L as P
Selenium	<	0.002	0.002	mg/L
Sulphate		1790	30	mg/L
Thallium	<	0.0005	0.0005	mg/L
Uranium		0.0021	0.0005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic	<	0.003	0.003	mg/L
Copper	<	0.005	0.005	mg/L
Cyanide		0.0079	0.003	mg/L
Lead	<	0.002	0.002	mg/L
Nickel	<	0.005	0.005	mg/L
Zinc	<	0.025	0.025	mg/L
Total suspended solids	<	2	2	mg/L
Radium 226	<	0.005	0.005	Bq/L
pH		8.21		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		291	1	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L

Optional variables	<	Concentration	Method detection limit	Units
Magnesium		939	0.25	mg/L
Potassium		287	2.5	mg/L
Sodium		7840	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		17		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
Mercury concentration given in ng/L.	2023/03/12 08:46 (MST)	Guillaume Dumont-Vandewinkel

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The *concentration* and *method detection limit* fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the *method detection limit* is required.

<sup>3</sup>Note: The *concentration* field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

## Water quality monitoring data for reference area

Reference area name	Collection date	Aquatic environment
Roberts Bay	2022/07/23	Marine water
Roberts Bay	2022/07/23	Marine water
Roberts Bay	2022/07/23	Marine water
Roberts Bay	2022/09/03	Marine water
Roberts Bay	2022/09/03	Marine water
Roberts Bay	2022/09/03	Marine water

# Water quality monitoring data for reference area — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Reference area name (required)** Roberts Bay

\* **Collection date (required)** 2022/07/23

\* **Collection method (required)** Grab

\* **Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4050	1	mg/L as CaCO <sub>3</sub>
Alkalinity		84.7	1	mg/L
Electrical conductivity		35300	2	µS/cm
Salinity		22.6		Parts per thousand
Water temperature		8.4		°C
Dissolved oxygen		12.84		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum		0.008	0.005	mg/L
Ammonia <sup>2</sup>	<		0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000063		mg/L expressed as nitrogen (N)
Cadmium		0.000032	0.00001	mg/L
Chloride		12500	50	mg/L
Chromium	<	0.0005	0.0005	mg/L
Cobalt	<	0.00005	0.00005	mg/L

Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.01	0.01	mg/L
Manganese		0.00207	0.0002	mg/L
Mercury <sup>1</sup>	<	0.000005	0.000005	mg/L
Molybdenum		0.00713	0.0001	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus		0.03	0.002	mg/L as P
Selenium	<	0.0005	0.0005	mg/L
Sulphate		1650	30	mg/L
Thallium	<	0.00005	0.00005	mg/L
Uranium		0.00193	0.00005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic		0.00094	0.0004	mg/L
Copper	<	0.0005	0.0005	mg/L
Cyanide		0.0047	0.003	mg/L
Lead	<	0.00005	0.00005	mg/L
Nickel	<	0.0005	0.0005	mg/L
Zinc	<	0.003	0.003	mg/L
Total suspended solids	<	2	2	mg/L
Radium 226	<	0.0083	0.0083	Bq/L
pH		7.89		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		286	1	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L



Optional variables	<	Concentration	Method detection limit	Units
Magnesium		810	1	mg/L
Potassium		292	1	mg/L
Sodium		7100	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		5		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The concentration and method detection limit fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the method detection limit is required.

<sup>3</sup>Note: The concentration field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

# Water quality monitoring data for reference area — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Reference area name (required)** Roberts Bay

\* **Collection date (required)** 2022/07/23

\* **Collection method (required)** Grab

\* **Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4500	1	mg/L as CaCO <sub>3</sub>
Alkalinity		94.1	1	mg/L
Electrical conductivity		39100	2	µS/cm
Salinity		25.3		Parts per thousand
Water temperature		4.3		°C
Dissolved oxygen		14.81		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum	<	0.005	0.005	mg/L
Ammonia <sup>2</sup>	<		0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000044		mg/L expressed as nitrogen (N)
Cadmium		0.000033	0.00001	mg/L
Chloride		13800	50	mg/L
Chromium	<	0.0005	0.0005	mg/L
Cobalt	<	0.00005	0.00005	mg/L

Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.01	0.01	mg/L
Manganese		0.00146	0.00146	mg/L
Mercury <sup>1</sup>	<	0.000005	0.000005	mg/L
Molybdenum		0.00817	0.0001	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus		0.0334	0.002	mg/L as P
Selenium	<	0.0005	0.0005	mg/L
Sulphate		1860	30	mg/L
Thallium	<	0.00005	0.00005	mg/L
Uranium		0.00204	0.00005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic		0.00106	0.0004	mg/L
Copper	<	0.0005	0.0005	mg/L
Cyanide	<	0.003	0.003	mg/L
Lead	<	0.00005	0.00005	mg/L
Nickel	<	0.0005	0.0005	mg/L
Zinc	<	0.003	0.003	mg/L
Total suspended solids		2.2	2	mg/L
Radium 226	<	0.0087	0.0087	Bq/L
pH		7.88		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		320	1	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L

Optional variables	<	Concentration	Method detection limit	Units
Magnesium		899	1	mg/L
Potassium		330	1	mg/L
Sodium		8240	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		15		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The concentration and method detection limit fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the method detection limit is required.

<sup>3</sup>Note: The concentration field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

# Water quality monitoring data for reference area — 2022 — Version 1

**Facility name** Hope Bay Project

**\* Reference area name (required)** Roberts Bay

**\* Collection date (required)** 2022/07/23

**\* Collection method (required)** Grab

**\* Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4860	1	mg/L as CaCO <sub>3</sub>
Alkalinity		99.4	1	mg/L
Electrical conductivity		41100	2	µS/cm
Salinity		26.8		Parts per thousand
Water temperature		2.8		°C
Dissolved oxygen		17.1		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum	<	0.005	0.005	mg/L
Ammonia <sup>2</sup>	<		0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000041		mg/L expressed as nitrogen (N)
Cadmium		0.000033	0.00001	mg/L
Chloride		337	1	mg/L
Chromium	<	0.0005	0.0005	mg/L
Cobalt	<	0.00005	0.00005	mg/L

Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.01	0.01	mg/L
Manganese		0.00167	0.0002	mg/L
Mercury <sup>1</sup>	<	0.000005	0.000005	mg/L
Molybdenum		0.00849	0.0001	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus		0.0353	0.002	mg/L as P
Selenium	<	0.0005	0.0005	mg/L
Sulphate		2020	30	mg/L
Thallium	<	0.00005	0.00005	mg/L
Uranium		0.00218	0.00005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic		0.00114	0.0004	mg/L
Copper	<	0.0005	0.0005	mg/L
Cyanide		0.0075	0.003	mg/L
Lead	<	0.00005	0.00005	mg/L
Nickel	<	0.0005	0.0005	mg/L
Zinc	<	0.003	0.003	mg/L
Total suspended solids	<	2	2	mg/L
Radium 226	<	0.0083	0.0083	Bq/L
pH		7.9		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		337	1	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L

Optional variables	<	Concentration	Method detection limit	Units
Magnesium		976	1	mg/L
Potassium		357	1	mg/L
Sodium		8540	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		19		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
No data available		

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The *concentration* and *method detection limit* fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the *method detection limit* is required.

<sup>3</sup>Note: The *concentration* field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

# Water quality monitoring data for reference area — 2022 — Version 1

**Facility name** Hope Bay Project

**\* Reference area name (required)** Roberts Bay

**\* Collection date (required)** 2022/09/03

**\* Collection method (required)** Grab

**\* Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4600	1	mg/L as CaCO <sub>3</sub>
Alkalinity		85.5	1	mg/L
Electrical conductivity		36400	1	µS/cm
Salinity		23.9		Parts per thousand
Water temperature		7.8		°C
Dissolved oxygen		9.07		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum	<	0.05	0.05	mg/L
Ammonia <sup>2</sup>	<		0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.00013		mg/L expressed as nitrogen (N)
Cadmium	<	0.0002	0.0002	mg/L
Chloride		13100	50	mg/L
Chromium	<	0.005	0.005	mg/L
Cobalt	<	0.001	0.001	mg/L



Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.2	0.2	mg/L
Manganese	<	0.0025	0.0025	mg/L
Mercury <sup>1</sup>		0.2	0.1	mg/L
Molybdenum		0.0084	0.0025	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus	<	1	1	mg/L as P
Selenium	<	0.002	0.002	mg/L
Sulphate		1820	30	mg/L
Thallium	<	0.0005	0.0005	mg/L
Uranium		0.00214	0.0005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic	<	0.003	0.003	mg/L
Copper	<	0.005	0.005	mg/L
Cyanide		0.0057	0.003	mg/L
Lead	<	0.002	0.002	mg/L
Nickel	<	0.005	0.005	mg/L
Zinc	<	0.025	0.025	mg/L
Total suspended solids	<	2	2	mg/L
Radium 226	<	0.005	0.005	Bq/L
pH		8.16		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		286	1	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L

Optional variables	<	Concentration	Method detection limit	Units
Magnesium		943	0.25	mg/L
Potassium		278	2.5	mg/L
Sodium		7660	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		5		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
Mercury concentration given in ng/L.	2023/03/12 07:38 (MST)	Guillaume Dumont-Vandewinkel

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The *concentration* and *method detection limit* fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the *method detection limit* is required.

<sup>3</sup>Note: The *concentration* field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

# Water quality monitoring data for reference area — 2022 — Version 1

**Facility name** Hope Bay Project

**\* Reference area name (required)** Roberts Bay

**\* Collection date (required)** 2022/09/03

**\* Collection method (required)** Grab

**\* Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4490	1	mg/L as CaCO <sub>3</sub>
Alkalinity		84.9	1	mg/L
Electrical conductivity		36700	2	µS/cm
Salinity		24.1		Parts per thousand
Water temperature		7.3		°C
Dissolved oxygen		9.02		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum		0.05	0.05	mg/L
Ammonia <sup>2</sup>			0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000083		mg/L expressed as nitrogen (N)
Cadmium		0.0002	0.0002	mg/L
Chloride		12900	50	mg/L
Chromium		0.005	0.005	mg/L
Cobalt		0.001	0.001	mg/L

Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.2	0.2	mg/L
Manganese		918	0.25	mg/L
Mercury <sup>1</sup>		0.17	0.1	mg/L
Molybdenum		0.0082	0.0025	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus		0.0137	0.002	mg/L as P
Selenium	<	0.002	0.002	mg/L
Sulphate		1790	30	mg/L
Thallium	<	0.0005	0.0005	mg/L
Uranium		0.00225	0.0005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic	<	0.003	0.003	mg/L
Copper	<	0.005	0.005	mg/L
Cyanide	<	0.003	0.003	mg/L
Lead	<	0.002	0.002	mg/L
Nickel	<	0.005	0.005	mg/L
Zinc	<	0.025	0.025	mg/L
Total suspended solids		2.6	2	mg/L
Radium 226		0.005	0.005	Bq/L
pH		7.98		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		284	1	mg/L
Dissolved organic carbon		1.9	0.5	mg/L
Fluoride	<	1	1	mg/L

Optional variables	<	Concentration	Method detection limit	Units
Magnesium		918	0.25	mg/L
Potassium		272	2.5	mg/L
Sodium		7500	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		13		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
Mercury concentration given in ng/L.	2023/03/12 07:52 (MST)	Guillaume Dumont-Vandewinkel

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The *concentration* and *method detection limit* fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the *method detection limit* is required.

<sup>3</sup>Note: The *concentration* field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.

# Water quality monitoring data for reference area — 2022 — Version 1

**Facility name** Hope Bay Project

\* **Reference area name (required)** Roberts Bay

\* **Collection date (required)** 2022/09/03

\* **Collection method (required)** Grab

\* **Aquatic environment (required)** Marine water

Mercury concentration is less than 0.10 µg/L in 12 consecutive samples collected under MDMER Schedule 5 subsection 4(4).

## Final discharge point

Name

RBD-1

Required variables	<	Value	Method detection limit	Units
Hardness		4770	0.5	mg/L as CaCO <sub>3</sub>
Alkalinity		89.3	1	mg/L
Electrical conductivity		37200	2	µS/cm
Salinity		24.5		Parts per thousand
Water temperature		6.9		°C
Dissolved oxygen		9.09		mg/L
Required variables	<	Concentration	Method detection limit	Units
Aluminum	<	0.05	0.05	mg/L
Ammonia <sup>2</sup>	<		0.005	mg/L expressed as nitrogen (N)
Un-ionized ammonia <sup>3</sup>		0.000079		mg/L expressed as nitrogen (N)
Cadmium	<	0.0002	0.0002	mg/L
Chloride		12600	50	mg/L
Chromium	<	0.005	0.005	mg/L
Cobalt	<	0.001	0.001	mg/L

Required variables	<	Concentration	Method detection limit	Units
Iron	<	0.2	0.2	mg/L
Manganese	<	0.0025	0.0025	mg/L
Mercury <sup>1</sup>		0.41	0.1	mg/L
Molybdenum		0.0085	0.0025	mg/L
Nitrate	<	0.5	0.5	mg/L expressed as nitrogen (N)
Phosphorus	<	1	1	mg/L as P
Selenium	<	0.002	0.002	mg/L
Sulphate		1750	30	mg/L
Thallium	<	0.0005	0.0005	mg/L
Uranium		0.00219	0.0005	mg/L
Required variables	<	Concentration	Method detection limit	Units
Arsenic	<	0.003	0.003	mg/L
Copper	<	0.005	0.005	mg/L
Cyanide	<	0.003	0.003	mg/L
Lead	<	0.002	0.002	mg/L
Nickel	<	0.005	0.005	mg/L
Zinc	<	0.025	0.025	mg/L
Total suspended solids	<	2	2	mg/L
Radium 226	<	0.005	0.005	Bq/L
pH		7.97		
Optional variables	<	Concentration	Method detection limit	Units
Calcium		301	1	mg/L
Dissolved organic carbon				mg/L
Fluoride	<	1	1	mg/L

Optional variables	<	Concentration	Method detection limit	Units
Magnesium		976	0.25	mg/L
Potassium		286	2.5	mg/L
Sodium		7910	2.5	mg/L
Total organic carbon				mg/L
Total thiosalts				mg/L
Water depth		17		m

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report QA/QC measures that were implemented and the data related to the implementation of those measures, or provide description in textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

**Please refer to the Methodologies & QA/QC measures and data (e.g., lab certificates) section in MERS to report description of the methodologies used to conduct water quality monitoring, or provide description in the textbox provided.**

Please refer to the laboratory Certificates of Analysis and the Hope Bay 2022 EEM Addendum Report for additional information related to the methodologies used and a description of the quality assurance and quality control measures that were implemented while conducting water quality sampling at the exposure area. Laboratory Certificates of Analysis have been uploaded to the Water Quality Monitoring data section of the 'Methodologies & QA/QC measures and data' page. The Hope Bay 2022 EEM Addendum Report (which covers Effluent Characterization, Sublethal Toxicity sampling and Water Quality sampling at the Exposure and Reference areas) has been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page.

Note	Date	User name
Mercury concentration given in ng/L	2023/03/12 08:04 (MST)	Guillaume Dumont-Vandewinkel

<sup>1</sup>Note: If the facility fulfills the condition of subsection 4(4) of Schedule 5 of the MDMER, this field may be blank.

<sup>2</sup>Note: The *concentration* and *method detection limit* fields for total ammonia are required for collection dates prior to **June 1<sup>st</sup>, 2021**. For samples collected on or after **June 1<sup>st</sup>, 2021**, only the *method detection limit* is required.

<sup>3</sup>Note: The *concentration* field for un-ionized ammonia is required for collection dates on or after **June 1<sup>st</sup>, 2021**.



# Methodologies & QA/QC measures and data (e.g., lab certificates)

## Effluent characterization

File name	Version	Date
Agnico Eagle - Hope Bay 2022 EEM Addendum Report.pdf	1	3/16/2023
YL2201885_0_COA - Merged - subtox 3 Q4.pdf	1	3/13/2023
YL2201565_0_COA - Merged - subtox 2 Q3.pdf	1	3/13/2023
YL2200987_0_COA - Merged - subtox 1 (2 of 2) Q3.pdf	1	3/13/2023
YL2200783_0_COA - Merged - subtox 1 (1 of 2) Q2.pdf	1	3/13/2023

## Sublethal toxicity test

File name	Version	Date
YL2201885_0_COA - Merged.pdf	1	3/13/2023
YL2201565_0_COA - Merged.pdf	1	3/13/2023
WO221374, 221487-488 Final Report.pdf	1	3/12/2023

## Water quality monitoring data

File name	Version	Date
YL2201057_0_COA - Merged.pdf	1	3/13/2023
YL2201484_0_COA - Merged.pdf	1	3/13/2023



# Hope Bay

## 2022 EEM Annual Report Addendum



**AGNICO EAGLE**  
HOPE BAY

**PREPARED BY:  
AGNICO EAGLE MINES LIMITED – HOPE BAY DIVISION**

**MARCH 2022**

## **Section 1. Introduction**

On February 2, 2021 TMAC was purchased by Agnico Eagle Mines Limited (Agnico Eagle) and became a wholly owned subsidiary of Agnico Eagle. Effective as of January 1st, 2022, Agnico Eagle and TMAC amalgamated and continued under the Agnico Eagle name. Accordingly, by operation of law and without any further acts or steps necessary, TMAC ceased to exist and continued as Agnico Eagle, and Agnico Eagle possessed all of the property, rights, privileges and franchises and is subject to all liabilities, including civil, criminal and quasi-criminal, and all contracts, disabilities and debts of TMAC.

In 2022, Agnico Eagle continued effluent discharge to Roberts Bay using the final discharge point RBD-1. Discharge of effluent at this FDP began on June 14, 2022 and was continued throughout the remainder of 2022.

RBD-1 is registered on MERS and is a sample port located on the discharge pipeline in the 730 pump house building (location 68.17699, -106.63707) upstream from the end of the pipeline, prior to discharge to Roberts Bay. A ball valve in this sample port is used to collect samples of effluent. Effluent is pumped and discharge to Roberts Bay through a single sunken pipeline and diffuser located 1.44km offshore at a depth of 20m. The effluent stream consists of water collected from contact water ponds, saline water from underground mines and excess water in the reclaim pond of the tailings impoundment area. RBD-1 is the only registered FDP located at Hope Bay.

All effluent characterization data, sublethal toxicity results and water quality monitoring data at exposure and reference areas for samples collected in 2022 has been entered in the 2022 'Information related to effluent and water quality monitoring studies' submitted on MERS. Laboratory Certificates of Analysis for these samples have been uploaded to the 'Methodologies & QA/QC measures and data' page on MERS.

This report is an addendum to information submitted on MERS and summarizes sampling methodology and QAQC measures implemented for the EEM monitoring program as per MDMER Schedule 5 Part 1 Section 8.

## Section 2. Sampling Methodology

### Section 2.1 Effluent Characterization

In 2022, four effluent characterization samples were collected at RBD-1 (Q2, Q3 and Q4). No discharge occurred at RBD-1 in Q1, therefore an effluent characterization sample was not collected in Q1 of 2022.

Results of effluent characterization sampling have been reported electronically on MERS and laboratory Certificates of Analysis for these samples have been uploaded to the Effluent Characterization section of the 'Methodologies & QA/QC measures and data' page on MERS.

All samples for the Effluent Characterization were collected by experienced technicians using standardized operating procedures.

Effluent characterization samples for RBD-1 are collected from a ball valve on the discharge pipeline located within the 730 pump house building (location 68.17699, -106.63707) prior to effluent entering the submerged section of the discharge pipeline in Roberts Bay.

When sampling at the FDP, technicians open the ball valve on the sample port and let water run for approximately 3 minutes prior to sample collection in order to clear the line. The technicians put on clean nitrile gloves which are worn at all times during sample collection. Sample bottle labels are completed with the date and time the sample is collected. Bottles are filled one at a time following the rinse and fill guidelines outlined by the contract laboratory.

Once filled, preservative is added to bottles if required as outlined by the contract laboratory. Sample bottles and preservatives used in effluent characterization samples include:

- 125mL bottle unpreserved for metals (excluding mercury)
- 40mL vial unpreserved for mercury
- 1 x 500mL bottle unpreserved for hardness, alkalinity, conductivity, chloride, sulphate and nitrate
- 100mL bottle preserved with sulfuric acid for ammonia and total phosphorus
- 60ml bottle preserved with sodium hydroxide for total cyanide
- 1000 ml bottle preserved with nitric acid for radium-226

Field measurements including pH, temperature, electrical conductivity and salinity are collected at the time of the sampling using calibrated field meters.

Samples are stored in a cooler with icepacks and shipped to the laboratory for analysis. A Chain of Custody (COC) form is emailed to the laboratory and a hard copy of the COC form is included in the cooler used to ship samples to the contract laboratory.

Efforts are made to ship the sample to the contract laboratory within 24 hours of sample collection. However, in 2022 flight availability from the site to Yellowknife, NT and from Yellowknife to ALS Laboratories in Burnaby, BC was limited due to the COVID-19 pandemic and the availability of commercial flights. This did impact arrival times at the contract laboratory and subsequently hold times for Nitrate analysis for the June 28, July 19, September 13 and October 18, 2022 samples were affected.

Regulations require quarterly effluent characterization, separated by at least one month. Since discharge occurred only in three quarters throughout 2022, only three samples should have been taken. Due to testing to species availability constraints, a second sublethal toxicology sample was taken on July 19, 2022 in

order to complete testing. As a result, effluent characterization was run on the sample as required by MDMER regulations. Therefore, there are four characterizations over the last three quarters of 2022.

## **Section 2.2 Sublethal Toxicity Testing**

RBD-1 is the only active FDP located at Hope Bay, therefore sublethal toxicity sampling is conducted on effluent discharged at this FDP as outlined in Schedule 5 Parts 5 and 6 of the MDMER.

In 2022, four sublethal toxicity sample were collected at RBD-1. As mentioned previously, the first sublethal toxicity sample taken on June 28, 2022 could not be fully tested due to testing species availability. Therefore, a second sublethal toxicity sample was taken on July 19, 2022 in order to complete the analysis once the species were available. In order to ensure compliance with MDMER regulations, a further two sublethal toxicity samples were collected on September 13 and October 18 2022.

Results of sublethal toxicity sampling have been reported electronically on MERS and the laboratory Certificates of Analysis for these samples have been uploaded to the Sublethal Toxicity test section of the 'Methodologies & QA/QC measures and data' page on MERS.

Samples collected for the Sublethal Toxicity Testing were collected by experienced technicians using standardized operating procedures. The technicians put on clean nitrile gloves which are worn at all times during sample collection.

Sublethal toxicity samples are collected immediately after the effluent characterization sample from the sample port on the discharge pipeline located within the 730 pump house building (location 68.17699, -106.63707) prior to effluent entering the submerged section of the discharge pipeline in Roberts Bay.

Two 20L clean plastic carboys are filled with effluent from the sample port. No preservative is used for these samples. Each plastic carboy is placed in a cooler with icepacks and shipped to the laboratory for analysis. A Chain of Custody (COC) form is emailed to the laboratory and a hard copy of the COC form is included in the cooler used to ship samples to the contract laboratory.

Efforts are made to ship the sample to the contract laboratory within 24 hours of sample collection. However, in 2022 flight availability from the site to Yellowknife, NT and from Yellowknife to ALS Laboratories in Burnaby, BC was limited due to the COVID-19 pandemic and to commercial flight availability. This did impact arrival times of all samples at the contract laboratory and subsequently the sublethal toxicity test methodology deviated from the 3-day hold time outlined in the test methods.

## **Section 2.3 Water Quality Monitoring at Exposure and Reference Areas**

Water quality monitoring samples for the exposure (RB-EXP) and the reference (RB-REF) areas were collected from the locations stipulated in the ECCC MERS system.

This monitoring included *in situ* measurements of temperature, dissolved oxygen, conductivity, and pH, and collection of water quality samples at three depths (5 m, 35 m and 39 m) at each of the exposure and reference locations. Depth measurements could vary based on the maximum depth of the sampling location. The lowest measurement was always taken 1m above the sea-floor

Water quality sampling events were conducted in July and September 2022. Roberts Bay remains ice covered during a large portion of the year, with ice-out occurring in late June or early July, and ice cover

returning in mid-October. Water quality sampling commenced as soon as conditions were safe following ice-out and subsequent sampling events were conducted a minimum of one month apart.

Since discharge proceeded throughout winter, two further attempts were made to gather samples once the ice returned to the bay. Both attempts were abandoned due to safety concerns related to ice thickness and ice-water rescue capabilities on site. Regulators were notified during a phone call on November 14.

Results of water quality monitoring at the exposure and reference areas have been reported electronically on MERS and the laboratory Certificates of Analysis for these sample has been uploaded to the Water Quality Monitoring Data section of the 'Methodologies & QA/QC measures and data' page on MERS.

All samples for the Water Quality Monitoring were collected by experienced technicians using standardized operating procedures. The technicians put on clean nitrile gloves which are worn at all times during sample collection.

Water samples are collected from a boat at the sample location using a niskin sampler lowered to the specified depth using the metered rope. Sample bottles are filled from the spout of the niskin sampler and preservative is added to bottles if required as outlined by the contract laboratory. Sample bottles and preservatives used in water quality monitoring samples include:

- 500mL bottle unpreserved for hardness, alkalinity, pH, conductivity, total suspended solids, chloride, sulphate and nitrate
- 100mL bottle preserved with sulfuric acid for ammonia and total phosphorus
- 125mL bottle unpreserved for metals (excluding mercury)
- 40mL vial unpreserved for mercury
- 60mL bottle preserved with sodium hydroxide for total cyanide
- 1000 ml bottle preserved with nitric acid for radium-226
- 125ml bottle unpreserved for ultra-trace mercury

Field measurements including temperature, dissolved oxygen, conductivity, salinity and pH are collected at the time of the sampling using calibrated field meters.

Samples were stored in a cooler with icepacks and shipped to the laboratory for analysis. A Chain of Custody (COC) form is emailed to the laboratory and a hard copy of the COC form was included in the cooler used to ship samples to the contract laboratory.

Efforts are made to ship the sample to the contract laboratory within 24 hours of sample collection. However, in 2022 flight availability from the site to Yellowknife, NT and from Yellowknife to ALS Laboratories in Burnaby, BC was limited due to the COVID-19 pandemic and due to commercial flight availability. This did impact arrival times at the contract laboratory and subsequently hold times for Nitrate and TSS analyses for the July 23 and September 3, 2022 were affected.

## Section 3. QAQC Methodology

The main objective of the quality assurance and quality control (QAQC) measures are to outline a set of operating principles, that if strictly followed during sample collection and analysis, will produce data of known and legally defensible quality.

QAQC methodology for chemical parameters and toxicity testing are outlined in Section 3.1. QAQC data related to implementation of the QAQC methodology are presented in Section 3.2.

### Section 3.1 QAQC Measures

QAQC measures implemented during the EEM sampling program include:

- Utilizing standard procedures for sample collection, preservation, documentation and transportation, to achieve precision, accuracy and reliability in data quality;
- All personnel involved in sampling and analysis are trained and competent;
- Utilize high quality laboratory supplies and sampling equipment that are reliable and maintained in good working condition; and
- Ensure that all chemical analyses are conducted at a certified external laboratory.

All chemical analysis was performed by ALS Environmental in Burnaby, BC. Quality control (QC) samples are introduced into batches of client samples at critical points of sample handling, preparation and analysis to demonstrate the processes are performing as expected. This includes the use of method blanks, lab sample duplicates and matrix spikes. All QAQC data passed the laboratories acceptable limits except for the following samples:

- June 28, 2022 effluent characterization sample – A lab control sample for total molybdenum showed a recovery greater than the upper control limit. Lastly, the frequency for lab quality control samples was exceeded by the lab for chloride, fluoride, nitrate and sulfate.
- July 19, 2022 effluent characterization sample – The frequency for lab quality control samples was exceeded for total cyanide.
- September 13, 2022 effluent characterization sample – The frequency for lab quality control samples was exceeded for chloride, fluoride and sulfate.

The laboratory Certificates of Analysis, including Quality Control Reports, have been uploaded to the 'Methodologies & QA/QC measures and data' page on MERS.

Nautilus Environmental Company Inc. in Burnaby, BC performed all sublethal toxicity tests. Testing was conducted as outlined in the test methodologies specified in Schedule 5 Part 1 Section 5(2). QAQC measures implemented by the lab, including reference toxicant, met the acceptable limits. QAQC data is presented with the toxicity report which has been uploaded to the 'Methodologies & QA/QC measures and data' page on MERS.

Two (2) Multi-Parameter meters were used to record field measurements (pH, conductivity, dissolved oxygen, salinity and temperature). The equipment was calibrated by technicians prior to each use. The Multi-Parameter calibration data is presented in Table 3.3 and Table 3.4.



The niskin sampler used to collect water quality samples at exposure and reference areas is cleaned using laboratory grade soap and then triple rinsed with a 10% solution of nitric acid followed by deionized water to reduce any potential contamination between sampling events.

Equipment blanks are collected after cleaning of field equipment and prior to sampling. De-ionized water provided by the contract laboratory is used to triple rinse the equipment. The field equipment is then filled with de-ionized water, and then collected and preserved in new sample bottles for the same analysis as the field samples. Two (2) equipment blanks were collected for the program in 2022.

Field blanks are samples of laboratory-grade deionized water that are subjected to the same procedures as routine field samples. New sample bottles were rinsed as directed by the contract laboratory and filled using deionized water provided by the contract laboratory to replicate the grab sample methodology. Bottles were preserved using the same protocol as the regular samples and submitted to the contract laboratory for analysis. Two (2) field blanks were collected for the program in 2022.

Travel blanks are prepared by the analytical laboratory with de-ionized water and appropriate preservative. The travel blank bottles are shipped to site, transported to the field, carried through the sample collection and shipped back to the laboratory with the field samples. Two (2) travel blanks were collected for the program in 2022.

Duplicate samples are prepared by collecting a separate sample for each given analytical parameter at the sample location. The duplicate samples are collected, handled and analyzed using the same procedure applied to the routine sample. Duplicate samples are analyzed by the same analytical method in the laboratory. Two (2) duplicate samples were collected for the program in 2022.

Duplicate results were assessed using the relative percent difference (RPD) between the analytical results and the duplicate. The equation used to calculate RPD is:

$$RPD = \frac{A - B}{\frac{A + B}{2}} \times 100 \quad (3.1.1)$$

where A = analytical result; B = duplicate result

Large variations in RPD values are often observed between duplicate samples when the concentrations of analytes are low and approaching the detection limit. Consequently, a RPD of 20% for concentrations of analytical and duplicate samples that both exceed 10x the method detection limit (MDL) is considered notable. The analytical precision of one QAQC sampling event is characterized as:

- High, when less than 10% of the parameters have variations that are notable;
- Medium, when 10 to 30% of the parameters have variations that are notable;
- Low, when more than 30% of the parameters have variations that are notable.

## Section 3.2 QAQC Data

Results of the QAQC samples are presented in Table 3.1 and Table 3.2.

All field blanks were at or near laboratory method detection limits (4x the DL). Equipment blank results were at or near laboratory method detection limit except for chloride, nitrate and sulfate in the July 23, 2022 sample (4x the DL).

In 2022, no sample parameters exceeded the 20% RPD for which the parent and duplicate samples are above 10x the MDL for the July 23, 2022 sample. One (1) parameter exceeded the 20% RDP for which the parent and duplicate samples are above 10x the MDL for the September 3, 2022 sample meaning that 3.7% of parameters have a notable variation. Analytical precision is rated high for both the July 23, 2022 sample and the September 3, 2022 sample as less than 10% of the parameters had notable variations. This indicates that data quality is sufficient to meet the objectives of the monitoring program.

Table 3.1 July 2022 QA/QC Monitoring

Water Quality Monitoring Studies (RBD-1)								
Parameter	Sample Date		2022-07-23					
	Unit	MDL	Equipment Blank	Field Blank	Travel Blank	Duplicate	Original	RPD
<b>Physical Tests</b>								
Conductivity	uS/cm	2.0	4.2	2.0	2.0	36400	36000	-1.1
Hardness (as CaCO3)	mg/L	1.00	1.00	1.00	1.00	4260	4140	-2.86
pH	pH	0.10	5.02	5.59	5.56	7.89	7.86	-0.38
Suspended Solids	mg/L	2.0	2.0	2.0	2.0	2.1	2.0	-4.88
<b>Anions and Nutrients</b>								
Alkalinity, Total (as CaCO3)	mg/L	1.0	1.0	1.0	1.0	87.3	86.7	-0.69
Ammonia, Total (as N)	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.00
Chloride (Cl)	mg/L	50	<b>6420</b>	50	50	13000	12800	-1.55
Nitrate (as N)	mg/L	0.50	<b>2.84</b>	0.50	0.50	0.50	0.50	0.00
Phosphorus (P)-Total	mg/L	0.0040	0.0040	0.0040	0.0040	0.0295	0.0299	1.35
Sulfate (SO4)	mg/L	30	<b>623</b>	30	30	1770	1710	-3.45
<b>Cyanides</b>								
Cyanide, Total	mg/L	0.0030	0.0030	0.0030	0.0030	0.0044	0.0048	8.70
<b>Total Metals</b>								
Aluminum (Al)-Total	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.00
Arsenic (As)-Total	mg/L	0.00040	0.00040	0.00040	0.00040	0.00104	0.00099	-2.04
Cadmium (Cd)-Total	mg/L	0.00001	0.00001	0.00001	0.00001	0.000031	0.000028	-10.17
Chromium (Cr)-Total	mg/L	0.0005	0.00050	0.00050	0.00050	0.00050	0.00050	0.00
Cobalt (Co)-Total	mg/L	0.00005	0.000050	0.000050	0.000050	0.000050	0.000050	0.00
Copper (Cu)-Total	mg/L	0.0005	0.00050	0.00050	0.00050	0.00050	0.00050	0.00
Iron (Fe)-Total	mg/L	0.010	0.010	0.010	0.010	0.010	0.010	0.00
Lead (Pb)-Total	mg/L	0.00005	0.000050	0.000050	0.000050	0.000050	0.000050	0.00
Manganese (Mn)-Total	mg/L	0.00020	0.00020	0.00020	0.00020	0.00208	0.00202	-2.93
Mercury (Hg)-Total	ug/L	0.005	0.005	0.005	0.005	0.005	0.005	0.00
Molybdenum (Mo)-Total	mg/L	0.0001	0.00010	0.00010	0.00011	0.00717	0.00727	1.39
Nickel (Ni)-Total	mg/L	0.0005	0.00050	0.00050	0.00050	0.00050	0.00050	0.00
Selenium (Se)-Total	mg/L	0.0005	0.00050	0.00050	0.00050	0.00050	0.00050	0.00
Thallium (Tl)-Total	mg/L	0.00005	0.000050	0.000050	0.000050	0.000050	0.000050	0.00
Uranium (U)-Total	mg/L	0.00005	0.000050	0.000050	0.000050	0.00193	0.00192	-0.52
Zinc (Zn)-Total	mg/L	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.00
<b>% Exceedances *</b>								<b>0%</b>

Footnotes:

RPD = Relative Percent Difference; MDL = Mean Detection Limit

Result below DL were considered as the value of the DL for the RPD calculation

\* Percentage of parameters exceeding the QA/QC objectives for the sampling event, which corresponds to grey shaded cells.

Bold values correspond to a significant blank result above 4 times the detection limit.

Table 3.2 September 2022 QA/QC Monitoring

Water Quality Monitoring Studies (RBD-1)								
Parameter	Sample Date		2022-09-03					
	Unit	MDL	Equipment Blank	Field Blank	Travel Blank	Duplicate	Original	RPD
<b>Physical Tests</b>								
Conductivity	uS/cm	2.0	2.0	2.0	2.0	36600	36400	-0.55
Hardness (as CaCO <sub>3</sub> )	mg/L	1.00	1.00	1.00	1.00	4520	4600	1.75
pH	pH	0.10	5.41	5.79	5.52	7.78	7.75	-0.39
Suspended Solids	mg/L	2.0	2.0	2.0	2.0	2.0	2.0	0.00
<b>Anions and Nutrients</b>								
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	0.50	0.50	0.50	0.50	0.50	0.50	0.00
Ammonia, Total (as N)	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.00
Chloride (Cl)	mg/L	50	50	50	50	12100	13100	7.94
Nitrate (as N)	mg/L	0.50	0.50	0.50	0.50	0.50	0.50	0.00
Phosphorus (P)-Total	mg/L	1.0	1.0	1.0	1.0	1.0	1.0	0.00
Sulfate (SO <sub>4</sub> )	mg/L	30	30	30	30	1680	1820	8
<b>Cyanides</b>								
Cyanide, Total	mg/L	0.0030	0.0030	0.0030	0.0030	0.0030	0.0057	62.07
<b>Total Metals</b>								
Aluminum (Al)-Total	mg/L	0.050	0.050	0.050	0.050	0.050	0.050	0.00
Arsenic (As)-Total	mg/L	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.00
Cadmium (Cd)-Total	mg/L	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00
Chromium (Cr)-Total	mg/L	0.005	0.0050	0.0050	0.0050	0.0050	0.0050	0.00
Cobalt (Co)-Total	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.00
Copper (Cu)-Total	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.00
Iron (Fe)-Total	mg/L	0.20	0.20	0.20	0.20	0.20	0.20	0.00
Lead (Pb)-Total	mg/L	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.00
Manganese (Mn)-Total	mg/L	0.25	0.25	0.25	0.25	926	943	1.82
Mercury (Hg)-Total	ng/L	0.10	0.10	0.29	0.21	0.22	0.20	-9.52
Molybdenum (Mo)-Total	mg/L	0.0025	0.0025	0.0025	0.0025	0.0078	0.0084	7.41
Nickel (Ni)-Total	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.00
Selenium (Se)-Total	mg/L	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.00
Thallium (Tl)-Total	mg/L	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00
Uranium (U)-Total	mg/L	0.00050	0.00050	0.00050	0.00050	0.00220	0.00214	-2.76
Zinc (Zn)-Total	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.00
<b>% Exceedances *</b>								<b>3.7%</b>

Footnotes:

RPD = Relative Percent Difference; MDL = Mean Detection Limit

Result below DL were considered as the value of the DL for the RPD calculation

\* Percentage of parameters exceeding the QA/QC objectives for the sampling event, which corresponds to grey shaded cells.

Bold values correspond to a significant blank result above 4 times the detection limit.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

**Table 3.3 2022 Multi-Meter Calibration Records for pH and Conductivity**

Date	pH									Conductivity		
	Standard	Initial Testing	Final Reading	Standard	Initial Testing	Final Reading	Standard	Initial Testing	Final Reading	Standard (uS/cm)	Initial Reading (uS/cm)	Final Reading (uS/cm)
28/06/2022	4.0	4.00	4.00	7.0	7.03	7.02	10.0	9.85	10.06	1413	1401	1415
19/07/2022	4.0	4.03	4.00	7.0	7.04	7.03	10.0	9.87	10.09	1413	1343	1415
23/07/2022	4.0	3.98	4.00	7.0	7.00	7.00	10.0	9.77	10.02	1413	1276	1413
03/09/2022	4.0	4.85	4.00	7.0	7.82	7.02	10.0	10.57	10.05	1413	1420	1412
13/09/2022	4.0	4.01	4.00	7.0	6.98	7.02	10.0	10.06	10.06	1413	1405	1414
18/10/2022	4.0	4.99	4.00	7.0	7.93	7.00	10.0	10.90	10.02	1413	1741	1412

Legend:

NMR = No Measurement Required

NCR = No Calibration Recorded;

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**Table 3.4 2022 Multi-Meter Calibration Records for Salinity and Dissolved Oxygen**

Date	Salinity			Dissolved Oxygen		
	Standard (ppt)	Initial Reading (ppt)	Final Reading (ppt)	Standard (%)	Initial Reading (%)	Final Reading (%)
28/06/2022	3.0	2.8	3.0	100	NMR	NMR
19/07/2022	3.0	2.9	3.0	100	NMR	NMR
23/07/2022	3.0	2.8	3.0	100	113	101.0
03/09/2022	3.0	NMR	NMR	100	107.6	100
13/09/2022	3.0	2.8	3.0	100	NMR	NMR
18/10/2022	3.0	4.3	3.0	100	NMR	NMR

NMR = No Measurement Required

NCR = No Calibration Recorded; Error by technician recording calibration information.

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