

REPORT

Water Quality Management and Optimization Plan Progress Update

Phase 3: Finalize Meliadine Mine Effluent Discharge Benchmarks for Total Dissolved Solids

Submitted to:

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1.0 INTRODUCTION

The purpose of this Water Quality Management and Optimization Plan (WQ-MOP) update is to present the findings of the validation monitoring that has been conducted to date under Phase 2 of the approach detailed in the approved WQ-MOP Rev2 (Golder 2020) and to provide supporting rationale for the recommendations as per Phase 3 of the WQ-MOP Rev2 for:

- the maximum average concentration (MAC) and maximum grab concentration (MGC) for discharge from CP1 to Meliadine Lake (i.e., effluent quality criteria; EQC); and
- the benchmark concentration to be achieved at the edge of the mixing zone in Meliadine Lake, which would also be consistent with the site-specific water quality objective [SSWQO]) for longer-term management of the receiving environment of Meliadine Lake

This progress update also describes the adaptive management thresholds associated with the management of water in CP1 and in the receiving environment (edge of mixing zone in Meliadine Lake) that are proposed for triggering measures that would be implemented to reduce the potential for the targets associated with discharge to Meliadine Lake to be exceeded.

On 2 June 2020, the WQ-MOP Rev2 (Golder 2020) was submitted to the Nunavut Water Board (NWB) as a requirement under NWBs Reason for Decision (NWB 2020) to approve Agnico Eagle Mines (Agnico Eagle) Emergency Amendment to their Type "A" Water Licence (No. 2AM-MEL-1631), submitted 24 March 2020, for effluent discharges associated with the Meliadine Mine located in the Kivalliq Region of Nunavut. This amendment, along with the WQ-MOP Rev2, was approved with Minister's consent on 12 May 2020 and discharges to Meliadine Lake were initiated on 5 June 2020. The objective of the WQ-MOP was to formalize a procedure for management of effluent discharges that follows a systematic and science-based framework for determining acceptable discharge quality conditions. The WQ-MOP Rev2 is provided in Appendix A and considers the operational discharge of water to Meliadine Lake via the existing in-lake diffuser.

The WQ-MOP Rev 2 included a summary of the water management plan for the Mine associated with the Meliadine Lake discharge and described the interim targets for total dissolved solids (TDS) that were developed for the effluent discharge and for receiving environment conditions at the edge of the mixing zone during the emergency amendment. This plan also detailed monitoring studies to monitor discharge and receiving environment conditions of Meliadine Lake under the approved temporary (May to October 2020) amendment to Agnico Eagle's Type "A" Water Licence (No. 2AM-MEL-1631), which permitted the following:

Authorization to temporarily discharge water from Containment Pond 1 (CP1) to Meliadine Lake that contains a maximum average concentration of TDS up to 3,500 mg/L, which exceeds the current limit described in Part F, Item 3 of the current Water Licence of 1,400 mg/L

Under the approved Water Licence Emergency Amendment, Meliadine Mine has been discharging from CP-1 to Meliadine Lake since 5 June 2020. Water quality monitoring described in detail in the approved WQ-MOP Rev 2 (Appendix A) and summarized in Table 1 of Section 3.0 is on-going and, as of 17 July 2020, the sampling program has been operational for a period of approximately 6 weeks. Available results that have been reported for the chemistry and toxicology components over the discharge period (between 3 June and 17 July 2020) are summarized and interpreted in Appendix B.

Within the WQ-MOP Rev2 (Appendix A), a three-phased approach was developed that included developing interim discharge and edge of mixing zone targets for TDS, designing and completing validation studies for the discharge and receiving environment, and finalizing the TDS benchmarks. At this time, Phase 1 (Develop Interim Targets) is complete, which proposed TDS targets for the discharge and the edge of the mixing zone. These proposed targets were reviewed by the Water Management Working Group (WMWG) and, following responses to comments from Environment and Climate Change Canada (ECCC) and Kivalliq Inuit Agency (KivIA) (Agnico Eagle 2020), as well as discussions through the WMWG, the following represent the agreed upon interim targets:

- A maximum average concentration (MAC) and a maximum grab concentration (MGC) of 3,500 mg/L TDS and 5,000 mg/L TDS, respectively, for the discharge
- An edge of mixing zone target of 1,000 mg/L TDS in the Meliadine Lake receiving environment at a radius of 100 m surrounding the in-lake diffuser

Phase 2 of the WQ-MOP (Conduct Validation Study) details the validation studies specific to the emergency amendment, which commenced in conjunction with the release of discharge from the Meliadine Mine to Meliadine Lake on 5 June 2020. This phase is ongoing in 2020, with the results being used to meet the intent of Phase 3. The scope of the on-going Phase 2 validation studies is summarized in Section 3.0 and details on the preliminary monitoring results available as of 17 July 2020 are provided in Appendix B.

Phase 3 (Finalize Meliadine Mine Benchmarks) involves incorporating the findings of Phase 1 into the assessment of results from the Phase 2 validation studies and determining the discharge limits (EQCs) and edge of mixing zone (SSWQO) benchmarks, which will provide for the ongoing long-term protection of Meliadine Lake from unacceptable effects (see Section 2.0 for details). As of 17 July 2020, monitoring results collected to date support the agreed upon interim targets, as the discharge has not been acutely toxic, adverse effects from chronic toxicity tests conducted on receiving environment samples have not been observed, and the discharge appears to be rapidly assimilated in the receiving environment. These data suggest that a MAC TDS concentration of 3,500 mg/L will remain protective of the receiving environment; however, the Phase 2 validation studies need to be completed to finalize the edge of mixing zone benchmark (SSWQO). As Phase 2 is ongoing, results of the validation monitoring collected in 2020 will be available to the Board during the technical review process; following each monthly monitoring event, results from the validation monitoring are collated, reviewed, and presented to the WMWG, which is represented by the NWB, KivIA, ECCC, and Crown Indigenous Relations and Northern Affairs Canada (CIRNAC).

1.1 Report Structure

This updated WQ-MOP provided as part of the 2020 Water Licence Amendment application has been structured as follows:

- Approach for Benchmark Development (Section 2.0)
- Summary of Validation Study Components (Section 3.0)
- Development of Meliadine Mine Benchmarks for Longer-term Water Management (Section 4.0)
- Conclusions (Section 5.0)

2.0 APPROACH FOR BENCHMARK DEVELOPMENT

For Phase 1, the guiding principle outlined in the WQ-MOP is that site-specific water quality benchmarks should be developed that satisfy the following conditions:

- protective of the environment
- satisfy regulatory requirements
- based on science (rather than strictly on considerations of policy or precedent)
- customized to the site-specific conditions of water quality and quantity

Adoption of fixed numerical benchmarks, either as static discharge limits or generic water quality guidelines, is unlikely to satisfy some parts of the above guiding principle. TDS benchmarks can, however, be developed using a toxicity-based approach that satisfies all the above conditions. TDS represent a "soup" of multiple component ions, and the behavior of this mixture in the environment is influenced by the relative toxicities of the component ions and the ability of some ions (e.g., calcium) to ameliorate the toxicity of others. For effective regulation of TDS, an approach is required that considers the toxicological potential of the mixture, and the point of compliance for different types of responses.

From our communications with ECCC, a conceptual approach was developed in the WQ-MOP Rev 2 that is consistent with guiding principles and has three main components in the development of numerical targets:

- Effluent discharges must not result in acute toxicity at the point of release
- Effluent discharges must not result in unacceptable chronic toxicity at the edge of the mixing zone (a regulated boundary located 100 m around the diffuser) following initial dilution
- Effluent discharges must not exceed the capacity of the receiving environment to accommodate long-term loadings of constituents (i.e., assimilative capacity)

For broader management of TDS in Nunavut, instead of promulgating an uncertain numerical value for TDS or its individual component(s), Agnico Eagle developed interim targets for managing TDS in the discharge and receiving environment (to apply at the edge of the mixing zone) that reflect the site-specific mixture of ions, confirmed through standardized toxicity tests and evaluation of assimilative capacity. As detailed in the WQ-MOP Rev2, a validation monitoring program was designed and was implemented with the onset of discharge on 5 June 2020 to validate interim targets developed as part of the WQ-MOP and to provide data to inform development of firm discharge limits and receiving environment benchmarks (or EQCs and SSWQOs) for long-term application. The discharge limit and SSWQO benchmarks can then be applied to guide an adaptive management approach for managing site water.

Since the approval of the emergency amendment, and following consent from the Minister of Northern Affairs on 12 May 2020, monitoring data collected at the end of pipe and in the receiving environment (at the edge of the mixing zone) following the commencement of discharge on 5 June 2020 (i.e., Phase 2 of the validation framework) have been compared to interim discharge and edge of mixing zone limits applied at the end of pipe and in the receiving environment, respectively.

The intent of Phase 3 is the integration of the benchmark recommendations made in Phase 1 and the results of Phase 2 to formalize the science-based interim targets as EQC and SSWQO benchmarks, as described in the WQ-MOP Rev2, that are applicable to future conditions at the Meliadine Mine. As described in Section 4.0, the validation monitoring conducted to date support the proposed interim targets; however, on-going validation

monitoring studies (i.e., regular time-based field physico-chemical measurements, plume delineation studies, water chemistry analyses, and sampling for toxicity testing [acute and chronic testing] of the discharge and the receiving environment) are expected to provide greater evidence to support the conditions required to satisfy establishing these interim targets as firm targets for long-term water management at the Site. These studies, especially the supplemental sublethal toxicity testing of the effluent, will be used to validate and/or refine the science-based interim TDS target for the discharge and edge of mixing zone. The scope for these investigations is summarized in Section 3.0.

3.0 PHASE 2: CONDUCT VALIDATION STUDY

In conjunction with the 2020 releases that have occurred, and are continuing to occur, at the Meliadine Mine, as approved under Amendment 1 of the Mine's Type "A" Water Licence, supporting studies are being conducted to monitor conditions and validate the science-based interim targets, as well as produce additional information on receiving environment assimilation (including plume delineation). This section presents the general conceptual design for the monitoring studies required as a condition under Amendment 1. A more detailed description of the discharge monitoring program is provided in the WQ-MOP Rev2 (Appendix A).

A discharge event to dewater CP1 was approved by NWB and discharge was initiated on 5 June 2020. The discharge is ongoing and the Meliadine Mine is currently permitted to discharge effluent up to a MAC of 3,500 mg/L TDS and an MGC of 5,000 mg/L TDS until October 2020. As a result, TDS concentrations in the discharge will be elevated relative to the receiving environment during this discharge event, presenting an opportunity to conduct site validation for the TDS targets for the discharge and for the receiving environment at the edge of the mixing zone. The conceptual design for the approved validation study described in the WQ-MOP Rev2 (Appendix A) consists of three components: water quality monitoring, toxicity testing, and plume delineation.

These three components are complimentary and are being conducted with the following primary objectives:

- Water Quality Monitoring: The surface water quality monitoring program is being conducted to validate the model predictions that TDS will be dispersed to less than 1,000 mg/L at the edge of the mixing zone, to provide detailed chemical characterization of the effluent and receiving environment during the discharge, and to provide information on the ionic composition of water used during the toxicity testing program.
- Toxicity Testing: The acute and chronic toxicity testing programs are being conducted to confirm that the ionic composition measured in the discharge and the receiving environment during the surface water quality monitoring program are not at levels that would cause adverse biological effects. As described in detail in the WQ-MOP Rev2 (Appendix A) and summarized in Table 1 below, acute toxicity tests are being conducted on the discharge to validate that the discharge is not acutely toxic. A suite of chronic toxicity tests is being conducted on both the effluent and receiving environment samples to validate that TDS concentrations measured at the edge of the mixing zone are not at levels that would cause chronic toxicity. As per commitments arising from responses to comments from ECCC and KivIA (Agnico Eagle 2020), as well as discussions through the WMWG, starting during the second monthly sampling event (see Table 1 for details), chronic toxicity testing of the discharge will be conducted monthly using a dilution series test design similar to that being performed on the edge of mixing zone receiving environment stations.
- Plume Delineation Study—The plume delineation study will be conducted in mid and late summer to assess the vertical and horizontal extent of the effluent plume during seasonal periods that reflect the two distinct open water hydrological conditions in Meliadine Lake: just after freshet flows in July when the ice has gone from the lake, and in August when in lake open water flows are low. The emphasis of these studies will be through *in situ* specific conductivity profiling of the water column using a handheld meter with a sensor that will be lowered through the water column, with a subset of locations sampled for TDS. The relationship

between field measured specific conductivity and laboratory measured TDS will be established to validate the use of specific conductivity as a tracer of TDS in the receiving environment. The information retrieved will be used to confirm model predictions related to effluent dilution and assimilation in the receiving environment, and to confirm that receiving environment monitoring stations are adequately characterizing conditions with respect to surface water chemistry and the potential for adverse biological effects.

An overview of the validation monitoring design that will be conducted in 2020 is presented in Table 1. Figure 1 depicts the locations of the selected monitoring stations.

Starting in 2021, it is expected that the validation monitoring, with respect to discharge and edge of mixing zone locations and sampling frequency, will return to the monitoring design as required under the approved water licence.

Table 1: Conceptual design for validation of interim TDS limits for discharge and receiving environment to be
conducted in 2020 as part of the emergency amendment to Agnico Eagle's Type "A" Water Licence (No.
2AM-MEL-1631)

Water Quality Monitoring Program			
Sampling Media	Discharge	Mixing Zone	Receiving Environment (beyond mixing zone)
Sample Timing	During discharge and during collection of samples for toxicity testing	During discharge ^(a)	During discharge ^(a)
Sampling Locations	MEL-14	3 stations at the edge of the mixing zone (MEL-01-01, MEL-01-07 and MEL-01- $10)^{(b)}$	4 stations - 1 mid-field (MEL-02-05), 3 references (MEL-03-02, MEL-04-05, and MEL-05-04)
Number of Samples	Per regulatory and operational requirements	1 sample per station	1 sample per station
Frequency of Sampling	Weekly during discharge	Weekly during discharge or as per NWB's direction	Monthly during discharge or as per NWB's direction
Test Parameters	 Daily monitoring of discharge flow volumes Parameters as listed in Schedule I Group 2 of the 2AM-MEL1631 NWB Water Licence^(c) 	 Field physico-chemical water column profile measurements (temperature, specific conductivity, pH, DO) Parameters as listed in Schedule I Group 2 of the 2AM-MEL1631 NWB Water Licence^(c) 	 Field physico-chemical water column profile measurements (temperature, specific conductivity, pH, DO) Parameters as listed in Schedule I Group 2 of the 2AM-MEL1631 NWB Water Licence
Toxicity Testing Prog	Iram		
Sampling Media	Discharge	Mixing Zone	Receiving Environment (beyond mixing zone)
Sample Timing	During discharge	During discharge ^(a)	During discharge ^(a)
Sampling Locations	MEL-14	3 stations at the edge of the mixing zone (MEL-01-01, MEL-01-07 and MEL-01-10) ^(b)	4 stations - 1 mid-field (MEL-02-05), 3 references (MEL-03-02, MEL-04-05, and MEL-05-04)
Number of Samples	Per regulatory and operational requirements	1 composite sample per station	1 composite sample per station
Frequency of Sampling	Weekly acute tests during discharge; monthly chronic toxicity tests beginning during the second monthly event ^(d)	Monthly during discharge	Monthly during discharge or as per NWB direction
Test Parameters	Acute toxicity tests with: Rainbow Trout Daphnia magna Chronic toxicity tests^(d) with: Pelagic crustacean (Daphnia magna) Epibenthic Invertebrate 	 Chronic toxicity tests with: Pelagic crustacean (<i>Daphnia magna</i>) Epibenthic Invertebrate (<i>Hyalella azteca</i>) Macrophyte (duckweed) ELS fish (Fathead Minnow) 	 Chronic toxicity tests with: Pelagic crustacean (<i>Daphnia magna</i>) Epibenthic Invertebrate (<i>Hyalella azteca</i>) Macrophyte (duckweed) ELS fish (Fathead Minnow)

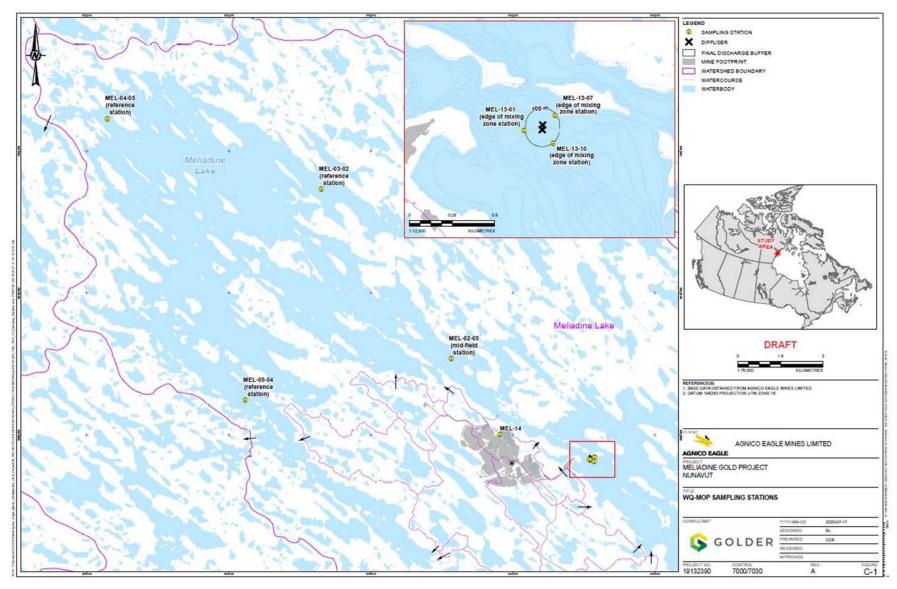
Table 1: Conceptual design for validation of interim TDS limits for discharge and receiving environment to be conducted in 2020 as part of the emergency amendment to Agnico Eagle's Type "A" Water Licence (No. 2AM-MEL-1631)

	 Macrophyte (duckweed) ELS fish (Fathead Minnow) 		
Plume Delineation St	udy		
Sampling Media	Discharge	Receiving Environment (within mixing zone and beyond)	
Sample Timing	During discharge ^(e)	During discharge ^(e)	
Sampling Locations	MEL-14	22 survey locations (see Appendix B) at distance intervals of 50 m from the diffuser, 100 m (i.e., edge of mixing zone), 175 m, and 250 m; potentially adjusted to include further afield samples if necessary ^(f)	
Frequency of Program	2 events during discharge (early and late summer)	2 events during discharge (early and late summer)	
Test Parameters	 TDS and major ions General parameters^(g) 	 Field physico-chemical water column profile measurements (temperature and specific conductivity) Water quality samples collected at a subset (a maximum of 10 stations) stations alongside profile measurements and analyzed for TDS, major ions, and general parameters^(f) 	

Notes:

- (a) The timing of sampling for each program is expected to occur continuously during the discharge period as outlined in the sample frequencies listed above for each sample media and test type. However, sample timing will be dependent on safe access to the lake. The period of anticipated discharge will likely coincide with the transition period between ice covered and open water conditions on Meliadine Lake. If samples cannot be collected at the required time due to safety considerations, contingency measures may be implemented, as outlined in Section 3.4.
- (b) Parameters as listed in Schedule I Group 2 of the 2AM-MEL1631 NWB Water Licence include Conventional Parameters (bicarbonate alkalinity, chloride, carbonate alkalinity, turbidity, conductivity, hardness, calcium, potassium, magnesium, sodium, sulphate, pH, total alkalinity, TDS, TSS, total cyanide, free cyanide, and weak acid dissociable [WAD] cyanide), Nutrients (ammonia-nitrogen, total Kjeldahl nitrogen, nitrate-nitrogen, orthophosphate, total phosphorus, total organic carbon, dissolved organic carbon, and reactive silica), and Total and Dissolved Metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc).
- (c) Mixing zone stations MEL-01-01 and MEL-01-07 are routinely sampled by the mine during the EEM/AEMP programs. MEL-01-10 represents a new sampling station. Further details on the selected mixing zone sampling stations are provided in Section 3.1.
- (d) As per commitments arising from responses to comments from ECCC and KivIA and discussions through the WMWG following the first monthly sampling event, chronic toxicity testing of the MEL-14 effluent will be conducted monthly beginning on the second monthly sampling event.
- (e) Sample timing will be dependent on boat access to the lake. The period of anticipated discharge will likely coincide with the transition period between ice covered and open water conditions on Meliadine Lake. Access of the lake will occur as soon as open water conditions permit safe boat access.
- (f) The maximum spatial extent of plume delineation monitoring may be extended past 250 m should the proportion of effluent be estimated to contribute >10% of TDS at 250 m (estimated based on field specific conductivity measurements).
- (g) General parameters = total and bicarbonate/carbonate alkalinity, turbidity, laboratory specific conductivity, hardness, laboratory pH, and total suspended solids.
- ELS = early life-stage; TDS = total dissolved solids.





4.0 PHASE 3: FINALIZE MELIADINE MINE BENCHMARKS

As previously described, the Meliadine Mine has been discharging from CP1 to Meliadine Lake since 5 June 2020, as approved under Amendment 1 of the Mine's Type "A" Water Licence. As such, water quality monitoring outlined in Table 1 is on-going and, as of 17 July 2020, the sampling program has been operational for a period of approximately 6 weeks. Results reported for the chemistry and toxicology components over this period are summarized and interpreted in Appendix B. Results available as of 17 July 2020 are as follows:

- Seven discharge chemistry sampling events
- Four weekly acute toxicity test results with Rainbow Trout and *D. magna* on the discharge
- One sampling event at edge of mixing zone sampling stations the ice was not safe to access during the weeks of 14, 21, and 28 June, and 5 July due to potential health and safety concerns; however, remote data loggers were deployed and will provide information on temperature and specific conductivity at the edge of mixing zone stations over this period and for the duration of the discharge period. Edge of mixing zone stations will be sampled weekly following ice-free conditions
- One round of monthly receiving environment chemistry results due to unsafe ice conditions, edge of mixing zone station MEL-13-10 was not able to be collected during the first monthly sampling event. This sample will be collected during subsequent monthly sampling events now that Meliadine Lake is ice free
- One round of monthly receiving environment chronic toxicity test results with each of the four test species due to the time required to conduct these chronic tests (e.g., up to 21-days for the *D. magna* test, 14-d *H. azteca*). Final results are only available for the Duckweed and Fathead Minnow tests as of 17 July 2020

Detailed discussion of the results of this testing are provided in Appendix B. The following represents the primary conclusions of this data analysis and interpretation of results:

- TDS concentrations measured in the discharge were less than the MAC of 3,500 mg/L in each of the weekly sampling events and ranged between 1,510 and 3,100 mg/L measured TDS (2,502 and 2,588 mg/L calculated TDS).
- The discharge was not found to be acutely toxic in four rounds of acute toxicity tests conducted with *D. magna* and Rainbow Trout, as the LC₅₀ values were >100% discharge in each of the tests.
- TDS concentrations measured at the edge of mixing zone stations were more than 10-fold lower than the proposed interim target of 1,000 mg/L during the 7 June 2020 sampling event, suggesting that the discharge has a high assimilation rate and that TDS concentrations rapidly decrease in the receiving environment to concentrations below which adverse effects on biological receptors would be expected.
- Consistent with the low TDS concentration results reported in the receiving environment, adverse toxicological effects were not identified during the first monthly chronic toxicity testing program; final results of the *H. azteca* and *D. magna* tests are pending.

Based on the agreed upon site-specific benchmark derivation procedure outlined in the WQ-MOP Rev2 (Appendix A) and summarized in Section 2.0, the validation monitoring conducted to date support the proposed interim targets because:

Discharges were measured at TDS concentrations ranging between 1,510 and 3,100 mg/L measured TDS (2,502 and 2,588 mg/L calculated TDS), which did not result in acute toxicity at the point of release

- Discharges have not resulted in unacceptable chronic toxicity at the edge of the mixing zone following initial dilution (i.e., at a 100 m radius surrounding the diffuser in Meliadine Lake)
- Discharges do not appear to be exceeding the capacity of the receiving environment to accommodate longterm loadings of constituents (i.e., assimilative capacity), as indicated by the observation that effluent was rapidly diluted to well below (i.e., >10-fold less) the proposed edge of mixing zone target of 1,000 mg/L TDS during the June 7, 2020 sampling event

Based on these observations, it is likely that the MAC (3,500 mg/L) can be adopted as a firm benchmark for managing the discharge (as an EQC), subject to confirmation by additional testing in Summer 2020. Monitoring efforts outlined in Table 1 in Section 3.0 will continue for the duration of the permitted temporary discharge of CP1; these data will be used in Phase 3 to ratify the mixing zone target as a firm benchmark (and SSWQO) in Meliadine Lake for long-term water management at the Site.

5.0 ADAPTIVE MANAGEMENT

As described in NWB's (2020) Reason for Decision, adaptive management measures related to the emergency discharge will be discussed on an ongoing basis throughout the discharge event during meetings with the WMWG comprised of the KivIA, CIRNAC, ECCC, and NWB. The thresholds and management responses will apply to discharges beyond 2020.

Based on the adaptive management thresholds and triggers to be implemented during water quality monitoring of the discharge, as stipulated by NWB (2020), and the recommendation from the KivIA following their review of the WQ-MOP Rev2, the following adaptive management table has been developed by Agnico Eagle (Table 2). The table identifies an operating level ranging from Level 0 (green; normal operating condition) to Level 3 (red; high risk situation), the thresholds that trigger each level, and a list of management strategies and actions for consideration in response to mitigate and/or rectify the condition, if required.

Water quality (i.e., TDS) and toxicity testing monitoring data collected in CP1 (representing the discharge) and at the edge of the mixing zone will be compared to the benchmarks determined by Phase 3 of the WQ-MOP.

These adaptive management measures will be implemented if the above referenced management thresholds are triggered. NWB will be notified promptly of any adaptive management measures that are implemented throughout the discharge period. Additional adaptive management responses or actions besides those listed in Table 2 may be considered on a case-by-case basis depending on the management level triggered, or if the results of on-going monitoring (such as the Phase 2 validation monitoring conducted in 2020) identifies other non-conformances. These include:

- Decreasing the rate of effluent discharge or temporary cessation of pumping of the discharge could be considered to increase dispersion and to decrease the overall size of the plume.
- Consideration given to collecting additional edge of the mixing zone sample(s) for exploratory chronic toxicity testing to confirm the threshold at the edge of the mixing zone. These additional samples could be amended with ionic salts in an ionic composition relevant to the edge of mixing zone and tested as a dilution series. The purpose would be to facilitate testing at concentrations both above and below the concentrations measured at the time of sampling, for the purpose of developing a concentration-response curve.
- Consideration given to additional targeted toxicity testing (e.g., validation test, or toxicity identification evaluation to explore the cause for an observed toxicological response), either in response to an acute toxicity outcome (e.g., mortality to crustacean *D. magna*) or for a moderate- to high-magnitude chronic

toxicity response. Such toxicity is not anticipated to occur during the program (i.e., the thresholds have been set specifically to avoid such responses); however, if an anomalous response is observed, a TIE could help elucidate the cause.

Table 2: Surface water qualit	v adaptive management strateg	y for CP1 discharge to Meliadine Lake
Table 2. Outlace water qualit	y adaptive management strateg	y for or i discharge to mendume Earce

Adaptive Management Level	Threshold	Management Activity / Response /Action
Green (Level 0) Normal Operating Condition	Measured concentrations are less than the MAC discharge limit and the edge of mixing zone threshold level	 Continue monitoring as per Water Licence requirements Continue water management as per Water Management Plan
Yellow (Level 1)	Two consecutive end-of-pipe TDS concentrations equivalent to, or greater than, the MAC discharge limit, or Two consecutive edge-of-mixing-zone TDS concentrations equivalent to, or greater than, 75% of the edge of mixing zone threshold	 Conduct a follow up sampling event to confirm trigger Collect additional edge of the mixing zone sample(s) for chronic toxicity testing Increase sampling frequency at end of pipe to twice weekly or at edge on mixing zone to bi-weekly
Orange (Level 2)	Three consecutive end-of-pipe TDS concentrations equivalent to, or greater than, the MAC discharge limit, or An end-of-pipe TDS measurement is equivalent to, or greater than the MGC discharge limit, or Three consecutive edge-of-mixing-zone TDS concentrations equivalent to, or greater than, 75% of the edge of mixing zone threshold	 Conduct a follow up sampling event to confirm trigger Decrease the rate of effluent discharge or temporarily cease pumping of the discharge Consider alternative management of CP1 water (e.g., divert to waterline)
Red (Level 3)	Two consecutive end-of-pipe TDS concentrations greater than 5,000 mg/L	 Cease pumping of the discharge to Meliadine Lake Conduct a follow up sampling event to confirm trigger Consider alternative management of CP1 water, such as diversion of CP1 water into the Waterline

An additional adaptive management strategy includes the utilization of an alternative to the water management plan; that is, use of the waterline as a supplemental option for water transfer from CP1. This alternative relates to the management of surface contact water and the potential opportunity to use the proposed waterline, which is new mine infrastructure provided in a Project Certificate Reconsideration Application currently before the NIRB for review. As described in the Type A Water Licence 2AM-MEL1631 Amendment (Main Application Document), Agnico Eagle is proposing to increase the currently approved discharge rate to 6,000 to 12,000 m³ of water per day to Melvin Bay. Treated saline groundwater effluent will be conveyed through waterlines from the treatment plant to the discharge facility at the Itivia Fuel Storage Facility for discharge during the open water season (May to October). Surface contact water from CP1 can be directed to the waterline and co-mingled with the treated contact water from the underground mine in the waterline. The treated contact water from the underground mine with the CP1 surface contact water will be discharged in a controlled manner to Melvin Bay through an engineered diffuser in compliance with the required discharge criteria. Treated final effluent quality will be required to meet MDMER criteria prior to discharge (GC 2019). The addition of the CP1 water to the treated contact water from the underground mine will not impact the ability of the discharge limits to be met. Further, supplemental assessments of the potential effects of redirecting CP1 water to the waterline were evaluated with respect to Meliadine Lake and Melvin Bay:

- the redirection of CP1 water to the waterline instead of to Meliadine Lake shows that this will only result in a small reduction in overall flows in Meliadine Lake and negligible effects on the levels of Meliadine Lake (further details are provided in Appendix I of the Type A Water Licence 2AM-MEL1631, included as part of the 2020 Water Licence Application package).
- preliminary modelling results indicate that effective dispersion of the waterline discharge can be achieved over the planned four months of discharge during open water conditions; the minimum dilution factor is well above the target ratio of 11:1 as used in the previous Melvin Bay Diffuser Design Report (i.e., 2-D dispersion modelling assessment, Tetra Tech April 2020). Taking into account effluent accumulation over time, the minimum dilution factor (corresponding to the maximum concentration) at the edge of the 100 m mixing zone boundary ranges from about 40:1 to 90:1. Furthermore, the preliminary modelling indicates that the discharge is effectively dispersed in Melvin Bay and flushed out of the bay as there are no discernible areas of effluent stagnation or significant accumulation over the discharge period. As a result, the characteristics of the diffuser system and the operating conditions of the discharge (e.g., discharge volume, discharge rates, discharge timing) combined with the hydrodynamic conditions of the bay (primarily tidal regime) results in the efficient flushing of the entire bay. Once discharge ceases, and ice cover occurs on Melvin Bay, further dispersion of the remaining discharge in the bay is actively dispersed through ongoing tidal circulation. The effectiveness of the immediate discharge and the low proportion of discharge in Melvin Bay means that marine habitat and water quality in the Bay will remain protected.

Additional adaptive management strategies, if necessary, would be proposed to the WMWG in advance of the next scheduled meeting to facilitate discussion and agreement prior to implementation.

6.0 CONCLUSIONS

This updated version of the WQ-MOP provides a roadmap that facilitates the evaluation of current and planned information from the Phase 2 (Conduct Validation Study) component of the WQ-MOP Rev2, as well as a process for the completion of Phase 3 (Finalize Meliadine Mine Benchmarks) to determine:

- the MAC and MGC for discharge from CP1 to Meliadine Lake (i.e., effluent quality criteria; EQC); and
- the benchmark concentration to be achieved at the edge of the mixing zone in Meliadine Lake, which would also be consistent with the SSWQO for longer-term management of the receiving environment of Meliadine Lake.

Based on the monitoring results from the Phase 2 validation studies to date (to July 17, 2020), the interim MAC TDS concentration of 3,500 mg/L (developed in Phase 1) remains protective of the receiving environment. However, the Phase 2 validation studies are on-going and need to be completed to finalize the MAC, as well as the edge of mixing zone benchmark (SSWQO). This will be the outcome of Phase 3, which will be completed as a consequence of water quality and toxicity testing information collected from the discharge and the receiving environment (e.g., the edge of mixing zone) in Meliadine Lake in 2020.

There are several uncertainties that are outlined in Appendix B that are expected to be addressed as the validation monitoring program progresses in 2020. Nonetheless, based on the available data as of 17 July 2020, it is likely that that the MAC of 3,500 mg/L will be adopted in Phase 3 as the firm discharge limit for managing the discharge (i.e., EQC). Validation of the MGC TDS limit and the interim receiving environment TDS target of 1,000 mg/L at the edge of the mixing zone (and SSWQO) will be proposed in September 2020 (during the NWB water licence amendment process).

Signature Page

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APPENDIX A

WQ-MOP Rev2



REPORT Water Quality Management and Optimization Plan Implementation Plan for Total Dissolved Solids

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APPENDIX A

Supporting Information for the Interim TDS Targets

APPENDIX B

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1.0 INTRODUCTION

This report provides a Water Quality Management and Optimization Plan (WQ-MOP) for effluent discharges associated with the Meliadine Mine located in the Kivalliq Region of Nunavut. The objective is to formalize a procedure for management of effluent discharges that follows a systematic and science-based framework for determining acceptable effluent quality conditions.

The WQ-MOP presented herein is focussed on development of interim targets for total dissolved solids (TDS) for effluent discharge and receiving environment conditions at the edge of the mixing zone, but within a framework that can be extended to longer-term management of site water. Although currently specific to the Meliadine Mine, it is intended to align with a process that can be generalized to other Agnico Eagle Mines Limited (Agnico Eagle) projects in Nunavut.

On 24 March 2020, Agnico Eagle submitted an emergency request for an amendment to their Type "A" Water Licence (No. 2AM-MEL-1631), specifically seeking the following amendment:

Authorization to temporarily discharge water from Containment Pond 1 (CP1) to Meliadine Lake that contains a maximum average TDS concentration up to 3,500 mg/L, which exceeds the current limit described in Part F, Item 3 of the current Water Licence of 1,400 mg/L

The emergency request issued by Agnico Eagle was based on the determination that the water storage capacity of CP1 would be exceeded if dewatering was not conducted prior to or in conjunction with the 2020 spring freshet. If the dewatering was not permitted, and the water storage capacity of CP1 was exceeded, this could represent a significant risk to site infrastructure, as well as human and environmental health. On 29 April 2020, the Nunavut Water Board (NWB 2020) recommended approval of Licence Amendment 1 for Agnico Eagle's Type "A" Water Licence, which permits the following:

The time-limited discharge (May 2020 – October 2020) of effluent from the Containment Pond 1 (CP1) into Meliadine Lake through the Meliadine Lake Diffuser (Monitoring Program Station MEL-14) and the Water discharge shall not exceed 3,500 mg/L for the Maximum Average Concentration (MAC) of the Total Dissolved Solids (TDS)

The NWB's approval of Emergency Amendment 1 is contingent on conditions outlined in NWB's (2020) Reason for Decision. To respond to these conditions and requirements, the following have been addressed in this Updated WQ-MOP:

- Water Quality Validation Study—The NWB approval states that "the Licensee, in addition to the requirement as referred to in Part I, Item 6, during the 2020 discharge, shall undertake the Water Quality Program provided in Table 3 of Schedule I." The scope for this study is provided in Section 3.0 of the WQ-MOP (Conduct Validation Study).
- Plume Delineation Study—The NWB approval states that "the Licensee shall provide to the Board for review the 2020 Discharge Plume Delineation Study summary report as soon as all necessary data and results become available." A detailed study design for the 2020 Discharge Plume Delineation Study has been included in Appendix B of the WQ-MOP, and a summary of program sampling requirements is included in Section 3.3 of the WQ-MOP.
- Response Plan—The WQ-MOP now includes adaptive management recommendations. This includes the addition of chemical and toxicological endpoint thresholds that monitoring data collected at the end of pipe or at the edge of the mixing zone can be compared, as well as a list of management actions or protocols that could be implemented in response to non-compliance.

Field Contingencies—The WQ-MOP now includes contingency plans that could be implemented if logistical complications (e.g., safety concerns due to ice-cover or COVID-19) arise during the required 2020 water quality sampling program.

NWBs recommended approval of Amendment 1 received Minister's consent from the Honourable Daniel Vandal, Minister of Northern Affairs on 12 May 2020.

1.1 Site-Specific Benchmark Development Procedure

The guiding principle for the WQ-MOP is that water quality benchmarks should be developed that satisfy the following conditions:

- protective of the environment
- satisfy regulatory requirements
- based on science (rather than strictly on considerations of policy or precedent)
- customized to the site-specific conditions of water quality and quantity

Adoption of fixed numerical benchmarks, either as static discharge limits or generic water quality guidelines, is unlikely to satisfy some parts of the above guiding principle. TDS benchmarks can, however, be developed using a toxicity-based approach that satisfies all the above conditions. TDS represent a "soup" of multiple component ions, and the behavior of this mixture in the environment is influenced by the relative toxicities of the component ions and the ability of some ions (e.g., calcium) to ameliorate the toxicity of others. For effective regulation of TDS, an approach is required that considers the toxicological potential of the mixture, and the point of compliance for different types of responses.

From our communications with Environment and Climate Change Canada (ECCC), a conceptual approach has been developed that is consistent with the guiding principle, and that has three main components in the development of numerical targets:

- Effluent discharges must not result in acute toxicity at the point of release
- Effluent discharges must not result in unacceptable chronic toxicity at the edge of the mixing zone following initial dilution
- Effluent discharges must not exceed the capacity of the receiving environment to accommodate long-term loadings of constituents (i.e., assimilative capacity)

For broader management of TDS in Nunavut, instead of promulgating an uncertain numerical value for TDS or its individual component(s), we recommend development of interim targets for managing TDS in the effluent discharge and receiving environment (to apply at the edge of the mixing zone) that reflect the site-specific mixture of ions, confirmed through standardized toxicity tests and evaluation of assimilative capacity. Much of this information has already been collected for Meliadine Mine, and Agnico Eagle has designed a validation program to validate interim targets and provide data to inform development of effluent quality criterion (EQC) and site-specific water quality objective (SSWQO) benchmarks for long-term application (see Section 3.0). The EQC and site-specific water quality objectives (SSWQO) benchmarks can be applied to guide an adaptive management approach to processing of site water.

1.2 Phasing the Water Quality Management and Optimization Plan

As communicated to NWB by Agnico Eagle, the upcoming 2020 freshet season will result in accumulation of site water that exceeds the water storage capacity of the mine at CP1, requiring a managed release of site water to the environment. In anticipation of this condition, Amendment 1 was approved by NWB for Meliadine Mine's Type "A" Water Licence, allowing Meliadine Mine to dewater CP1 prior to or in conjunction with the 2020 freshet, avoiding "emergency" conditions. This decision received Minister's consent from the Honourable Daniel Vandal, Minister of Northern Affairs, on 12 May 2020.

The operational needs dictate a phased approach to the WQ-MOP, in which short-term needs for monitoring and validation are met, while remaining consistent with the overall WQ-MOP framework.

- Phase 1: Develop Interim Targets—Application of the general process described in Section 1.1, entailing review of literature and results of site-relevant toxicity testing, and subsequent establishment of science-based TDS targets, for use on an interim basis.
- Phase 2: Conduct Validation Study—In conjunction with the upcoming release of discharge from Meliadine Mine to Meliadine Lake commencing during freshet, Agnico Eagle will conduct supporting studies in 2020 to validate and/or refine the science-based interim targets and produce additional information on receiving environment assimilation. The scope for this study is provided in Section 3.0 of the WQ MOP (Conduct Validation Study).
- Phase 3: Finalize Meliadine Mine Benchmarks—Integrate the results of Phase 1 and Phase 2 to formalize the science-based interim targets as EQC and SSWQO benchmarks, with a framework for their implementation (e.g., adaptive management), that is applicable to future conditions at Meliadine Mine. Phase 3 will be submitted as part of the amendment application of the existing Meliadine Water Licence to the Nunavut Water Board.

This document emphasizes Phase 1 (Section 2.0) and Phase 2 (Section 3.0) of the WQ-MOP; sufficient detail is provided for the validation and plume delineation studies to indicate conformance with the Mine's monitoring requirements outlined in the NWB's (2020) Reason for Decision. Additional details of sample collection, handling, and chain-of-custody are being developed separately for use by the field crew and analytical laboratories.

2.0 PHASE 1: DEVELOP INTERIM TARGETS

2.1 Interim TDS Target for Effluent

This section presents the proposed interim target for effluent of 3,500 mg/L calculated TDS for the Meliadine Mine; the target is expressed as a Maximum Average Concentration (MAC). This target is proposed as an interim value, pending implementation of Phase 2 and Phase 3 of the WQ-MOP. The interim target of 3,500 mg/L calculated TDS was proposed following a review of site acute toxicity data collected for Meliadine Mine (Appendix A) and was approved (Amendment 1) on 4 May 2020 as the temporary (May 2020 to October 2020) TDS MAC permitted to be discharged from CP1 into Meliadine Lake at the Meliadine Mine Lake Outfall diffuser (Monitoring Program Station MEL-14).

As discussed in Appendix A, the toxicity of TDS across different site waters varies by ionic composition and the relative proportion of ions in the mixture. Low effect concentrations for acute endpoints (e.g., survival) have been reported in the literature for individual ions for select species, but these tests reflect exposure conditions accounting for a single ion, and not a balanced TDS mixture representative of most field conditions. Considering

this, the proposal of an interim target focussed on review of site-specific acute toxicity data collected for siterelevant mixtures (e.g., treated effluent, influent, Collection Pond water; Appendix A, Section A2.0).

The approved interim TDS target for effluent of 3,500 mg/L is supported by:

- No acute toxicity to *D. magna* or Rainbow Trout was observed with influent and effluent TDS concentrations of equal to or less than 5,420 mg/L (measured TDS concentrations of equal to or less than 4,925 mg/L)— details are provided in Appendix A.
- No mortality to other organisms has been observed in tests using Fathead Minnows or *C. dubia* in chronic exposures; as of January 2020, these tests covered calculated TDS concentrations up to 2,357 mg/L (measured TDS concentrations of 2,490 mg/L). Chronic test endpoints are not used in a regulatory context to evaluate the acute toxicity of the effluent, but the lack of mortality in chronic tests provides encouraging information.
- The record of acute toxicity depicted in Appendix A (Table A-4) provides evidence of the lack of acute toxicity even at high TDS concentrations. As of March 2020, nine acute toxicity tests have been conducted with calculated TDS concentrations above 3,500 mg/L. For this reason, some caution is recommended in the development of the interim TDS target for effluent. The no-effect concentration of 5,420 mg/L calculated TDS was therefore reduced by 30% and rounded down to the value of 3,500 mg/L.

Validation of the interim TDS target to demonstrate that the effluent is consistently not acutely lethal will be conducted through monitoring during the discharge period as presented in Section 3.0. Sensitive species that form the basis for the validation would include test species *D. magna* and Rainbow Trout, as these are the species used to assess compliance for acute lethality under the Metal and Diamond Mining Effluent Regulations (MDMER; Government of Canada 2002).

2.2 Interim TDS Target at the Edge of the Mixing Zone

An interim target of 1,000 mg/L (as calculated TDS) to apply in the receiving environment at the edge of the mixing zone is proposed for the protection against chronic toxicity to representative aquatic species. This interim target is intended to evaluate the condition (from Section 1.1) that effluent discharges must not result in unacceptable chronic toxicity at the edge of the mixing zone following initial dilution. The target is proposed as an interim value for use in the short-term, pending implementation of Phase 2 and Phase 3 of the WQ-MOP. The interim target of 1,000 mg/L in the receiving environment at the edge of the mixing zone was supported by the NWB (2020) in their Reasons for Decision related to the approval of Amendment 1 of the Type "A" Water Licence.

The proposed interim target was derived using methods described in Appendix A and summarized below:

- Characterization of the Meliadine TDS profile (Section A1.1)—water chemistry data collected at the Meliadine Mine were used to profile the anticipated water quality in the receiving environment, including composition of major component ions in the TDS mixture.
- Review of water quality benchmarks (Section A1.2)—review of TDS benchmarks developed for locations with a similar TDS composition to Meliadine Mine.
- Literature review (Section A1.3)—review of peer-reviewed literature to determine the threshold for chronic toxicity with a focus on TDS mixtures of similar composition to Meliadine Mine (i.e., dominance of chloride, sodium, and calcium ions).

- Review of site-specific chronic toxicity data (Section A1.4)—review of site toxicity data and corresponding TDS and major ion chemistry of treated effluent and influent samples for Meliadine Mine, as collected during routine and regulatory compliance toxicity testing.
- Weight of Evidence (Section A1.5)—integration of the above information to justify the interim target of 1,000 mg/L TDS to apply at the edge of the mixing zone.

The interim TDS target includes the following assumptions:

- Ambient water hardness should remain within the current range to ameliorate potential chloride toxicity (i.e., through demonstration of non-toxicity of chloride under site-relevant ranges of hardness).
- Additional site-specific validation of the TDS threshold should be conducted to confirm that the mixture of ions represented by the effluent and near-field exposure conditions does not result in acute or chronic toxicity. Such studies are planned, as discussed in Section 3.0.
- Effluent chemistry profiles, particularly with respect to the proportions of major ions, will remain generally consistent in the future.

There is already strong scientific evidence to support the interim target as protective of the aquatic community. The results of toxicity testing do not indicate that an exceedance above 1,000 mg/L TDS will result in harm to aquatic life but provide reasonable certainty of no harm up to 1,000 mg/L. The key lines of evidence are presented in Appendix A, and are supported by the following considerations:

- The Meliadine Mine effluent contains a balance of major ions that is advantageous for limiting the toxic potency of the TDS mixture (Section A1.5.1).
- The Snap Lake site, which applies the same TDS concentration as a SSWQO, provides similar ionic mixtures and biological communities (Section A1.5.2).
- The chronic toxicity data set for Meliadine Mine site water, which includes a battery of four sensitive aquatic species, supports the interim TDS target as a defensible no-effect concentration (Section A1.5.3).
- The ionic balance has been stable in Meliadine Mine water, such that an interim TDS target can be developed without requiring development of targets for individual component ions (Section A1.5.4).

2.3 Assimilation Capacity Evaluation

The ability of the receiving environment to assimilate the concentrations and loading of constituents in effluent is the last component of the WQ-MOP implementation. Consideration of assimilation capacity provides confidence that constituents will not gradually accumulate to concentrations that would degrade the receiving environment.

The approach to TDS management set out in the WQ-MOP is not expected to affect the quality, quantity, or flow of the waters in Meliadine Lake. TDS levels during and after the 2020 discharge will continue to be managed to minimize adverse effects of the licenced deposit of effluent on the aquatic ecosystem of Meliadine Lake, and discharges would continue to meet the stringent requirements set by the MDMER. Confidence in this conclusion comes from plume delineation surveys, preliminary dilution estimates from dispersion models, and consideration of the Meliadine Lake hydrology.

The evidence for sufficient assimilation efficiency in Meliadine Lake to accommodate the interim TDS target for effluent of 3,500 mg/L comes from:

Consistency with Previous Impact Assessment Outcomes—Based on the predictions included in the Final Environmental Impact Statement (FEIS) for the Meliadine Mine Gold Project (Golder 2014), the one-time release of mine wastewater to Meliadine Lake under this amendment would not be expected to result in potential additional project effects. That is, water quality in the receiver and downstream environment would remain within the predictions included in the FEIS. For the FEIS assessment, a Maximum Allowable Concentration (MAC; referred to as the Maximum Allowable Effluent Concentration [MAEC] in the FEIS) of TDS in the discharge of 4,685 mg/L was calculated based on the approach applied in the province of Quebec (MDDEP 2007), where the mixing ratio in a lake is set to a value of 10 to 1. The calculation of the MAC is dependent on the background concentrations (BG) in the lake, the water quality criteria (WQG; the guideline), and the mixing ratio (MR), as established by the following equation:

 $MAC = MR \times (WQG - BG) + BG.$

Where for TDS:

MR = 10 (as per MDDEP)

WQG = 500 mg/L (Guidelines for Canadian Drinking Water Quality [GCDWQ; HC 2010], aesthetic objective)

BG = 35 mg/L

Therefore:

 $MAC = 10 \times (500 - 35) + 35 = 4,685 \text{ mg/L}$

This MAC is well above the proposed interim target of 3,500 mg/L proposed in this amendment.

- Plume Delineation Results—Under operating conditions, a plume delineation survey based on specific conductivity results was conducted in 2018 in the near-field region of Meliadine Lake as part of the Environmental Effects Monitoring (EEM)/Aquatic Effects Monitoring Program (AEMP). The EEM plume delineation study used field surveys of specific conductivity to evaluate effluent dispersion with distance from the diffuser. The study evaluated dilution factors at a series of monitoring stations up to, and extending beyond, 250 m from the diffuser, based on the specific conductivity of the effluent and the measured field values through the water column at each the stations. To account for background values, two scenarios were used:
 - Scenario A: near-field average specific conductivity for 2015 to 2016; and
 - Scenario B: near-field average specific conductivity for 2017

An observed slight increase in specific conductivity between 2015 to 2016 (pre-construction) and 2017 (construction) was the impetus for considering the two scenarios.

Observations from the survey indicated a minimum dilution factor of 53 at 50 m away from the diffuser, and a minimum dilution factor range of 56 (Scenario A) and 85 (Scenario B) at the edge of the 100 m mixing zone boundary (Table 1). This study was also useful because it served to validate the performance of the submerged diffuser, which had previously been assessed by Tetra Tech as part of their design (Tetra Tech 2017) and re-assessed in 2018 (Tetra Tech 2018). As part of their reassessment in 2018, Tetra Tech concluded that the predicted minimum dilution of 23:1 was achieved at the edge of the 100 m mixing zone and that water quality criteria were met. The minimum dilution factor was more than twice the mixing ratio of

10:1 that was used to derive the MAC in the 2014 FEIS; it was based on a multi-year modelling scenario¹ where the minimum dilution at 100 m at the end of the first year of discharge was 72:1. The latter ratio is consistent with earlier modelling work to support a conceptual diffuser in 2015 (Agnico Eagle 2015), which indicated that the minimum dilution factor was 65:1.

In summary, the range of dilution factors observed at 100 m distance from the diffuser (representing the edge of the mixing zone) determined from the EEM plume delineation study are greater than the minimum dilution factor (23:1) developed in the performance assessment of the diffuser completed by Tetra Tech in 2018 based on multi-year simulations. The dilution factors remain in broad agreement with Tetra Tech's assessment for the first year of discharge (72:1) and the early work completed by Golder (65:1).

Sampling Station	Maximum Specific Conductivity in 2018 (μS/cm)	Dilution Factor – Scenario A	Dilution Factor – Scenario B
50-01	99.8	63	104
50-03	105.5	53	79
100-01	93.4	80	159
100-03	104	56	85
100-04	102.6	58	90
100-05	98.9	65	109
100-06	88.5	101	266
100-08	96.6	71	125

(a) Listed data represent a portion of the data listed in Table 2.4-10 of Golder (2019)

 μ S/cm = microsiemens per centimetre

The 2018 EEM plume delineation results suggest that the effluent concentration observed at the 100 m mixing zone boundary was less than 2% of concentrations observed at end of pipe. Furthermore, the survey results showed that the plume remained at depths of roughly between 3 and 7 m, indicating that the receiving water and the effluent discharged had similar densities and/or intense mixing. The measured data from 2018 showed that at the time of the survey, the plume was more distinct to the south-west of the diffuser, which indicates a preferential direction of plume advection during the time of survey. Changes in wind speed and direction including current direction and speed are key factors determining the plume dispersion direction on any given day.

Mixing Ratio Calculations—Preliminary calculations of the MAC have been completed based on standard industry practices as well as the results of the near-field modeling completed by Golder, as shown in Table 2.

¹ The multi-year simulation included annual diffuser discharge to Lake Meliadine over the 14 year construction and operations timeline (Year -3 to Year 11). This scenario was included to assess the effects of water quality constituent build-up in the lake on the dilution factor.

Report	Guideline for Canadian Drinking Water Quality for TDS (HC 2010) (mg/L)	Assumed Meliadine Lake Average Background TDS Concentration (mg/L)	Assumed Mixing Factor	Maximum Average Concentration (mg/L)
2014 ^(a)	500 mg/L	35 mg/L	10:1	4,685
2015 ^(b)			65:1	30,260 ^(c)
2018 ^(d)			23:1	10,730 ^(c)
2019 ^(e)			56:1	26,075 ^(c)

Table 2: Calculations of Maximum Average Concentrations for TDS

Notes:

(a) Golder 2014. Water and Sediment Quality Model – Meliadine Mine Gold Project, Nunavut. Appendix 7.4-A.

- (b) Agnico Eagle (2015) (see Appendix E, Water Management Plan).
- (c) Concentration of maximum average effluent TDS is conceptual only; effluent would **not** be discharged at TDS concentrations of this magnitude as it could result in acute toxicity at the point of discharge.
- (d) Tetra Tech (2018).

(e) Golder. 2019. Appendix G – Field Data in the Near-field Exposure Area at Meliadine Lake Under the Plume Delineation Study, 2018. For the preliminary calculations, the mixing ratio (MR) was established as:

- 2014—reflects approach applied by the province of Quebec (MDDEP 2007), where the mixing ratio in a lake is set a value of 10:1.
- 2015—reflects minimum mixing factor predicted by near-field modeling.
- 2018—reflects minimum mixing factor as modelled for diffuser design (Tetra Tech 2017, 2018).

• 2019—reflects minimum mixing factor calculated from observations of plume delineation survey at edge of the 100 m mixing zone. TDS = total dissolved solids; mg/L = milligrams per litre.

Based on the model calculations and the observation of the plume delineation study, it is likely that the discharge of effluent with a TDS concentration at 3,500 mg/L, even at the lowest measured mixing ratio of 72, would result in negligible risk of sublethal toxicity at the edge of the mixing zone. This mixing potential at the edge of the mixing zone boundary limits the potential for a sublethal response.

Beyond the mixing zone, into the near- and far-field in Meliadine Lake, effluent will be carried by currents within the lake and further mixed with ambient water. The location of the effluent outfall diffuser is also within the expected main flow channel of the lake, which will act to convey and further disperse the effluent toward the lake outlet.

The assimilative capacity of the 100 m mixing zone will be validated through a detailed monitoring program, for which a conceptual design is provided in Section 3.0.

3.0 PHASE 2: CONDUCT VALIDATION STUDY

In conjunction with the 2020 releases that are planned to occur prior to or in conjunction with the freshet at Meliadine Mine and that have been approved under Amendment 1 of the Mine's Type "A" Water Licence, supporting studies are required to be conducted in spring/summer 2020 to validate the science-based interim targets and produce additional information on receiving environment assimilation (including plume delineation). This section presents the general conceptual design for the spring/summer 2020 monitoring study required as a condition under Amendment 1. The monitoring study will be undertaken both to assess conditions experienced in Meliadine Lake during the discharge event, and for use as a validation component of the WQ-MOP.

A discharge event to dewater Collection Pond 1 (CP1) has been approved by NWB and will occur at the Mine site in the spring/summer of 2020. TDS concentrations in the effluent will be elevated relative to the receiving environment during this discharge event, presenting an opportunity to conduct site validation for the interim TDS targets for the effluent and for the receiving environment at the edge of the mixing zone. These studies also provide the opportunity to collect additional information for the potential development of TDS EQC and SSWQO benchmarks, for use in adaptive management. The conceptual design for the proposed validation would consist of three components: water quality monitoring (Section 3.1), toxicity testing (Section 3.2), and plume delineation (Section 3.3).

These three components are complimentary and will be conducted with the following primary objectives:

- Water Quality Monitoring: The surface water quality monitoring program will be conducted to validate the model predictions that TDS will be diluted to less than 1,000 mg/L at the edge of the mixing zone, to provide detailed chemical characterization of the effluent and receiving environment during the discharge, and to provide information on the ionic composition of water used during the toxicity testing program.
- Toxicity Testing: The acute and chronic toxicity testing programs will be conducted to confirm that the ionic composition measured in the effluent and the receiving environment during the surface water quality monitoring program are not at levels that would cause adverse biological effects. As described in detail in Section 3.2 and summarized in Table 3, acute toxicity tests will be conducted on the effluent and a suite of chronic toxicity tests will be conducted on receiving environment samples.
- Plume Delineation Study—The plume delineation study will be conducted to assess the vertical and horizontal extent of the effluent plume. This will primarily be assessed through *in situ* specific conductivity profiling of the water column using a handheld meter with a sensor that will be lowered through the water column, with a subset of locations sampled for TDS. The relationship between field measured specific conductivity and laboratory measured TDS will be established to validate the use of specific conductivity as a tracer of TDS in the receiving environment. The information retrieved will be used to confirm model predictions related to effluent dilution and assimilation in the receiving environment, and to confirm that receiving environment monitoring stations are adequately characterizing conditions with respect to surface water chemistry and the potential for adverse biological effects.

An overview of the conceptual design is presented in Table 3 and discussed in detail by component below.

Water Quality Monitoring Program				
Sampling Media	Effluent	Mixing Zone	Receiving Environment (beyond mixing zone)	
Sample Timing	During effluent discharge and during collection of effluent samples for toxicity testing	During effluent discharge ^(a)	During effluent discharge ^(a)	
Sampling Locations	MEL-14	3 stations at the edge of the mixing zone (MEL-01-01, MEL-01-07 and MEL-01-10) ^(b)	4 stations - 1 mid-field (MEL-02-05), 3 references (MEL-03-02, MEL-04- 05, and MEL-05-04)	
Number of Samples	Per regulatory and operational requirements	1 sample per station	1 sample per station	
Frequency of Sampling	Weekly during discharge	Weekly during discharge or as per NWB's direction	Monthly during discharge or as per NWB's direction	
Test Parameters	 Daily monitoring of effluent flow volumes Parameters as listed in Schedule I Group 2 of the 2AM-MEL1631 NWB Water Licence^(c) 	 Field physico-chemical water column profile measurements (temperature, specific conductivity, pH, DO) Parameters as listed in Schedule I Group 2 of the 2AM- MEL1631 NWB Water Licence^(c) 	 Field physico-chemical water column profile measurements (temperature, specific conductivity, pH, DO) Parameters as listed in Schedule I Group 2 of the 2AM- MEL1631 NWB Water Licence 	

Table 3: Conceptual Design for Proposed Validation of Interim TDS Limits for Effluent and Receiving Environment

Toxicity Testing Program			
Sampling Media	Effluent	Mixing Zone	Receiving Environment (beyond mixing zone)
Sample Timing	During effluent discharge	During effluent discharge ^(a)	During effluent discharge ^(a)
Sampling Locations	MEL-14	3 stations at the edge of the mixing zone (MEL-01-01, MEL-01-07 and MEL-01-10) ^(b)	4 stations - 1 mid-field (MEL-02-05), 3 references (MEL-03-02, MEL-04- 05, and MEL-05-04)
Number of Samples	Per regulatory and operational requirements	1 composite sample per station	1 composite sample per station
Frequency of Sampling	Weekly during discharge	Monthly during discharge	Monthly during discharge or as per NWB direction
Test Parameters	Acute toxicity tests with: Rainbow Trout Daphnia magna 	 Chronic toxicity tests with: Pelagic crustacean (<i>Daphnia</i> magna) Epibenthic Invertebrate (<i>Hyalella</i> azteca) Macrophyte (duckweed) ELS fish (Fathead Minnow) 	 Chronic toxicity tests with: Pelagic crustacean (<i>Daphnia</i> magna) Epibenthic Invertebrate (<i>Hyalella</i> azteca) Macrophyte (duckweed) ELS fish (Fathead Minnow)
Plume Delineation Study			
Sampling Media	Effluent	Receiving Environment (within mixing zone and beyond)	
Sample Timing	During effluent discharge ^(d)	During effluent discharge ^(d)	
Sampling Locations	MEL-14	22 survey locations (see Appendix B) at distance intervals of 50 m from the diffuser, 100 m (i.e., edge of mixing zone), 175 m, and 250 m; potentially adjusted to include further afield samples if necessary ^(e)	
Frequency of Program	1 event during discharge	1 event during discharge	
Test Parameters	 TDS and major ions General parameters^(f) 	 Field physico-chemical water column profile measurements (temperature and specific conductivity) Water quality samples collected at a subset (a maximum of 10 stations) stations alongside profile measurements and analyzed for TDS, major ions, and general parameters^(f) 	

Notes:

- (a) The timing of sampling for each program is expected to occur continuously during the discharge period as outlined in the sample frequencies listed above for each sample media and test type. However, sample timing will be dependent on safe access to the lake. The period of anticipated discharge will likely coincide with the transition period between ice covered and open water conditions on Meliadine Lake. If samples cannot be collected at the required time due to safety considerations, contingency measures may be implemented, as outlined in Section 3.4.
- (b) Parameters as listed in Schedule I Group 2 of the 2AM-MEL1631 NWB Water Licence include Conventional Parameters (bicarbonate alkalinity, chloride, carbonate alkalinity, turbidity, conductivity, hardness, calcium, potassium, magnesium, sodium, sulphate, pH, total alkalinity, TDS, TSS, total cyanide, free cyanide, and weak acid dissociable [WAD] cyanide), Nutrients (ammonia-nitrogen, total Kjeldahl nitrogen, nitrate-nitrogen, orthophosphate, total phosphorus, total organic carbon, dissolved organic carbon, and reactive silica), and Total and Dissolved Metals (aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc).
- (c) Mixing zone stations MEL-01-01 and MEL-01-07 are routinely sampled by the mine during the EEM/AEMP programs. MEL-01-10 represents a new sampling station. Further details on the selected mixing zone sampling stations are provided in Section 3.1.
- (d) Sample timing will be dependent on boat access to the lake. The period of anticipated discharge will likely coincide with the transition period between ice covered and open water conditions on Meliadine Lake. Access of the lake will occur as soon as open water conditions permit safe boat access.
- (e) The maximum spatial extent of plume delineation monitoring may be extended past 250 m should the proportion of effluent be estimated to contribute >10% of TDS at 250 m (estimated based on field specific conductivity measurements).
- (f) General parameters = total and bicarbonate/carbonate alkalinity, turbidity, laboratory specific conductivity, hardness, laboratory pH, and total suspended solids.

ELS = early life-stage; TDS = total dissolved solids.

3.1 Water Quality Sampling

Water quality samples will be collected and analyzed for a suite of parameters (conventional parameters, nutrients, and total and dissolved metals) to characterize water quality conditions of the effluent and the receiving environment of Meliadine Lake. The water quality results will also inform the ionic composition of effluent and receiving environment samples used during toxicity testing for site-specific validation of the interim target established for the edge of the mixing zone (see Section 3.2). The water quality data will also provide confirmation that TDS in water released at sampling station MEL-14 remains within permitted levels established through Amendment 1 (i.e., MAC is ≤3,500 mg/L TDS; edge of mixing zone ≤1,000 mg/L TDS). Samples of effluent for water chemistry analysis should, to the extent possible, be collected on the same day as edge of mixing zone and receiving environment (mid-field and reference locations) samples and analyzed for the same suite of parameters. As described in NWB's (2020) Reasons for Decision document, water quality samples within the discharge period will be collected as follows from monitoring stations routinely sampled during the mine's EEM/AEMP program:

- Effluent samples: The effluent (defined as sampling station MEL-14) will be sampled weekly during discharge for conventional parameters, nutrients, and total and dissolved metals.
- Edge of mixing zone samples: Three stations located at the edge of the mixing zone will initially be sampled weekly during the discharge for conventional parameters, nutrients, and total and dissolved metals. These edge of mixing zone sampling stations were selected following review of the 2018 plume delineation study results. The stations include MEL-01-01 and MEL-01-07, which are located approximately 100 m northwest and northeast of the diffuser, respectively. These stations are routinely sampled as part of the mine's EEM/AEMP program. To improve spatial coverage surrounding the diffuser, it was determined that a water quality sample should be collected at the edge of the mixing zone towards the southeast of the diffuser. MEL-01-06 represents a station located southeast of the diffuser that is currently monitored under the mine's EEM/AEMP program; however, this station is located outside of the 100 m mixing zone boundary (i.e., ~200 m from the diffuser). As a result, a new station, MEL-01-10, will be monitored at the edge of the mixing zone. MEL-01-10 was selected to provide spatial coverage at the edge of the mixing zone (i.e., 100 m radius surrounding the diffuser) and will correspond with the station 100-04 selected for the plume delineation study described in Appendix B. The UTM coordinates of this station (Easting 542861.3, Northing 6989059.1) are further described in Figure 2 and Table 1 of Appendix B. The specific water depths that will be sampled at each station will be determined in the field based on the specific conductivity profile observed at the time of sampling, to account for changes in plume conditions that could occur over time. As such, the depth sampled at each edge of mixing zone station may change between rounds of sampling. The sampling frequency may also be adjusted during the program based on results and conversations held during the Water Management Working Group review meetings.
- Receiving environment mid-field samples: One mid-field station (MEL-02-05) will initially be sampled monthly during the discharge for conventional parameters, nutrients, and total and dissolved metals. The sampling frequency may be adjusted during the program based on results and conversations held during the Water Management Working Group review meetings.
- Receiving environment reference Samples: Three reference stations (MEL-03-02, MEL-04-05, and MEL-05-04) will initially be sampled monthly during the discharge for conventional parameters, nutrients, and total and dissolved metals. The sampling frequency may be adjusted during the program based on results and conversations held during the Water Management Working Group review meetings.

Physico-chemical profiling of the lake water column will be measured *in situ* using water quality meters (e.g., Hanna, YSI, Eureka or equivalent) equipped with a 20 m or longer cable at each edge of mixing zone and receiving environment sample location. Samples for laboratory water quality analysis will be collected at each location based on the depth determined to have the highest specific conductivity.

Additionally, to facilitate the collection of *in situ* physico-chemical data (i.e., specific conductivity, dissolved oxygen concentrations, temperature, and pH) at the edge of the mixing zone during the period where ice cover transitions to open water across the lake, prohibiting safe lake access, Agnico Eagle will install remote monitoring stations at the edge of the mixing zone prior to the discharge event. This monitoring will collect and log specific conductivity and temperature data at several depths at these stations, which will be recovered once the lake can be safely accessed.

3.2 Sampling for Toxicity Testing

The 2020 discharge event provides an opportunity to evaluate TDS toxicity under site-relevant conditions. During discharge, representative water samples will be collected and tested for laboratory-based toxicity using standardized protocols for aquatic toxicity. The toxicity testing program will include separate test protocols for effluent and receiving water samples.

Effluent samples from sampling station MEL-14 will be collected and tested using the suite of toxicity test species and standard protocols conducted for acute lethality testing and EEM under the MDMER. As outlined in NWB's (2020) Reasons for Decision document, the effluent (sample ID: MEL-14) will be sampled weekly during the discharge and tested for acute toxicity using the following acute toxicity test protocols:

- 96-hour Rainbow Trout survival test using the Environment Canada (2007a) standard biological test method (EPS 1/RM/9)
- 48-hour Daphnia magna survival test using the Environment Canada (1996) standard biological test method (EPS 1/RM/11)

As outlined in NWB's (2020) Reasons for Decision document, receiving environment stations will be sampled monthly during the discharge and tested using a suite of chronic toxicity tests that were agreed upon following consultation with the Water Management Working Group. Edge of mixing zone and receiving environment (i.e., mid-field and referce locations) samples will be tested for chronic toxicity using a multi-species approach that uses standardized chronic toxicity test protocols:

- 21-day Daphnia magna survival and reproduction test using the ASTM (2007) standard biological test method (Method E1193-97)—D. magna was selected as a chronic test species to evaluate receiving environment water quality, as it is well studied and sensitive pelagic crustacean, and found to be more ecologically relevant to northern lake communities relative to other crustaceans such as Ceriodaphnia dubia. The 21-d D. magna test was selected over the 7-d Ceriodaphnia dubia survival and reproduction test because the former is native to Meliadine Lake, and was recommended by stakeholders in the consultation stage to be preferred as a monitoring species.
- 14-day Hyalella azteca water-only survival and growth test using the Environment Canada (2017) standard biological test method (EPS 1/RM/33)—H. azteca was selected as a chronic test species to evaluate receiving environment water quality, as it is a well studied and sensitive invertebrate species. H. azteca was selected over the freshwater midge, Chironomus dilutus, as H. azteca is considered an epibenthic species (i.e., inhabits the microenvironment at the sediment-water interface), whereas C. dilutus is a benthic infaunal species that burrows in sediment and would have less direct exposure to receiving

waters. The feeding strategy of *H. azteca*, which derives little nutrition from the sediments, and responds primarily to contaminants in the overlying water column (including water and food; Wang et al. 2004), is well suited to an evaluation of environmental responses associated with effluent discharges. Similarly, the other benthic invertebrate group considered, mayflies, were considered less relevant as the candidate test species tend to prefer either more flowing habitats (e.g., *Centroptilum* representative of Eastern North America streams and rivers), or temperate lakes and streams (e.g., *Hexagenia* representative of slow moving streams and ponds of the Great Lakes), which are less relevant for the northern lentic Meliadine Lake environment. Mayflies are less commonly tested and with lower degree of protocol standardization, such that obtaining representative, reliable, and repeatable results was considered a potential project risk.

- 7-day Lemna minor (duckweed) growth test using the Environment Canada (2007b) standard biological test method (EPS 1/RM/37)—L. minor was selected as a chronic test species to evaluate receiving environment water quality, as it is a well studied and sensitive macrophyte species. NWB (2020) approved either the 7-day Lemna minor or the 72-h green alga (*Pseudokirchneriella subcapitata*) growth test for evaluating receiving environment water quality with respect to primary producers. L. minor was selected for testing as it was identified as the more sensitive of the two species during site-specific testing of CP1 water during the derivation of the proposed interim thresholds (Appendix A).
- 7-day larval Fathead Minnow (*Pimephales promelas*) survival and growth test using the Environment Canada (2011) standard biological test method (EPS 1/RM/22)—Fathead Minnow were selected as a chronic test species to evaluate receiving environment water quality, as it is a well studied and sensitive early life-stage fish species. NWB (2020) approved either the 7-day Fathead Minnow survival and growth test or the 7-d Rainbow Trout embryo development test for evaluating receiving environment water quality with respect to early life-stage fish. Fathead minnows were selected for testing because the Rainbow Trout embryo development to being able to secure viable embryos. Because the testing is expected to occur monthly during the discharge, it was identified that quality Rainbow Trout embryos may not be consistently available throughout the program, which would complicate temporal interpretation of chronic toxicity test results. As a result, the 7-day Fathead Minnow test was selected as the preferred option for early life-stage chronic fish testing.

Three types of samples will be collected from the receiving environment during each monthly sampling event for evaluation using the suite of chronic toxicity tests listed above. These samples include the following:

- Edge of mixing zone samples—Three stations located at the edge of the mixing zone (MEL-01-01, MEL-01-07, and MEL-01-10, as described in Section 3.1) will be sampled during each monthly sampling event for chronic toxicity testing. Prior to toxicity testing, physico-chemical water quality profiling of the water column at mixing zone sampling stations will be conducted to identify the samples with the highest specific conductivity (measured *in situ*). Samples will be collected at the depth with the highest conductivity for toxicity testing. Mixing zone stations will be tested for chronic toxicity using a standard dilution approach (i.e., 100%, 50%, 25%, 12.5% and 6.25% volume to volume dilutions) with the suite of chronic toxicity tests identified above. Dilutions will be conducted with laboratory water selected to provide broad comparability to Meliadine Lake.
- Receiving environment mid-field samples—One mid-field station (MEL-02-05) will be sampled during each monthly sampling event for chronic toxicity testing. This mid-field sample will be tested for chronic toxicity using the full-strength sample with no dilution series (i.e., pass/fail test design).
- Receiving environment reference samples—Three reference stations (MEL-03-02, MEL-04-05, and MEL-05-04) will be sampled during each monthly sampling event for chronic toxicity testing. These reference samples will be tested for chronic toxicity using the full-strength sample with no dilution series.

As the primary constituent of concern is TDS (including its component ions), concentrations would not be expected to decrease significantly during storage of a few weeks duration. As a result, a sufficient volume of sample for chronic toxicity testing will be collected at each station once per month. The samples will be collected with minimal headspace and transported under cool dark conditions to the respective toxicology laboratories. Upon arrival at the laboratories, samples will be stored in the dark at 4°C until test initiation. For chronic tests that call for renewals of test solutions during the exposure period, the refresh solution will be obtained from the bulk sample used to supply water at test initiation. The advantage to this approach is that the exposure concentration experienced by the organisms during the test will be held constant and will correspond directly with samples collected for detailed chemistry. The chronic toxicity test protocols require that conductivity be monitored during the tests, which should provide confirmation that TDS exposure concentrations remain relatively constant throughout the exposure duration.

Attempts will be made to conduct toxicity tests within the respective hold time requirements (i.e., 3 days for chronic tests) specified in the test protocols; however, slight deviations from hold time requirements may be unavoidable due to the mine's remote location and due to the current situation surrounding COVID-19. For the purposes of this study, hold time exceedances are not considered to represent a deviation from the test protocol because TDS concentrations are not expected to measurably change during storage. To validate this assumption, if samples are initiated outside the respective hold times, a subset of the stored toxicity samples will be tested for TDS so that comparisons can be made with the samples collected for analytical chemistry in the field.

3.3 Plume Delineation Study

A plume delineation study will be conducted in the near-field area of Meliadine Lake immediately outside of the mixing zone once it is safe to access the lake during effluent discharge to characterize the effluent plume configuration, validate model predictions related to effluent dilution and assimilation in the receiving environment, and to confirm that receiving environment monitoring stations are adequately characterizing edge of mixing zone conditions. Study timing will be dependent on safe lake access. Although discharge will likely commence during ice cover conditions and continue during the transition period between ice cover and open water conditions on Meliadine Lake, boat access to the lake is required to conduct the plume delineation study. Therefore, the plume delineation study will occur once open water conditions permit safe boat access.

Specific conductivity and temperature depth profiling at different spatial intervals from the effluent diffuser (i.e., collected at 50 m, 100 m, 175 m, and 250 m distances at 22 stations around the diffuser; potentially adjusted to include further afield samples if necessary) will be used to depict the dimensions and behaviour of the plume. A subset of the planned sampling stations (i.e., a maximum of 10 of the 22 identified locations) will be sampled for laboratory analysis of TDS, major ions, and other general parameters. Samples selected for more detailed analyses will be selected to encompass the range of specific conductivity measures observed surrounding the outfall. These data from the plume delineation study will provide:

- validation that the water quality at the edge of the mixing zone is consistent with predictions of TDS and major ion concentrations (as estimated using existing water quality from the effluent and modeling of the receiving environment)
- confirmation that the relationship between specific conductivity and water quality is sufficiently reliable for use in future plume delineation
- representation of the rate of effluent dispersion in the near-field region in Meliadine Lake, to address the assimilation capacity portion of the WQ-MOP.

This study would occur over one to two days during the effluent discharge once safe access to the lake is possible. A detailed study plan for the Plume Delineation Study is provided in Appendix B and is similar in scope to plume monitoring conducted during the 2018 Meliadine Mine EEM/AEMP.

3.4 Contingency Planning

Field monitoring and data collection will be conducted by Agnico Eagle Mine personnel, with support from Golder on an as-needed basis. Golder will provide the detailed study design for each component, specific work instructions, program coordination, data analysis, and reporting. Sample collection, chain-of-custody, and health and safety will be the responsibility of Mine staff. Due to the remote location of the Meliadine Mine site, the seasonal lake conditions during ice melt, and the current public health situation surrounding COVID-19, contingency planning for unforeseen complications related to the monitoring program are necessary to provide a framework that can be safely implemented in the event that certain aspects of the proposed monitoring program become unworkable. This section summarizes some of the factors that could influence the need to modify the sampling program, and the measures that will be undertaken to maintain program implementation within the practical and safety constraints.

Following discussions between Agnico Eagle and the Water Management Working Group, NWB (2020) has stipulated that the following contingency measures should be considered in case complications prohibit sampling and analysis as outlined in Table 3:

- Use of specific conductivity or TDS field measurements as a surrogate for laboratory measured TDS and the contributing ions (development of a statistical relationship between field measurements of specific conductivity and laboratory TDS)
- Agnico Eagle should consult with the Water Management Working Group in respect of all monitoring and adaptive management measures (see Section 3.5) implemented by Agnico Eagle over the course of the CP1 discharges in 2020

Where schedule allows, and where adaptations would result in a significant departure from the study design, input will be sought from the Working Group. Therefore, this section emphasizes circumstances that may require revisions to the program with a few days notice, and for which a formal consultation step is not feasible.

3.4.1 Ice Melt

Due to the timing of effluent discharge during freshet, safe access to Meliadine Lake may pose a challenge due to melting ice conditions. It is anticipated that effluent discharge will begin before the lake is completely ice-free to alleviate on-site water storage capacity limitations. Therefore, the edge of mixing zone and receiving environment monitoring conducted as part of this study may not be possible at certain times during the discharge due to safety concerns associated with ice melt. The following outlines contingency measures that could be implemented if the receiving environment is not accessible at the start of the discharge event:

- Option 1—Delay open-water environment sampling (edge of mixing zone and receiving environment [mid-field and reference locations]). Depending on the ice cover conditions and the long-term weather forecast at the time of initial discharge, it may be prudent to delay the first round of open-water sampling, to provide improvement in conditions and safety, without any other changes required to the sampling program.
- Option 2—Temporary replacement of open water sampling with expanded effluent testing using dilutions. The discharge monitoring station, MEL-14, is located on land and is therefore expected to be accessible when lake ice prohibits receiving environment sampling (both edge of mixing zone samples and receiving environment samples). As a result, if receiving environment samples cannot be sampled during the

first month due to unsafe sampling conditions caused by melting ice on Meliadine Lake, additional whole effluent samples from MEL-14 could be sent to the toxicology laboratory and tested using an extended dilution series that encompasses a larger range of TDS concentrations than would be expected in the receiving environment. These tests would be simulations of water quality and toxicological responses to approximate the field conditions, with a return to direct sampling of field conditions as soon as appropriate. Such chronic toxicity data could then be compared to *in situ* monitoring data that would be collected following ice-free conditions to validate the interim targets established at the edge of the mixing zone. Although this contingency would have uncertainty related to the estimation of effluent dilution in the mixing zone, it has the added benefit of providing site-specific chronic toxicity data at test concentrations greater than those expected at the edge of the mixing zone. These data would be informative for both the short-term monitoring needs, but also to validate longer-term benchmarks for TDS in the effluent (EQC-setting) and receiving environment (SSWQO). Such benchmarks would support a future application for a permanent amendment to these targets under the mine's water licence (i.e., support WQ-MOP Phase 3—long-term management of TDS).

3.4.2 Laboratory Testing

The study design has been developed to provide a high level of care and quality management, but laboratory testing always carries some risk of uncontrollable disruption:

- Shipment Delay—Due to the remote location of the site, and the multiple legs required for shipment from Nunavut to the Quebec transfer location, and subsequently to the analytical laboratories, there is a possibility of holding time exceedances for chemical or toxicological analyses (these times vary by test type but are generally a few days in duration). The potential for time delays increases during the Covid-19 condition due to the reduced options for alternate shipping routes. In the event of a minor holding time exceedance, we propose to continue with testing of the samples as promptly as can be accommodated by the laboratories, with associated documentation of the necessary protocol deviations. The contaminant types of primary interest in the samples (i.e., major ions and metals) are resistant to rapid sample degradation. Cancellation or rescheduling of the testing program would result in loss of information and associated uncertainty that far outweighs the consideration of holding time. Additional chemical analysis (e.g., both test initiation and termination) can be used to provide confidence in the stability of the chemical mixtures.
- Test Failure—A low percentage of toxicity tests result in test failures (i.e., unacceptable performance of negative control media, or other major disqualification, such as a prolonged power outage causing violation of rules for controlled environmental conditions). We have attempted to anticipate potential causes of control failures (e.g., fungal infestation of water samples, essential micronutrient levels of tests). If other unforeseeable factors result in a test failure, the default approach will be to proceed in order of:
 - Consult the laboratory to determine if the cause of failure can be identified
 - Restart the test using additional archived sample, if available
 - If test cannot be repeated with confidence, repeat test with fresh sample in the subsequent monitoring event (with additional water volume provided to support follow-up investigation of cause, if needed)
 - If multiple rounds of testing indicate a systematic problem with test quality, consider replacement testing (e.g., new laboratory, replacement test protocol)

- Inadequate Sample Volumes—In the event that water volumes are inadequate (e.g., sample containers compromised or lost in transit), attempts will be made to salvage the testing round through minor adjustments to the design, such as:
 - Replacement of site water with a synthetic water sample designed to mimic the ionic composition of the site water (e.g., laboratory preparation of a simulated Meliadine Lake ambient background water composition)
 - Modification of the dilution series to make efficient use of available sample

The contingency measures provided above represent an initial planning step and are not expected to address all potential complications that could arise during the monitoring program. As a result, these planning steps should be viewed as preliminary measures that are expected to evolve as the program progresses. Golder and Agnico Eagle will work together to identify additional contingency measures where necessary during the program and, where practical, will provide new contingency plans to the Water Management Working Group for comment and discussion prior to implementation.

3.5 Adaptive Management

As described in NWB's (2020) Reason for Decision, adaptive management measures related to the emergency discharge will be discussed on an ongoing basis throughout the discharge event during meetings with the Water Management Working Group comprised of the Kivalliq Inuit Association, Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), Environment and Climate Change Canada (ECCC), and NWB. However, prior to the first Water Management Working Group meeting, which is tentatively scheduled for two weeks following initiation of the discharge, NWB (2020) has stipulated that the following preliminary adaptive management thresholds and triggers be implemented during water quality monitoring of the discharge event:

- If two consecutive end-of-pipe sampling events identify TDS concentrations equivalent to, or greater than, 3,500 mg/L, Agnico Eagle will increase sampling frequency
- If two consecutive edge-of-mixing-zone sampling events identify TDS concentrations equivalent to, or greater than, 75% of the interim target of 1,000 mg/L, Agnico Eagle will increase sampling frequency

These preliminary adaptive management measures will be implemented if the above referenced management targets are not achieved. NWB will be notified promptly of any adaptive management measures that are implemented throughout the discharge period. Additional adaptive management strategies that may be considered on a case-by-case basis if non-compliance with the above targets are observed, or if the results of the validation studies identify other non-conformances are:

- Decreasing the rate of effluent discharge or temporary cessation of pumping of the discharge could be considered to increase dilution and decrease the overall size of the plume.
- Consideration given to collecting additional edge of the mixing zone sample(s) for exploratory chronic toxicity testing to further validate the proposed interim target at the edge of the mixing zone. These additional samples could be amended with ionic salts in an ionic composition relevant to the edge of mixing zone and tested as a dilution series. The purpose would be to facilitate testing at concentrations both above and below the concentrations measured at the time of sampling, for the purpose of developing a concentration-response curve.

Consideration given to additional targeted toxicity testing (e.g., validation test, or toxicity identification evaluation to explore the cause for an observed toxicological response), either in response to an acute toxicity outcome (e.g., mortality to crustacean *D. magna*) or for a moderate- to high-magnitude chronic toxicity response. Such toxicity is not anticipated to occur during the program (i.e., the thresholds have been set specifically to avoid such responses); however, if an anomalous response is observed, a TIE could help elucidate the cause.

If additional testing or analysis is conducted, per the second or third bullets above, the data would be useful both as a contingency measure and for longer-term management (i.e., WQ-MOP Step 3). These approaches have been applied at other northern mine sites to better understand the concentration-response and define the lower bound of where TDS may cause chronic toxicity in site-specific mixtures. Multiple chronic toxicity tests have already been conducted in recent years, and these support the proposed interim target at the edge of the mixing zone; additional tests would expand on that knowledge, clarifying the nature of TDS concentration-response, and the influence of modifying factors.

Additional adaptive management strategies, if necessary, would be proposed to the Water Management Working Group in advance of the next scheduled meeting to facilitate discussion and agreement prior to implementation.

4.0 CONCLUSIONS

The application of the WQ-MOP framework provides a basis for management of effluent discharges from Meliadine Mine to Meliadine Lake that:

- Is protective of the environment (both in the mixing zone and broader ecological condition of Meliadine Lake), as demonstrated in this memorandum, which provides Phase 1 and the conceptual elements of Phase 2 of the WQ-MOP
- Will satisfy regulatory requirements for the short-term (Phase 1 and 2) and long-term (Phase 3) management of TDS:
 - Interim targets for TDS proposed herein satisfy short-term regulatory requirements for management of TDS during the 2020 discharge, subject to conditions outlined in Emergency Amendment 1, and endorsement of the interim targets for effluent and at the edge of the mixing zone
 - interim targets for TDS proposed herein form the basis for development of TDS targets for effluent (EQC) and receiving environment (SSWQO), following validation monitoring, for future application under an adaptive management framework
- Is based on science, including both site-specific evaluations of toxicity and comparison to other project approvals with similar composition of TDS
- Is customized to the site-specific conditions of water quality and quantity (with revisions as appropriate should these conditions change)

It is acknowledged that the aspects of the interim targets for TDS and, if required, future development of EQC and SSWQO, will benefit from additional confirmatory study. Our revised WQ-MOP provides the technical basis for these studies, and leverages the environmental monitoring of the 2020 discharge, which provides an opportunity to collect the data necessary for both short-term validation (i.e., Phase 2 of the WQ-MOP) and long-term management (i.e., Phase 3 of the WQ-MOP).

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APPENDIX A

Supporting Information for the Interim TDS Targets

APPENDIX A: SUPPORTING INFORMATION FOR INTERIM TDS TARGETS

This Appendix presents the supporting information and rationale for the proposed interim targets of: (a) 1,000 mg/L calculated TDS to apply at the edge of the mixing zone (Section A1.0) and (b) 3,500 mg/L calculated TDS to apply for effluent discharge (Section A2.0).

To prepare the interim targets, Golder Associates Ltd. (Golder) was requested to build from existing work performed on TDS benchmarks (i.e., Golder 2019), including the following:

- Incorporation of site-specific toxicity data.
- Integration with the framework discussed with regulators for developing interim water quality targets for TDS that reflect the site-specific mixture of ions, confirmed through standardized toxicity tests (acute and chronic toxicity testing) and evaluation of assimilative capacity.
- Establishment of a process for validation of interim targets in summer 2020.

The development of interim water quality targets for Agnico Eagle Nunavut operations was discussed with Environment and Climate Change Canada (ECCC) in several recent meetings and associated reviews:

- Meeting on 9 December 2019 (Agnico Eagle 2019). This meeting discussed the technical approach to development of site-specific water quality objectives (SSWQO) for multiple projects (and constituents of interest) in Nunavut.
- TDS Technical Memorandum (Golder 2019). This memorandum was prepared as a draft document to support a technical approach to development of SSWQOs for TDS.
- Meeting on 9 January 2019 (Agnico Eagle 2020). This meeting discussed the technical approach to development of SSWQOs specific to TDS and its components, following from the ECCC review of Golder (2019).
- Final Public Hearings for the Whale Tail Expansion Project, Baker Lake NU, February 13–14, 2020. The hearings included contributions from ECCC (as Intervenors), and from Agnico Eagle (in the Proponent's concluding statements) and included areas of general agreement regarding a conceptual approach to regulation of TDS.

A1.0 INTERIM TDS TARGET AT THE EDGE OF THE MIXING ZONE

The benchmark of 1,000 mg/L calculated TDS is proposed as an interim value for use in the short-term, pending implementation of Phase 2 and Phase 3 of the WQ-MOP.

The proposed interim target was derived as summarized below and detailed in the subsequent sections:

- Characterization of the Meliadine TDS profile (Section A1.1)—water chemistry data collected at the Meliadine Mine were used to profile the anticipated water quality in the receiving environment, including composition of major component ions in the TDS mixture.
- Review of water quality benchmarks (Section A1.2)—review of TDS benchmarks developed for locations with a similar TDS composition to Meliadine Mine.
- Literature review (Section A1.3)—review of peer-reviewed literature to determine the threshold for chronic toxicity with a focus on TDS mixtures of similar composition to Meliadine (i.e., dominance of chloride, sodium, and calcium ions).

- Review of site-specific chronic toxicity data (Section A1.4)—review of site toxicity data and corresponding TDS and major ion chemistry for Meliadine treated effluent and influent samples, as collected during routine and regulatory compliance toxicity testing.
- Weight of Evidence (Section A1.5)—integration of the above information to justify an interim target TDS concentration of 1,000 mg/L to apply at the edge of the mixing zone.

A1.1 Characteristics of Total Dissolved Solids

A1.1.1 Definition

The TDS parameter is defined as the sum of the concentrations of all common dissolved ions in freshwaters (e.g., sodium [Na⁺], calcium [Ca²⁺], magnesium [Mg⁺], potassium [K⁺], sulphate [SO₄²⁻], bicarbonate [HCO³⁻], chloride [Cl⁻], nitrate [NO³⁻], fluoride [F⁻], and silicate [SiO₃²⁻]), and is essentially an expression of salinity. TDS can be calculated using the following equation (APHA 2005):

 $TDS_{calculated (mg/L)} = \sum [Na^+, K^+, Ca^{2+}, Mg^{2+}, Cl^-, F^-, SO_4^{2-}, SiO_3^{2-}, 4.42 \times NO_3^- (as N), 0.6 \times total alkalinity (as CaCO_3)]$

Concentrations of TDS may also be measured gravimetrically by analytical laboratories. However, calculated TDS is used herein as the primary basis for derivation of interim targets for TDS and screening because:

- Laboratory interference can reduce the accuracy of measured TDS (Evaristo-Cordero 2011). In particular, waters with high calcium, magnesium, and chloride concentrations can form hydroscopic residues that absorb water under normal laboratory conditions, potentially biasing the measured TDS higher than actual concentrations (APHA 2005; Evaristo-Cordero 2011). In contrast, calculated TDS is based on the major ions that can measurably contribute to TDS and is therefore, not influenced by any changes that may occur from those ions being taken out of solution.
- Calculated TDS incorporates explicit consideration of the ionic composition, which is important for evaluating the toxicity of the TDS mixture (as discussed below).
- Calculated TDS is forecasted, using predictive modelling, to estimate potential TDS concentrations in effluent and receiving environment under future mine conditions; use of calculated TDS for the interim target provides an equivalence for comparison relative to modelled conditions.

In recent meetings, ECCC expressed a preference that concentrations of TDS be expressed on a measured concentration basis. Agnico Eagle has committed to presenting monitoring results using both methods (calculated and measured).

A1.1.2 General Fate and Effects

Dissolved solids occur naturally in water, with the composition and concentration of individual ion constituents varying by location based on natural factors, such as the geology and soil in the watershed, atmospheric precipitation and the water balance (evaporation-precipitation) (Weber-Scannell and Duffy 2007). Anthropogenic activities can alter the concentration of TDS in the aquatic environment, with effluent from mining or industrial treatment of water identified as common sources of elevated TDS (Soucek 2007; Weber-Scannell and Duffy 2007). Differences in the ratios of calcium to magnesium (Ca:Mg) or relative contribution of sulphate or chloride to the total TDS concentration are common indicators of anthropogenic influence.

The primary toxicity modifying factor for TDS is ionic composition, reflecting the fact that individual ionic components exhibit different potential to exert toxicity. For example, Mount et al. (1997) reported 48-hr LC₅₀ values ranging from 390 to >5,610 mg/L in *C. dubia* and 96-hr LC₅₀ values ranging from <510 to 7,960 mg/L in the Fathead Minnow exposed to various ion combinations, respectively. In general, a balanced mixture of ions results in lower toxicity than strong dominance by an individual ion, particularly dominance by an individual ion with relatively high toxicity. Mount et al. (1997) reported that the relative ion toxicity to freshwater biota was generally potassium > carbonate ≈ magnesium > chloride > sulphate, with calcium and sodium exhibiting relatively low toxicity. Therefore, the toxicity of a TDS mixture depends largely on the composition of ions within the mixture, rather than the total TDS concentration, which on its own is not an accurate predictor of toxicity. If the mixture is well characterized, and the composition of that mixture is similar to samples for which mixture-based toxicity testing has already been conducted, the confidence in predictions of toxicological potential increases substantially.

A1.1.3 Site-Specific Composition

Monitoring data for Meliadine effluent (MEL-14) were compiled for surface water samples collected between September 2017 and October 2019 and monitoring data for the near-field in Meliadine Lake (MEL-01; stations MEL-01-01 and MEL-01-06 to MEL-01-08) were compiled for surface water samples collected between July 2015 and September 2019. The date range selected for the effluent TDS data begins in 2017 because it coincides with period of increasing effluent TDS concentrations. The near-field TDS composition has been relatively stable over time; data were included for a broader time period to reflect the chronic exposure condition. Summary statistics for major ion chemistry, TDS, and water hardness are presented in Table A-1.

The interim target was developed considering that the ionic composition would fall within the bounds of the ionic composition of the effluent and near-field receiving water. In other words, the effluent and near-field receiving environment samples bracket the range of mixture types expected for future samples of water upon initial mixing. Average measured TDS in the effluent was approximately 930 mg/L and consisted predominantly of chloride (470 mg/L; 52% of TDS), sodium (167 mg/L; 18% of TDS), calcium (125 mg/L; 13% of TDS), sulphate (56 mg/L; 6% of TDS), carbonate (20 mg/L; 2% of TDS), and relatively low concentrations of magnesium, potassium, fluoride, nitrate, and reactive silica (combined 9% of TDS; Figure A-1). Average measured TDS in the near-field receiving environment (MEL-01) was lower (44 mg/L) with a broadly similar ionic composition to the effluent but with a higher overall proportion of carbonate and lower proportion of chloride, sodium, and calcium. TDS in the near-field consisted predominantly of chloride (12 mg/L; 28% of TDS), carbonate (18 mg/L; 24% of TDS), sodium (5.8 mg/L; 13% of TDS), calcium (7.7 mg/L; 18% of TDS), sulphate (4.5 mg/L; 10% of TDS), and relatively low concentrations of magnesium, potassium, fluoride, nitrate, and reactive silica (combined 6% of TDS; Figure A-2). On a site-wide basis, TDS composition relevant to the Meliadine interim TDS target is an ionic composition dominated by chloride, sodium, and calcium (from highest to lowest concentration), with lower contribution from carbonate. It is anticipated that, should TDS increase in the receiving environment relative to current conditions, the relative proportion of carbonate would decline as the relative proportions of chloride, sodium and calcium increase. Dominant ions of chloride, sodium, and calcium represent the lower range of toxicity potential relative to potassium, carbonate, and magnesium (Mount et al. 1997).

From November 2019 to March 2020, ten water quality samples were collected in Containment Pond 1 (CP1). The ionic composition of these samples were consistent with the ionic composition reported above for MEL-14 and MEL-01; average measured TDS in CP1 from November 2019 to March 2020 was approximately 4,403 mg/L and consisted predominantly of chloride (2,160 mg/L; 51% of TDS), sodium (806 mg/L; 19% of TDS), calcium

(483 mg/L; 11% of TDS), sulphate (349 mg/L; 8% of TDS), carbonate (87 mg/L; 2% of TDS), and relatively low concentrations of magnesium, potassium, fluoride, nitrate, and reactive silica (combined 9% of TDS).

Hardness may modify ion-specific toxicity, thereby ameliorating the toxicity of a mixture by reducing the toxicity of individual ions (Kennedy et al. 2005). For example, calcium has been identified as a specific component of hardness that ameliorates sulphate toxicity (Davies and Hall 2007; Mount et al. 2016). Hardness is not considered a toxicity modifying factor in the case of TDS, because hardness is a component of the TDS mixture and is therefore not an independent factor distinct from ionic composition. However, hardness can be considered for the evaluation of ion-specific toxicity, given that some ions (e.g., chloride, sulphate) are less toxic in hard water. Water hardness was calculated as calcium carbonate (CaCO₃) using the following equation:

$$[CaCO_3] = 2.5 \times [Ca^{2+}] + 4.1 \times [Mg^{2+}]$$

Average calculated water hardness in the effluent was 408 mg/L as CaCO₃ (i.e., very hard water), compared to 25 mg/L (i.e., soft water) in the near-field receiving environment.

 Table A-1: Water chemistry results for TDS and associated constituents in Meliadine Mine effluent (MEL-14) collected between September 2017 to October 2019 and near-field (MEL-01) collected between July 2015 and September 2019

Parameter		MEL-14						MEL-01 ^(a)				
(mg/L)	Median	Average	Maximum	Minimum	Sample Count	Median	Average	Maximum	Minimum	Sample Count		
Calculated TDS	923	930	1,213	634	28	42	44	69	33	43		
Measured TDS	1,185	1,203	1,760	860	28	52	54	94	25	43		
Carbonate ^(b)	20	20	34	4	28	10	11	17	8	43		
Chloride	470	487	660	300	28	12	12	19	8	43		
Sodium	167	165	236	94	28	5.6	5.8	9.4	4.1	43		
Calcium	125	122	220	17	28	7.3	7.7	13	5.8	43		
Sulphate	53	56	90	7	28	4.3	4.5	6.6	3.4	43		
Magnesium	26	25	36	4	28	1.3	1.4	2.4	1.0	43		
Potassium	14	14	17	10	28	1.0	1.0	1.7	0.8	43		
Fluoride	(c)	(c)	(c)	(c)	0	0.03	0.03	0.03	0.02	43		
Nitrate (as N)	11	9	15	3	28	0.01	0.01	0.08	0.01	43		
Reactive Silica	0.73	0.79	3.60	0.05	28	(d)	(d)	(d)	(d)	1		
Calculated Water Hardness (as CaCO ₃) ^(e)	407	408	698	59	28	24	25	41	19	43		

Notes:

All concentrations expressed in milligrams per litre.

(a) MEL-01 measurements are from near-field stations MEL-01-01, MEL-01-06, MEL-01-07, MEL-01-08, and MEL-01-09.

(b) Calculated from total alkalinity as total alkalinity (as $CaCO_3$) × 0.6

(c) Fluoride was not measured for data collected between September 2017 and October 2019, which precluded the calculation of summary statistics. However, these data would not result in significant changes to the understanding of ionic composition, given that fluoride provides only a trace component of both halides and TDS in Meliadine water samples.

(d) Reactive silica was only measured in one sample for data collected between September 2017 and October 2019, which precluded the calculation of summary statistics.

(e) Calculated as $(2.5 \times [Ca^{2+}]) + (4.1 \times [Mg^{2+}])$

mg/L = milligrams per litre; CaCO₃ = calcium carbonate; N = Nitrogen; - = not measured.

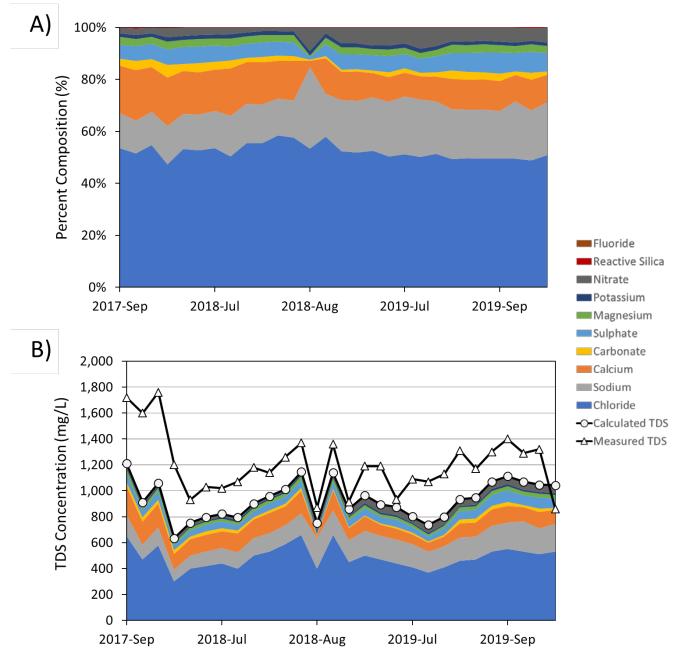


Figure A-1: Percent composition of TDS (%) (Panel A) and TDS concentration (mg/L) (Panel B) at station MEL-14 (treated effluent) for samples collected between September 2017 and October 2019 at Meliadine Mine.

Notes:

lonic composition was calculated as: $TDS_{calculated (mg/L)} = \sum [Na^+, K^+, Ca^{2+}, Mg^{2+}, Cl^-, F^-, SO_4^{2-}, SiO_3^{2-}, 4.42 \times NO_3^- (as N), 0.6 \times total alkalinity (as CaCO_3)].$

Data for ionic composition from effluent (MEL-14) was collected between September 2017 and October 2019.

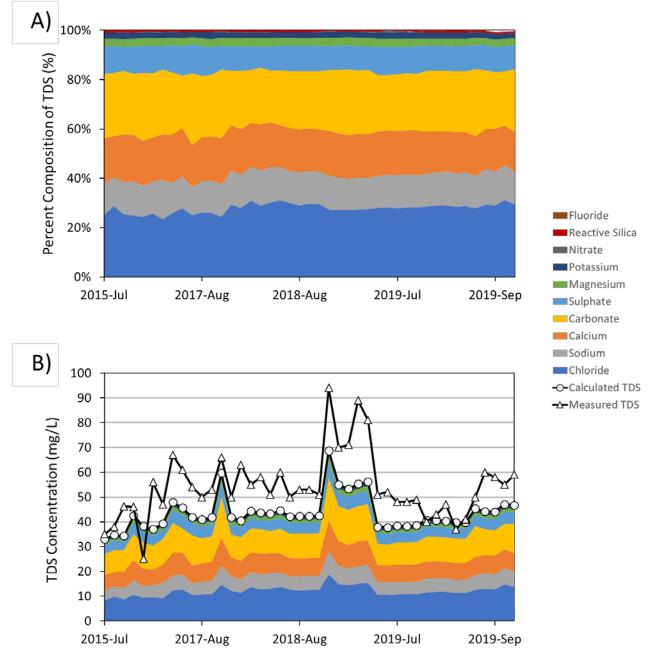


Figure A-2: Percent composition of TDS (%) (Panel A) and TDS concentration (mg/L) (Panel B) at station MEL-01 (near-field) for samples collected between July 2015 and September 2019 at Meliadine Mine.

Notes:

lonic composition was calculated as: $TDS_{calculated (mg/L)} = \sum [Na^+, K^+, Ca^{2+}, Mg^{2+}, Cl^-, F^-, SO_4^{2-}, SiO_3^{2-}, 4.42 \times NO_3^- (as N), 0.6 \times total alkalinity (as CaCO_3)].$

Data for ionic composition from near-field (MEL-01) was collected from stations MEL-01-01, MEL-01-06, MEL-01-07, and MEL-01-08 between July 2015 and September 2019.

A1.2 Benchmarks from Other Sites

Currently, there is no federal, Provincial or Territorial water quality guideline for TDS in Canada. Several US States have developed state or site-specific TDS criteria focussed on the protection of aquatic life. In Alaska, TDS criteria range from 500 to 1,500 mg/L (ADEC 2009), depending on the TDS composition and whether the receiving environment is potential salmon spawning habitat. Permits are required for discharges to receiving water that result in an increase in TDS concentration in the waterbody between 500 and 1,000 mg/L. Chapman et al. (2000) reported that studies conducted for Coeur Alaska's Kensington Mine site resulted in the first site-specific TDS permit in Alaska. The permit states that TDS may not exceed 1,000 mg/L in Sherman Creek, the receiving waterbody of Kensington Mine effluent (ADEC 2017). Alaska also granted a site-specific permit for Red Dog Mine effluent (ADEC 2013; Brix et al. 2010). Concentrations of TDS up to 1,500 mg/L are permitted during periods when salmonids are not spawning, provided calcium is greater than 50% by weight of the total cations (ADEC 2013; Brix et al. 2010). During spawning periods, the limit was set at 500 mg/L (Brix et al. 2010). However, the studies used to establish the Alaskan TDS water quality criterion were based on ionic compositions dominated by calcium sulphate, whereas the Meliadine effluent and near-field TDS is predominantly sodium chloride and calcium chloride (Chapman et al. 2000; Brix et al. 2010). Therefore, these benchmarks are not directly applicable to Meliadine Mine.

In 2004, the Iowa Department of Natural Resources (IDNR) adopted an interim TDS standard of 1,000 mg/L in receiving streams; the standard was used as a screening value to determine whether site-specific toxicity testing was required (IDNR 2009). However, IDNR since recommended replacing the TDS standard with numerical sulphate and chloride criteria (IDNR 2009) under the assumption that the individual ions provide a more defensible basis for evaluating toxicity relative to the sum of the ions.

The Snap Lake Mine in the Northwest Territories currently has a site-specific water quality objective (SSWQO) for TDS of 1,000 mg/L (Golder 2014; Chapman and McPherson 2015). The SSWQO was derived following toxicity testing with multiple receptor groups (fish, invertebrates, and plants) using a TDS ionic composition specific to Snap Lake Mine dominated by chloride, calcium, and sodium. The typical composition of Snap Lake water includes ~45% to 47% chloride, 20% to 21% calcium, 10% to 11% sodium, 9% sulphate, 5% to 7% carbonate, 4% nitrate, and 2% to 3% magnesium, with minor contributions from potassium and fluoride. This composition is broadly similar to that of Meliadine effluent. The test species and effects endpoints for the TDS SSWQO dataset, as reported by Chapman and McPherson (2015) and discussed in detail in Golder (2014), are presented in Table A-2. Additional testing was also conducted with the non-resident water flea, Ceriodaphnia dubia. As discussed by Chapman (2014a) the results from multiple rounds of testing with C. dubia were highly variable (potentially confounded by laboratory artifacts) and could not be relied upon to derive a protective SSWQO for Snap Lake Mine. Because species of the genus Ceriodaphnia do not reside in Snap Lake, species of the genus Daphnia are observed in Snap Lake, the chronic reproduction D. magna results were considered more representative of daphnids in Snap Lake. Following a resident taxa approach for deriving a SSWQO using the dataset in Table A-2, the TDS SSWQO for Snap Lake was set as 1,000 mg/L. The SSWQO was considered protective of aquatic life, and "if not exceeded, will avoid harm to the Snap Lake ecosystem" (Chapman 2014a, p.5). As discussed by Chapman (2014c), the results of toxicity testing do not indicate that an exceedance above 1,000 mg/L TDS will result in harm to aquatic life but provide "reasonable certainty of no harm up to 1,000 mg/L" (Chapman 2014a, p.5).

Table A-2: Chronic toxicity testing dataset for Snap Lake TDS SSWQO as summarized by Chapman and McPherson (2015)

Test Species	Common Name	Life stage	Test Duration	Endpoint	Test Statistic ^(a)	Result (mg/L TDS)	Reference
				dry fertilization survival	LC ₂₀	990	
Salvelinus	Lake Trout	early life-		dry fertilization growth	IC ₂₀	>1,490	Baker et al. 2015
namaycush	Lake Hout	stage		wet fertilization survival	LC ₂₀	>1,480	Daker et al. 2015
				wet fertilization growth	IC ₂₀	>1,480	
Daphnia magna	water flea	<24 hr	21-d	reproduction	IC ₂₀	>1,100	Chapman 2014b
Brachionus calyciflorus	rotifer		48-hr	population	IC ₁₀	>1,330	Chapman 2014c
Chironomus dilutus	chironomid		10-d	growth	IC ₁₀	>1,390	Chapman 2014c
				dry fertilization survival	LC ₂₀	>1,420	
Thursellus sustinus	Arctic Grayling	early life- stage		dry fertilization growth	IC ₂₀	>1,420	Deker et el 2015
Thymallus arcticus				wet fertilization survival	LC ₂₀	>1,410	Baker et al. 2015
				wet fertilization growth	IC ₂₀	>1,410	
Pseudokirchneriella subcapitata	green alga	population	72-h	growth	IC ₁₀	>1,470	Chapman 2014c
Navicula pelliculosa	diatom	population	120-h	growth	IC ₁₀	>1,490	Chapman 2014c
Cyclops vernalis	copepod		20-d	growth	IC ₂₀	>1,510	Marus et al. 2015; Chapman 2014c; Chapman 2014a
Pimephales promelas	Fathead Minnow	early life- stage	32-d	hatching, survival and growth	IC ₂₀	>2,200	Chapman 2014c

Notes:

(a) As reported in Chapman and McPherson (2015) for the "*lowest reliable, technically defensible endpoint for each test.*" A discussion of the selection of endpoints is provided in Golder (2014).

mg/L = milligrams per litre; TDS = total dissolved solids; $LC_x =$ lethal concentration causing a lethal effect to x% of the test population; $IC_x =$ inhibitory concentration that causes an x% inhibitory effect in the sublethal endpoint being measured.

The Snap Lake SSWQO validation excluded test results for the water flea, *C. dubia*, because multiple rounds of testing produced highly variable effect concentrations that were not reliable. Variability in the reproductive endpoint for *C. dubia* was attributed to confounding factors associated with the testing laboratory (e.g., dilution and acclimation water), and such variations have also been reported elsewhere (Lasier et al. 2006; Pacholski et al. 2016; Mount et al. 2016). Golder (2011; 2014) and Chapman and McPherson (2015) concluded that *D. magna* are more relevant surrogate for resident cladoceran species in Snap Lake mine because zooplankton surveys in Snap Lake reported the genus *Daphnia* but not the genus *Ceriodaphnia*. The same logic would apply for Meliadine Lake, where zooplankton surveys conducted as part of Aquatic Effects Monitoring in 2015, 2016, and 2017 reported *Daphnia* presence but not *Ceriodaphnia* (Golder 2019).

A1.3 Review of Chronic Toxicity Literature

Golder (2011; 2014) conducted an extensive literature review for total dissolved solids that was updated by Chapman and McPherson (2015); the literature review is presented in Appendix A of Golder (2011; 2014) and summarized in Chapman and McPherson (2015). This literature is separate from the values derived from site-specific toxicity testing at Snap Lake Mine as reported in Table A-2. Golder (2011; 2014) and Chapman and McPherson (2015) concluded that the toxicity of TDS was highly dependent on the ionic composition, the species tested, and the life stage; they identified the following trends for generic TDS mixtures:

- Phytoplankton—overall high tolerance of phytoplankton to TDS toxicity with effect concentrations higher than 1,000 mg/L.
- Benthic invertebrates—in general, adverse effect concentrations were above 1,000 mg/L, with the following exceptions. Relatively high sensitivity was reported for oligochaete worms (96-hour immobilization EC₅₀ of 281 mg/L calcium chloride to the oligochaete worm *Tubifex*; Khangarot 1991), and the glochidia of a freshwater mussel (48-hour EC₅₀ of 560 mg/L sodium chloride to glochidia of *Lampsilis fasciola*; Bringolf et al. 2007). Lower effect concentrations were also reported for the fingernail clam (*Sphaerium simile*; 96-hour survival LC₅₀ of 740 mg/L; GLEC and INHS 2008; Soucek et al. 2011) but these represented individual ion exposure, which may not accurately predict chloride toxicity under mixture conditions.
- Zooplankton—cladoceran species were generally the most sensitive to TDS. Effect concentrations for calcium chloride salts ranged from 600 to 7,000 mg/L. A review of the chronic dataset presented by Golder (2011; 2014) indicated that effect concentrations for sodium chloride generally ranged from 750 mg/L (7-d reproduction no-effect concentration (NOEC) for *C. dubia*; Cooney et al. 1992) to 2,400 mg/L (7-d survival lowest effect concentration for *C. dubia*; Cooney et al. 1992).
- Fish—the sensitivity of fish to TDS toxicity varied by life-stage, with fertilization and egg-hardening life stages identified as the most sensitive toxicological endpoints. Fish were also generally less sensitive to TDS toxicity than zooplankton, with effect concentrations for calcium chloride ranging from 4,600 mg/L to greater than 15,000 mg/L. A review of the chronic dataset presented by Golder (2011; 2014) indicated that effect concentrations for sodium chloride generally ranged from 800 mg/L (8-d NOEC Oncorhynchus mykiss; Camargo and Tarazona 1991) to 8,000 mg/L (7-d NOEC Pimephales promelas; Pickering et al. 1996).

Lower effect concentrations have been reported for individual ions for select species, but these tests reflect exposure conditions accounting for a single ion, and not a balanced TDS mixture representative of most field conditions. A review of the literature indicates that when accounting for toxicity for TDS the following observations apply as summarized by Chapman and McPherson (2015):

- TDS toxicity is lower with the presence of more than one cation.
- Hardness may ameliorate TDS toxicity and the toxicity of individual ions (e.g., chloride and sulphate).
- The relative ratios of ions within the TDS mixture may affect TDS toxicity (e.g., Ca²⁺:Mg²⁺).

More recent research by Mount et al. (2016) support the conclusions by Chapman and McPherson (2015). Following extensive toxicity testing exposing *C. dubia* to different salt mixtures, Mount et al. (2016) concluded that inferring toxicity from individual ions is difficult due in part to interdependence among ions. Buchwalter et al. (2013) concluded that TDS toxicity is complicated by the findings that:

- 1) individual ions vary in toxicity;
- 2) some ions in solution can modify the toxicity of other ions; and
- 3) relative toxicities of ions are not consistent across species.

The results from Mount et al. (2016) also support the conclusion that toxicity of TDS mixtures varies by ionic composition, and that the characteristics of the TDS mixture influence the toxicity of other ions in the mixture.

A1.4 Site-Specific Chronic Toxicity Data

The information from the literature discussed in Section A1.3, particularly for Snap Lake, provides an indication of chronic exposure levels for TDS that are protective of aquatic life in a northern freshwater ecosystem. However, the identified importance of ionic composition means that site-specific results should carry the greatest weight in the interpretation of biological and ecological significance.

Chronic toxicity testing data and corresponding water chemistry data have been collected by Agnico Eagle as part of routine and regulatory monitoring at stations MEL-14 (treated effluent), and MEL-12 (influent from the water treatment plant). Chronic toxicity tests performed (all standard Environment Canada test protocols commonly applied in the Canadian environmental effects monitoring framework) were:

- Biological Test Method: Test of Reproduction and Survival Using the Cladoceran, Ceriodaphnia dubia (EC 2007a)
- Biological Test Method: Test of Larval Growth and Survival Using Fathead Minnows (EC 2011)
- Biological Test Method: Growth Inhibition Test Using a Freshwater Alga (EC 2007b)
- Biological Test Method: Test for Measuring the Inhibition of Growth Using the Freshwater Macrophyte, *Lemna minor* (EC 2007c)

Chronic toxicity test results and corresponding water chemistry data for calculated TDS (and measured) and chloride are presented in Table A-3. The results of the chronic testing indicate:

- No effects to C. dubia survival at TDS concentrations up to and including 2,357 mg/L (measured TDS of 2,450 mg/L). Reduced C. dubia reproduction was observed at TDS concentrations between 1,140 mg/L to 2,202 mg/L (measured TDS of 1,360 to 2,490 mg/L).
- No effects to Fathead Minnow survival or growth at TDS concentrations up to and including 2,357 mg/L (measured TDS of 2,450 mg/L).
- Growth inhibition to *P. subcapitata* was observed in two samples collected in September and October 2019 at TDS concentrations of 2,202 mg/L and 2,357 mg/L, respectively (measured TDS of 2,490 mg/L and 2,450 mg/L, respectively). However, follow up testing conducted in October indicated no effect to growth inhibition at a TDS concentration of 2,350 mg/L (measured TDS of 2,370 mg/L). No effect to growth inhibition was observed in remaining samples at TDS concentrations up to and including 1,140 mg/L (measured TDS of 1,360 mg/L).
- Effects to *L. minor* frond count were observed at TDS concentrations between 2,202 mg/L to 2,357 mg/L (measured TDS of 2,490 mg/L to 2,450 mg/L). Although effects to *L. minor* frond count were occasionally observed at TDS concentrations of approximately 1,000 mg/L the effect was not consistently observed. For example, no effect to frond count (IC₂₅ >97% vol/vol) was observed on three occasions at TDS

concentrations ranging between 800 to 1,140 mg/L (measured TDS of 1,130 to 1,360 mg/L). Effects to *L. minor* biomass were observed in two of eight samples at TDS concentrations of 1,011 mg/L and 2,357 mg/L (measured TDS 1,260 mg/L to 2,450 mg/L). No effects to *L. minor* biomass were observed in six of eight samples at TDS concentrations of 800 to 2,350 mg/L (measured TDS of 1,130 mg/L to 2,370 mg/L).

In summary, multiple rounds of chronic toxicity testing indicate no effects to survival of fish or crustaceans across a wide range of TDS concentrations (i.e., unbounded no-effect level of 2,357 mg/L), and no reliable indications of sublethal toxicity have been observed at 1,000 mg/L. Moderate to high magnitude sublethal responses to *C. dubia* and aquatic plants/algae are evident at calculated TDS concentrations that exceed 2,000 mg/L. Collectively, these results provide evidence that the interim TDS target for Snap Lake of 1,000 mg/L remains protective for Meliadine Lake. A higher threshold TDS concentration protective of aquatic life may be supportable once the validation study (Phase 2 of WQ-MOP) is complete.

		Chronic Toxicity						Water Chemistry (mg/L)			
Sample Sample Date		Water flea Ceriodaphnia dubia		Fathead minnow Pimephales promelas		Green alga P. subcapitata	Duckweed Lemna minor				
Location	Sample Date	3-brood Survival LC₅₀ (% vol/vol)	3-brood Reproduction IC ₂₅ (% vol/vol)	7-d Survival LC₅₀ (% vol/vol)	7-d Growth IC ₂₅ (% vol/vol)	72-hr Cell Inhibition IC ₂₅ (% vol/vol)	7-d Frond Count IC ₂₅ (% vol/vol)	7-d Biomass IC ₂₅ (% vol/vol)	Measured TDS	Calculated TDS	Chloride
	07 August 2018	>100	>100	>100	>100	>90.9	72.3	>97	1,140 ^(a)	958 ^(a)	530 ^(a)
	13 August 2018	_	—	>100	>100	>90.9	38.2	42	1,260	1,011	590
MEL-14	3 September 2018	>100	90.1	>100	>100	>90.9	>97	>97	1,360	1,140	660
	9 July 2019	—	—	—	—	—	>97	>97	1,190	965	500
	13 August 2019	—	—	—	—	—	>97	>97	1,130	800	410
	24 September 2019	>100	24.3	>100	>100	60.8	26.3	>97	2,490	2,202	1,100
MEL-12	1 October 2019	>100	58.8	>100	>100	88.2	29.4	66.2	2,450	2,357	1,200
	8 October 2019	>100	20.1	>100	>100	>90.9	59	>97	2,370	2,350	1,200

Table A-3: Chronic toxicity data for MEL-14 and MEL-12 samples collected between 2018 to 2019 with corresponding total dissolved solids and chloride concentrations

Notes:

(a) Corresponding water chemistry data was not collected for this sample. However, a sample collected on 5 August 2018 from the same location is reported here for comparison.

mg/L = milligrams per litre; vol/vol = volume per volume; TDS = total dissolved solids; $LC_x =$ lethal concentration causing a lethal effect to x% of the test population; $IC_x =$ inhibitory concentration that causes a x% inhibitory effect in the sublethal endpoint being measured.

A1.5 Weight of Evidence Summary for Proposed Site-Specific Water Quality Objective

An interim TDS target of 1,000 mg/L to apply at the edge of the mixing zone was proposed following integration of information obtained through characterization of the Meliadine TDS profile (Section A1.1), review of water quality benchmarks for TDS developed for similar mixtures (Section A1.2), a literature review of TDS toxicity (Section A1.3), and a review of site-specific chronic toxicity data for Meliadine treated effluent and influent samples (Section A1.4). Sections A1.5.1 to 1.5.4 summarize the weight of evidence behind the proposed interim TDS target.

Several considerations, summarized in Sections A1.5.1 through A1.5.4, provide confidence in the application of the interim TDS target and also bode well for outcomes of the Phase 2 validation studies. The literature and site-specific data review provide a basis to propose an interim target for TDS; implementation of Phase 2 validation studies will provide increased precision and reliability in the interim target.

A1.5.1 Ionic Balance is Favorable

Effect concentrations reported in the Snap Lake dataset were derived from exposures using a balanced TDS mixture, whereas effect concentrations from the literature are generally derived from exposures using single salt mixtures (e.g., sodium chloride or calcium chloride) that do not consider TDS mixture effects. Meliadine TDS ionic composition resembles the ionic composition evaluated during the validation of the Snap Lake TDS SSWQO of 1,000 mg/L. As indicated in Section A1.0, Meliadine TDS contains a high relative proportion of calcium and sodium ions (on average 31% of TDS); these dominant ions are among the least toxic according to Mount et al. (1997), and have been identified as key components of TDS that ameliorate toxicity of other ions (Davies and Hall 2007, Mount et al. 2016, Soucek et al. 2018, Scheibener et al. 2017). Concentrations of the relatively toxic potassium and magnesium ions are predicted to remain low in Meliadine effluent; potassium and magnesium ions make up approximately 4% to 5% of TDS in effluent and the near-field. The information from the ionic composition analysis (Section A1.0), and comparison to the Snap Lake TDS SSWQO dataset (Section A2.0), although not conclusive, suggests that the Meliadine TDS mixture would not exhibit chronic toxicity from TDS components at concentrations of TDS below approximately 1,000 mg/L. Some literature studies indicate toxicity to select invertebrate species at concentrations below 1,000 mg/L TDS, but these toxicity tests are limited to test solutions that contain predominantly one or two ions, which do not apply to the complex mixture conditions of Meliadine TDS, nor incorporate the beneficial effect of calcium and sodium for ameliorating toxicity of other ions in these mixtures.

A1.5.2 Comparability to Well-Validated Snap Lake

Effect concentrations derived from extensive validation of the SSWQO at Snap Lake mine indicated no effects to site-resident or relevant surrogate species below 1,100 mg/L TDS. The effect concentration for *D. magna*, the most sensitive species in the dataset, was unbounded indicating no effects at the highest tested TDS concentration. Unbounded effect concentrations were also reported for all other test species in the Snap Lake dataset. Therefore, concentrations of TDS above 1,000 mg/L may pose no risk to aquatic life but there is uncertainty in proposing an interim TDS target to apply at the edge of the mixing zone of higher than 1,000 mg/L because exposure concentrations used in the Snap Lake dataset did not reach toxicity thresholds for the species tested.

A1.5.3 Available Site-Specific Toxicity Data Support the Benchmark

The chronic toxicity data tested with Meliadine mixtures supports the proposed interim target to apply at the edge of the mixing zone of 1,000 mg/L (Section A4.0). During routine and regulatory chronic toxicity testing with

MEL-14 and MEL-12 samples, no chronic effects to *C. dubia* survival, early life-stage Fathead Minnow survival or growth, or growth of the green alga *P. subcapitata* were observed at TDS concentrations of approximately 1,140 mg/L (measured TDS of 1,360 mg/L). The reduction of *C. dubia* reproduction at 1,140 mg/L (measured TDS of 1,360 mg/L). The reduction of 90.1% vol/vol at TDS concentrations of 1,140 mg/L). Overall, these results support the proposed interim TDS target of 1,000 mg/L to apply at the edge of the mixing zone, but site-specific validation is necessary to verify these results and develop a TDS SSWQO for long-term application.

A1.5.4 Ionic Balance is Stable

The stable ionic balance over several years of monitoring (Figure 2) is suited to development of a single benchmark for TDS, without requiring development of individual benchmarks for component ions. The TDS interim target incorporates contributions from chloride and sulphate (along with other ionic components) and it is not recommended at this time that separate benchmarks be developed for chloride and sulphate as individual ions. However, the concentrations of individuals ions can be prorated from the recommended TDS interim target of 1,000 mg/L. For Meliadine TDS, the relative proportion of chloride at the recommended interim target of 1,000 mg/L would range between 280 to 520 mg/L, depending on the ionic composition. The upper bound of chloride proportion is based on an ionic composition derived from TDS in the effluent; it is anticipated that the ionic composition for TDS in the receiving environment would not have as high a proportion of chloride as effluent. For comparison, Snap Lake TDS including chloride of up to approximately 450 to 470 mg/L demonstrated negligible toxicity.

The proposed TDS interim target to apply at the edge of the mixing zone was derived from the anticipated ion composition for Meliadine based on monitoring data for effluent and near-field. Modelled chemistry data are not available for the ionic composition anticipated under future discharge conditions at Meliadine, requiring confirmation that ionic mixtures are expected to remain consistent in terms of proportions of major ions. If future effluent quality with respect to TDS constituents is markedly different, then re-evaluation of the proposed TDS threshold may be warranted.

A2.0 INTERIM TDS TARGET FOR EFFLUENT—SITE-SPECIFIC ACUTE TOXICITY RESULTS

Acute toxicity testing data and corresponding water chemistry data were collected by Agnico Eagle as part of routine and regulatory monitoring at stations MEL-14 (treated effluent), MEL-12 (influent from the water treatment plant), and CP1 (Collection Pond 1). Acute toxicity tests performed were:

- Biological Test Method: Reference Method for Determining Acute Lethality of Effluent to Daphnia magna (EC 2000a).
- Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout (EC 2000b).
- Biological Test Method: Acute Lethality Test Using Threespine Stickleback (Gastrosteus aculeatus) (ECCC 2017).

Acute toxicity test species include the standard protocols (*D. magna* and Rainbow Trout) used to assess compliance for acute lethality under the Metal and Diamond Mining Effluent Regulations (Government of Canada 2002). Two additional tests were conducted with Threespine Stickleback in November and December 2019. The Threespine Stickleback results were included for comparative purposes, although this species is currently not a required standard test species for regulatory testing related to discharge of effluent to Meliadine Lake. Acute



toxicity test results and corresponding water chemistry data for TDS (measured and calculated) and chloride are presented in Table A-4.

Acute toxicity testing conducted between 2017 to 2020 with influent (MEL-12 and CP1) and effluent (MEL-14) has indicated no acute toxicity (i.e., $LC_{50} > 100\%$ vol/vol) to *D. magna* or Rainbow Trout survival with TDS concentrations of up to and including 5,420 mg/L (measured TDS concentrations of up to 4,925 mg/L). Reduced survival (60% in full-strength sample) in Rainbow Trout was observed in a CP1 sample collected 17 December 2017 at TDS concentration of 3,150 mg/L. However, mortality did not exceed 50%, and since 2017 several samples have been tested with measured and TDS concentrations greater than 3,150 mg/L, all of which indicated no acutely toxic effects to Rainbow Trout.

Threespine Stickleback were tested on two occasions in November and December 2019 with CP1 sample. Measured TDS concentrations of up to and including 3,410 mg/L did not result in acutely toxic effects in Threespine Stickleback.

	corresponding tota		Acute Toxicity	Wat	er Chemistry (r	ng/L)	
Sample Location	Sample Date	Daphnia magna	' Oncorhynchus		Measured	Calculated	
		48-hour Survival LC₅₀ (% vol/vol)	96-hour Survival LC₅₀ (% vol/vol)	96-hour Survival LC₅₀ (% vol/vol)	TDS	TDS	Chloride
	9 August 2017	>100	>100	—	1,600	911	470
	27 August 2017	>100	>100	_	1,760	1,061	580
	24 June 2018	>100	>100	_	1,200	634	300
	1 July 2018	>100	>100	_	930	752	400
MEL-14	5 August 2018	>100	>100		1,140	958	530
	3 September 2018	>100	>100	—	1,360	1,140	660
	24 June 2019	>100	>100	_	915	859	450
	9 July 2019	>100	>100	—	1,190	965	500
	3 September 2019	>100	>100	—	1,300	1,070	530
	21 June 2017	>100	>100	—	1,190	575	290
	12 July 2017	>100	>100	_	908	707	350
	05 November 2017	—	>100	_	2,230	(b)	(b)
	11 November 2017	>100	>100	_	2,791	(b)	(b)
	19 November 2017	>100	>100	—	(c)	(b)	(b)
CP1	17 December 2017	>100	NC (60% survival) ^(d)	_	3,150	(b)	(b)
	10 June 2018	>100	>100		685	477	210
	17 June 2018	>100	>100		540	281	180
	25 November 2019	—		>100	2,960	3,055	1,500
	15 December 2019			>100	3,410	(b)	(b)
	05 January 2020	>100	>100		4,830	4,465	2,400
	12 January 2020	>100	>100		4,150	3,815	1,900

Table A-4: Acute toxicity data for MEL-14, MEL-12, and CP1 samples collected between 2017 to 2020 with corresponding total dissolved solids and chloride concentrations

	Sample Date		Acute Toxicity	Water Chemistry (mg/L)			
Sample Location		Daphnia magna	Rainbow Trout Oncorhynchus mykiss	Threespine Stickleback Gastrosteus aculeatus	Measured	Calculated TDS	Chloride
		48-hour Survival LC₅₀ (% vol/vol)	96-hour Survival LC₅₀ (% vol/vol)	96-hour Survival LC₅₀ (% vol/vol)	TDS		
	26 January 2020	>100	>100	_	4,160	3,659	1,900
	02 February 2020	>100	>100	—	4,080	4,263	2,100
	09 February 2020	>100	>100	—	4,330	4,219	2,100
	16 February 2020	>100	>100	_	4,880	4,352	2,300
	01 March 2020	>100	>100	_	5,350	4,946	2,500
	08 March 2020	>100	>100	_	4,870	4,816	2,400
	15 March 2020	>100	>100	_	5,420	4,925	2,500
	24 September 2019	>100	>100	—	2,490	2,202	1,100
MEL-12	01 October 2019	(e)	>100	—	2,450	2,357	1200
	08 October 2019	>100	>100		2,370	2,350	1,200

Notes:

(a) Test was conducted with full-strength sample (100% vol/vol) and laboratory control.

(b) Corresponding major ion chemistry data were not measured in this sample; therefore, calculated TDS could not be determined.

(c) Corresponding water chemistry data were not collected for this sample.

(d) A 96-hour LC₅₀ could not be calculated because this test was conducted as a screening (pass/fail) test, whereby full-strength (100% vol/vol effluent) sample was tested with a laboratory control. To estimate the LC₅₀ a multi-concentration dilution series must be conducted. The result reported here in brackets is percent survival in the full-strength effluent sample.

(e) Due to a laboratory error during testing with *Daphnia magna* the results of the 1 October 2019 test were invalidated and were not reported by the laboratory.

TDS = total dissolved solids; MEL-14 = treated effluent; MEL-12 = untreated influent; CP1 = Containment Pond 1; mg/L = milligrams per litre; LC_x = lethal concentration causing a lethal effect to x% of the test population; vol/vol = volume per volume; NC = not calculable.

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APPENDIX B

Plume Delineation Study Design

B.1 INTRODUCTION

The Meliadine Gold Mine (Mine) is located in the Kivalliq District of Nunavut near the western shore of Hudson Bay, in Northern Canada (Figure 1). The nearest community is Rankin Inlet (coordinates: 62°48'35''N;092°05'58''W), approximately 25 km south of the Tiriganiaq deposit (coordinates: 63°01'03''N, 92°12'03''W). The Mine is located within the Meliadine Lake watershed of the Wilson Water Management Area (Nunavut Water Regulations Schedule 4).

As communicated to the Nunavut Water Board (NWB) by Agnico Eagle Mines Limited (Agnico Eagle), the 2020 freshet season will result in accumulation of site water that exceeds the water storage capacity of the mine at containment pond 1 (CP1), requiring a managed release of site water to the environment. In anticipation of this condition, Amendment 1 was approved by NWB for the Meliadine Mine Type "A" Water Licence (No. 2AM-MEL-1631), allowing Meliadine to dewater CP1 prior to freshet, avoiding "emergency" conditions. Specifically, Amendment 1 permits the following:

The time-limited discharge (May 2020 – October 2020) of effluent from the Containment Pond 1 (CP1) into Meliadine Lake through the Meliadine Lake Diffuser (Monitoring Program Station MEL-14) and the Water discharge shall not exceed 3,500 mg/L for the Maximum Average Concentration (MAC) of the Total Dissolved Solids (TDS)

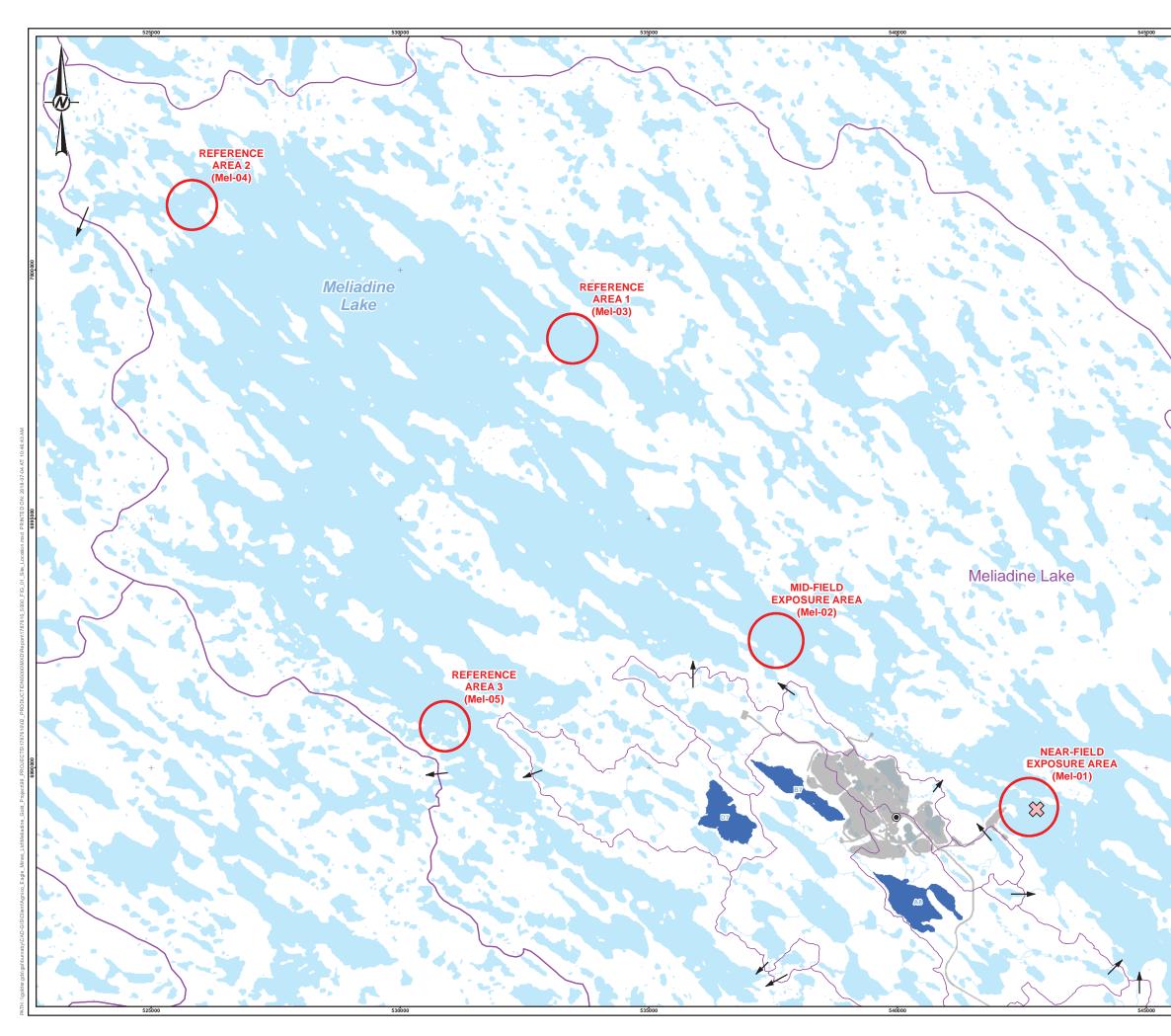
The NWB approval is contingent on several conditions outlined in NWB's (2020) Reason for Decision. Among these conditions is the requirement for Agnico Eagle to conduct a Plume Delineation Study during the discharge event to characterize plume dispersion in the receiving environment of Meliadine Lake. The purpose of the Plume Delineation Study is to provide confidence that the dispersion of the CP1 discharge will follow the anticipated pattern of flow and mixing in the receiving environment, such that environmental protection objectives at the edge of the mixing zone will be satisfied.

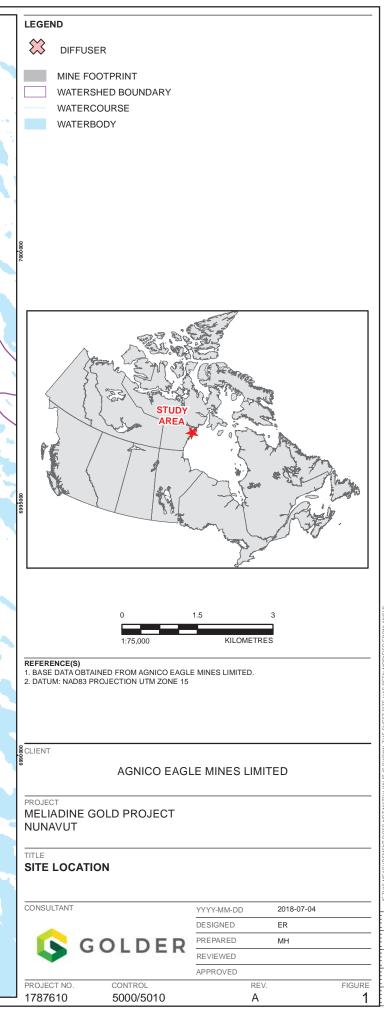
A submerged diffuser was installed in Meliadine Lake in August 2017 to disperse the water discharged from containment ponds 1 and 5 (CP1 and CP5). The diffuser is 30 m long, 400 mm diameter, with a nearly north-south orientation, and connected to the pipelines through a T-connection. Ten 51 mm ports are evenly spaced at every 3 m along the diffuser (Tetra Tech 2017).

This document provides details on the proposed plume delineation study (e.g., sampling design and methods) to evaluate plume dispersion dynamics during the planned release of effluent from CP1. This plan has been designed to address reporting requirements under Amendment 1 for a Plume Delineation Study, as outlined in Insert Item 25, Part I of NWB's (2020) Reasons for Decision. The period of anticipated discharge is expected to commence during ice cover on Lake Meliadine and continue through the transition period between ice cover and open water conditions, and into open water conditions on Meliadine Lake. Safe boat access to the lake is required to successfully conduct the plume delineation study. Therefore, the detailed plume delineation study will be conducted over 1 to 2 days as soon as open water conditions permit safe boat access.

B.2 BACKGROUND INFORMATION

Turbulent mixing caused by the diffusers results in an initial effluent plume adjacent to the diffusers. The term "plume" in this report refers to the mixture of effluent and lake water that is chemically distinguishable from the surrounding ambient lake water.





The diffuser in Meliadine Lake is oriented on a nearly north-south alignment, forming a "T" at the end of the pipe (Tetra Tech 2018; Figure 1). The constructed diffuser differed from the original project design (see Tetra Tech 2017) in terms of its horizontal position and depth of diffuser system at T-connection (42 m horizontal shift and a 3.2 m shallower depth). Therefore, the performance of the diffuser system was reassessed by Tetra Tech (2018). Despite the deviations from the original design, the predicted minimum dilution of 23:1 was achieved at the edge of the mixing zone, and water quality criteria were met (Tetra Tech 2018).

Based on previous experience in low conductivity sub-arctic lakes, specific conductivity was considered an appropriate tracer to delineate the effluent plume in Meliadine Lake, because effluent conductivity (i.e., specific conductance, temperature-corrected to 25° C) is higher than the specific conductivity of natural lake water. Specific conductivity measurements are a rapid, inexpensive, and reliable way of measuring the ionic content in a solution; the main constituents of interest in Meliadine Lake discharge are ionic parameters (e.g., chloride and other components of total dissolved solids). Specific conductivity in CP1 ranged from 5,300 to 9,000 microsiemens per litre (μ S/cm) between November 2019 and March 2020 (Appendix A), whereas specific conductivity in Meliadine Lake (Near-field exposure area) ranged from 49 to 99 μ S/cm in 2017 (Golder 2018c). This gradient in specific conductivity provides a reliable basis for tracing the direction and intensity of the plume during the release event, with chemical measurements from samples collected at select monitoring stations used to confirm the water quality details.

B.3 METHODS

B.3.1 Sampling Design

The sampling design selected for the plume delineation in Meliadine Lake is a nearly radial model that allows measurement of plume dispersion in all directions. According to the *MVLWB/GNWT Guidelines for Effluent Mixing Zones* (GNWT 2017), the regulated mixing zone is defined as an area where concentrations of some substances may not comply with site-specific water quality objectives for the receiving environment, but is nevertheless suitable for reducing constituent concentrations from full strength discharges to those that provide protection against chronic effects to aquatic life. For lakes in the Mackenzie Valley, regulated mixing zones commonly have a maximum of 100 m radius from the discharge point (GNWT 2017). In contrast, site characterization under the MDMER/MMER (GC 2017) requires a description of the manner in which the effluent mixes within the exposure area at 250 m from each final discharge point. Using these distances as a basis for monitoring design, a modified radial grid containing 22 sampling stations was developed (Figure 2). Coordinates of sampling stations are provided in Table 1.

Table 1: Coordinates of plume delineation study sampling stations

	UTM Coordinates	UTM Coordinates (NAD 83, Zone 15V)					
Sample ID	Easting	Northing					
50-01	542803.3	6989212.3					
50-02	542847.2	6989144.7					
50-03	542792.6	6989085.7					
50-04	542748.4	6989153.2					
100-01	542807.5	6989262.1					
100-02	542875.5	6989226.9					
100-03	542897.3	6989140.6					
100-04	542861.3	6989059.1					

	UTM Coordinates (NAD 83, Zone 15V)					
Sample ID	Easting	Northing				
100-05	542788.4	6989035.9				
100-06	542719.9	6989070.2				
100-07	542699.0	6989157.3				
100-08	542728.6	6989233.4				
175-01	542813.8	6989336.8				
175-02	542971.8	6989134.3				
175-03	542782.1	6988961.1				
175-04	542624.1	6989163.6				
250-01	543046.7	6989128.0				
250-02	542958.1	6988944.5				
250-03	542775.8	6988886.4				
250-04	542605.4	6988972.9				
250-05	542549.2	6989170.0				
250-06	542622.9	6989339.8				

Two central markers are depicted in Figure 2 that outline the north and south ends of the diffuser, which is approximately 30 m in length. From each of these central markers, semicircles of 50, 100, 175, and 250 m were drawn, and within each arc, sampling stations have been placed along up to eight transects radiating from the diffuser (Figure 2). The number of stations at each distance varied, with the larger station numbers applied to the 100 m and 250 m distances. Some of the candidate sampling stations along transects were removed from the design as they were located on islands or shallow areas of Meliadine Lake.

The distances from sampling stations to central markers (i.e., diffuser ends) were selected to provide higher resolution close to the diffusers and to characterize the edge of the mixing zone per the GNWT and MDMER frameworks.

B.3.2 Field Work Instructions

As described by Golder (2018a), the method selected for plume delineation relies on vertical profiles of specific conductivity in near-field exposure areas of Meliadine Lake. Vertical profiles of the lake water column will be measured using water quality meters (e.g., Hanna, YSI, Eureka, or equivalent) equipped with a 20 m or longer cable. Before commencing the profile, the water quality sensor will be placed in lake water for at least one minute to allow readings to stabilize. If, following extended submersion (beyond one minute if necessary), the equipment is not providing stable readings, measurements will be taken using a different meter.

At each sampling station, profile measurements will be taken from surface (i.e., 0.3 m) and at 1-m water depth intervals, starting from 1 m below surface to 1 m above the lake bottom. Temperature and specific conductivity (and if possible, dissolved oxygen concentration, dissolved oxygen saturation, and pH) will be entered on field data sheets. If possible, wind direction and speed will be estimated and recorded.

A maximum of ten water samples will be collected from a subset of the planned sampling stations for laboratory analysis of TDS, major ions, and general parameters (i.e., total and bicarbonate/carbonate alkalinity, turbidity, laboratory specific conductivity, hardness, laboratory pH, and total suspended solids). These samples will be collected from the depth of highest specific conductivity through the water volume at these stations, as determined

from the specific conductivity water column profile. Samples identified for more detailed analyses will be selected to encompass the range of specific conductivity measures observed surrounding the diffuser. These data will be used to validate the assumption that TDS concentrations in the receiving environment can be adequately traced using specific conductivity.

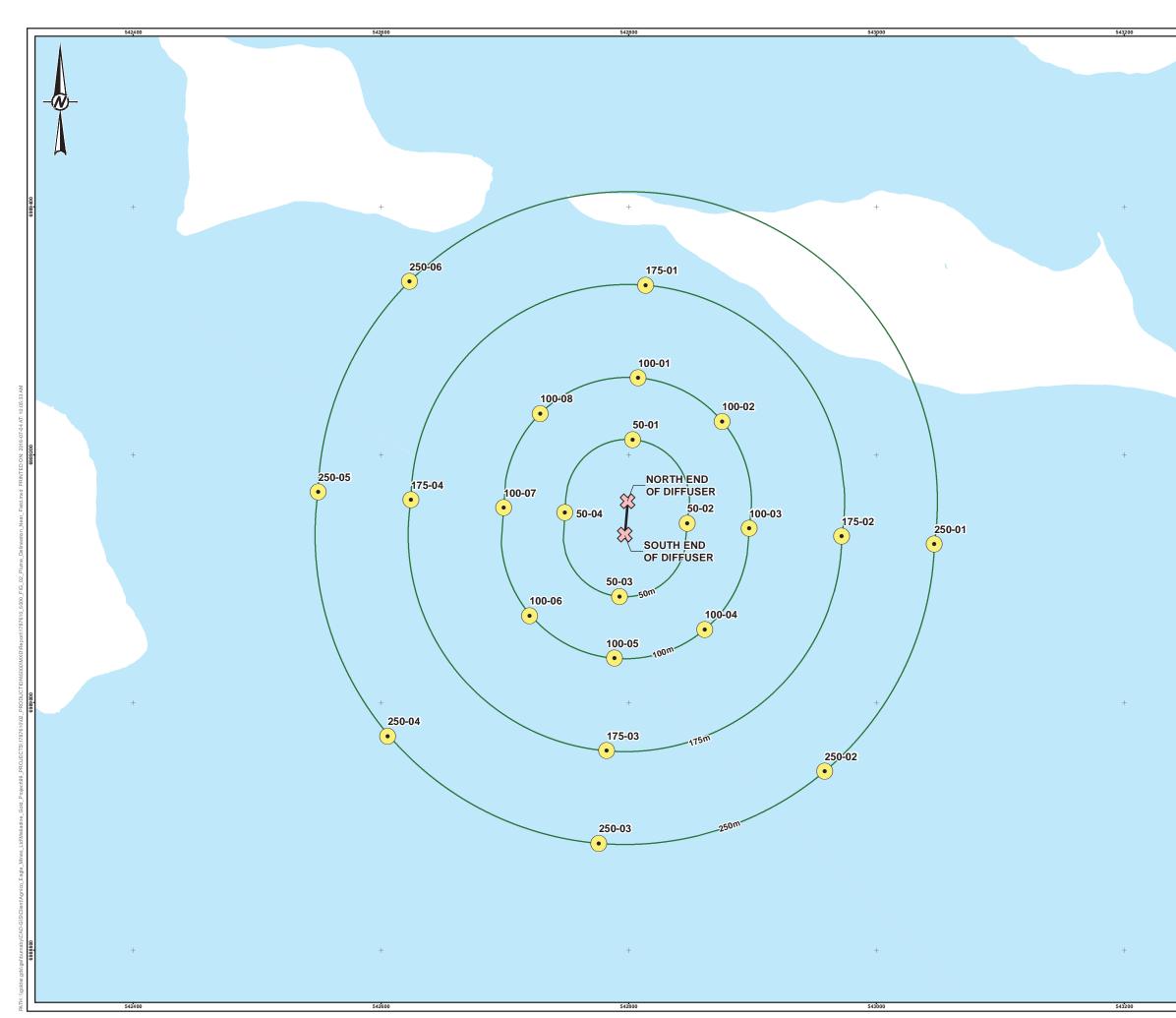
Field work for this study will commence as soon as open water conditions are present on Meliadine Lake, and there is safe access to the sampling locations by boat. Field work will be completed within a timely manner to avoid influence of confounding factors associated with weather conditions and discharge variability. Although it is expected that it will take one full day of work for a two-person field crew to complete the field program, additional days might be required depending on weather conditions. The program will be conducted during discharge to satisfy reporting requirement under Amendment 1 for a plume delineation study, as outlined in Insert Item 25, Part I of NWB's (2020) Reasons for Decision. In addition, a corresponding sample of the discharge from MEL-14 is required to be collected for the program. Therefore, the timing of the field work for this study should be planned around the weekly MEL-14 sampling schedule.

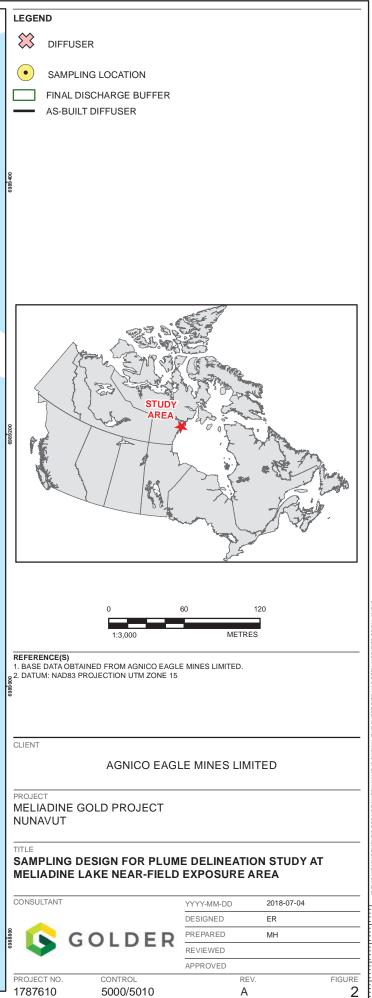
Quality assurance and quality control (QA/QC) procedures will be undertaken to obtain accurate data. QA/QC will include field staff training, routine calibration of field equipment, and documentation. Meter calibration will be rechecked at least once during each day of field work. In case the field staff notice that results are deviating from the expected range of values, a new check with calibration standards will be performed at a sampling station and, if necessary, the probe will be recalibrated. Calibration checks or re-calibration will be documented in the field book.

B.3.3. Data Analysis and Reporting

Following field work, data will be reviewed, and summary tables and figures will be prepared for presentation and discussion during the next available Water Management Working Group meeting. The plume will be described in terms of its size, shape, and vertical distribution. The relationship between field measured specific conductivity and laboratory measured TDS and calculated TDS (from the sum of major ions, where these data are available for each of the selected substations) will be established to validate the use of specific conductivity as a tracer of TDS in the receiving environment. The information retrieved will be used to confirm model predictions related to effluent dilution and assimilation in the receiving environment, and to confirm that receiving environment monitoring stations are adequately characterizing conditions with respect to surface water chemistry and toxicity testing (Sections 3.1 and 3.2 of the main body of the report, respectively).

Results from the plume delineation study will be presented as a stand-alone report, including spatial delineation of the plume and estimated dilution factors at each sampling station. This report will be submitted for review by the Water Management Working Group.





25mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODI

APPENDIX B REFERENCES

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- Nunavut Water Board (NWB). 2020. NWB Water Licence Type "A" No: 2AM-MEL1631 Request for the Minister's Consent to Process Amendment No. 1 on an Emergency Basis and Attached Reasons for Decision and Amendment No. 1 for the Minister's Consideration. File No. 2AM-MEL1631/Emergency Amendment No. 1.
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- Tetra Tech 2018. Effluent Discharge Modelling for the As-Built Diffuser at the Meliadine Gold Project, Nunavut. Prepared for Agnico Eagle Mines Limited. May 2018.



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APPENDIX B

Available 2020 Discharge Monitoring Results Collected Between 3 June 2020 and 17 July

APPENDIX B: AVAILABLE DISCHARGE MONITORING RESULTS COLLECTED BETWEEN 5 JUNE AND 17 JULY 2020

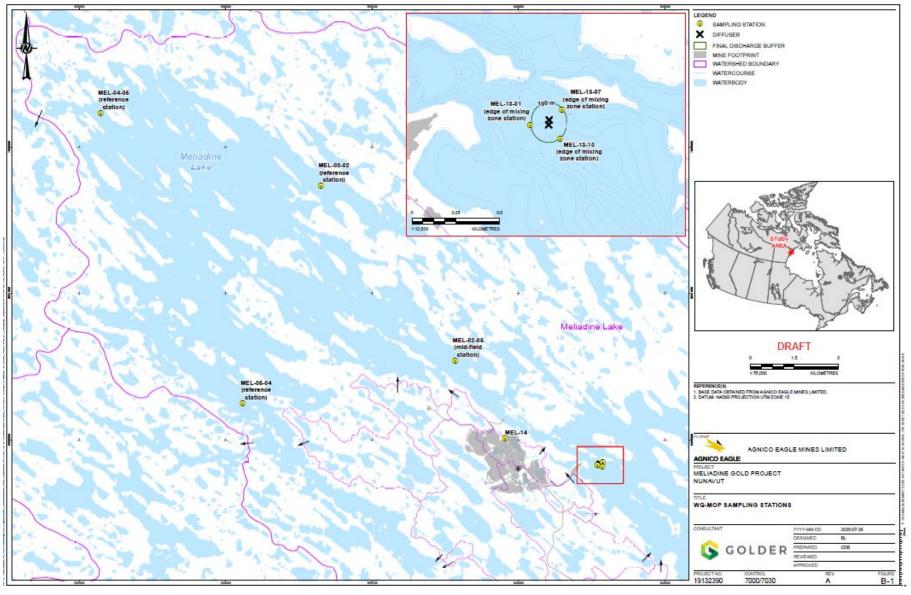
This Appendix presents the 2020 Meliadine Mine emergency discharge validation monitoring program results as of 17 July 2020. These monitoring results have been collected to support regulatory requirements and commitments outlined in Amendment 1 to the Meliadine Mine Type "A" Water Licence (No. 2AM-MEL-1631). As outlined in the Golder (2020) Water Quality Monitoring and Optimization Plan (WQ-MOP Rev2; Appendix A), the monitoring program provides the opportunity to assess and validate the interim total dissolved solid (TDS) targets established for both the discharge (3,500 mg/L calculated TDS) and the receiving environment at the edge of the mixing zone (1,000 mg/L calculated TDS at a 100 m radius surrounding the outfall diffuser). A detailed description of the study design, including analytical testing being performed as part of the 2020 Meliadine Mine emergency discharge monitoring program, is outlined in Section 3.0 of the WQ-MOP (Appendix A). The sampling stations assessed during this monitoring program are depicted in Figure B-1.

The purpose of this Appendix is to provide a high-level summary of key analytical measures (e.g., TDS concentrations in the discharge and receiving environment, results of toxicity tests) that have been collected to date, in order to assess these measures relative to predictions and targets established in the Golder (2020) WQ-MOP. This evaluation of monitoring results is organized as follows:

- Summary of key analytical chemistry results related to TDS in the discharge and receiving environment (Section B1.0)
- Summary of acute toxicity testing with the MEL-14 discharge (Section B2.0)
- Summary of chronic toxicity testing with Meliadine Lake receiving environment water samples (Section B3.0)
- Uncertainties (Section B4.0)
- Conclusions on the results of the monitoring program, as they relate to predictions and targets established in the Golder (2020) WQ-MOP (Section B5.0)



Figure B-1: WQ-MOP Sampling Stations





B1.0 SUMMARY OF ANALYTICAL CHEMISTRY RESULTS

Water chemistry monitoring results from the WQ-MOP sampling program performed between 5 June 2020 (commencement of discharge) and 17 July 2020 were tabulated by Agnico Eagle and provided to Golder (see Attachment B1). Monitoring events currently include the following:

- Seven MEL-14 discharge water chemistry sampling events.
- One edge of mixing zone water chemistry sampling event on 7 June 2020—due to melting ice conditions on Meliadine Lake (health and safety concerns), weekly sampling events during the weeks of 14 June, 21 June, 28 June, and 5 July were not conducted. However, remote data loggers were deployed and will provide information on temperature and specific conductivity at the edge of mixing zone stations over this period and for the duration of the discharge period.
- One monthly water chemistry sampling event at receiving environment stations MEL-13-01, MEL-13-07, MEL-02-05, MEL-03-02, MEL-04-05, and MEL-05-04. Due to unsafe local ice conditions, edge of mixing zone station MEL-13-10 was not accessible during the first monthly sampling event. This remaining mixing zone sample will be collected during subsequent monthly sampling events now that Meliadine Lake is ice-free.

Figure B-2 summarizes the results of weekly sampling of the MEL-14 discharge for specific conductivity, chloride, TDS (calculated), and TDS (measured). In total, 589,249 m³ of effluent was discharged to Meliadine Lake between 5 June and 17 July 2020 (Figure B-3), with daily discharge rates ranging from 2,197 to 17,518 m³/day (Figure B-2). TDS concentrations remained within the 3,500 mg/L MAC limit permitted under Amendment 1 during each weekly sampling event. Concentrations of TDS ranged between 2,502 and 2,588 mg/L calculated TDS (1,510 and 3,100 mg/L measured TDS).

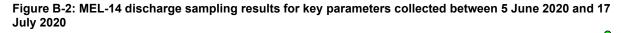
Table B-1 summarizes TDS concentrations measured in the receiving environment of Meliadine Lake. Concentrations of TDS were low at each monitoring station, indicative of effective dispersal of the discharge plume. Edge of mixing zone TDS concentrations were more than 10-fold lower than the proposed interim target of 1,000 mg/L, demonstrating a high discharge assimilation rate that reduces TDS concentrations to well below concentrations for which adverse effects on biological receptors would be expected. TDS concentrations at edge of mixing zone stations ranged between 35 and 50 mg/L measured TDS (55 to 65 mg/L calculated TDS).

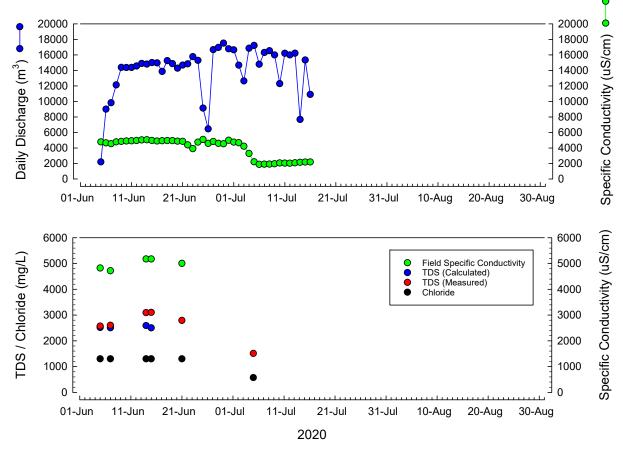
All collected water quality data are screened against applicable water licence discharge limits (discharge quality) and CCME water quality guidelines for the protection of freshwater aquatic life (receiving environment water quality) in Attachment B1. To date, the results indicate that water quality has remained within these limits in each of the water quality samples collected as part of the WQ-MOP sampling program, except for zinc at the MEL-13-07 station.

Dissolved zinc exceeded the CCME long-term water quality guideline of 10.7 μ g/L (the chronic dissolved zinc guideline is pH, hardness, and dissolved organic carbon dependent) at the MEL-13-07 edge of mixing zone station on 7 June 2020, as the dissolved concentration was 18 μ g/L (total zinc was measured at 29 μ g/L), However, the effluent monitoring data (Attachment B1) does not suggest that zinc has been elevated in the effluent, as total and dissolved concentrations ranged between <5 μ g/L and <25 μ g/L during the seven weekly sampling events collected to date, with reported concentrations of <25 μ g/L total Zn and 19 μ g/L dissolved Zn on the day that the exceedance was measured in the receiving environment (7 June 2020). Furthermore, these concentrations of zinc were well below the permitted discharge limits

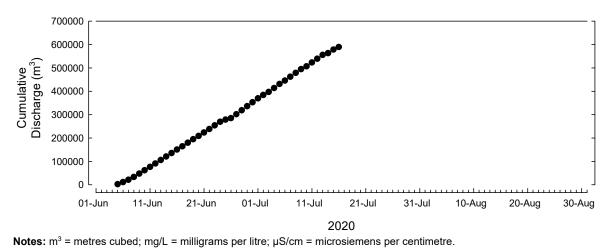


of 400 µg/L for the Maximum Average Concentration (MAC) and 800 µg/L for the Maximum Grab Concentration (MGC). As a result, the observed exceedance at MEL13-07 does not appear to be directly correlated with the MEL-14 discharge; however, monitoring is on-going and additional receiving environment monitoring data will provide a better understanding of zinc concentrations in the Meliadine Lake receiving environment.









Sample Type	Sample Station	Specific Conductivity (µS/cm)	TDS (mg/L as Calculated)	TDS (mg/L as Measured)	Chloride (mg/L)
Edge of	MEL-13-01	130	65	50	18
Mixing Zone	MEL-13-07	110	55	35	16
Mid-field	MEL-02-05	120	60	35	16
	MEL-03-02	61	29	30	7.8
Reference	MEL-04-05	92	46	40	8.6
	MEL-05-04	100	52	40	9.8

Table B-1: Meliadine Lake receiving environment sampling results for key parameters collected on 7 June 2020.

Notes: TDS = total dissolved solids; mg/L = milligrams per litre; μ S/cm = microsiemens per centimetre.

B2.0 SUMMARY OF ACUTE TOXICITY TEST RESULTS

Acute toxicity tests were conducted on the MEL-14 discharge weekly throughout the discharge period that began on 5 June 2020. As of 17 July 2020, results for four rounds of weekly acute toxicity testing programs were reported using the 96-hour Rainbow Trout and 48-hour *Daphnia magna* survival tests. Table B-2 summarizes the results of these tests; detailed laboratory reports from each of the four tests are provided in Attachment B2.

Acute toxicity tests indicate that the discharge has not been acutely toxic to Rainbow Trout or *D. magna* across the range of TDS concentrations tested (i.e., between 2,570 and 3,100 mg/L measured TDS; Section B1.0). The LC₅₀ values (lethal concentration effecting 50% of organisms) were >100% (full-strength) discharge in each of the tests. Furthermore, 100% of organisms have survived in the undiluted full-strength samples. These findings are in agreement with acute toxicity testing of pit water collected throughout 2019 and early 2020, which have consistently indicated a lack of acute toxicity at concentrations similar to, and exceeding, those observed in the weekly samples during discharge release.

The results of these tests were confirmed as valid by the testing laboratory (Aquatox Laboratories, Guelph, ON), as the tests met control and test acceptability requirements outlined in the respective test methods (see Appendix B2 for details).

Table B-2: Weekly acute toxicity test results from MEL-14 during the emergency discharge monitoring	J
program (results include available test results up until 17 July 2020).	

	TDS Concentration	96-hour Rainbow 1	Frout Survival Results		<i>ia magna</i> Survival esults
Sample Date	(mg/L as Measured)	LC50 Value (% Discharge)	Survival in 100% Full Strength Discharge (%)	LC₅₀ Value (% Discharge)	Survival in 100% Full Strength Discharge (%)
7 June 2020	2,600	>100	100	>100	100
14 June 2020	3,090	>100	100	>100	100
21 June 2020	2,790	>100	100	>100	100
28 June 2020	2,910	>100	100	>100	100

Notes: TDS = total dissolved solids; mg/L = milligrams per litre; % = percent; LC_{50} = lethal concentration effecting 50% of organisms.



B3.0 SUMMARY OF CHRONIC TOXICITY TEST RESULTS

One component of the WQ-MOP monitoring program involves chronic toxicity testing of monthly receiving environment samples from Meliadine Lake. The goal of the testing is to assess the potential for chronic effects to aquatic receptors at, and beyond, the edge of the mixing zone (i.e., a 100 m radius surrounding the diffuser in Meliadine Lake). As outlined in the WQ-MOP Rev2 (Golder 2020), chronic effects are not anticipated at the edge of the mixing zone based on earlier chronic toxicity tests of pit water and predicted exposure concentrations. Nevertheless, four chronic toxicity test species were identified to monitor conditions in the receiving environment during the required monthly toxicity testing. These tests include:

- 21-day Daphnia magna (freshwater crustacean) survival and reproduction test
- 14-day Hyalella azteca (benthic invertebrate) survival and growth test
- 7-day Lemna minor (Duckweed; aquatic macrophyte) survival and growth test
- 7-day Fathead Minnow (freshwater fish) survival and growth test

The low hardness receiving environment of Meliadine Lake (ranging between approximately 20 and 40 mg/L hardness; 2019 AEMP¹) poses a challenge for conducting chronic toxicity testing, as the organisms used in the selected tests are typically cultured in higher hardness waters (i.e., 80–110 mg/L for *D. magna*; ~140 mg/L *H. azteca*; ~100 mg/L for *L. minor*, 130–140 mg/L for Fathead Minnow). This was identified as a project risk during conversations with Bureau Veritas Laboratories (BV Labs; chronic toxicity laboratory), as the transfer of organisms from the higher hardness culture waters to the lower hardness test waters could elicit osmotic stress to the organisms and, therefore, bias the results of the test. During conversations with the laboratory, it was concluded that potential for osmotic stress would be less of a concern for Fathead Minnows and Duckweed, as these species tend to have a larger range of tolerance to different water types. However, hardness concentrations in the Meliadine Lake receiving environment were considered to be on the lower end of the tolerance range for the two invertebrate species (*D. magna* and *H. azteca*). To reduce the potential for a confounding effect of osmotic stress, it was considered necessary to acclimate organism cultures prior to testing.

The chronic toxicity testing for Meliadine Lake is further complicated by the fact that the primary contaminant of concern being investigated in the MEL-14 discharge is TDS, requiring consideration of the influence of dilution water on the concentrations and ratios of major ions. Toxicity associated with TDS is typically caused by osmotic stress and is influenced by the specific ratios of the component major ions (i.e., calcium, magnesium, sodium, potassium, chloride, sulphate, and alkalinity). Chronic toxicity tests are commonly performed using dilution series tests on the discharge being investigated and, therefore, ionic concentrations tend to be greater than control/dilution water used in the tests. The standard control/dilution water used during testing is typically the same water that the organisms are cultured in. However, for tests conducted in receiving environment samples (Meliadine Lake), the ambient TDS is low relative to the culture media, such that standard dilution waters may increase TDS in receiving environment samples at higher dilutions. Therefore, a site-specific test design was required to:

- 1. Control for the low hardness conditions in Meliadine Lake and assess normal organism response in lower hardness waters
- 2. Select relevant references to compare against organism responses in exposure areas

¹ Azimuth Consulting Group Partnership. 2020. Aquatic Effects Monitoring Program, 2019 Annual Report, Meliadine Gold Project. Prepared for Agnico Eagle Mines Limited. Project No. AEM-19-04 / MEL AEMP 2019.



3. Set-up the test design so that the test acceptability (e.g., organism health and validity of the tests) can be properly assessed, while also accounting for the non-standard (low hardness) exposure conditions of site media

To address these site-specific complications, a modified test design was developed and applied during the chronic toxicity testing associated with each of the four test species. Additional controls were implemented so that organism responses resulting from low conductivity waters of the receiving environment, rather than an adverse toxicological response to TDS, can be discerned. The following represents the various components of the modified chronic toxicity test design:

- Controls—Three types of control water are used during the testing:
 - Laboratory control—standard culture water used for each species during regular testing at the laboratory. This control is used to assess test validity per standard protocol requirements; it is intended to facilitate comparison of organism response to a normal performance range for cultured organisms in non-contaminated media.
 - Soft water control—standard culture water used for each species during regular testing is diluted down to a hardness of ~40 mg/L, while keeping ionic ratios intact. This control is used to assess organism response in low hardness waters, but at typical ratios of major ions used during standard testing. This control serves as a baseline for the receiving environment tests because endpoints such as growth or reproduction could be lower than the laboratory control in lower ionic strength waters, due to suboptimal exposure conditions for the cultured organisms. This control is compared to the response in the laboratory control to assess for potential differences in organism performance that was independent of the influence of the discharge.
 - Site Control—synthetic dilution water control. The site control is a synthetic water recipe developed based on ionic ratios reported in the 2019 AEMP [Azimuth 2020] and based on the pooled reference conditions in Meliadine Lake. The difference between the soft water control and the site control is that the former used a standard recipe of ions used for organism culturing, whereas the latter is customized to ambient site conditions. The site control is used to evaluate organism response in clean test water using ionic ratios that are representative of Meliadine Lake reference sites, as identified during the most recent AEMP. This water is also used as the dilution water in the dilution series tests outlined below, as this provides a more realistic assessment of how the discharge is expected to be diluted within the receiving environment. The site control is used to assess how well organisms respond to the synthetic dilution water. Results are compared to the soft water control to assess how organisms respond to water with a similar hardness (i.e., soft water control), but with ionic ratios that more closely resemble Meliadine Lake conditions.
- Meliadine Lake Receiving Environment Monitoring Samples—Two types of tests are conducted using receiving environment samples during the discharge event:
 - Full strength tests—full strength tests (sometimes called "pass/fail" tests) are performed with samples of undiluted Meliadine Lake water, including samples from the mid-field station MEL-02-05 and the three reference stations (MEL-03-02, MEL-04-05, and MEL-05-04). The reference station results are compared statistically to the mid-field results, as well as to the dilution series test results (next bullet) to investigate whether significant differences are apparent, and whether these differences could be related to the influence of the discharge.



Dilution series tests—Meliadine Lake edge of mixing zone stations (MEL-13-01, MEL-13-07, and MEL-13-10) are tested using a standard volumetric dilution series (e.g., 100%, 50%, 25%, 12.5%, 6.25%, 3.13%, and 1.56% volume/volume sample). Due to the larger test set-up for these dilution series (i.e., greater number of test vessels), dedicated controls are specified for each station to control for subtle temperature or light differences in the test chambers that may influence survival, growth, or reproduction endpoints in the tests. The chronic toxicity test results in the 100% undiluted edge of mixing zone samples are compared statistically to the results in the reference stations (MEL-03-02, MEL-04-05, and MEL-05-04) to assess whether edge of mixing zone stations show statistically significant reductions in survival, growth, or reproduction. The statistical assessment includes comparison to each individual reference station, as well as the pooled average of the reference station results. Where statistical differences are identified, the dilution series test design facilitates the investigation of any concentration-response relationships observed along the dilution series, which are expected to facilitate the calculation of relevant IC/EC_X values (inhibitory / effect concentrations influencing X% of the population). This information will be useful for confirming: 1) whether effects are apparent and not simply reflective of confounding factors (e.g., subtle temperature, light, or feeding differences); and 2) determining at what level of dilution the observed effects decrease to ambient levels.

As a result, chronic toxicity test results are assessed using the following tiered approach:

- 1. Compare results of the undiluted edge of mixing zone and mid-field stations to the range in response observed at the reference stations—There is natural variability in sub-lethal endpoints such as growth and reproduction and, therefore, it is necessary to evaluate the range in response observed in reference water relative to the range observed at exposure sites.
- 2. Evaluate the dose response relationship observed along the dilution series for edge of mixing zone stations—It is important to also consider the pattern of response as a function of dilution to determine whether the pattern suggests that a higher percentage of site water causes a larger decrease in organism performance.
- 3. Assess the response in the laboratory controls to determine the potential confounding influence of low hardness—The controls, both standard negative control and low hardness controls, are not compared directly to organism response in site water, as the lab water is not necessarily consistent in character as the receiving environment (e.g., micronutrients, DOC, etc.). These controls are instead used to assess test validity. In the case of the site water control (also the dilution water), the results are included as a treatment along the dilution series test design (e.g., 0% sample [site control], 1.56% sample, etc.).

The following sections discuss the results of the first round of monthly chronic toxicity testing. Due to the time required to conduct these chronic tests (e.g., up to 21-days for the *D. magna* test, 14-d *H. azteca*), final results are only available for the Duckweed and Fathead Minnow tests as of 17 July 2020. Results for the Fathead Minnow test are discussed in Section B3.1 and the results of the Duckweed test are discussed in Section B3.2. Detailed laboratory reports for these two tests are provided in Attachment B3.

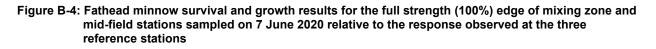


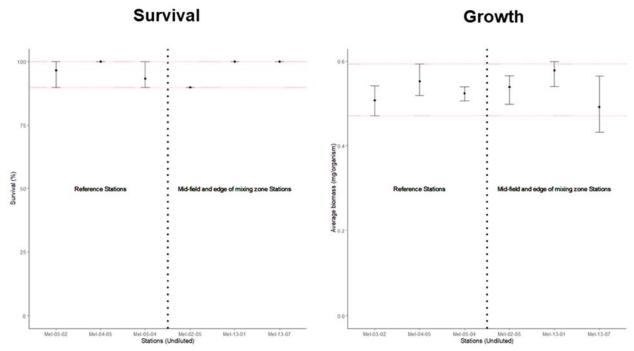
B3.1 Fathead Minnow Results

The 7-day Fathead Minnow larval survival and growth tests conducted on receiving environment samples collected on 7 June 2020 did not indicate impairment of survival or growth endpoints relative to organism response observed at the reference stations. This was true for organisms exposed to both edge of mixing zone and mid-field water samples. Survival and growth endpoints measured in undiluted 100% samples from the edge of mixing zone and mid-field stations encompassed a similar range of response as the reference stations (Figure B-4). Furthermore, as discussed in the laboratory report provided in Appendix B3, statistically significant effects on survival or growth (p < 0.05) were not identified in the edge of mixing zone stations, or to the pooled reference station response.

These receiving environment results using full strength samples are consistent with the results reported for the edge of mixing zone dilution series testing (Table B-3). For the latter, the survival EC₅₀ value (effect concentration impacting 50% of organisms) and the sub-lethal growth EC₂₅ value (effect concentrations impacting 25% of organisms) were both >100% discharge in each of the two edge of mixing zone stations (MEL-13-01 and MEL-13-07).

The results of these tests were considered valid by the testing laboratory (Bureau Veritas, Burnaby, BC), as the tests met control and test acceptability requirements outlined in the respective test methods (see Appendix B3 for details).





Notes: % = percent; mg/organism = milligrams per organism; points represent the mean response in the treatment; error bars represent the range in organism response (i.e., maximum and minimum response) observed between replicates in each treatment; red lines represent the range in response (maximum and minimum) observed in the Reference Stations.



	MEL	-13-01	MEL-13-07		
Sample Date	Survival LC₅₀ Value (% Discharge)	Growth IC₂₅ Value (% Discharge)	Survival LC₅₀ Value (% Discharge)	Growth IC₂₅ Value (% Discharge)	
7 June 2020	>100	>100	>100	>100	

Table B-3: Edge of mixing zone fathead minnow dilution series results from MEL-13-01 and MEL-13-07 fromthe 7 June 2020 sampling event

Notes: % = percent; LC_{50} = lethal concentration effecting 50% of organisms; IC_{25} = inhibitory concentration affecting 25% of organisms.

B3.2 Duckweed Results

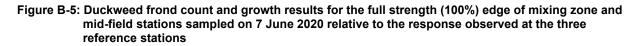
The results of the 7-day Duckweed growth tests conducted on receiving environment samples collected on 7 June 2020 did not indicate impairment of frond count or growth endpoints relative to organism response observed at the reference stations. This was true for organisms exposed to both edge of mixing zone and mid-field stations.

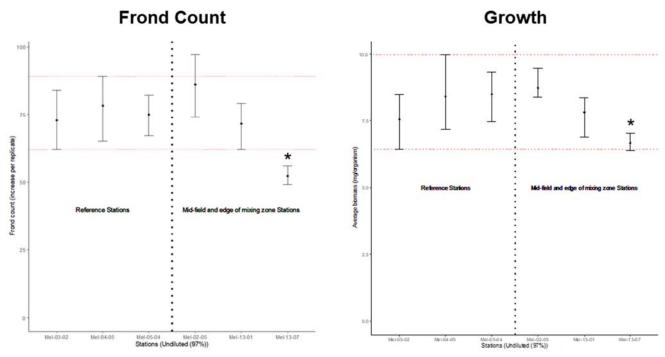
Frond count and growth endpoints measured in undiluted 100% samples from the edge of mixing zone and mid-field stations encompassed a similar range of response as that in the reference stations, with the exception of MEL-13-07 (Figure B-5). As discussed in the laboratory report provided in Appendix B3, the following outcomes of statistical comparisons (p < 0.05) were observed for the Duckweed endpoints:

- Significant effects on frond count or growth of organisms were not evident at the MEL-13-01 edge of mixing zone station; this applied relative to responses observed in each of the three reference stations, as well as the pooled reference station response.
- Significant effects (p <0.05) for the frond count endpoint were observed at the MEL-13-07 station relative to responses observed in each of the three reference stations, as well as the pooled reference station response. Significant effects were also observed on organism growth at the MEL-13-07 station relative to the MEL-04-05 and MEL-05-04 reference stations, as well as the pooled reference response. However, as described in Table B-4 and depicted in Figure B-6, these significant differences appear to be artifacts of the test design (i.e., variation due to factors other than discharge influence). The concentration-response relationship observed along the dilution series of the MEL-13-07 edge of mixing zone station did not suggest an association between exposure magnitude and toxicological response. The calculated IC₂₅ values for the frond count and growth endpoints were both determined by the toxicology laboratory (Bureau Veritas Laboratories, Burnaby, BC) to be >97% discharge (the maximum dilution series concentration of 97% rather than 100% is due to the dilution of the 100% sample by a nutrient formulation required by the standard test protocol; Environment Canada 2007).
- Significant effects on frond count and growth of organisms were not evident at the MEL-02-05 midfield station; this applied relative to responses observed in each of the three reference stations, as well as the pooled reference station response.

Results reported for the edge of mixing zone dilution series testing (Table B-4) indicated that both the frond count and growth EC_{25} values were >97% discharge in each of the two edge of mixing zone stations (MEL-13-01 and MEL-13-07). These results indicate that water collected at the edge of the mixing zone in Meliadine Lake on 7 June 2020 did not result in chronic effects on growth to Duckweed.

The results of these tests were considered valid by the testing laboratory (Bureau Veritas, Burnaby, BC), as the tests met control and test acceptability requirements outlined in the respective test methods (see Appendix B3 for details).





Notes: mg/organism = milligrams per organism; points represent the mean response in the treatment; error bars represent the range in organism response (i.e., maximum and minimum response) observed between replicates in each treatment; red lines represent the range in response (maximum and minimum) observed in the Reference Stations; * represents that the response in a edge of mixing zone or mid-field station was determined to be statistically different (p < 0.05) than the response observed in one or more reference stations.

Table B-4: Edge of mixing zone duckweed dilution series results from MEL-13-01 and MEL-13-07 from the 7 June 2020 sampling event

	MEL	-13-01	MEL-13-07		
Sample Date	Frond Count IC25 Value (% Discharge)	Growth IC25 Value (% Discharge)	Frond Count IC25 Value (% Discharge)	Growth IC25 Value (% Discharge)	
7 June 2020	>97	>97	>97	>97	

Notes: % = percent; IC₂₅ = inhibitory concentration affecting 25% of organisms.



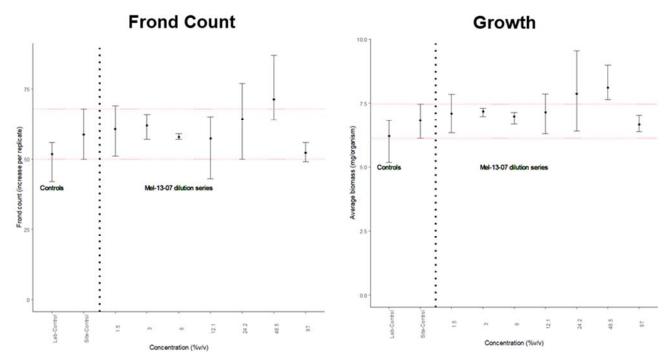


Figure B6: Duckweed frond count and growth results for the MEL-13-07 edge of mixing zone dilution series test sampled on 7 June 2020

Notes: mg/organism = milligrams per organism; points represent the mean response in the treatment; error bars represent the range in organism response (i.e., maximum and minimum response) observed between replicates in each treatment; red lines represent the range in response (maximum and minimum) observed in the Site control.

B4.0 UNCERTAINTY ANALYSIS

All monitoring programs are subject to uncertainty because the environmental monitoring components cannot assess every individual area for every possible ecological factor. Typical sources of uncertainty in an environmental monitoring programs include: how representative sampling stations are for assessing potential impacts, the timing of sample collection, the potential effect of cumulative exposures, and extrapolating effects between species or between observations in the laboratory and under field conditions. These uncertainties are common to all monitoring programs and are compensated for by using appropriately conservative approaches. Specific uncertainties of the current program include the following:

Limited number of edge of mixing zone sampling events—Due to melting ice conditions on Meliadine Lake, weekly sampling events during the weeks of 14 June, 21 June, 28 June, and 5 July were not conducted due to health and safety concerns. Interpretation of the discharge assimilation capacity is limited to a single sampling event that was conducted on 7 June 2020. The 7 June 2020 sampling event indicated that assimilation was rapid, as measured TDS concentrations at the edge of mixing zone were more than 10-fold lower than the proposed interim target of 1,000 mg/L; however, the one sampling event precludes the ability to investigate temporal trends or the effects of longer duration discharge in the mixing zone. Remote data loggers were deployed as a supplemental monitoring effort to measure in situ data in the transition period between ice cover and open water, and will provide information on temperature and specific conductivity at the edge of mixing zone stations over this period and for the duration of the discharge period.



- Spatial characterization—The edge of mixing zone station MEL-13-10 was not safely accessible during the first monthly sampling event, which represents some limitations in the spatial delineation of edge of mixing zone conditions. This sample will be collected during subsequent monthly sampling events now that Meliadine Lake is ice-free; however, as samples at MEL-13-10 have not been collected to date, TDS concentrations and chronic toxicity at this station is currently a source of uncertainty.
- Full species battery still pending—Chronic toxicity tests have not indicated adverse biological effects in the receiving environment. However, testing has only been conducted during a single round of testing and final results are currently only available for two of the four test species. As a result, there is some uncertainty related to temporal variability in conditions within the receiving environment, as well as the sensitivity of *D. magna* and *H. azteca*. Testing is ongoing and subsequent rounds of testing will provide more conclusive outcomes.
- Limited exposure range—TDS concentrations measured in the edge of mixing zone stations sampled for chronic toxicity testing on June 7 were well below the edge of mixing zone target of 1,000 mg/L, which provides confirmation that discharge assimilation is effective during the early stage of discharge, as predicted from the dispersion models for the site. However, the low concentrations of TDS and other exposure indicators limit the degree to which the receiving environment water quality benchmarks can be validated. Testing at higher TDS concentrations is important for validating the interim benchmark and for providing recommendations for a final water quality objective at the edge of the mixing zone for long-term management of Meliadine Lake. Of relevance to the edge of mixing zone target validation testing are commitments related to monthly chronic toxicity testing of the MEL-14 discharge arising from responses to comments from ECCC and KivIA (Agnico Eagle 2020) and discussions through the WMWG. This supplemental chronic testing will be initiated during the second monthly sampling event and will involve chronic toxicity testing of the full-strength discharge plus volumetric dilutions. This testing is expected to be useful for validation of the interim target of 1,000 mg/L at the edge of mixing zone, as the discharge dilution series testing is expected to encompass exposures both above and below the proposed target of 1,000 mg/L calculated TDS.

B5.0 CONCLUSIONS

Based on the results obtained during the WQ-MOP monitoring program as of 17 July 2020, the following represents the primary conclusions based on data analysis and interpretation from the analytical chemistry and toxicology testing programs:

- TDS concentrations measured in the discharge were less than the MAC of 3,500 mg/L in each of the weekly sampling events and ranged between 2,502 and 2,588 mg/L calculated TDS (1,510 and 3,100 mg/L measured TDS).
- The discharge was not found to be acutely toxic in four rounds of acute toxicity tests conducted with D. magna and Rainbow Trout, as the LC₅₀ values were >100% discharge in each of the tests.
- TDS concentrations measured at the edge of mixing zone stations were more than 10-fold lower than the proposed interim target of 1,000 mg/L during the 7 June 2020 sampling event, suggesting that the discharge has a high assimilation rate and that TDS concentrations rapidly decrease in the



receiving environment to concentrations below which adverse effects on biological receptors would be expected.

Consistent with the low TDS concentration results reported in the receiving environment, adverse toxicological effects were not identified during the first monthly chronic toxicity testing program; final results of the *H. azteca* and *D. magna* tests are pending.

Based on the agreed upon site-specific benchmark derivation procedure outlined in Section 1.1 of the Golder (2020) WQ-MOP Rev2 (Appendix A), the validation monitoring conducted to date support the proposed interim targets because:

- Discharges were measured at calculated TDS concentrations ranging between 2,502 and 2,588 mg/L calculated TDS (1,510 and 3,100 mg/L measured TDS), which did not result in acute toxicity at the point of release
- Discharges have not resulted in unacceptable chronic toxicity at the edge of the mixing zone following initial dilution (i.e., at a 100 m radius surrounding the diffuser in Meliadine Lake)
- Discharges do not appear to be exceeding the capacity of the receiving environment to accommodate long-term loadings of constituents (i.e., assimilative capacity), as indicated by the observation that effluent was rapidly diluted and mixing zone water quality was well below the interim target of 1,000 mg/L during the June 7 2020 sampling event.

Based on these observations, it is likely that the MAC can be adopted as a firm target for managing the discharge, subject to confirmation by additional testing in Summer 2020. Monitoring efforts outlined in Table 1 of the main body of this report will continue for the duration of the permitted discharge of CP1.

Due to the limited number of chronic toxicity test events conducted to date, and the fact that concentrations in the receiving environment have been substantially below the edge of mixing zone target of 1,000 mg/L, it is recommended that further monitoring be conducted to validate the proposed edge of mixing zone target as a site-specific water quality objective (SSWQO) in Meliadine Lake. These programs have already been designed and are being implemented this summer. Specifically, the monthly chronic toxicity testing of the MEL-14 discharge (arising from responses to comments from ECCC and KivIA and discussions through the WMWG) will be initiated during the second monthly sampling event and will involve chronic toxicity testing of the discharge on each of the four selected chronic test species. These tests will be conducted using a dilution series similar to that being performed on the edge of mixing zone stations. This testing is expected to be useful for validation of the interim target of 1,000 mg/L at the edge of mixing zone and can be combined with other site-specific chronic toxicity data in support of a final regulatory benchmark for TDS.



APPENDIX B REFERENCES

- Agnico Eagle (Agnico Eagle Mines). 2020. Water Licence 2AM-MEL1631 WQ-MOP Update IR Responses. Submitted to Nunavut Water Board. June 25, 2020.
- Azimuth (Azimuth Consulting Group Partnership). 2020. Aquatic Effects Monitoring Program, 2019 Annual Report, Meliadine Gold Project. Prepared for Agnico Eagle Mines Limited. Project No. AEM-19-04 / MEL AEMP 2019.
- Environment Canada. 2007b. Biological Test Method: Test for Measuring the Inhibition of Growth using the Freshwater Macrophyte (*Lemna minor*). EPS 1/RM/37, Second Edition, January 2007.
- Golder (Golder Associates Limited). 2020. Water Quality Monitoring and Optimization Plan. Implementation Plan for Total Dissolve Solids. Prepared for Agnico Eagle Mining Limited. Project No. 19132390-751-RPT-Rev2.



ATTACHMENT B-1

			Sample Date Sample Name	2020-06-05 MEL-14	2020-06-07 MEL-14	2020-06-14 MEL-14	2020-06-15 MEL-14	2020-06-21 MEL-14	2020-06-28 MEL-14	2020-07-01 MEL-14	2020-07-05 MEL-14
			Location SAMPLE_TYPE_CODE	MEL-14 N	MEL-14 N	MEL-14 N	MEL-14 N	MEL-14 N	MEL-14 N	MEL-14 N	MEL-14 N
Parameter	MEL-14 MAXIMUM GRAB CONCENTRATION LIMIT ^a	MEL-14 MAXIMUM AVERAGE CONCENTRATION LIMIT ^a	Unit								
Field Measured pH			pH units	7.05	7.29	7.08	6.88	7.01	6.87	6.99	-
Conductivity Temperature Dissolved oxygen			uS/cm °C mg/l	4825 5.6 12.07	4718 6.5 11.65	5176 4.7 11.81	4919 5.7	5005 8.7 -	4960 7.4 11.57	2303 11.2 9.08	-
Dissolved oxygen Dissolved oxygen Conventional Parameters			mg/L %	97.8	96.4	93.6	- 99.6	- 99.9	98	9.08 83.4	-
pH Specific conductivity	9.5	9.5	pH units umhos/cm	7.52 4700	7.58 4600	7.66 5100	7.66 4900	7.41 4800	7.43 4700		7.25 2300
Hardness, as CaCO3 (Dissolved) Hardness, as CaCO3 (Total)			mg/L mg/L	1040 1050	1020 1050	1140 1040	1050 1020	4800 1070 1080	4700 1120 1090		488
Total alkalinity, as CaCO3 Total dissolved solids (calculated)		3500	mg/L mg/L	110 2600	110 2600	120	110	110	97		37
Total dissolved solids (measured) Total dissolved solids (measured) Total suspended solids	5000 30	15	mg/L mg/L	2570 5	2600 2600 6	3090 8	3100 6	2790 6	2910 7		1510 5
Total organic carbon Dissolved organic carbon	50	10	mg/L mg/L	14 13	14 12	14 13	14 13	13 12	12 11	-	5.8 5.1
Turbidity Dissolved Oxygen			NTU mg/L	1.6 9.17	1.7 9.99	1.7 9.55	1.6 10.2	1.2 1.0	1.7 9.66	-	0.9 9.52
Major lons Bicarbonate, as CaCO3			mg/L	110	110	120	110	110	96	-	36
Calcium Carbonate, as CaCO3			mg/L mg/L	297 < 1.0	293 < 1.0	327 < 1.0	302 < 1.0	303 < 1.0	321 < 1.0	-	138 < 1.0
Chloride Cyanide	1	0.5	mg/L mg/L	1300 0.0068	1300 0.0070	1300 0.011	1300 0.0095	1300 0.012	1200 0.0055	-	570 < 0.0050
Fluoride Magnesium			mg/L mg/L	< 0.10 71.8	< 0.10 70.5	- 78.8	- 72.5	- 76.8	- 77.6	-	- 34.9
Potassium Sodium			mg/L mg/L	34.0 480	34.0 474	36.7 510	33.9 470	35.3 509	34.7 506	-	14.9 209
Sulphate Silica			mg/L mg/L	240 5.3	230 8.3	230 6.1	220 6.8	250 4.8	230 3.8	-	110 1.5
Cyanide (free) Cyanide (WAD)			mg/L mg/L	0.033 0.0051	0.045 0.0053	0.032 0.0046	0.029 0.0060	0.017 0.0049	0.0033 0.0026	-	0.0035 0.0014
Nutrients and Chlorophyll a Nitrate			mg/L	26.9	26.5	28.1	28.1	29.2	26.1	-	13.0
Nitrite Nitrate + nitrite			mg/L mg/L	0.083 27.0	0.084 26.6	0.091 28.1	0.083 28.2	0.111 29.3	0.088 26.2	-	0.108 13.1
Total ammonia Total Kjeldahl nitrogen	18	14	mg/L mg/L	11 11	10 9.4	11 14	10 11	12 13	9.4 12	-	3.4 4.2
Total phosphorus Orthophosphate	4	2	mg/L mg/L	0.072 < 0.010	0.035 < 0.010	0.020 0.016	0.062 0.023	0.057 0.012	0.039 < 0.010	-	0.057 < 0.010
Biochemical Oxygen Demand, 5 Day Total Metals			mg/L	2	3	2	2	< 2	< 2	-	< 2
Aluminum Antimony	3	2	mg/L mg/L	0.448 < 0.0025	0.632 < 0.0025	0.643 < 0.0010	0.561 < 0.0010	0.661 < 0.0025	0.79 < 0.0050	-	0.65 < 0.00050
Arsenic Barium	0.6	0.3	mg/L mg/L	0.0629 0.151	0.0723 0.155	0.0700 0.151	0.0584 0.153	0.0156 0.155	0.0047 0.153		0.00541 0.0711
Beryllium Bismuth			mg/L mg/L	< 0.00050 < 0.0050	< 0.00050 < 0.0050	< 0.00020 < 0.0020	< 0.00020 < 0.0020	< 0.00050 < 0.0050	< 0.0010 < 0.01	-	< 0.00010 < 0.0010
Boron Cadmium			mg/L mg/L	0.456 0.000080	0.499 0.000101	0.47 0.000078	0.453 0.000085	0.523 0.000095	< 0.5 < 0.00010		0.247 0.000029
Calcium Chromium			mg/L mg/L	299 < 0.0050	299 < 0.0050	300 < 0.0020	295 < 0.0020	303 < 0.0050	311 < 0.01	-	151 < 0.0010
Cobalt Copper	0.4	0.2	mg/L mg/L	0.0030 0.0031	0.0031 0.0031	0.00331 0.0032	0.00313 0.0031	0.0033 0.0028	0.0029 < 0.0050	-	0.00133 0.00131
Iron Lead	0.4	0.2	mg/L mg/L	0.25 < 0.0010	0.213 < 0.0010	0.154 0.00070	0.163 0.00061	0.113 < 0.0010	< 0.1 < 0.0020		0.097 0.00041
Lithium Magnesium			mg/L mg/L	0.142 72.4	0.139 74.4	0.155 71.4	0.146 70.2	0.15 78.7	0.144 75.9		0.0699 37.1
Manganese Mercury			mg/L mg/L	1.33 < 0.00010	1.33 < 0.00001	1.3 < 0.00001	1.28 < 0.00001	1.37 < 0.00001	1.3 < 0.00010	-	0.455 < 0.00010
Molybdenum Nickel	1	0.5	mg/L mg/L	< 0.0050 0.0088	< 0.0050 0.0087	0.0045 0.0096	0.0043 0.0094	< 0.0050 0.0103	< 0.01 < 0.01	-	0.0022 0.0043
Potassium Selenium			mg/L mg/L	34.5 0.00063	34.1 0.00074	33.6 0.00066	33.9 0.00060	36 0.00069	34.2 < 0.0010	-	15.7 0.00023
Silicon Silver			mg/L mg/L	1.74 < 0.00010	1.94 < 0.00010	1.82 < 0.000040	1.81 < 0.000040	1.67 < 0.00010	1.54 < 0.00020		0.753 < 0.000020
Sodium Strontium			mg/L mg/L	479 5.22	462 5.6	474 5.8	470 5.7	512 5.45	492 5.36	-	226 2.65
Sulphur Thallium			mg/L mg/L	82.9 < 0.000050	84.3 0.000052	83.7 0.000047	82.5 0.000049	97.3 0.000056	77.4 < 0.00010	-	41.7 0.000030
Tin Titanium			mg/L mg/L	< 0.025 < 0.025	< 0.025 < 0.025	< 0.01 < 0.01	< 0.01 < 0.01	< 0.025 < 0.025	< 0.05 < 0.05	-	< 0.0050 < 0.0050
Uranium Vanadium 			mg/L mg/L	0.00185 < 0.025	0.00189 < 0.025	0.00211 < 0.01	0.00212 < 0.01	0.00189 < 0.025	0.0014 < 0.05	-	0.00019 < 0.0050
Zinc Zirconium	0.8	0.4	mg/L mg/L	< 0.025 < 0.00050	< 0.025 < 0.00050	0.021 < 0.00020	0.023 < 0.00020	< 0.025 < 0.00050	< 0.05 < 0.0010	-	< 0.0050 < 0.00010
Dissolved Metals Aluminum Antimony			mg/L mg/L	0.13 < 0.0010	0.21 < 0.0010	0.174 < 0.0025	0.136 < 0.0025	0.113 < 0.0025	0.115 < 0.0050	-	0.0776 < 0.00050
Arsenic Barium			mg/L mg/L	0.0541	0.0626	0.0611	0.0477	0.00803	0.0026	-	0.00356
Beryllium Bismuth			mg/L mg/L	< 0.00020 < 0.0020	< 0.00020 < 0.0020	< 0.00050 < 0.0050	< 0.00050 < 0.0050	< 0.00050 < 0.0050	< 0.0010 < 0.01		< 0.00010 < 0.0010
Boron Cadmium			mg/L mg/L	0.472	0.462	0.554	0.498	0.532 0.00081	< 0.01 < 0.5 < 0.00010	-	0.236
Chromium Cobalt			mg/L mg/L	< 0.0020 0.00311	< 0.0020 0.00301	< 0.0050 0.0035	< 0.0050 0.0031	< 0.0050 0.0033	< 0.01 0.0028		< 0.0010 0.00127
Copper Iron			mg/L mg/L	0.00287 0.164	0.00279 0.137	0.0031	0.0029	0.0026	< 0.0020 < 0.0020 0.057	-	0.00111 0.0441
Lead Lithium			mg/L mg/L	< 0.00040 0.138	< 0.00040 0.132	< 0.0010 0.179	< 0.0010 0.159	< 0.0010 0.148	< 0.0020 0.153		< 0.00020 0.0698
Manganese Mercury			mg/L mg/L	1.35 < 0.00010	1.3 < 0.00001	1.5 < 0.00001	1.36 < 0.00001	1.39 < 0.00001	1.35 < 0.00010		0.436
Molybdenum Nickel			mg/L mg/L	0.0046	0.0044	< 0.0050 < 0.0107	< 0.0050 0.0096	< 0.00001 < 0.0050 0.0100	< 0.01 < 0.01 < 0.01	-	0.0020
Selenium Silicon			mg/L mg/L	0.00058	0.00065	0.00071	0.00052	0.00057	< 0.01 < 0.0010 1.55		0.00019
Silver Strontium			mg/L mg/L	< 0.000040 5.32	< 0.000040 5.37	< 0.00010 6.08	< 0.00010 5.63	< 0.00010 5.48	< 0.00020 5.45	-	< 0.000020 2.6
Sulphur Fhallium			mg/L mg/L	80.4 0.000040	82.3 0.000047	88 0.000058	84 < 0.000050	89 0.000061	84 < 0.00010	-	39.7 0.000026
Fin Fitanium			mg/L mg/L	< 0.01 < 0.01	< 0.01 < 0.01	< 0.025 < 0.025	< 0.025 < 0.025	< 0.025 < 0.025	< 0.05 < 0.05	-	< 0.0050 < 0.0050
Jranium /anadium			mg/L mg/L	0.00197 < 0.01	0.00181 < 0.01	0.00211 < 0.025	0.00202 < 0.025	0.00176 < 0.025	0.0013 < 0.05	-	< 0.00010 < 0.0050
Zinc Zirconium			mg/L mg/L	0.019 < 0.00020	0.019 < 0.00020	< 0.025 < 0.00050	< 0.025 < 0.00050	< 0.025 < 0.00050	< 0.05 < 0.0010		< 0.0050 < 0.00010
Drganics Benzene			mg/L	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	-	< 0.00020
thylbenzene Toluene			mg/L mg/L	< 0.00020 0.00023	< 0.00020 < 0.00020	< 0.00020 < 0.00020	< 0.00020 < 0.00020	< 0.00020 < 0.00020	< 0.00020 < 0.00020	-	< 0.00020 < 0.00020
Kylenes m,p-Xylenes			mg/L mg/L	< 0.00040 < 0.00040	< 0.00040 < 0.00040	< 0.00040 < 0.00040	< 0.00040 < 0.00040	< 0.00040 < 0.00040	< 0.00040 < 0.00040	-	< 0.00040 < 0.00040
o-Xylene F1 (C6-C10)-BTEX			mg/L mg/L	< 0.00020 < 0.025	< 0.00020 < 0.025	< 0.00020 < 0.025	< 0.00020 < 0.025	< 0.00020 < 0.025	< 0.00020 < 0.025		< 0.00020 < 0.025
F1 (C6-C10) F2 (C10-C16)			mg/L mg/L	< 0.025 < 0.1	< 0.025 < 0.1	< 0.025 < 0.1	< 0.025 < 0.1	< 0.025 < 0.1	< 0.025 < 0.1	-	< 0.025 < 0.1
F3 (C16-C34) F4 (C34-C50)			mg/L mg/L	< 0.1 < 0.2 < 0.2	<0.1 <0.2 <0.2	< 0.1 < 0.2 < 0.2	< 0.1 < 0.2 < 0.2	< 0.1 < 0.2 < 0.2	< 0.1 < 0.2 < 0.2	-	< 0.1 < 0.2 < 0.2
Foxicity Daphnia 48 h static acute test - LC50			%	-	> 100	> 100	-	> 100	> 100	-	-
Daphnia 48 h Static Acute Test - EC50			%	-	> 100	> 100	-	> 100	> 100	-	-
.C50 (96h) - Rainbow Trout			%	-	> 100	> 100	-	> 100	> 100	-	

"expresents discharge limits outlined in Water Licence 2AM-MEL1631 issued by the Nunavut Water Board, including Emergency Amendment 1
 "<" indicates a parameter was less than the laboratory detection limit.
 "-" indicates a parameter was not analyzed or a criteria is not defined.
 Output generated by GalReport and provided to Golder by Agnico Eagle.

			for the protection of:				ing Sites		
Parameter	Unit	Aqu	atic Life		nixing zone	Mid-field		Reference	
		Acute	Chronic	MEL-13-01 43989.7215	MEL-13-07 43989.7542	MEL-02-05 43989.588	MEL-03-02 43989.4486	MEL-04-05 43989.6299	MEL-05-04 43989.3708
Conventional Parameters		Acute						•	•
oH Sa saifia sa shushuitu	-	-	6.5 - 9.0	7.3	7.3	7.2	7.2	7.4	7.4
Specific conductivity Hardness, as CaCO ₃	umhos/cm mg/L	-	-	130 37	110 29	120 35	61 19	92 27	100 31
Total alkalinity, as CaCO ₃	mg/L	-	-	28	29	27	19	24	26
Total dissolved solids (calculated)	mg/L	-	- 1000*	65	23 55	60	29	46	52
Total dissolved solids (measured)	mg/L	-	-	50	35	35	30	40	40
Total suspended solids	mg/L	-	-	2.0	2.0	1.0	1.0	1.0	1.0
Total organic carbon	mg/L	-	-	4.4	3.5	3.8	2.2	2.6	3.0
Dissolved organic carbon	mg/L	-	-	4.3	3.5	3.6	2.1	2.6	2.7
Turbidity Major lons	NTU	-	-	0.20	0.40	0.60	1.2	0.10	0.20
Bicarbonate, as CaCO ₃	mg/L	-	-	27	23	27	12	24	26
Calcium	mg/L	-	-	12	9.6	11	5.1	8.6	9.8
Carbonate, as CaCO ₃	mg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride	mg/L	640	120	18	16	16	7.8	11	12
Cyanide	mg/L	-	0.0050	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Fluoride	mg/L	-	0.12	<0.1 2.0	<0.1 1.7	<0.1 1.9	<0.1 0.93	<0.1 1.4	<0.1 1.6
Magnesium Potassium	mg/L mg/L	-	-	2.0	1.7	1.9	0.93	1.4	1.0
Sodium	mg/L	-	-	7.9	6.7	7.3	3.6	5.5	6.1
Sulphate	mg/L	-	-	7.5	6.0	5.9	3.0	4.4	4.9
Silica	mg/L	-	-	0.67	0.53	0.56	0.18	0.30	0.32
Nutrients		404		-0.4	-0.4		0.44	-0.4	-0.4
Nitrate Nitrite	mg-N/L mg-N/L	124	2.9 0.060	<0.1 <0.01	<0.1 <0.01	<0.1 <0.01	0.11 <0.01	<0.1 <0.01	<0.1 <0.01
Nitrate + nitrite	mg-N/L	-	-	<0.01	<0.01	< 0.01	0.01	<0.01	< 0.01
Total ammonia	mg-N/L	-	4.1 - 161 ^(a)	<0.05	0.19	<0.05	<0.05	0.15	< 0.05
Total Kjeldahl nitrogen	mg-N/L	-	-	0.21	0.25	0.19	0.18	0.15	0.11
Total nitrogen (calculated)	mg-N/L	-	-	0.21	0.25	0.19	0.29	0.15	0.11
Total phosphorus Orthophosphate	mg-P/L mg-P/L		-	<0.02	<0.02	<0.02 <0.01	0.025	<0.02 <0.01	<0.02 <0.01
Total Metals	IIIg-P/L		-	-	-	~0.01	~0.01	~0.01	<u></u> \0.01
Aluminum	mg/L	-	0.0050 - 0.10 ^(b, c)	<0.003	0.017	0.0032	0.0066	< 0.003	< 0.003
Antimony	mg/L	-	-	< 0.0005	< 0.0005	<0.0005	<0.0005	< 0.0005	< 0.0005
Arsenic	mg/L	-	0.0050	0.00047	0.00064	0.00043	0.0011	0.00023	0.00029
Barium	mg/L	-	-	0.012	0.0095	0.016	0.011	0.0097	0.011
Beryllium Bismuth	mg/L mg/L	-	-	<0.0001 <0.001	<0.0001 <0.001	<0.0001 <0.001	<0.0001 <0.001	<0.0001 <0.001	<0.0001 <0.001
Boron	mg/L	29	1.5	<0.001	< 0.001	< 0.05	< 0.05	< 0.05	< 0.05
Cadmium	mg/L	0.00011 - 0.00077 ^(d)	0.000040 - 0.000070 ^(d)	< 0.00001	< 0.00001	< 0.00001	0.000020	< 0.00001	< 0.00001
Calcium	mg/L	-	-	12	9.1	11	5.9	8.5	9.8
Chromium	mg/L	-	0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	mg/L	-	-	< 0.0002	< 0.0002	<0.0002	< 0.0002	< 0.0002	<0.0002
Copper	mg/L	-	0.0020 ^(d) 0.30	0.0011 <0.01	0.0017	0.0011	0.00077 0.073	0.00093	0.0011 <0.01
Iron Lead	mg/L mg/L	-	0.0010 ^(d)	<0.0002	0.038	<0.0002	0.00022	<0.001	<0.0002
Lead	mg/L	-	-	<0.0002	<0.002	<0.0002	< 0.0022	<0.0002	< 0.002
Magnesium	mg/L	-	-	2.0	1.6	1.9	1.0	1.4	1.6
Manganese	mg/L	-	-	0.0013	0.0022	0.0011	0.0026	< 0.001	<0.001
Mercury	mg/L	-	0.000026	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	-	0.073	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Nickel Potassium	mg/L mg/L	-	0.025 ^(d)	<0.001 1.4	<0.001 1.1	<0.001 1.4	<0.001 0.80	<0.001 1.1	<0.001 1.2
Selenium	mg/L	-	0.0010	<0.0001	<0.0001	<0.0001	< 0.0001	<0.0001	< 0.0001
Silicon	mg/L	-	-	0.31	0.26	0.26	<0.1	0.14	0.15
Silver	mg/L	-	0.00025	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	< 0.00002
Sodium	mg/L	-	-	7.5	6.0	7.1	3.8	5.1	5.5
Strontium Sulphur	mg/L mg/L	-	-	0.068	0.054 <3.0	0.064 <3.0	0.031 <3.0	0.044 <3.0	0.049 <3.0
Thallium	mg/L	-	0.00080	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Tin	mg/L	-	<u> </u>	<0.005	< 0.005	<0.005	< 0.005	< 0.005	<0.005
Titanium	mg/L	-	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Uranium Vanadium	mg/L	0.033	0.015	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	<0.0001
Vanadium Zinc	mg/L	- 0.011 - 0.049 ^(e)	- 0.0063 - 0.017 ^(f)	<0.005 <0.005	<0.005 0.029 ^(C)	<0.005 <0.005	<0.005 0.0066	<0.005 <0.005	<0.005 <0.005
Zirconium	mg/L mg/L	-	-	<0.000	< 0.0001	<0.005	< 0.0000	< 0.005	< 0.005
Dissolved Metals			•						
Aluminum	mg/L	-	-	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Antimony	mg/L	-	-	< 0.0005	<0.0005	< 0.0005	<0.0005	<0.0005	< 0.0005
Arsenic Barium	mg/L mg/L	-	-	0.00046 0.012	0.00046 0.0098	0.00043	0.0010 0.0076	0.00027 0.0094	0.00028
Beryllium	mg/L	-	-	<0.0001	<0.0001	< 0.0001	<0.0001	< 0.0001	< 0.0001
Bismuth	mg/L	-	-	<0.001	< 0.001	<0.001	< 0.001	< 0.001	<0.001
Boron	mg/L	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Cadmium Chromium	mg/L mg/l	-	-	<0.00001 <0.001	0.000013 <0.001	0.000026	0.000020	0.000013 <0.001	<0.00001 <0.001
Cobalt	mg/L mg/L	-	-	< 0.0002	<0.0001	< 0.0001	<0.001	< 0.001	< 0.001
Copper	mg/L	-	-	0.0011	0.00095	0.0012	0.00070	0.00078	0.00082
Iron	mg/L	-	-	0.0062	0.0052	0.0094	0.012	<0.005	< 0.005
Lead	mg/L	-	-	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Lithium Manganese	mg/L mg/L	-	-	<0.002 <0.001	<0.002 0.0012	<0.002 <0.001	<0.002 0.0026	<0.002 <0.001	<0.002 <0.001
Manganese Mercury	mg/L	-	-	<0.0001	< 0.00012	< 0.0001	< 0.0026	<0.0001	<0.0001
Molybdenum	mg/L	-	-	<0.001	<0.001	< 0.001	<0.001	<0.001	< 0.001
Nickel	mg/L	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	mg/L	-	-	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Silicon Silver	mg/L	-	-	0.28	0.23	0.23	<0.1 <0.00002	0.13 <0.00002	0.13
Silver Strontium	mg/L mg/L	-	-	<0.00002	<0.00002	<0.00002 0.055	<0.00002	<0.00002	<0.00002
Sulphur	mg/L	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
	mg/L	-	-	<0.00001	< 0.00001	<0.00001	<0.00001	< 0.00001	< 0.00001
Thallium			-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Tin	mg/L	-							
Tin Titanium	mg/L	-	-	<0.005	< 0.005	<0.005	< 0.005	< 0.005	< 0.005
Tin Titanium Uranium	mg/L mg/L		-	<0.005 <0.0001	<0.005 <0.0001	<0.005 <0.0001	<0.005 <0.0001	<0.005 <0.0001	<0.0001
Tin Titanium	mg/L	-	-	<0.005	< 0.005	<0.005	< 0.005	< 0.005	

Table 2: Meliadine Lake Receiving Environment Water Quality Summary (7, June 2020 Sampling Eve

Notes: "<" = indicates a parameter was less than the laboratory detection limit. "-" = indicates a parameter was not analyzed or a criteria is not defined. """ = the agreed upon interim edge of mixing zone target for TDS

(a) = the ammonia guideline is pH and temperature dependent. The guideline that results in the minimum ammonia guideline (4.12 mg-N/L) is based on the combination of field pH (7.6) and water temperature (1.8°C). Guidelines calculated with temperature and pH values falling outside the defined range (i.e., pH 6.0 to 10.0 and temperature 0°C to 30°C) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and temperature extremes. The guideline is calculated based on the individual field pH and

temperature measurements for each sample. (b) = guideline is pH dependent. The guideline range shown is based on the pH range observed in the dataset (6.0 to 7.6). The guideline is calculated based on the individual pH for each sample.

 $^{\rm (c)}$ = guideline is pH dependent: 0.005 mg/L at pH < 6.5 and 0.1 mg/L at pH ≥ 6.5.

(d) = guideline is hardness dependent. The guideline range shown is based on the hardness range observed in the dataset (2 to 37 mg/L). The guideline is calculated based on the individual hardness value for each sample.

= guideline is for dissolved zinc, but comparison to total zinc is appropriate when no dissolved zinc concentrations are available. The acute dissolved zinc guideline is hardness and DOC dependent. The guideline that results in the minimum acute zinc guideline (11.3 µg/L) is based on the combination of Hardness (2.3 mg/L) and DOC (0.2 mg/L). Guidelines calculated with Hardness and DOC values falling outside the defined range (i.e., Hardness 13.8 to 250.5 mg/L and DOC 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and DOC extremes. The guideline is calculated based on the individual hardness and DOC measurements for each sample.

 $^{(0)}$ = guideline is for dissolved zinc, but comparison to total zinc is appropriate when no dissolved zinc concentrations are available. The chronic dissolved zinc guideline is pH, hardness and DOC dependent. The guideline that results in the minimum chronic zinc guideline (6.3 µg/L) is based on the combination of field pH (6.0), Hardness (2.3 mg/L) and DOC (0.2 mg/L). Guidelines calculated with PH, Hardness and DDC values falling outside the defined range (i.e., pH 6.5 to 8.13, Hardness 2.4 to 399 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and DOC extremes. The guideline is calculated based on the individual pH, hardness and DOC measurements for each sample.

(g) = the acute dissolved zinc guideline is hardness and DOC dependent. The guideline that results in the minimum acute zinc guideline (11.3 µg/L) is based on the combination of Hardness (2.3 mg/L) and DOC (0.2 mg/L). Guidelines calculated with Hardness and DOC values falling outside the defined range (i.e., Hardness 13.8 to 250.5 mg/L and DOC 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and DOC extremes. The guideline is calculated based on the individual hardness and DOC measurements for each sample.

(h) = the chronic dissolved zinc guideline is pH, hardness and DOC dependent. The guideline that results in the minimum chronic zinc guideline (6.3 µg/L) is based on the combination of field pH (6.0), Hardness (2.3 mg/L) and DOC (0.2 mg/L). Guidelines calculated with pH, Hardness and DOC values falling outside the defined range (i.e., pH 6.5 to 8.13, Hardness 23.4 to 399 mg/L and DOC 0.3 to 22.9 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and DOC extremes. The guideline is calculated based on the individual pH, hardness and DOC measurements for each sample.

(C) = concentration is greater than the chronic aquatic life CCME guideline or outside the recommended pH, DO or total alkalinity range. Bolded concentrations are greater than a water quality guidelines

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision after comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances

Output generated by GalReport and provided to Golder by Agnico Eagle.

Date	Daily discharge to Meliadine Lake (m ³)	Cumulative discharge to Meliadine Lake (m ³)	Specific conductivity (µS/cm)
05-Jun-20	2,197	2,197	4,780
06-Jun-20	9,001	11,198	4,650
07-Jun-20	9,830	21,028	4,548
08-Jun-20	12,137	33,165	4,780
09-Jun-20	14,389	47,554	4,843
10-Jun-20	14,369	61,923	4,896
11-Jun-20	14,373	76,296	4,923
12-Jun-20	14,561	90,857	4,960
13-Jun-20	14,901	105,758	5,028
14-Jun-20	14,812	120,570	5,054
15-Jun-20	15,012	135,582	4,967
16-Jun-20	14,965	150,547	4,894
17-Jun-20	13,857	164,404	4,930
18-Jun-20	15,254	179,658	4,948
19-Jun-20	14,872	194,530	4,945
20-Jun-20	14,291	208,821	4,874
21-Jun-20	14,688	223,509	4,851
22-Jun-20	14,842	238,351	4,396
23-Jun-20	15,767	254,118	3,906
24-Jun-20	15,295	269,413	4,750
25-Jun-20	9,141	278,553	5,090
26-Jun-20	6,456	285,009	4,589
27-Jun-20	16,678	301,688	4,829
28-Jun-20	16,961	318,649	4,588
29-Jun-20	17,518	336,167	4,534
30-Jun-20	16,786	352,953	4,989
01-Jul-20	16,656	369,609	4,750
02-Jul-20	14,670	384,279	4,665
03-Jul-20	12,646	396,925	4,223
04-Jul-20	16,860	413,785	3,285
05-Jul-20	17,211	430,995	2,206
06-Jul-20	14,792	445,787	1,883
07-Jul-20	16,313	462,100	1,905
08-Jul-20	16,529	478,629	1,913
09-Jul-20	15,996	494,625	1,952
10-Jul-20	12,299	506,924	2,053
11-Jul-20	16,202	523,126	2,038
12-Jul-20	15,992	539,118	2,027
13-Jul-20	16,213	555,331	2,075
14-Jul-20	7,674	563,005	2,146
15-Jul-20	15,340	578,345	2,180
16-Jul-20	10,904	589,249	2,188

Table 3. MEL-14 Discharge Summary (5 June 2020 to 16 July 2020)

Notes: m^3 = metres cubed; μ S/cm = microsiemens per centimetre.

ATTACHMENT B-2



Work Order :242474Sample Number :63745

AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

SAMPLE IDENTIFICATION

Company :	Agnico Eagle Mines Limited - Meliadine Project		
Location :	Rankin Inlet NU	Date Collected :	2020-06-07
GPS Location:	63*02'15.5" 92*13'06.3"	Time Collected :	13:40
Substance :	MEL - 14	Date Received :	2020-06-11
Sampling Method :	Grab	Time Received :	09:30
Sampled By :	MG	Temperature on Receipt :	21 °C
Sample Description	Clear, pale yellow, mild strong odour.	Date Tested :	2020-06-11

Test Method : Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*. Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

48-HOUR TEST RESULTS					
Effect	Value	95% Confidence Limits	Calculation Method		
LC50	>100%	_			
EC50	>100%	_	_		

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Species : Organism Batch : Culture Mortality :	Daphnia magna Dm20-11 2.7% (previous 7 days)	Time to First Brood : Average Brood Size :	7.8 days 41.3 young			
TEST CONDITIONS						
Sample Treatment :	None	Number of Replicates :	1			

pH Adjustment : None Organisms / Replicate : 10 Pre-aeration Rate : $\sim 30 \text{ mL/min/L}$ Organisms / Test Level : 10 Duration of Pre-Aeration : 0 minutes Organism Loading Rate : 15.0 mL/organism Test Aeration : None Impaired Control Organisms : 0.0% Hardness Adjustment : None None Test Method Deviation(s) :

REFERENCE TOXICANT DATA

Toxicant : Date Tested :	Sodium Chloride 2020-06-09	Historical Mean LC50 : Warning Limits (± 2SD) :	6.4 g/L 5.6 - 7.4 g/L
LC50 :	5.7 g/L	Organism Batch :	Dm20-11
95% Confidence Limits :	5.4 - 6.0 g/L	Analyst(s) :	JCS
Statistical Method :	Spearman-Kärber		

COMMENTS

All test validity criteria as specified in the test method were satisfied.

Date :

yyyy-mm-dd

Approved By : Project Manager

AQUAT

TOXICITY TEST REPORT

Daphnia magna

EPS 1/RM/14

Page 2 of 2

Work Order: Sample Number:

242474

63745

TEST DATA

Initial	Water Chemist	ry (100%) :	рН 7.2	Dissolved O ₂ (mg/L) 8.5	Conductivity (µmhos/cm) 4690	Temperature (°C) 19	O ₂ Saturation (%)* 99	Hardness (as CaCO ₃) >1000 mg/J
			01	nours	-			
Date & Time Analyst(s) :	2020-06-11 JCS (JL)	16:30						
Concentration (%)	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O2 Saturation*	Hardness
100	0	0	7.2	8.5	4690	19	99	>1000
50	0	0	7.9	8.5	2586	19	_	-
25	0	0	8.2	8.5	1688	19	-	-
12.5	0	0	8.3	8.6	1307	19	_	_
6.25	0	0	8.5	8.6	1073	19	_	-
Control	0	0	8.5	8.8	796	19	100	230
Notes:								
			24	hours				
Date & Time Analyst(s) :	2020-06-12 SV	16:30						
Concentration (%)	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature		
100	_	0	-	_	-	20		
50	_	0	-	_	_	20		
25	_	0	-	_	-	20		
12.5	_	0	-	-	-	20		
6.25	-	0	_	_	_	20		
Control	-	0		_	-	20		
Notes:								
			48	hours				
Date & Time Analyst(s) :	2020-06-13 SV	16:30						
Concentration (%)	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature		
100	0	0	8.1	8.3	4660	20		
50	0	0	8.4	8.3	2669	20		
25	0	0	8.4	8.4	1808	20		
12.5	0	0	8.5	8.4	1381	20		
6.25	0	0	8.5	8.5	1093	20		
Control	0	0	8.5	8.4	813	20		
Notes:								

– = not measured/not required

^{*} adjusted for temperature and barometric pressure



AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 Page 1 of 2

Work Order :	242474
Sample Number :	63745

SAMPLE IDENTIFICATION

Company :	Agnico Eagle Mines Limited - Meliadine Project		
Location :	Rankin Inlet NU	Date Collected :	2020-06-07
GPS Location:	63*02'15.5" 92*13'06.3"	Time Collected :	13:40
Substance :	MEL - 14	Date Received :	2020-06-11
Sampling Method :	Grab	Time Received :	09:30
Sampled By :	MG	Temperature on Receipt	: 21 °C
Sample Description :	Clear, pale yellow, mild strong odour.	Date Tested :	2020-06-11

Test Method(s) :Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment
Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February 2016 amendments).

		96-HOUR TEST RESULTS		
Effect	Value	95% Confidence Limits	Statistical Method	
LC50	>100%	-	-	
	The result	ts reported relate only to the sample tested a	and as received.	

TEST ORGANISM						
Test Organism :	Oncorhynchus mykiss	Average Fork Length (± 2 SD) :	36.0 mm (±7.8)			
Organism Batch :	T20-12	Range of Fork Lengths :	32 - 43 mm			
Control Sample Size :	10	Average Wet Weight (± 2 SD) :	0.40 g (±0.25)			
Cumulative stock tank mortality rate :	0% (previous 7 days)	Range of Wet Weights :	0.28 - 0.67 g			
Control organisms showing stress :	0 (at test completion)	Organism Loading Rate :	0.2 g/L			

TEST CONDITIONS

Sample Treatment :	None	Volume Tested (L) :	16
pH Adjustment :	None	Number of Replicates :	1
Test Aeration :	Yes	Organisms Per Replicate :	10
Pre-aeration/Aeration Rate :	6.5 ± 1 mL/min/L	Organisms Per Test Level :	10
Duration of Pre-Aeration :	30 minutes	Test Method Deviation(s) :	None

REFERENCE TOXICANT DATA

Toxicant :
Organism Batch :
LC50 :
95% Confidence Limits :
Statistical Method :

Potassium Chloride T20-12 4171 mg/L 3684 - 4601 mg/L Linear Regression (MLE) Date Tested : Historical Mean LC50 : Warning Limits (± 2SD) : Analyst(s) : 2020-06-04 3794 mg/L 2914 - 4939 mg/L FS, TL, KP

COMMENTS

•All test validity criteria as specified in the test method were satisfied.

Date : yyyy-mm-dd

Approved Bfy : Project Manager



TOXICITY TEST REPORT

Rainbow Trout

EPS 1/RM/13

Page 2 of 2

Work Order : Sample Number :	242474 63745		TEST DAT.				
			pH	Dissolved O ₂	Conductivity	Temperature (°C)	O ₂ Saturation (%)*
nitial Water Chemi	etry (100%) ·		7.2	(mg/L) 7.6	(µmhos/cm) 4571	16	84
After 30 min pre-ae			7.2	7.9	4569	16	86
F							
			0 HOURS				
Date & Time	2020-06-11	14:30					
Analyst(s) :	KP	x	-11	Dissolved O	Conductivity	Tomporatura	O. Saturation
Concentration (%)	Dead	Impaired	рН 7.2	7.9	4569	16	86
100	0 0	0 0	7.2 7.9	9.3	2799	16	-
50 25	0	0	8.2	9.5 9.4	1747	16	_
12.5	0	0	8.3	9.4	1317	16	-
6.25	0	0	8.4	9.3	1080	16	-
Control	0	0	8.3	9.3	831	16	99
Notes:	Ū	-					
			24 HOURS	5			
Date & Time	2020-06-12	14:30					
Analyst(s):	RK(FS) Dead	Impaired	рН	Dissolved O	Conductivity	Temneratura	
Concentration (%) 100	Dead O	1mpaireo O	рп	Dissolveu O ₂	-	15	
50	0	0	_	_	_	15	
25	0	0	_	_	_	15	
12.5	0	0	_	-	_	15	
6.25	0	0	_	_	_	15	
Control	Û	0	_		-	15	
Notes:							
			48 HOUR	5			
Date & Time	2020-06-13	14:30					
Analyst(s) :	MJT(FS)				~		
Concentration (%)	Dead	Impaired	pН	Dissolved O ₂	Conductivity		
100	0	0	_ ·	-	-	15 15	
50 25	0	0 0	-	-	_	15	
25	0 0	0	-	_	_	15	
12.5 6.25	0	0	_	_		15	
Control	0	0	_	_	_	15	
Notes:	0	0				10	
alaan ahaa ahaa ahaa ahaa ahaa ahaa ahaa		<u></u>	72 HOUR	S			нанынын алан шого — — — — — — — — — — — — — — — — — —
Date & Time	2020-06-14	14:30					
Analyst(s) :	MDH			Disseland O	Conductivity	Townsetur	
Concentration (%)	Dead	Impaired O	рН	Dissolveu O ₂	Conductivity	15	;
100	0 0	0		_	_	15	
50 25	0	0	_	_	_	15	
12.5	0	0	_	_	_	15	
6.25	0	0	_	_	_	15	
Control	0	0	-	_	-	15	
Notes:							
			96 HOUR	S			
Date & Time Analyst(s) :	2020-06-15 KP	14:30					
Concentration (%)	Dead	Impaired	рН	Dissolved O ₂	Conductivity	Temperatur	e
100	0	0	7.9	9.7	4629	15	
50	0	0	8.1	9.7	2817	15	
25	0	0	8.1	9.8	1710	15	
12.5	0	ů 0	8.1	9.8	1271	15	
6.25	0	0 0	8.1	9.7	1026	15	
Control	0	0	8.1	9.7	755	15	
Notes:	-						
"" = not measured/	not required					eviewed By :	
	oes not include num	1			Date :	2020	0-06-16

* adjusted for temperature and barometric pressure

CHAIN OF CUSTODY RECORD





P.O. Number: 644699
Field Sampler Name (print): MG
Signature:
Affiliation: Agnico Eagle Mines - Meliadine
Sample Storage (prior to shipping): Refrigerator/cooler
Custody Relinquished by: Laura Hanson

Date/Time Shipped: 2020-06-08

Shipping Address: AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412

Fax: (519) 763-4419

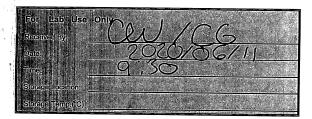
^{Client:} Agnico Eagle Meliadine Project Rankin Inlet, Nunavut, Canada

Phone: (819) 759-3555

Fax:

Contact: Dan Gorton, Sean Arruda

1	-	Sample Identification		Т			Analys	es Req	uested				S	ampl	e Method and Volume
Date Collected (yyyy-mm-dd)	Time Collected (e.g. 14:30, 24 hr clock)	Sample Name	AquaTox Sample Number Jarrival.	Rainbow Trout Single Concentration	Rainbow Trout LC50	Daphnia magna Single Concentration	Daphnia magna LC50	Fathead Minnow Survival & Growth	Ceriodaphnia dubia Survival & Reproduction	Lemna minor Growth	Pseudokirchneriella subcapitata Growth	Microtox	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
2020-06-07	13:40	MEL-14	63745		\checkmark		\checkmark						1		2 pails (40L)
			· Z	20 Black											
	•							-							· · · · ·
															2.5
				to 2000											
															1



Please list any special requests or instructions:			
Add on certificate GPS location	63*02'15.5"	92*13'06.3"	

Standard COC with Microtox rev 3 2016 09 01 TC



Work Order :	242545
Sample Number :	63833

AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419 TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

SAMPLE IDENTIFICATION

Company :	Agnico Eagle Mines Limited - Meliadine Proje	ect	
Location :	Rankin Inlet NU	Date Collected :	2020-06-14
GPS location	63*02'15.5" 92*13'06.3'	Time Collected :	13:40
Substance :	MEL-14	Date Received :	2020-06-18
Sampling Method :	Grab	Time Received :	10:00
Sampled By :	RS/LH	Temperature on Receipt :	22 °C
Sample Description	Clear, light yellow, mild odour.	Date Tested :	2020-06-18

Test Method :Reference Method for Determining Acute Lethality of Effluents to Daphnia magna .Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

		48-HOUR TEST RESULTS	
Effect	Value	95% Confidence Limits	Calculation Method
LC50	>100%	_	_
EC50	>100%	_	_

The results reported relate only to the sample tested and as received.

	TEST ORGAN	SM	
Species : Organism Batch :	Daphnia magna Dm20-11	Time to First Brood : Average Brood Size :	7.8 days 41.7 young
Culture Mortality :	7.3% (previous 7 days)		
	TEST CONDITI	ONS	
Sample Treatment :	None	Number of Replicates :	1
pH Adjustment :	None	Organisms / Replicate :	10
Pre-aeration Rate :	~30 mL/min/L	Organisms / Test Level :	10
Duration of Pre-Aeration :	0 minutes	Organism Loading Rate :	15.0 mL/organism
Test Aeration :	None	Impaired Control Organisms :	0.0%
Hardness Adjustment :	None	Test Method Deviation(s) :	None
	REFERENCE TOXICA	ANT DATA	
Toxicant :	Sodium Chloride	Historical Mean LC50 :	6.4 g/L
Date Tested :	2020-06-09	Warning Limits $(\pm 2SD)$:	5.6 - 7.4 g/L
LC50 :	5.7 g/L	Organism Batch :	Dm20-11
95% Confidence Limits :	5.4 - 6.0 g/L	Analyst(s) :	JCS
Statistical Method :	Spearman-Kärber		

COMMENTS

All test validity criteria as specified in the test method were satisfied.

Approved By :

Project Manager



242545

63833

Work Order:

Sample Number:

TOXICITY	TEST REPORT
	Daphnia magna

EPS 1/RM/14 Page 2 of 2

TEST DATA

Initia	l Water Chemis	try (100%) :	рН 7.1	Dissolved O ₂ (mg/L) 8.2	Conductivity (µmhos/cm) 5020	Temperature (°C) 18	O ₂ Saturation (%)* 95	Hardness (as CaCO ₃) >1000 mg/L
			01	hours				
Date & Time Analyst(s) :	2020-06-18 JCS (JL)	16:00		iour s				
Concentration (%)	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation*	Hardness
100	0	0	7.1	8.2	5020	18	95	>1000
50	0	0	7.7	8.5	2903	18	_	_
25	0	0	8.0	8.6	1898	18	_	_
12.5	0	0	8.1	8.7	1437	18	_	_
6.25	0	0	8.3	8.8	1113	18	_	_
Control	0	0	8.6	8.9	776	18	100	230
Notes:								
			24	hours				
Date & Time Analyst(s) :	2020-06-19 SJG (SV)	16:00						
Concentration (%)	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature		
100	_	0	_	_	_	20		
50	-	0	_	_	_	20		
25	_	0	_	_	-	20		
12.5	-	0	_	_	_	20		
6.25	_	0	_	_	_	20		
Control	_	0	_	_	_	20		
Notes:	Test organisı SJG	ns in the 1009	% conce	ntration appear	ed to be trappe	ed in settled sol	lids. 2020-06-19	
			48	hours				
Date & Time Analyst(s) :	2020-06-20 SV	16:00						
Concentration (%)	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature		
100	0	1	8.1	8.2	5000	20		

– = not measured/not required
 * adjusted for temperature and barometric pressure

0

0

0

0

0

0

0

0

0

0

8.3

8.3

8.4

8.4

8.5

8.1

8.3

8.3

8.4

8.3

Number immobile does not include number dead.

50

25

12.5

6.25

Control Notes:

 Test Data Reviewed By :
 JL

 Date :
 2020-06-21

20

20

20

20

20

2568

1765

1293

1058

782



AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419

Rainbow Trout EPS 1/RM/13 Page 1 of 2

Work Order :	242545
Sample Number :	63833

SAMPLE IDENTIFICATION

Company :	Agnico Eagle Mines Limited - Meliadine Project			
Location :	Rankin Inlet NU	Date Collected :	2020-06-14	
GPS location	63*02'15.5" 92*13'06.3'	Time Collected :	13:40	
Substance :	MEL-14	Date Received :	2020-06-18	
Sampling Method :	Grab	Time Received :	10:00	
Sampled By :	RS/LH	Temperature on Receipt :	22 °C	
Sample Description :	Clear, light yellow, mild odour.	Date Tested :	2020-06-18	
Test Method(s) :	Reference Method for Determining Acute	Lethality of Liquid Effluents to R	ainbow Trout.	

Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February 2016 amendments).

		96-HOUR TEST RESULTS		
Effect	Value	95% Confidence Limits	Statistical Method	
LC50	>100%	_	_	
	The results rep	orted relate only to the sample tested and	as received.	

	TEST ORGAN	USM		
Test Organism :	Oncorhynchus mykiss	Average Fork Length $(\pm 2 \text{ SD})$:	43.5 mm (±6.2)	
Organism Batch :	T20-13	Range of Fork Lengths :	38 - 49 mm	
Control Sample Size :	10	Average Wet Weight $(\pm 2 \text{ SD})$:	0.65 g (±0.25)	
Cumulative stock tank mortality rate :	0.1% (previous 7 days)	Range of Wet Weights :	0.45 - 0.78 g	
Control organisms showing stress : 0 (at test completion)		Organism Loading Rate :	0.4 g/L	
	TEST CONDIT	IONS		
Sample Treatment :	None	Volume Tested (L) :	16	
pH Adjustment :	None	Number of Replicates :	1	
Test Aeration :	Yes	Organisms Per Replicate :	10	
Pre-aeration/Aeration Rate :	$6.5 \pm 1 \text{ mL/min/L}$	Organisms Per Test Level :	10	

Duration of Pre-Aeration :	30 minutes	Test Method Deviation(s) :	None
	REFERENCE TOXIC	ANT DATA	
Toxicant : Organism Batch : LC50 : 95% Confidence Limits : Statistical Method :	Potassium Chloride T20-13 3464 mg/L 3207 - 3742 mg/L Linear Regression (MLE)	Date Tested : Historical Mean LC50 : Warning Limits (± 2SD) : Analyst(s) :	2020-06-18 3793 mg/L 2915 - 4934 mg/L MJT, MDH, TL

COMMENTS

•All test validity criteria as specified in the test method were satisfied.

Approved By : _____

Project Manager

AQUATOX

TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13

Page 2 of 2

Sample Number : Initial Water Chemi After 30 min pre-ae Date & Time Analyst(s) : Concentration (%) 100 50			ТЕ ST DA рН 7.1 7.2		Conductivity (µmhos/cm) 4961	(°C)	(%)*
After 30 min pre-ae Date & Time Analyst(s) : Concentration (%) 100	eration :		7.1	(mg/L)	(µmhos/cm)	(°C)	(%)*
After 30 min pre-ae Date & Time Analyst(s) : Concentration (%) 100	eration :						
After 30 min pre-ae Date & Time Analyst(s) : Concentration (%) 100	eration :		7 2		+201	16	93
Analyst(s) : Concentration (%) 100	2020.06.19		7.2	9.0	4981	16	97
Analyst(s) : Concentration (%) 100	2020 06 19			C			
Concentration (%) 100	2020-06-18 MDH	15:10	0 HOUR				
100	Dead	Impaired	pН	Dissolved O	Conductivity	Tomporatura	O. Saturation
	0	0	7.2	9.0	4981	16	97
50	ů 0	0	7.7	9.6	3118	10	_
25	ů 0	0	8.0	9.8	1994	14	_
12.5	Ő	0	8.1	9.6	1443	14	_
6.25	ů 0	0	8.2	9.5	1189	14	_
Control	Ő	0	8.2	9.8	880	14	100
Notes:	Ŭ	0	0.2	2.0	000	14	100
			24 HOUI	RS			
Date & Time Analyst(s) :	2020-06-19 FS	15:10					
Concentration (%) 100	Dead 0	Impaired 0	pH _	Dissolved O ₂	Conductivity	Temperature 15	
50	0	0	_	_	_	15	
25	ů 0	0	_	_	_	15	
12.5	ů 0	0	_	_	_	15	
6.25	0	0	_	_		15	
Control	0	0		_	_	15	
Notes:	0	0	_	_	_	15	
		1.5.10	48 HOUI	RS			
Date & Time Analyst(s) :	2020-06-20 FS	15:10				_	
Concentration (%)	Dead	Impaired	рН		Conductivity		
100	0	0	-	_	_	16	
50	0	0	-	-	_	16	
25	0	0	-	—	_	16	
12.5	0	0	—	—	_	16	
6.25	0	0	_	-	-	16	
Control	0	0	—	_	-	16	
Notes:							
			72 HOUI	RS			
Date & Time Analyst(s) :	2020-06-21 MDH	15:10					
Concentration (%)	Dead	Impaired	pH	Dissolved O ₂	Conductivity	-	
100	0	0	-	_	_	16	
50	0	0	-	_	-	16	
25	0	0	-	_	-	16	
12.5	0	0	-	_	_	16	
6.25	0	0	-	-	-	16	
Control	0	0	_	_	-	16	
Notes:							
			96 HOUI	RS			
Date & Time	2020-06-22	15:10	2011001				
Analyst(s) :	TL	-					
Concentration (%)	Dead	Impaired	pН	Dissolved O ₂	Conductivity	Temperature	
100	0	0	7.9	9.0	4952	16	
	ů 0	0	8.1	9.1	3101	16	
50	ů 0	0	8.2	9.1	1962	16	
	0						
25	0	0	82	91	1395	16	
25 12.5	0	0	8.2 8.2	9.1 9.1	1395 1145	16 16	
50 25 12.5 6.25 Control	0	0	8.2	9.1	1145	16	
25 12.5							

"-" = not measured/not required

Number impaired does not include number dead.

* adjusted for temperature and barometric pressure

 Test Data Reviewed By :
 AW

 Date :
 2020-06-23

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quaTox Work Order No:	2	
aTo	2	
망	N	

	RS/LH Name (print):		Affiliation: Agnico Eagle Mines - Meliadine	Sample Storage (prior to shipping): Refrigerator/cooler	Randy Schwandt quished by:	2020-06-15
P.O. Number: 644699	Field Sampler Name (print):	Signature:	Affiliation: Agnico Eag	Sample Storage (prior to shi	R Custody Relinquished by:	2020- Date/Time Shipped:

AquaTox Testing & Consultine	B-11 Nicholas Beaver Road
Shipping Address:	

Puslinch, Ontario Canada N0B 2J0 g Inc.

Fax: Voice: (519) 763-4412

(519) 763-4419

Agnico Eagle Meliadine Project Rankin Inlet, Nunavut, Canada Client:

Phone: (819) 759-3555

contact: Dan Gorton, Sean Arruda Fax:

Sample Method and Volume	# of Containers and Volume (eg. 2 x1L, 3 x 10L, etc.)	2 pails (40L)							
mple	etisoqmoD		-						
Sar	Grab	>							
	Microtox								
	Pseudokirchneriella Pseudokirchneriella Stata Growth								
	thwor Growth								
uested	Ceriodaphnia dubia Survival & Reproduction								
Analyses Requested	Fathead Minnow Survival & Growth								
Analys	050J angam ainnqaD	>							
	Daphnia magna Single Concentration								
	Rainbow Trout LC50	>							
	Rainbow Trout Single Concentration								
	Temp. on arrival	22	I want				the second		
	AquaTox Sample Number	63833		R				San and a second	
Sample Identification	Sample Name	MEL-14		1 11 me provided by Olie	Via emarch	Mr.			
	Time Collected (e.g. 14:30, 24 hr clock)	13:40		P					
	Date Collected (yyyy-mm-dd)	2020-06-14					-		

Add on certificate GPS location 63*02'15.5" 92*13'06.3" Please list any special requests or instructions: 21-00-0101 53G/FS For Lab Use Only Storage Temp.(°C) Storage Location: Received By: Date: Time:

01 TC Standard COC with Microtox reve 2016 

Work Order :

Sample Number :

Fax 242603

63909

AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419 TOXICITY TEST REPORT

Daphnia magna EPS 1/RM/14 Page 1 of 2

SAMPLE IDENTIFICATION

Company :	Agnico Eagle Mines Limited - Meliadine Project	Date Collected :	2020-06-21
Location :	Rankin Inlet NU	Time Collected :	13:37
GPS Location:	63*02'15.5" 92*13'06.3"	Date Received :	2020-06-25
Substance :	MEL-14	Time Received :	09:45
Sampling Method :	Grab	Temperature on Receipt :	20 °C
Sampled By :	D.M., G. L.	Date Tested :	2020-06-25
Sample Description	: Clear, yellow, mild odour.		

Test Method :Reference Method for Determining Acute Lethality of Effluents to Daphnia magna . Environment
Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments).

		48-HOUR TEST RESULTS	
Effect	Value	95% Confidence Limits	Calculation Method
LC50 EC50	>100% >100%		- -

The results reported relate only to the sample tested and as received.

TEST ORGANISM Species : Daphnia magna Time to First Brood : 8.2 days Dm20-12 Organism Batch : Average Brood Size : 41.4 young Culture Mortality : 3.2% (previous 7 days) **TEST CONDITIONS** None Number of Replicates : Sample Treatment : 1 pH Adjustment : None Organisms / Replicate : 10 Pre-aeration Rate : ~30 mL/min/L Organisms / Test Level : 10 Duration of Pre-Aeration : 0 minutes Organism Loading Rate : 15.0 mL/organism Test Aeration : None Impaired Control Organisms : 0.0% Test Method Deviation(s) : Hardness Adjustment : None None **REFERENCE TOXICANT DATA** Sodium Chloride Toxicant: Historical Mean LC50 : 6.4 g/L Date Tested : 2020-06-23 Warning Limits $(\pm 2SD)$: 5.5 - 7.4 g/L LC50: Organism Batch : Dm20-12 5.9 g/L 95% Confidence Limits : 5.6 - 6.2 g/L Analyst(s) : JCS Statistical Method : Spearman-Kärber

COMMENTS

All test validity criteria as specified in the test method were satisfied.

Approved By :

Project Manager



242603

63909

Work Order:

Sample Number:

Page 2 of 2

TEST DATA

				pН	Dissolved O ₂ (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O ₂ Saturation (%)*	Hardness (as CaCO ₃)
Iı	nitial W	ater Chemist	try (100%) :	7.2	8.4	4920	19	96	>1000 mg/L
				0	hours				
Date & Time Analyst(s) :		2020-06-25 JCS (AW)	16:05						
Concentration ((%)	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature	O2 Saturation*	Hardness
100		0	0	7.2	8.4	4920	19	96	>1000
50		0	0	7.8	8.5	2803	19	_	_
25		0	0	8.0	8.6	1835	19	_	_
12.5		0	0	8.1	8.7	1325	19	_	_
6.25		0	0	8.2	8.7	1020	19	_	_
Control		0	0	8.6	8.9	758	19	100	220
Notes:									
				24	hours				
Date & Time Analyst(s) :		2020-06-26 SV	16:05						
Concentration ((%)	Dead	Immobile	рН	Dissolved O ₂	Conductivity	Temperature		
100		-	0	_	_	_	20		
50		-	0	_	_	_	20		
25		-	0	_	_	_	20		
12.5		-	0	_	_	_	20		
6.25		-	0	_	_	_	20		
Control		-	0	_	_	_	20		
Notes:									
				48	hours				
Date & Time Analyst(s) :		2020-06-27 SV	16:05						
Concentration (%)	Dead	Immobile	pН	Dissolved O ₂	Conductivity	Temperature		
100		0	0	8.1	8.3	4910	20		
50		0	0	8.2	8.3	2723	20		
25		0	0	8.3	8.3	1780	20		
12.5		0	0	8.4	8.4	1289	20		
6.25		0	0	8.4	8.4	1013	20		
Control		0	0	8.5	8.5	761	20		
Notes:									

Number immobile does not include number dead.

"_" = not measured/not required

Test Data Reviewed By : EJS Date : 2020-06-30

* adjusted for temperature and barometric pressure



242603

Work Order :

AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2J0 Tel. (519) 763-4412 Fax. (519) 763-4419 TOXICITY TEST REPORT

Rainbow Trout EPS 1/RM/13 Page 1 of 2

		SAMPLE IDENT	TIFICATION	
Company :	Agnico Eagle M	lines Limited - Meliadine Pro	piect Date Collected :	2020-06-21
Location :	Rankin Inlet N		Time Collected :	13:37
GPS Location:	63*02'15.5" 92		Date Received :	2020-06-25
Substance :	MEL-14	15 00.5	Time Received :	09:45
Sampling Method :	Grab		Temperature on Receip	
Sampled By :	D.M., G. L.		Date Tested :	2020-06-25
Sample Description :		nild odour.		2020 00 20
Test Method(s) :	Reference Meth	od for Determining Acute Le	thality of Liquid Effluents to Rainb	oow Trout. Environmen
		-	per 2000, with May 2007 and Februa	
		96-HOUR TEST	Γ RESULTS	
Effect	Value	95% Confidence	ce Limits Statistical Me	thod
LC50	>100%	_	-	
	The	results reported relate only to th	e sample tested and as received.	
		TEST ORG	ANISM	
Test Organism :		Oncorhynchus mykiss	Average Fork Length (± 2 SD) :	43.0 mm (±7.5)
Organism Batch :		T20-13	Range of Fork Lengths :	37 - 48 mm
Control Sample Size		10	Average Wet Weight $(\pm 2 \text{ SD})$:	0.67 g (±0.36)
Cumulative stock tanl	•	0% (previous 7 days)	Range of Wet Weights :	0.43 - 0.90 g
Control organisms sho	owing stress :	0 (at test completion)	Organism Loading Rate :	0.3 g/L
		TEST CONI	DITIONS	
Sample Treatment :		None	Volume Tested (L) :	20
pH Adjustment :		None	Number of Replicates :	1
Test Aeration :		Yes	Organisms Per Replicate :	10
Pre-aeration/Aeration		$6.5 \pm 1 \text{ mL/min/L}$	Organisms Per Test Level :	10
Duration of Pre-Aera	tion :	30 minutes	Test Method Deviation(s) :	None
		REFERENCE TOX	XICANT DATA	
		Potassium Chloride	Date Tested :	2020-06-18
		T20-13	Historical Mean LC50 :	3793 mg/L
Organism Batch :				2015 4024 mm m/I
Organism Batch : LC50 :		3464 mg/L	Warning Limits $(\pm 2SD)$:	2915 - 4934 mg/L
Toxicant : Organism Batch : LC50 : 95% Confidence Lim Statistical Method :	its :		Warning Limits (± 2SD) : Analyst(s) :	MJT, MDH, TL

•All test validity criteria as specified in the test method were satisfied.

Approved By : _____

Project Manager



TOXICITY TEST REPORT

Rainbow Trout

EPS 1/RM/13

Page 2 of 2

Work Order : Sample Number :	242603 63909						
Sample Number .	03909		TEST DA	ТА			
			рН	Dissolved O ₂ (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O ₂ Saturation (%)*
Initial Water Chem	istry (100%) :		7.0	(ilig/L) 8.4	4859	16	91
After 30 min pre-ae	• • •		7.1	8.9	4875	16	97
				~			
			0 HOUR	lS			
Date & Time Analyst(s) :	2020-06-25 KP/MDH	15:00					
Concentration (%)	Dead	Impaired	pH	Dissolved O ₂	Conductivity	Temperature	O ₂ Saturation ⁴
100	0	0	7.1	8.9	4875	16	97
0	0	0	7.8	9.3	2882	16	-
25	0	0	8.0	9.4	1938	16	-
12.5	0	0	8.1	9.4	1434	16	-
6.25	0	0	8.1	9.3	1179	16	-
Control	0	0	8.1	9.2	876	16	100
Notes:							
			24 HOUI	RS			
Date & Time	2020-06-26	15:00	24 11001				
Analyst(s) : Concentration (%)	MJT(FS) Dead	Impaired	рН	Dissolved O	Conductivity	Temneratura	
100	0	0 0	- -			15	
0	0	0	_	_	_	15	
25	0	0	_	_	_	15	
12.5	0	ů 0	_	_	_	15	
6.25	0	0	_	_	_	15	
Control	0	0	_	_	-	15	
Notes:							
			48 HOUI	RS			
Date & Time	2020-06-27	15:00					
Analyst(s) :	MJT(FS)	T	п	N: 1 10	C L <i>i</i> i i	TT (
Concentration (%) 100	Dead 0	Impaired 0	pH _	Dissolved O ₂	Conductivity	15	
0	0	0	-	_	—	15	
25	0	0	_	_	_	15	
12.5	0	0	_	_	_	15	
6.25	0	0	_	_	_	15	
Control	0	0	_	_	_	15	
Notes:	Ŭ	Ũ				10	
			72 HOUI	25			
Date & Time	2020-06-28	15:00	72 11001	A.S			
Analyst(s) :	2020-00-20 TL	15.00					
Concentration (%)	Dead	Impaired	pH	Dissolved O ₂	Conductivity	Temperature	
100	0	0	-	_	_ `	15	
0	0	0	_	_	_	15	
25	0	0	-	_	-	15	
12.5	0	0	-	_	-	15	
6.25	0	0	-	_	-	15	
Control	0	0	-	-	-	15	
Notes:							
			96 HOUI	KS			
Date & Time	2020-06-29	15:00					
Analyst(s) :	TL	. .			· ·		
Concentration (%)	Dead	Impaired	рН 7 0		Conductivity		
100	0	0	7.9	9.1	4854	16	
0	0	0	8.2	9.1	2870	16 16	
25	0	0	8.2	9.2	1925	16 16	
12.5 6.25	0 0	0 0	8.2	9.2	1406	16 16	
6.25 Control	0	0	8.2 8.2	9.2 9.1	1147 866	16 16	
Notes:	U	0	0.2	9.1	000	10	
"_" = not measured/r	not required				Test Data Re	eviewed By :	EJS
Number impaired do	es not include num	ber dead.			Date :	2020	-06-30
adjusted for temper							

* adjusted for temperature and barometric pressure

С	ł	۰,	4	1	N	0	F	С	U	S	Т	0	D	Y	R	RE	С	0	R	D	

AQUATOX

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a	TAK	\mathbf{D}		

P.O. Number: 644699	201
DM/GL	
Field Sampler Name (print):	5
Signature:	
Affiliation: Agnico Eagle Mines - Meliadine	199 19
Sample Storage (prior to shipping): Refrigerator/cooler	
Daphne Morin	9
Custody Relinquished by:	
2020-06-22	· · · ·
Date/Time Shipped:	1

Shipping Address: AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, Ontario Canada N0B 2J0

Voice: (519) 763-4412

Fax: (519) 763-4419

^{Client:} Agnico Eagle Meliadine Project Rankin Inlet, Nunavut, Canada

Phone: (819) 759-3555

Fax:

contact: Dan Gorton, Sean Arruda

Sample Identification						Analyses Requested							Sample Method and Volume			
Date Collected (yyyy-mm-dd)	Time Collected (e.g. 14:30, 24 hr clock)	Sample Name	AquaTox Sample Number	Temp. on arrival	Rainbow Trout Single Concentration	Rainbow Trout LC50	Daphnia magna Single Concentration	Daphnia magna LC50	Fathead Minnow Survival & Growth	Ceríodaphnia dubia Survival & Reproduction	Lemna minor Growth	Pseudokirchneriella subcapitata Growth	Microtox	Grab	Composite	# of Containers and Volume (eg. 2 x 1L, 3 x 10L, etc.)
2020-06-2	13: 37	MEL-14	63909			\checkmark		1						1		2 pails (40L)
		f														
1					1											4
					5											
																К., С.
193.																THE Common Alia
		· ·		0												

For Lab Use	Only 02 11 1151
Received By:	Cert MI
Date:	-2020/06/25
Time:	9:45
Storage Location:	
Storage Temp.(°C)	

	Please	list	any	special	requests o	r instructions:
- 11						

Add on certificate GPS location 63*02'15.5" 92*13'06.3"



AquaTox Testing & Consulting Inc. B-11 Nicholas Beaver Road Puslinch, ON NOB 2JO Tel. (519) 763-4412 Fax. (519) 763-4419

PRELIMINARY acute lethality report summary

Work Order : 242677

Sara Savoie Agnico Eagle Mines Limited - Meliadine Project Meliadine Division Rankin Inlet NU X0C 0G0

RESULIS								
Substance	Date Collected	Date Tested	Species / Test	LC50	Mortality in 100% Concentration (%)			
MEL-14	2020-06-28	2020-07-06	RBT LC50	>100%	0			
	2020-06-28	2020-07-06	Dm LC50	>100%	0			

RESULTS

RBT = rainbow trout Dm = *Daphnia magna* * = pH Stabilized SC = single concentration

Test Protocols

Reference Method for Determining Acute Lethality of Effluents to Daphnia magna. Environment Canada EPS 1/RM/14 (Second Edition, December 2000, with February 2016 amendments)

Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007 and February 2016 amendments).

Although test results are generated under strict QA/QC protocols, the results provided herein, along with any unsigned test reports, faxes, or emails are considered preliminary.

ATTACHMENT B-3



www.bvlabs.com

BUREAU VERITAS LABORATORIES Office 604 734 7276 4606 Canada Way Burnaby, BC V5G 1K5

Toll Free 800 665 8566 Fax 604 731 2386

FATHEAD MINNOW TOXICITY **TEST ON:**

MEL-13-01, MEL-13-07,& MEL-02-05

Prepared for:

Agnico Eagle Mines Ltd. 10200, Route de Preissac Rouyn-Noranda, QC JOY 1C0

Prepared by:

Ecotoxicology Group Bureau Veritas Laboratories

Job No.: C039804 July 2020



Summary of Test Results for Samples from Agnico Eagle Mines Ltd Job C039804

Sample: MEL-13-01

Test		IC25 or LO	C25 (%v/v)	IC50 or LC50 (%v/v)		
Fathead minnow:	Survival Biomass		- I/A, N/A)	>100 (N	,	
Significant Effect	VS	MEL-03-02	MEL-04-05	MEL-05-04	Pooled references	
Fathead minnow:	Survival Biomass	No No	No No	No No	No No	

N/A = Not available

95% confidence limits in parentheses

Sample: MEL-13-07

Test		IC25 or LO	C25 (%v/v)	IC50 or LC50 (%v/v)		
Fathead minnow:	Survival Biomass		- I/A, N/A)	>100 (N/A, N/A)		
Significant Effect vs		MEL-03-02	MEL-04-05	MEL-05-04	Pooled references	
Fathead minnow:	Survival Biomass	No No	No No	No No	No No	



Summary of Test Results for Samples from Agnico Eagle Mines Ltd Job C039804

Sample: MEL-02-05								
Significant Effect vs		MEL-03-02	MEL-04-05	MEL-05-04	Pooled references			
Fathead minnow:	Survival Biomass	No No	No No	No No	No No			
N/A = Not available 95% confidence lin	-	theses						
Sample: Site Con	trol (Synthe	etic Control)						
Significant Effect	vs	MEL-03-02	MEL	-04-05	MEL-05-04			
Fathead minnow:	Survival Biomass	No No		No No	No No			



Client Name/Location	Agnico-Eagles Mines Ltd. / Rouyn-Noranda, QC
Testing Lab/Location	Bureau Veritas Laboratories / Burnaby, BC
Collection Approach	6 samples, each split into 3-6 subsamples
Sample	
Sample Names	MEL-13-01, MEL-13-07, MEL-02-05, MEL-03-02, MEL-04- 05, and MEL-05-04
Information on labelling/coding	See Chain of Custody form
Sample collection date (y/m/d)	2020/June/06 & 2020/June/07
Date (y/m/d)/time of sample receipt at lab	2020/Jun/11 @ 08:20
Test Organisms Imported from External Supplier	The Environment Canada document on the importation of test organisms has been followed (September 1999)
Species	Pimephales promelas
Source	Aquatic Bio Systems Inc., Fort Collins, CO.
Age at start of test	<24 hour old larvae
Unusual appearance, behaviour, or treatment of larvae by supplier before shipping or by lab immediately preceding the test	See organism supplier letter and Organism History sheet from Aquatic Biosystems Inc., and Acclimation and Holding Conditions sheet
Swim bladders inflated & actively feeding	Bladders were inflated and larvae were actively feeding
Temp. & DO of shipping water immediately before shipped and upon arrival	See Organism History sheet from Aquatic Biosystems Inc. and Acclimation and Holding Conditions sheet
Acclimation rate & procedure	See Acclimation and Holding Conditions sheet for details.
Culturing conditions	There were no deviations from test-method-specific "must" requirements for culturing of test organisms, facilities, apparatus used for culturing test organisms, and culture/holding-water conditions.
Mortality upon arrival and 24h preceding test	See Acclimation and Holding Conditions sheet
Test Conditions & Facilities	
Test method	EPS 1/RM/22 Second Edition – February 2011
	BBY2SOP-00002 Fathead Minnow 7 Day Survival and Growth Test
Dates or days when subsamples used	See Test Observations sheet
Date for test start (y/m/d)	2020/Jun/12
Date for test completion (y/m/d)	2020/Jun/19

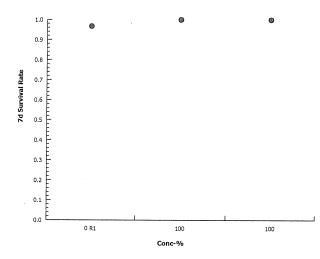
Test vessels	600mL polypropylene plastic beakers
Persons performing test	Y. Su, M. Brassil, M. Hamad, N. Shergill, M. O'Toole
Rate of preaeration	<100 bubbles/min
Duration of preaeration	See Test Observations sheet
Duration/rate of aeration during test	No aeration
pH adjustment procedure	No pH adjustment of samples
Filtration procedure	No filtration of samples
Control/dilution water	Lab Control: Deionized water hardened to 140 mg/L CaCO3
	Site Water (Synthetic water): Deionized water mixed with various chemicals as per client's request
	Soft water control: Lab Control water diluted with deionized water to 40 mg/L CaCO $_3$
Type & quantity of chemicals added to control/dilution water	NaHCO ₃ , CaSO ₄ , MgSO ₄ , and KCl in the ratio of 1.6:0.8:1.0:0.07
Number and conc. of test solutions	7 (100, 50, 25, 12.5, 6.25, 3.13 and 1.56%v/v) plus a control
Volume and depth of solution	250 mL & 4.5 cm depth
Number of replicates per conc.	3
Number of organisms per test vessel	10
Type of food, frequency of feeding, and ration of food delivered to each replicate	50uL of concentrated, live <i>Artemia</i> nauplii (<24 hours old) was fed to each replicate twice daily; 2 hours prior to water renewal and in the afternoon following water renewal
	Ration of food is decreased by half in any replicate with ≤5 surviving fish
Manner & rate of exchange of test solutions	Daily - 80% of solution was removed with debris and uneaten <i>Artemia</i>
DO & Temperature of sample just before its use	See Test Observations sheet
Conductivity, Temperature, DO, & pH of test solutions and controls at the beginning of the 24-hr period	See Water Quality Measurements sheet; 'initial' water quality measurements
Temperature, DO & pH of test solutions and controls at the end of the 24-hr period	See Water Quality Measurements sheet; 'final' water quality measurements

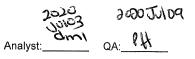
Test observations and/or deviations from test method and standard practices	There was nothing unusual about the tests, no deviations from the test method, and no problems with the tests.			
Results	Results contained in this report refer only to the testing of samples as submitted.			
Survival endpoint statistics				
Name and citation of program(s) and	CETIS v1.9.2.4:			
methods used for calculating statistical endpoint(s)	Linear Interpolation (ICPIN)			
statistical enopoint(s)	Fisher Exact Test			
Behaviour, number & percent mortality in each test vessel	See Test Observations sheet and Survival Data sheet			
Mean (±SD) percent mortality for each treatment	See Survival Data sheet			

Percent of control fish which either appear moribund, display loss of equilibrium or show atypical swimming behaviour	0 % appeared abnormal in any way. See Test Observations sheet		
Growth (Biomass) endpoint statistics			
Name and citation of program(s) and methods used for calculating statistical endpoint(s)	CETIS v1.9.2.4: Linear Interpolation (ICPIN) Equal Variance t Two-Sample Test		
Weighting techniques applied?	N/A		
Residuals Analysis	N/A		
Outliers?	None		
QA			
Did the test pass the validity criteria of:	Yes:		
 ≤ 20% mortality and abnormality in controls Average dry weight of ≥ 250 µg in the controls Reference Toxicant test: LC50 (95% CL) (g NaCl/L) for survival 	 Percent mortality and abnormality: MEL-13-01: 0% MEL-13-07: 0% MEL-02-05: 0% MEL-03-02: 0% MEL-04-05: 0% MEL-05-04: 0% Average dry weight : MEL-13-01: 497 µg MEL-13-07: 573 µg MEL-02-05: 554 µg MEL-03-02: 554 µg MEL-04-05: 554 µg MEL-05-04: 554 µg 7.0 (6.5, 7.6) 		
Reference toxicant test historic mean & 2SD range (g NaCl/L) for survival	6.7; 2SD range: (5.5, 8.0)		
Reference Toxicant test: IC50 (95% CL) (g NaCl/L) for biomass	6.4 (5.9, 6.9)		
Reference toxicant test historic mean & 2SD range (g NaCl/L) for biomass	6.2; 2SD range: (5.3, 7.2)		
Invalid Reference toxicant test?	No		
Date of Reference toxicant test (y/m/d) and test duration	2020 June 12 7 days		
Conditions of reference toxicant test	Same as test conditions, same batch of organisms		

Report Date:	03 Jul-20 12:44 (p 1 of 1)
Test Code:	PP-10735-0220 20-2104-0068

Fathead Minno	w 7-d Larval S	urvival and (Growth 1	Test					Bureau Veritas Laboratories
nalysis ID:	19-3214-2414	Endp	oint: 70	d Survival Ra	te		CETIS Ve	rsion:	CETISv1.9.2
Analyzed:	19 Jun-20 17:1	8 Analy	/ sis: Si	ingle 2x2 Cor	ntingency Ta	ble	Official Re	esults:	Yes
Batch ID: 1	3-1526-7178	Test	Type: G	rowth-Surviva	al (7d)		Analyst:	M. Han	nad
Start Date: 1	2 Jun-20 13:30	Proto	col: E	C/EPS 1/RM/	22		Diluent:	Recons	stituted Water
Ending Date: 1	9 Jun-20 16:07	Spec	ies: Pi	imephales pro	omelas		Brine:	Not Ap	plicable
Duration: 7	'd 3h	Sourc	ce: Ad	quatic Biosys	tems, CO		Age:		
Sample ID: 1	1-2996-7815	Code	: C(039804			Client:	Agnico	Eagle Mines
Sample Date: 0)7 Jun-20	Mater	rial: W	/ater			Project:	Ū.	
Receipt Date: 1	1 Jun-20 08:20	Sourc	ce: Ag	gnico Eagle N	/lines		-		
Sample Age: 5	id 14h	Static	on: M	EL 13-01					
Ref1 is Mel-03-0			s Mel-05-	04.			Comparison B		
Untransformed				Comparison Result 100% passed 7d survival rate					
ontransformed		0 - 1					100% passed 7	u survivai	
Fisher Exact Te	st								
Control vs			Test Stat	t P-Type	P-Value	Decision(a	::5%)		
Fisher Exact Te Control vs Ref 1			Test Stat 1.0000	t P-Type Exact	P-Value 1.0000	Decision(a Non-Signific			
Control vs	Group								
Control vs Ref 1 Data Summary	Group								
Control vs Ref 1	Group 100	NR	1.0000	Exact	1.0000	Non-Signific	cant Effect		
Control vs Ref 1 Data Summary Conc-% 0	Group 100 Code	NR 29	1.0000 R	Exact NR + R	1.0000 Prop NR	Non-Signific Prop R 0.03333	cant Effect %Effect		
Control vs Ref 1 Data Summary Conc-% 0 100	Group 100 Code R1	NR 29	1.0000 R 1	Exact NR + R 30	1.0000 Prop NR 0.9667	Non-Signific Prop R 0.03333	Cant Effect %Effect 0.0%		
Control vs Ref 1 Data Summary Conc-% 0 100	Group 100 Code R1	NR 29 30	1.0000 R 1	Exact NR + R 30	1.0000 Prop NR 0.9667	Non-Signific Prop R 0.03333	Cant Effect %Effect 0.0%		
Control vs Ref 1 Data Summary Conc-% 0 100 7d Survival Rate	Group 100 Code R1 e Detail	NR 29 30 0 Rep 1 1	1.0000 R 1 0	Exact NR + R 30 30	1.0000 Prop NR 0.9667	Non-Signific Prop R 0.03333	Cant Effect %Effect 0.0%		

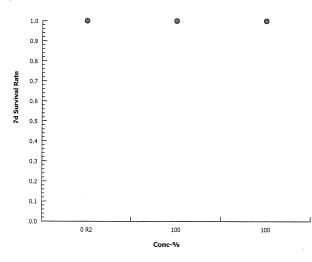


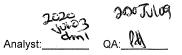


Report Date:	03 Jul-20 12:44 (p 1 of 1)
Test Code:	PP-10735-0220 20-2104-0068

Fathead Min	now 7-d Larval	Survival ar	id Growth	lest					Bureau Veritas La	boratorie
nalysis ID: Analyzed:	07-6206-0559 19 Jun-20 17			7d Survival Ra Single 2x2 Col		able	CETIS Ve Official R		CETISv1.9.2 Yes	
Batch ID:	13-1526-7178	Te	st Type:	Growth-Surviv	al (7d)		Analyst:	M. Ha	amad	
Start Date:	12 Jun-20 13:3	30 Pr	otocol:	EC/EPS 1/RM	/22		Diluent:	Reco	instituted Water	
Ending Date:	e: 19 Jun-20 16:0)7 Sp	ecies:	Pimephales pr	romelas		Brine:	Not A	Applicable	
Duration:	7d 3h	So	urce:	Aquatic Biosys	stems, CO		Age:			
Sample ID:	11-2996-7815	Co	de:	C039804			Client:	Agnio	co Eagle Mines	
Sample Date	e: 07 Jun-20	Ма	iterial:	Water			Project:	-	-	
Receipt Date	e: 11 Jun-20 08:2	20 So	urce:	Agnico Eagle I	Mines					
Sample Age:	: 5d 14h	Sta	ation:	MEL 13-01						
Data Transfo		Alt Hyp	3 is Mel-0	5-04.			Comparison R			
Data Transfo Untransforme	orm		3 is Mel-0	5-04.			Comparison R 100% passed 7		val rate	
Data Transfo Untransforme	orm	Alt Hyp	3 is Mel-0	5-04.					val rate	
Data Transfo Untransforme Fisher Exact Control	orm ed t Test vs Group	Alt Hyp	Test St		P-Value	Decision	100% passed 7 (α: 5%)		val rate	
Data Transfo Untransforme Fisher Exact Control	orm ed t Test	Alt Hyp			P-Value 1.0000		100% passed 7		/al rate	
Data Transfo Untransformer Fisher Exact Control Ref 2	orm ed t Test vs Group 100	Alt Hyp	Test St	at P-Type			100% passed 7 (α: 5%)		val rate	
Data Transfo Untransforme Fisher Exact	orm ed t Test vs Group 100	Alt Hyp	Test St	at P-Type			100% passed 7 (α: 5%)		/al rate	
Data Transfo Untransformer Fisher Exact Control Ref 2 Data Summar	orm ed t Test vs Group 100 ary	Alt Hyp C > T	Test St 1.0000	at P-Type Exact	1.0000	Non-Signi	100% passed 7 (α: 5%) ficant Effect		/al rate	
Data Transfo Untransforme Fisher Exact Control Ref 2 Data Summar Conc-% 0	orm ed t Test vs Group 100 ary Code	Alt Hyp C > T	Test St 1.0000 R	at P-Type Exact NR + R	1.0000 Prop NR	Non-Signi Prop R	100% passed 7 (α:5%) ficant Effect %Effect		val rate	
Data Transfo Untransformer Fisher Exact Control Ref 2 Data Summar Conc-% 0 100	orm ed t Test vs Group 100 ary Code R2	Alt Hyp C > T NR 30	Test St 1.0000 R 0	at P-Type Exact NR + R 30	1.0000 Prop NR 1	Non-Signi Prop R 0	100% passed 7 (α:5%) ficant Effect %Effect 0.0%		/al rate	
Data Transfo Untransformer Fisher Exact Control Ref 2 Data Summar Conc-% 0 100	orm ed t Test vs Group 100 ary Code R2	Alt Hyp C > T NR 30	Test St 1.0000 R 0	at P-Type Exact NR + R 30	1.0000 Prop NR 1	Non-Signi Prop R 0	100% passed 7 (α:5%) ficant Effect %Effect 0.0%		/al rate	
Data Transfo Untransformer Fisher Exact Control Ref 2 Data Summar Conc-% 0 100 7d Survival R	orm ed t Test vs Group 100 ary Code R2 Rate Detail	Alt Hyp C > T NR 30 30	Test St 1.0000 R 0 0	Exact NR + R 30 30	1.0000 Prop NR 1	Non-Signi Prop R 0	100% passed 7 (α:5%) ficant Effect %Effect 0.0%		val rate	





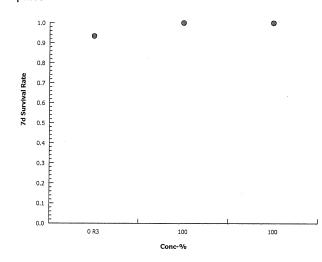


Report Date:	03 Jul-20 12:44 (p 1 of 1)
Test Code:	PP-10735-0220 20-2104-0068

Fathead Mini	now 7-	d Larval S	urvival and	d Growt	h Tes	t .					Bureau Veritas Laboratorie
`nalysis ID:		111-9604		lpoint:		urvival Rat				Version:	
Analyzed:	19 J	lun-20 17:1	8 Ana	lysis:	Sing	le 2x2 Con	itingency Ta	ble	Officia	Results	: Yes
Batch ID:	13-15	526-7178	Tes	t Type:	Grow	vth-Surviva	al (7d)		Analys	t: M. I	Hamad
Start Date:	12 Ju	ın-20 13:30	Pro	tocol:	EC/E	EPS 1/RM/	22		Diluent	: Rec	constituted Water
Ending Date:	19 Ju	ın-20 16:07	Spe	cies:	Pime	ephales pro	omelas		Brine:	Not	Applicable
Duration:	7d 3	h	Soι	irce:	Aqua	atic Biosys	tems, CO		Age:		
Sample ID:	11-29	96-7815	Cod	le:	C039	9804			Client:	Agn	nico Eagle Mines
Sample Date:	: 07 Ju	in-20	Mat	erial:	Wate	er			Project	:	
Receipt Date:	: 11 Ju	in-20 08:20	Sou	irce:	Agnio	co Eagle N	lines				
Sample Age:	5d 14	4h	Stat	tion:	MEL	13-01					
Comments:											
Ref1 is Mel-03	3-02. R	ef2 is Mel-0	04-05. Ref3	is Mel-0)5-04.						
	Mar 14 - 14 - 14 - 14 - 14 - 14 - 14 - 14	ef2 is Mel-0	,	is Mel-0	05-04.				Comparisor	n Result	
Data Transfo	rm	ef2 is Mel-(04-05. Ref3 Alt Hyp C > T	is Mel-C	05-04.				Comparisor 100% passe		ival rate
Data Transfor Untransformed	rm d	ef2 is Mel-(Alt Hyp	is Mel-0	05-04.						ival rate
Data Transfor Untransformed Fisher Exact	rm d	ef2 is Mel-(Alt Hyp			Р-Туре	P-Value	Decision	100% passe		rival rate
Data Transfor Untransformed Fisher Exact Control	rm d Test		Alt Hyp		Stat		P-Value 1.0000		100% passe		ival rate
Data Transfor Untransformed Fisher Exact Control Ref 3	rm d Test vs	Group	Alt Hyp	Test S	Stat	Р-Туре			100% passe (α:5%)		ival rate
Data Transfor Untransformed Fisher Exact Control Ref 3 Data Summar	rm d Test vs	Group	Alt Hyp	Test S	Stat	Р-Туре			100% passe (α:5%)		ival rate
Ref1 is Mel-03 Data Transfor Untransformed Fisher Exact Control Ref 3 Data Summar Conc-%	rm d Test vs y	Group 100	Alt Hyp C > T	Test S 1.0000	Stat	P-Type Exact	1.0000	Non-Signi	100% passe (α: 5%) ficant Effect		ival rate
Data Transfor Untransformed Fisher Exact Control Ref 3 Data Summar Conc-%	rm d Test vs y	Group 100 Code	Alt Hyp C > T NR	Test S 1.0000	Stat	P-Type Exact NR + R	1.0000 Prop NR	Non-Signi Prop R	100% passe (α:5%) ficant Effect %Effect		ival rate
Data Transfor Untransformed Fisher Exact Control Ref 3 Data Summar Conc-%	rm d Test vs	Group 100 Code R3	Alt Hyp C > T NR 28	Test S 1.0000 R 2	Stat	P-Type Exact NR + R 30	1.0000 Prop NR 0.9333	Non-Signi Prop R 0.06667	100% passe (α: 5%) ficant Effect %Effect 0.0%		ival rate
Data Transfor Untransformed Fisher Exact Control Ref 3 Data Summar Conc-% 0 100	rm d Test vs y y ate De	Group 100 Code R3	Alt Hyp C > T NR 28	Test S 1.0000 R 2	Stat	P-Type Exact NR + R 30	1.0000 Prop NR 0.9333	Non-Signi Prop R 0.06667	100% passe (α: 5%) ficant Effect %Effect 0.0%		ival rate

Graphics

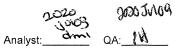
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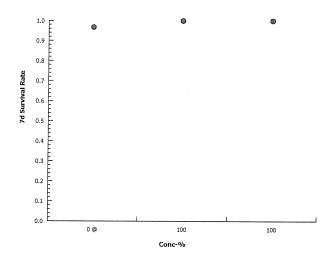
1.0000

1.0000

1.0000



											D		
Fathead M	innow	7-d Larval S	Survival a	nd Growt	h Test						Бигеа	u Verita	is Laboratori
\nalysis ID): 13	-4579-2189	Eı	ndpoint:	7d Survival Ra	ate		CE	TIS Versi	ion:	CETIS	1.9.2	
Analyzed:	19) Jun-20 17:2	23 A i	nalysis:	Single 2x2 Co	ntingency Ta	able	Off	icial Res	ults:	Yes		
Batch ID:	13-	1526-7178	Te	est Type:	Growth-Surviv	/al (7d)		Ana	alyst:	M. Ha	imad		
Start Date:	12	Jun-20 13:30) Pr	otocol:	EC/EPS 1/RM	1/22			-	Recor	nstituted	Water	
Ending Dat	te: 19	Jun-20 16:07	Ś Sp	pecies:	Pimephales p	romelas		Bri	ne:	Not A	pplicable	•	
Duration:	7d	3h	Sc	ource:	Aquatic Biosy	stems, CO		Age	ə:				
Sample ID:	11-	2996-7815	Co	ode:	C039804			Clie	ent:	Aanico	o Eagle I	Mines	
Sample Dat	te: 07 .	Jun-20	Ма	aterial:	Water			Pro	ject:	0	J		
Receipt Dat	te: 11 .	Jun-20 08:20) Sc	ource:	Agnico Eagle	Mines							
Sample Age	e: 5d	14h	St	ation:	MEL 13-01								
Comments	•	Dof2 in Mal	04.05 00	f2 io Mol (25.04								
Ref1 is Mel- Data Transt	-03-02. form	Ref2 is Mel-	Alt Hyp		05-04.				ison Res				
Ref1 is Mel- Data Transf Untransform	-03-02. form ned				05-04.				ison Res ssed 7d s		al rate		
Ref1 is Mel- Data Transt Untransform Fisher Exac	form ned		Alt Hyp					100% pa			al rate		
Ref1 is Mel- Data Transt Untransform Fisher Exac Group 1	-03-02. form ned	Group	Alt Hyp	Test S	Stat P-Type	P-Value	Decision	100% pa (α:5%)	ssed 7d s		al rate		
Ref1 is Mel- Data Transt Untransform Fisher Exac Group 1	form ned		Alt Hyp		Stat P-Type	P-Value 1.0000		100% pa	ssed 7d s		al rate		
Ref1 is Mel- Data Transt Untransform Fisher Exac	form ned ct Test vs	Group	Alt Hyp	Test S	Stat P-Type			100% pa (α:5%)	ssed 7d s		al rate		
Ref1 is Mel- Data Transf Untransform Fisher Exac Group 1 0	form ned ct Test vs	Group	Alt Hyp	Test S	Stat P-Type			100% pa (α:5%)	ssed 7d s		al rate		
Ref1 is Mel- Data Transf Untransform Fisher Exac Group 1 0 Data Summ Conc-%	form ned ct Test vs	Group 100	Alt Hyp C > T	Test S 1.0000	Stat P-Type D Exact	1.0000	Non-Signi	100% pa (α:5%) ificant Effec	ssed 7d s		al rate		
Ref1 is Mel- Data Transf Untransform Fisher Exac Group 1 0 Data Summ Conc-% 0	form ned ct Test vs	Group 100 Code	Alt Hyp C > T NR	Test S 1.0000 R	Stat P-Type D Exact NR + R	1.0000 Prop NR	Non-Signi Prop R	100% pa (α:5%) ficant Effect	ssed 7d s		al rate		
Ref1 is Mel- Data Transf Untransform Fisher Exac Group 1 0 Data Summ Conc-% 0 100	form ned ct Test vs	Group 100 Code @	Alt Hyp C > T NR 87	Test S 1.0000 R 3	Stat P-Type D Exact NR + R 90	1.0000 Prop NR 0.9667	Non-Signi Prop R 0.03333	100% pa (α:5%) flicant Effect %Effect 0.0%	ssed 7d s		al rate		
Ref1 is Mel- Data Transf Untransform Fisher Exac Group 1 0 Data Summ	form ned ct Test vs	Group 100 Code @	Alt Hyp C > T NR 87	Test S 1.0000 R 3	Stat P-Type D Exact NR + R 90	1.0000 Prop NR 0.9667	Non-Signi Prop R 0.03333	100% pa (α:5%) flicant Effect %Effect 0.0%	ssed 7d s	surviva	al rate	Rep 9	9
Ref1 is Mel- Data Transf Untransform Fisher Exac Group 1 0 Data Summ Conc-% 0 100 7d Survival	form ned ct Test vs	Group 100 Code @ Detail	Alt Hyp C > T NR 87 30	Test S 1.0000 R 3 0	Stat P-Type D Exact NR + R 90 30 Rep 3	1.0000 Prop NR 0.9667 1	Non-Signi Prop R 0.03333 0	100% pa (α:5%) ficant Effect 0.0% -3.45%	ssed 7d s	surviva		Rep 9	



4

Report Date: 03 Jul-20 12:39 (p 1 of 2) Test Code:

PP-10735-0220 | 20-2104-0068

Fathead Minn	ow 7-d Larval Survi	val and Growt	h Test		Bureau Veritas Laboratories
nalysis ID: Analyzed:	14-7306-7307 19 Jun-20 17:18	Endpoint: Analysis:	7d Survival Rate Linear Interpolation (ICPIN)	CETIS Ver Official Re	
Batch ID: Start Date: Ending Date: Duration:	13-1526-7178 12 Jun-20 13:30 19 Jun-20 16:07 7d 3h	Test Type: Protocol: Species: Source:	Growth-Survival (7d) EC/EPS 1/RM/22 Pimephales promelas Aquatic Biosystems, CO	Analyst: Diluent: Brine: Age:	M. Hamad Reconstituted Water Not Applicable
Sample ID: Sample Date: Receipt Date: Sample Age:	11 Jun-20 08:20	Code: Material: Source: Station:	C039804 Water Agnico Eagle Mines MEL 13-01	Client: Project:	Agnico Eagle Mines

Comments:

Point Estimates

Ref1 is Mel-03-02. Ref2 is Mel-04-05. Ref3 is Mel-05-04.

Linear Interpolation Options

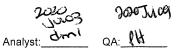
X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method	
Log(X+1)	Linear	397496	200	Yes	Two-Point Interpolation	

Level	%	95% LCL	95% UCL	τU	95% LCL	95% UCL
EC5	>100	n/a	n/a	<1	n/a	n/a
EC10	>100	n/a	n/a	<1	n/a	n/a
EC15	>100	n/a	n/a	<1	n/a	n/a
EC20	>100	n/a	n/a	<1	n/a	n/a
EC25	>100	n/a	n/a	<1	n/a	n/a
EC40	>100	n/a	n/a	<1	n/a	n/a
-C50	>100	n/a	n/a	<1	n/a	n/a

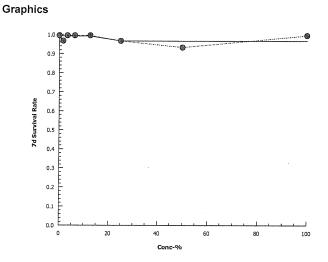
7d Survival R	ate Summary		Calculated Variate(A/B)								
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	А	в
0	S1	3	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	30	30
1.56		3	0.9667	0.9000	1.0000	0.0333	0.0577	5.97%	3.33%	29	30
3.3		3	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	30	30
6.25		3	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	30	30
12.5		3	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	30	30
25		3	0.9667	0.9000	1.0000	0.0333	0.0577	5.97%	3.33%	29	30
50		3	0.9333	0.9000	1.0000	0.0333	0.0577	6.19%	6.67%	28	30
100		3	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.0%	30	30

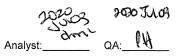
7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3
0	S1	1.0000	1.0000	1.0000
1.56		0.9000	1.0000	1.0000
3.3		1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000
25		1.0000	0.9000	1.0000
50		1.0000	0.9000	0.9000
100		1.0000	1.0000	1.0000



CETIS Ana	alytical Report		Report Date: Test Code:	03 Jul-20 12:39 (p 2 of 2) PP-10735-0220 20-2104-0068	
Fathead Minr	now 7-d Larval Survi	val and Growt	th Test		Bureau Veritas Laboratories
`nalysis ID: ,₄nalyzed:	14-7306-7307 19 Jun-20 17:18	Endpoint: Analysis:	7d Survival Rate Linear Interpolation (ICPIN)	CETIS Version: Official Results:	





FATHEAD MINNOW SURVIVAL AND GROWTH TEST

Client Name: Golder Associates Ltd. (Agnico)

Sample ID: MEL-13-01

Job / Sample #: <u>C039804 XX3664</u>

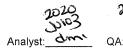
			······		#	f Survivin	g Organis	sms					
	Replicate	# Of Fish				Day							
Conc.	#	Seeded	1	2	3	4	5	6	7	0/ Suminal	0/ Mantality	% Mean	SD
(% v/v)	Date	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	% Survival	% Mortality	Mortality	(%)
	A	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
Control	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
Site Control	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	9	90%	10%	3.3%	5.8%
1.56	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10 ⁻	10	10	10	10	10	10	100%	0%	0.0%	0.0%
3.13	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
6.25	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
12.5	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	3.3%	5.8%
25	В	10	10	10	10	10	9	9	9	90%	10%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	6.7%	5.8%
50	В	10	10	10	9	9	9	9	9	90%	10%		
	С	10	10	10	9	9	9	9	9	90%	10%		
	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
100	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
An	alyst	MHM	MB	NS	YS	МНМ	MB	MYM	YS				

* see test comments

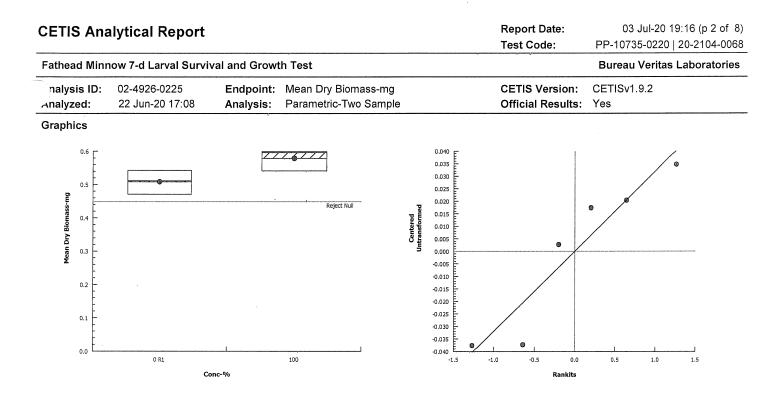
Proofed: Mares 200JUD

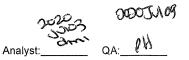
Report Date:	03 Jul-20 19:16 (p 1 of 8)
Test Code:	PP-10735-0220 20-2104-0068

Fathead Minn	ow 7-d Larval S	Survival an	d Growt	h Test					Bureau	u Veritas L	aboratorie.
nalysis ID: Analyzed:	02-4926-0225 22 Jun-20 17:0		dpoint: alysis:	Mean Dry Bion Parametric-Tw	-			TIS Version: CETISv1.9.2 icial Results: Yes			
Batch ID:	13-1526-7178	Tes	st Type:	Growth-Surviva	al (7d)		Analyst: M. Hamad				
Start Date:	12 Jun-20 13:30	0 Pro	otocol:	EC/EPS 1/RM	'22		Diluent: Reconstituted Water			Nater	
Ending Date:	19 Jun-20 16:0	7 Sp e	ecies:	Pimephales pr	omelas		Brin	e: N	ot Applicable		
Duration:	7d 3h	Sou	urce:	Aquatic Biosys	tems, CO		Age	:			
Sample ID:	11-2996-7815	Co	de:	C039804			Clie	nt: A	gnico Eagle N	lines	
Sample Date:			terial:	Water			Project:				
•	11 Jun-20 08:20) So ເ	urce:	Agnico Eagle N	/lines						
Sample Age:	5d 14h	Sta	tion:	MEL 13-01							
Comments: Ref1 is Mel-03-	02. Ref2 is Mel-	-04-05. Ref3	3 is Mel-0	05-04.							
Data Transform Alt Hyp							Comparis	omparison Result PMS 0% passed mean dry biomass-mg 11.7			
Untransformed C > T						100% pas	sed mear	dry biomass	-mg	11.78%	
Equal Varianc	e t Two-Sample	e Test		1997 - Andrew State Anna Anna an Anna ann an Anna a		10		**************************************			
Control v	vs Conc-%		Test S	Stat Critical	MSD DF	· P-Type	P-Value	Decisio	n(α:5%)		
Ref 1	100		-2.504	2.132	0.06 4	CDF	0.9667	Non-Sig	nificant Effec	t	
Auxiliary Tests	5							······			
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)		
Extreme Value		Extreme Val	ue Test		1.224	1.887	1.0000				dalar yang basa bar ta shaka kara shi ta yar na da da s
ANOVA Table			,,,,,,			t., Mp ¹² t.,, 2 ¹	·····	<u>.</u>	·····		
Source	Sum Squ	ares	Mean	Square	DF	F Stat	P-Value	Decisio	n(α:5%)		
etween	0.0074202		0.0074	· · · · · · · · · · · · · · · · · · ·	1	6.268	0.0665		nificant Effec	t	
Error	0.0047353		0.0011		4					•	
Total	0.0121555	5			5						
Distributional	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances	Variance I	Ratio F Test	t		1.22	199	0.9007	Equal V	ariances		
Distribution	Shapiro-W	/ilk W Norm	ality Tes	t	0.8647	0.43	0.2060	Normal	Distribution		
Mean Dry Bion	nass-mg Summ	nary									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
C	R1	3	0.5083	0.4187	0.5979	0.511	0.471	0.543	0.02083	7.10%	0.00%
100		3	0.5787	0.4975	0.6598	0.596	0.541	0.599	0.01885	5.64%	-13.84%
Vean Dry Biom	nass-mg Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3							
	R1	0.471	0.511	0.543		and the second		Myr 1 Maril 1			
C		0.471	0.011	0.010							









Report Date: 03 Jul-20 19:16 (p 3 of 8) Test Code:

PP-10735-0220 | 20-2104-0068

Fathead Minno	w 7-d Larval	Survival a	nd Growt	h Test			2		Bureau	ı Veritas L	aboratories
	01-0334-8083 22 Jun-20 17:		ndpoint: nalysis:	Mean Dry Bion Parametric-Tw	-		CETIS Version: CETISv1.9.2 Official Results: Yes			1.9.2	
Batch ID: 1	3-1526-7178	Τe	est Type:	Growth-Surviva	al (7d)		Analyst: M. Hamad				
Start Date: 1	2 Jun-20 13:3	60 P r	otocol:	EC/EPS 1/RM	/22		Dilu	Diluent: Reconstituted Water			
Ending Date: 1	9 Jun-20 16:0	07 Sf	pecies:	Pimephales pr	omelas		Brin	ie: No	t Applicable		
Duration: 7	d 3h	Sc	ource:	Aquatic Biosys	quatic Biosystems, CO Age:						
Sample ID: 1	1-2996-7815	Co	ode:	C039804			Clie	nt: Ag	nico Eagle M	lines	
Sample Date: 0	7 Jun-20	M	aterial:	Water			Proj	ect:			
Receipt Date: 1	1 Jun-20 08:2	0 Sc	ource:	Agnico Eagle N	vlines						
Sample Age: 5	d 14h	St	ation:	MEL 13-01							
Comments: Ref1 is Mel-03-0	2. Ref2 is Me	-04-05. Re	f3 is Mel-(05-04.							
Data Transform		Alt Hyp	· · · · · · · · · · · · · · · · · · ·			1	Compari	son Result	t		PMSD
Untransformed C > T									dry biomass	-mg	11.13%
Equal Variance	t Two-Sampl	e Test									
Control vs			Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)		
Ref 2	100		-0.877	1 2.132	0.062 4	CDF	0.7850		nificant Effec	t	·····
Auxiliary Tests		···· ·									
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)		
Extreme Value	Grubbs	Extreme Va	alue Test		1.285	1.887	1.0000	No Outliers Detected			
ANOVA Table											
Source	Sum Squ	lares	Mean	Square	DF	F Stat	P-Value	Decisior	n(α:5%)		
etween	0.000962		0.000		1	0.7693	0.4300		nificant Effec	t	
Error	0.005005	3	0.0012	2513	4			-			
Total	0.005968				5						
Distributional Te	ests			•							
Attribute	Test				Test Stat	Critical	P-Value	Decisior	n(α:1%)		
Variances	Variance	Ratio F Te	st		1.347	199	0.8522	Equal Va	riances		
Distribution	Shapiro-V	Vilk W Nori	mality Tes	st	0.9184	0.43	0.4939	Normal E	Distribution		
Mean Dry Bioma	ass-mg Sumr	nary					•				
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	R2	3	0.5533		0.6475	0.547	0.519	0.594	0.02188	6.85%	0.00%
100		3	0.5787	0.4975	0.6598	0.596	0.541	0.599	0.01885	5.64%	-4.58%
Mean Dry Bioma	ass-mg Detai	 I									
Conc-%	Code	Rep 1	Rep 2	Rep 3							
0	R2	0.519	0.594	0.547							
100 [°]		0.596	0.599	0.541							



CETIS Ana	alytical Report					Report Date: Test Code:	03 Jul-20 19:16 (p 4 of 8) PP-10735-0220 20-2104-0068
Fathead Minr	now 7-d Larval Survi	val and Growt	h Test			9999 - 141 - 14 - 47 - 19 - 29 - 19 - 19 - 19 - 19 - 19 - 19	Bureau Veritas Laboratories
nalysis ID: Analyzed:	01-0334-8083 22 Jun-20 17:08	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample			CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics							
Wean Dry Biomass-mg			Reject Null	Centered Untransformed	0.05 0.04 0.03 0.02 0.02 0.02 0.04 0.03 0.02 0.04 0.03 0.04 0.03 0.04 0.03 0.04		0
0.2	0 R2	I	100		0.02	-1.0 -0.5 0.0	J 0.5 1.0 1.5
	Co	onc-%				Rankits	

Report Date:	03 Jul-20 19:16 (p 5 of 8)
Test Code:	PP-10735-0220 20-2104-0068

Fathead Minn	iow 7-d Larval S	Survival ar	nd Growt	h Test					Bureau	Veritas L	aboratorie
nalysis ID: Analyzed:	07-7609-8501 22 Jun-20 17:0		ndpoint: nalysis:	Mean Dry Bion Parametric-Tw	-			TIS Version: CETISv1.9.2 icial Results: Yes			
Batch ID:	13-1526-7178			Growth-Surviva	•		Anal	Analyst: M. Hamad			
	12 Jun-20 13:30		otocol:	EC/EPS 1/RM/	22		Dilu	Diluent: Reconstituted Water			
-	19 Jun-20 16:07	•	ecies:	Pimephales pro			Brin	Brine: Not Applicable			
Duration:	7d 3h	So	ource:	Aquatic Biosys	tems, CO		Age:				
Sample ID:	11-2996-7815	Co	ode:	C039804			Clier	n t: Ag	nico Eagle M	ines	
Sample Date:	07 Jun-20	Ma	aterial:	Water			Proj	ect:			
Receipt Date:	11 Jun-20 08:20) S o	ource:	Agnico Eagle N	<i>l</i> lines						
Sample Age:	5d 14h	Sta	ation:	MEL 13-01							
Comments:	-02. Ref2 is Mel-	04.05 Dof	2 io Molu	05.04							
Data Transfor		Alt Hyp					Comparis	son Result			PMSD
Untransformed C > T							·····		dry biomass-	mg	8.60%
Equal Varianc	e t Two-Sample	Tost									
	•	5 1631	Teet	Stat Critical	MSD DF			Decision	(~~ E9/)		
Control v Ref 3	vs Conc-% 100		-2.515		0.045 4	P-Type CDF	P-Value 0.9672	Decision	nificant Effect		
			-2.010		0.045 4		0.9072	Non-Sigi			
Auxiliary Tests	S										
Attribute	Test				Test Stat		P-Value	Decision			
Extreme Value	Grubbs E	xtreme Va	lue Test		1.622	1.887	0.3541	No Outlie	ers Detected		
ANOVA Table											
Source	Sum Squa			Square	DF	F Stat	P-Value	Decision			
∋tween Error	0.0042667 0.0026973		0.0042		1	6.327	0.0657	Non-Sign	ificant Effect		
Total	0.0028973)	0.0000	5745	<u>4</u> 5						
Distributional											
Attribute	Test				Test Stat	Critical	P-Value	Decision	n(α:1%)		
Variances	Variance F	Ratio F Tes	st		3.777	199	0.4187	Equal Va			
Distribution	Shapiro-W	/ilk W Norr	nality Tes	st	0.864	0.43	0.2033	•	Distribution		
Mean Dry Bion	nass-mg Summ	nary	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					*****			
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
C	R3	3	0.5253	3 0.4836	0.5671	0.529	0.507	0.54	0.009701	3.20%	0.00%
100		3	0.5787	7 0.4975	0.6598	0.596	0.541	0.599	0.01885	5.64%	-10.15%
Vean Dry Bion	nass-mg Detail										
-	nass-mg Detail Code	Rep 1	Rep 2	Rep 3							
Mean Dry Bion Conc-%	-	Rep 1 0.54	Rep 2 0.507	Rep 3 0.529							

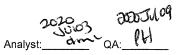


CETIS An	alytical Report				Report Date: Test Code:	03 Jul-20 19:16 (p 6 of 8) PP-10735-0220 20-2104-0068
Fathead Mir	now 7-d Larval Surviv	al and Growt	h Test			Bureau Veritas Laboratories
nalysis ID: Analyzed:	07-7609-8501 22 Jun-20 17:08	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample		CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics		,				
0.6 		Z Z	Reject Null	Cuttered 0.025 0.010 0.010 0.000 0.000 0.000 0.000 0.000 0.000	•	0
0.2				-0.015	•	
0.1				-0.025 -0,030 -0.035		
_{0.0} [0 R3	nc-%	100	-0.040 E -1.5		0.5 1.0 1.5

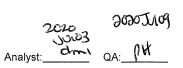
2020	2020201009
Analyst: dm	QA: 1

Report Date:	03 Jul-20 19:16 (p 7 of 8)
Test Code:	PP-10735-0220 20-2104-0068

Fathead Minno	ow 7-d Larval Su	urvival and G	Browth	Test					Bureau	u Veritas L	aboratori
nalysis ID:	18-5244-7317	Endpo		/lean Dry Biom	-			ETIS Version: CETISv1.9.2			
Analyzed:	22 Jun-20 17:08	3 Analys	sis: F	Parametric-Tw	o Sample		Offic	Official Results: Yes			
Batch ID:	13-1526-7178	Test T	ype: C	Growth-Surviva	al (7d)		Analyst: M. Hamad				
Start Date:	12 Jun-20 13:30	Protoc	col: E	EC/EPS 1/RM/	22		Diluent: Reconstituted Water			Water	
-	19 Jun-20 16:07	Specie	es: F	Pimephales pro	omelas		Brin	e: No	ot Applicable		
Duration:	7d 3h	Sourc	e: A	Aquatic Biosys	tems, CO		Age:				
Sample ID:	11-2996-7815	Code:	C	039804			Clier	nt: Ag	nico Eagle N	/lines	
Sample Date:	07 Jun-20	Materi	ial: V	Vater			Proj	ect:			
Receipt Date:	11 Jun-20 08:20	Sourc	e: A	gnico Eagle N	/lines						
Sample Age:	5d 14h	Statio	n: N	/IEL 13-01							
Comments:						414 - 14 - 14 - 14 - 14 - 14 - 14 - 14		10771 - 1089 - Florida - Fall-			
Ref1 is Mel-03-	02. Ref2 is Mel-0	4-05. Ref3 is	Mel-05	-04.							
Data Transform Alt Hyp							Comparis	on Resul	t		PMSD
Untransformed C > T							100% pas	sed mean	dry biomass	-mg	7.67%
Equal Variance	e t Two-Sample ⁻	Test									
Conc-% v	s Conc-%	1	rest Sta	at Critical	MSD DF	· P-Type	P-Value	Decisio	n(α:5%)		
o pooled	100		2.219	1.812		CDF	0.9746		nificant Effec	:t	
Auxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(a:5%)		
Extreme Value		treme Value	Test		2.031	2.412	0.3017		ers Detected		
ANOVA Table	· · · ·										
Source	Sum Squar	res N	/lean S	auare	DE			Decision(α:5%)			
					1.11-	F Stat	P-Value	Decision	n(a:5%)		
etween	0.0055503		0.00555		DF	F Stat 4.925	P-Value 0.0508			t	
	0.0055503 0.0112707	C		03		F Stat 4.925	P-Value 0.0508		n(α:5%) nificant Effec	t	
Error		C	0.00555	03	1					t	
Error Total	0.0112707 0.0168209	C	0.00555	03	1 10					t	
Error Total Distributional 1	0.0112707 0.0168209	C	0.00555	03	1 10	4.925			nificant Effec	t	
Error Total Distributional 1 Attribute	0.0112707 0.0168209 Fests	C C	0.00555	03	1 10 11	4.925	0.0508	Non-Sig	nificant Effec n(α:1%)	t	
Error Total Distributional 1 Attribute Variances	0.0112707 0.0168209 Fests Test Variance Ra	C C).00555).00112	03	1 10 11 Test Stat	4.925 Critical	0.0508 P-Value	Non-Sigr Decision Equal Va	nificant Effec n(α:1%)	t	
Error Total Distributional 1 Attribute Variances Distribution	0.0112707 0.0168209 Fests Test Variance Ra	C O atio F Test Ik W Normalit).00555).00112	03	1 10 11 Test Stat 1.071	4.925 Critical 199.4	0.0508 P-Value 1.1358	Non-Sigr Decision Equal Va	nificant Effec n(α:1%) ariances	t	
Error Total Distributional 1 Attribute Variances Distribution Mean Dry Biom	0.0112707 0.0168209 Fests Test Variance Ra Shapiro-Wil	C C atio F Test Ik W Normalit).00555).00112	03	1 10 11 Test Stat 1.071	4.925 Critical 199.4	0.0508 P-Value 1.1358	Non-Sigr Decision Equal Va	nificant Effec n(α:1%) ariances	t CV%	%Effect
Error Total Distributional 1 Attribute Variances Distribution Mean Dry Biom Conc-%	0.0112707 0.0168209 Fests Test Variance Ra Shapiro-Wil ass-mg Summa Code	0 atio F Test lk W Normalit ary Count M).00555).00112 :y Test	03 71	1 10 11 Test Stat 1.071 0.9628	4.925 	0.0508 P-Value 1.1358 0.8230	Non-Sigr Decisior Equal Va Normal [nificant Effec n(α:1%) ariances Distribution		%Effect 0.00%
Error Total Distributional T Attribute Variances Distribution Mean Dry Biom Conc-%	0.0112707 0.0168209 Tests Test Variance Ra Shapiro-Wil nass-mg Summa Code @	C atio F Test k W Normalit ary Count M 9 0).00555).00112 :y Test //ean	03 71 95% LCL	1 10 11 Test Stat 1.071 0.9628 95% UCL	4.925 Critical 199.4 0.8025 Median	0.0508 P-Value 1.1358 0.8230 Min	Non-Sign Decisior Equal Va Normal [Max	nificant Effec n(α:1%) ariances Distribution Std Err	CV%	
Error Total Distributional 1 Attribute Variances Distribution Mean Dry Biom Conc-%	0.0112707 0.0168209 Fests Test Variance Ra Shapiro-Wil nass-mg Summa Code @	C atio F Test k W Normalit ary Count M 9 0).00555).00112 :y Test //ean	03 71 95% LCL 0.503	1 10 11 Test Stat 1.071 0.9628 95% UCL 0.555	4.925 Critical 199.4 0.8025 Median 0.529	0.0508 P-Value 1.1358 0.8230 Min 0.471	Non-Sign Decision Equal Va Normal I Max 0.594	nificant Effec n(α:1%) ariances Distribution Std Err 0.01127	CV% 6.39%	0.00%
Error Total Distributional T Attribute Variances Distribution Mean Dry Biom Conc-% D 100 Wean Dry Biom	0.0112707 0.0168209 Fests Test Variance Ra Shapiro-Wil ass-mg Summa Code @	C atio F Test lk W Normalit ary Count M 9 0 3 0).00555).00112 :y Test //ean	03 71 95% LCL 0.503	1 10 11 Test Stat 1.071 0.9628 95% UCL 0.555	4.925 Critical 199.4 0.8025 Median 0.529	0.0508 P-Value 1.1358 0.8230 Min 0.471	Non-Sign Decision Equal Va Normal I Max 0.594	nificant Effec n(α:1%) ariances Distribution Std Err 0.01127	CV% 6.39%	0.00%
Error Total Distributional 1 Attribute Variances Distribution	0.0112707 0.0168209 Fests Test Variance Ra Shapiro-Wil ass-mg Summa Code @ ass-mg Detail Code	Count M 9 0 Rep 1 R).00555).00112 :y Test //ean).529).5787	03 71 95% LCL 0.503 0.4975	1 10 11 Test Stat 1.071 0.9628 95% UCL 0.555 0.6598	4.925 Critical 199.4 0.8025 Median 0.529 0.596	0.0508 P-Value 1.1358 0.8230 Min 0.471 0.541	Non-Sign Decision Equal Va Normal I Max 0.594 0.599	nificant Effec n(α:1%) ariances Distribution Std Err 0.01127 0.01885	CV% 6.39% 5.64%	0.00%



CETIS Ana	alytical Report					Report Date:	03 Jul-20 19:16 (p 8 of 8)
						Test Code:	PP-10735-0220 20-2104-0068
Fathead Minn	now 7-d Larval Survi	val and Growt	th Test				Bureau Veritas Laboratories
nalysis ID:	18-5244-7317	Endpoint:				CETIS Version:	CETISv1.9.2
Analyzed:	22 Jun-20 17:08	Analysis:	Parametric-Two Sample	•		Official Results:	Yes
Graphics							
^{0,6} F	[]	27	16///		^{0.08} [
-					0.06		•
0.5			Reject Null		-		
Mean Dry Biomass-mg				ad	0.04		
ry Bio				Centered Untransformed	0.02		
- E.0 Mean				Cut	Ē	•	
					0.00		
0.2					-0.02		
0.1					Ę		
					-0.04		
0.0 E		I			-0.06	- 	
	0@	onc-%	100		-2.0 -	1.5 -1.0 -0.5 0.0 Rankits	0.5 1.0 1.5 2.0



Report Date:	03 Jul-20 12:45 (p 1 of 2)
Test Code:	PP-10735-0220 20-2104-0068

Fathead Minr	now 7-d Larval Survi	Bureau Veritas Laboratories			
nalysis ID: Analyzed:	12-0613-8884 22 Jun-20 17:11	Endpoint: Analysis:	Mean Dry Biomass-mg Linear Interpolation (ICPIN)	CETIS Ver Official Re	
Batch ID:	13-1526-7178	Test Type:	Growth-Survival (7d)	Analyst:	M. Hamad
Start Date:	12 Jun-20 13:30	Protocol:	EC/EPS 1/RM/22	Diluent:	Reconstituted Water
Ending Date:	19 Jun-20 16:07	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	7d 3h	Source:	Aquatic Biosystems, CO	Age:	
Sample ID:	11-2996-7815	Code:	C039804	Client:	Agnico Eagle Mines
Sample Date:	07 Jun-20	Material:	Water	Project:	
Receipt Date:	11 Jun-20 08:20	Source:	Agnico Eagle Mines		
Sample Age:	5d 14h	Station:	MEL 13-01		

Comments:

Ref1 is Mel-03-02. Ref2 is Mel-04-05. Ref3 is Mel-05-04.

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	263105	200	Yes	Two-Point Interpolation

Residual Analysis	3				
Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Extreme Value	Grubbs Extreme Value Test	2.066	2.802	0.7544	No Outliers Detected

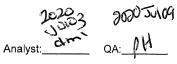
Point	Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC5	>100	n/a	n/a	<1	n/a	n/a
IC10	>100	n/a	n/a	<1	n/a	n/a
'C15	>100	n/a	n/a	<1	n/a	n/a
20	>100	n/a	n/a	<1	n/a	n/a
IC25	>100	n/a	n/a	<1	n/a	n/a
IC40	>100	n/a	n/a	<1	n/a	n/a
IC50	>100	n/a	n/a	<1	n/a	n/a

Mean Dry Biomass-mg Summary					С	alculated Va	Calculated Variate						
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect				
0	S1	3	0.5603	0.539	0.573	0.01073	0.01858	3.32%	0.0%				
1.56		3	0.5303	0.524	0.538	0.004096	0.007094	1.34%	5.35%				
3.3		3	0.5157	0.455	0.581	0.03645	0.06313	12.24%	7.97%				
6.25		3	0.5647	0.529	0.608	0.02313	0.04005	7.09%	-0.77%				
12.5		3	0.5097	0.455	0.558	0.0299	0.05179	10.16%	9.04%				
25		3	0.5477	0.472	0.589	0.03789	0.06562	11.98%	2.26%				
50		3	0.5257	0.486	0.56	0.02153	0.03729	7.09%	6.19%				
100		3	0.5787	0.541	0.599	0.01885	0.03265	5.64%	-3.27%				

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3
0	S1	0.569	0.539	0.573
1.56		0.529	0.524	0.538
3.3		0.455	0.581	0.511
6.25		0.557	0.529	0.608
12.5		0.455	0.558	0.516
25		0.582	0.472	0.589
50		0.486	0.531	0.56
100		0.596	0.599	0.541



CETIS Ana	alytical Report		Report Date: Test Code:	03 Jul-20 12:45 (p 2 of 2) PP-10735-0220 20-2104-0068	
Fathead Minr	now 7-d Larval Survi	val and Growt		Bureau Veritas Laboratories	
nalysis ID: Analyzed:	12-0613-8884 22 Jun-20 17:11	Endpoint: Analysis:	Mean Dry Biomass-mg Linear Interpolation (ICPIN)	CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics					
0.5					

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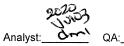
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60



0.0

20

40

Conc-%

FATHEAD MINNOW SURVIVAL AND GROWTH TEST

Tab -	Biomass,	Page	1	of	1
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- *** ,			· · · · · · · · · · · · · · · · · · ·	tes Ltd. (Agnico)				
		•	MEL-13-01				C039804 XX3664	
			2020 June 17, 2	2020 Jun 20	····	Drying Time (h):	WWW.col	
			bby-0260			Drying Temp (°C):		
Boat #	Conc. & Replicate	Initial # Of Fish	Boat Wt. (g)	Boat & Fish Wt. (g)	Wt. of Fish (mg)	Biomass/Replicate¹ (mg)	Mean Biomass/Conc¹ (mg)	SD
275	0-A	10	0.80154	0.80641	4.87	0.487	0.497	0.03
276	В	10	0.80728	0.81255	5.27	0.527		
277	С	10	0.81578	0.82055	4.77	0.477		
278	Site Ctrl-A	10	0.80451	0.81020	5.69	0.569	0.560	0.02
279	В	10	0.79960	0.80499	5.39	0.539		
280	С	10	0.80923	0.81496	5.73	0.573		
281	1.56%-A	10	0.80425	0.80954	5.29	0.529	0.530	0.01
282	В	10	0.80329	0.80853	5.24	0.524		
283	С	10	0.82841	0.83379	5.38	0.538		
284	3.13%-A	10	0.82530	0.82985	4.55	0.455	0.516	0.06
285	В	10	0.80330	0.80911	5.81	0.581		
286	С	10	0.78898	0.79409	5.11	0.511		
287	6.25%-A	10	0.79284	0.79841	5.57	0.557	0.565	0.04
288	В	10	0.78756	0.79285	5.29	0.529		
280	С	10	0.79521	0.80129	6.08	0.608		
٥٫	12.5%-A	10	0.78925	0.79380	4.55	0.455	0.510	0.05
291	В	10	0.79870	0.80428	5.58	0.558		
292	С	10	0.79851	0.80367	5.16	0.516		
293	25%-A	10	0.81684	0.82266	5.82	0.582	0.548	0.07
294	В	10	0.81718	0.82190	4.72	0.472		
295	С	10	0.79996	0.80585	5.89	0.589		
296	50%-A	10	0.81018	0.81504	4.86	0.486	0.526	0.04
297	В	10	0.81173	0.81704	5.31	0.531		
298	С	10	0.78729	0.79289	5.60	0.560		
299	100%-A	10	0.78313	0.78909	5.96	0.596	0.579	0.03
300	В	10	0.78252	0.78851	5.99	0.599 `		
301	С	10	0.79014	0.79555	5.41	0.541		
302	QA/QC		0.78708	0.78712	0.04			
303	QA/QC		0.80186	0.80178	-0.08			ka patrici
275	0-A	10	0.80145	0.80645	5.00			
	nalyst		NS	DML				

¹ Biomass is calculated as the weight of fish per replicate divided by the number of fish initially seeded into that replicate (i.e. **10** fish per replicate).

Average Dry Weight of Control Fish (Average dry weight of control fish must be ≥ 250 µg for test to be valid)

Boat #	Conc. &	# Surviving	Wt. of Fish	Mean Wt./	Mean Dry Wt.
	Replicate	Fish	(mg)	Fish (µg)	(µg)
275	0-A	10	4.87	487	497
276	В	10	5.27	527	
277	С	10	4.77	477	

ECOTOXICOLOGY

FATHEAD MINNOW SURVIVAL AND GROWTH TEST

BUREAU VERITAS LABORATORIES BBY2FCD-00215/14

Tab - Obs, Page 1 of 2

	Client Name:	Golder Associates	Ltd. Again	6	Job / Sample #:	CUBARON	$1/\infty 364$
		June 12, 2020	1			MEL-13-01	1 19000
		June 19, 2020	•)	Organism Lot #:	4	<u>,</u>
			1.SU LADY	- (KS)	NENe call	-7 	
	5 ()				Deviations - See I		
Befor	e Use Measuremer	nts (After tempera	ture adjustmer	nt)	Worksheet Create	ed: □	
Day	Date	Initial D.O. (% Sat)	Initial Temp (°C)	Aerated (min.)*	Post Aeration D.O. (% Sat)	Post Aeration Temp (°C)	Analyst
0	June 12, 2020	103.3	25.6	20	99.2	25.4	MIM
1	June 13, 2020	10511	25.6	20	103.1	25.6	MIM
2	June 14, 2020	109.7	26.0	20	107.2	26.0	mo
3	June 15, 2020	107.4	IY,3	20	100.0	14.1	y
4	June 16, 2020	106.0	25.1	20	10015	25:0	MIM
5	June 17, 2020	109.6	25.9	20	101.4	25.7	MITM
6	June 18, 2020	11012	25.6	20	102.0	25.5	MIM
	*Aeration rate must be ≤100 bubbles/min Instrument ID's: <u>BB42-0366</u> Sample Description <u>(Jear and (oloce) 1955</u> Initials <u>MH9mad</u>						
Sa Obse	ample Hardness (mg rvations during the	g /L CaCO3) (A) – Test (Organism I	2 75 Dehaviour, add	Initials: I itional test i	か information)	Room #	106
Day		_		- 24 of 200 - 60 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200 - 200			Analyst
0	Date:	June 12, 2020		Carboy / Bot	tle #: 1		MANY US
	Pre-Aeration Time:			-	Test Seeded @:	13:30	
			ng PM: 16:	:15	Feeding Volume (à	
			<u>.g. m</u>		recard verality		
1	Date:	June 13, 2020		Carboy / Bot	tlo.#: う	Neve-	Minlig
1					Water change @:	14:05	
	Pre-Aeration Time:	C	1-7.	06			50
	Feeding AM: €80	17 Leedi	ng PM: 1 / 6		Feedin	g Volume (uL):	.)0
	WQ Rep: A						
			1998.00				
					~~		
2	Date:	June 14, 2020		Carboy/ Bot			INS YS
	Pre-Aeration Time:				Water change @:	15:20	
:	Feeding AM: OG (S Feedin	ng PM: 16:1	0	Feedin	g Volume (uL):	50
	WQ Rep: D						

@ WE. 43 2020 June 12

BUREAU VERITAS LABORATORIES

ECO	TOX	ICOL	OGY
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FATHEAD MINNOW SURVIVAL AND GROWTH TEST

BBY2FCD-00215/14 Tab - Obs, Page 2 of 2

(Agnico) Client Name: Golder Associates Sample ID: MEL-13-01

Day Analyst Carboy / Bottle #: June 15, 2020 3 Date: VS Pre-Aeration Time: 0 14:45 ~ 15:05 Water change @: 16 = 30Feeding PM: 17:JO Feeding AM: 0 孔の Feeding Volume (uL): 50 WQ Rep: C (Carboy) / Bottle #: Ci MIN 4 Date: June 16, 2020 Pre-Aeration Time: D91,40-10,000 Water change @: 141.31 Feeding AM: 07:45 Feeding PM: 15:20 Feeding Volume (uL): 50 WQ Rep: 🙏 MIIN (Carbo)/Bottle #: 2 June 17, 2020 5 Date: 12:30 Pre-Aeration Time: 08:15-08:35 Water change @: Feeding Volume (uL): 50 14:20 Feeding AM: $07\sqrt{45}$ Feeding PM: <u>WQ R</u>ep: K Carboy) Bottle #: 3 6 Date: June 18, 2020 MIM Pre-Aeration Time: 13207 - 13,27 Water change @:(A) Feeding AM: しくいろ Feeding PM: (A) Feeding Volume (uL): 50 WQ Rep: (y? 7 Date: June 19, 2020 Test ended @ $16z \circ F$ WQ rep:

> @ Feeding time and water change time missed Feeding of approx. 15:00 MHM2020,50109

ECOTOXICOLOGY

FATHEAD MINNOW SURVIVAL AND GROWTH TEST

		Golder Asso	ciates Ltd.		-		Cicca	-
		MEL-13-01			_ Jo	b /Sample #:	0398	M XX36
Ar	nalyst(s):	MHOMA	1,4,51	2 N.SME	raile,c	UBASSI	'W'O.	Toole
Control	Day	1	2	3	4	5	6	7
Conductivity	Initial	458	463	462	504	453	452	452
(µs/cm)	Final	513	480	481	512	515	513	478
Temp. (°C)	Initial	24.4	24.6	24.9	24.9	25.3	250	25.0
Temp. (C)	Final	24.0	24.7	24.0	24.8	25.4	24.6	25.3
D.O. (mg/L)	Initial	811	7.8	8.2	8.0	8.1	8.4	8:3
D.O. (mg/L)	Final	7.1	6.9	イーコ	616	625	6.6	6.1
рН	Initial	8,2	8.2	81	8.1	8.2	8.1	8,1
pri	Final	810	8.0	Jr R	7:9	7.7	7.8	7.7
Sinthelic 1								
Site Control	Day	1	2	3	4	5	6	7
Conductivity	Initial	125	126,	126	129	130	129	129
µs/cm)	Final	140	148	139	134	150	147	149
Temp. (°C)	Initial	23.8	2510	25.3	J4.7	24.8	25.0	25.0
remp. (C)	Final	24.6	24.7	24.0	24.6	25,1	25.0	25.3
D.O. (mg/L)	Initial	Siz	8.1	8.3	7.9	8-2	8.3	8.2
D.O. (IIIg/L)	Final	6.9	6.8	7.1	6.9	612	6.3	6.4
	Initial	8.0	7.7	7.5	7.9	ゴン	7.5	7.6
рН	Final	1.3	8.1	7.1	7.4	7.2	7.3	7.2
1.56%	Day	1	2	3	4	5	6	7
Conductivity	Initial	125	127	126	128	128	128	129
µs/cm)	Final	135	131	133	135	146	148	147
Tama (%0)	Initial	24.0	25.0	25,4	14.9	24.9	25.1	25.0
Гетр. (°С)	Final	24.4	24.4	24.2	25.0	24.8	24.8,	25.2
	Initial	8.4	811	8.3	A)7-980	812	8.3	8.2
D.O. (mg/L)	Final	7.0	7.1	7,3	6.8	6.5	6.4	626
- / 1	Initial	7.8	7-6	7.S	7.8	7.4	7.4	2.5
Hc	Final	7,1	7.9	7.1	7.3	7.1	7.3	42
						J 1		
3.13%	Day	1	2	3	4	5	6	7
Conductivity	Initial	125	126	126	127	128	128	128
us/cm)	Final	134	137	134	132	139	137	144
	Initial	24.0	75.0	ZS,4	751	24.9	25.1	25.0
ſemp. (°C)	Final	24.1	24.4	24,9	25.2	2513	24.6	ZSIL
	Initial	8.4	812	8.3	8.2	8.3	83	8.2
D.O. (mg/L)	Final	7.1	7.1	7.1	6.6	612	6.4	Liy
	Initial	7.8	7.6	7.4	7.6	7.5	7.5	7.5
эΗ	Final	7.1	17	7.4	716	7.0	7.1	$\frac{f(S)}{7-l}$
		7~1		T.I	<u>ys</u>	TV	7 \	, <i>4</i> ∼ l

@ WE. YS Zo Zo JUNE 15

ECOTOXICOLOGY

FATHEAD MINNOW SURVIVAL AND GROWTH TEST

Clien	nt Name:	Golder Assoc	iates Ltd.					1
Sa	mple ID:	MEL-13-01			Jo	b / Sample #:	<u>CU3980</u>	<u>N XX36</u>
6.25%	Day	1	2	3	4	5	6	7
Conductivity	Initial	126	126	126	127	127	128	128
µs/cm)	Final	133	141	142	133	138	139	147
Temp. (°C)	Initial Final	24.0	25.0	25,4	25.1	24.8	251	24.9
	Initial	814	812	83	812	8.3	813	8:3
D.O. (mg/L)	Final	7.2	7.0	6.8	6.8	612	6.3	6.6
	Initial	オルネ	7.5	7.2	7.6	7.5	7.4	7.5
pН	Final	7.1	7.6	7.0	7.1	7.0	7.)	7.1
Analyst		MIM ,MM	Miny NK	mo MIM	YS sour	MAM MAN	MAM M	\sim
Daily WQ Revie	ewed by:	mm	MIM NS	$m_0 m$	ysm	WHM MAN	MIM M	~
40.5%	Davi	1	2	3	4	5	6	7
12.5%	Day Initial	126	126	126	127	128	128	128
Conductivity (µs/cm)	Final	120	137	135	131	142	120	140
	Initial	24.0	250	25.4	IS.0	24.8	25.1	25.2
Temp. (°C)	Final	24.0	24.5	24.8	25.1	2418	244	250
	Initial	8.4	813	8.2	8.3	8.3	8.3	8.3
D.O. (mg/L)	Final	7.2	6.9	7.0	615	6.5	6.6	0.1
	Initial	7.6	7.4	7.3	7.6	7.5	7.5	7-6
pН	Final	7.1	7.6	7.1	7.0	7.0	7.1	7.1
				0	4		0	7
25%	Day	1	2	3	4	5 128	6 179	7 129
Conductivity	Initial Final	127	129	127	128	143	144	142
μs/cm)	Final	24.1	24.9	755	IS.1	24.8	25,2	75.2
Temp. (°C)	Final	24.5	24,3	2405	25.2	24.4	2.4.6	24.E
	Initial	8:4	8.3	8,3	8.3	8.3	813	8.3
D.O. (mg/L)	Final	6.8	7.0	7.2	6.5	6-6	Gis	6.9
	Initial	7.4	7.3	73	7.5	7.5	715	75
pН		4.0	7.5	7-2	T.D	7.1	7.2	7.1
	Final	70			4			
· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·						
50%	Day	1	2	3	4	5	6	7
Conductivity	Day Initial	1	2	128	4	129	129	7
Conductivity	Day Initial Final	1 128 141	2 128 138	128 139	4 129 127	129	129 143	7 129 141
Conductivity µs/cm)	Day Initial Final Initial	1 128 141 24.5	2 128 138 24.8	128 139 25.6	4 129 127 127 25.0	129 142 24.8	129 143 2503	7 129 141 28.9
Conductivity µs/cm)	Day Initial Final Initial Final	1 128 141 24.5 24.1	2 128, 138 24,8 24,3	128 139 25.6 24:5	4 129 127 75:0 25:2	129 142 24.8 24.8	129 143 25.3 245	7 129 141 28.3 24-9
Conductivity µs/cm) Temp. (°C)	Day Initial Final Initial Final Initial	1 128 141 24.5 24.1 8.4	2 128 138 24.8	128 139 25.6 24.5 8.4	4 129 127 25.0 25.2 83	129 142 24,8 24,8 24,8	129 143 250 245 80	7 129 141 28.3 24-9 8.3
Conductivity µs/cm) Temp. (°C) D.O. (mg/L)	Day Initial Final Initial Final Initial Final	1 128 141 24.5 24.1 8.4 7.0	2 128 138 24.8 24.3 8.4 7.1	128 139 25.6 24.5 8.4 4.2	4 129 127 25.0 25.2 8.3 6.5	129 142 24:8 24:8 25:8 25:8 8:3 6:6	129 143 250 245 245 8%	7 129 141 28,9 24,9 8,3 6,7
Conductivity (µs/cm) Temp. (°C) D.O. (mg/L)	Day Initial Final Initial Final Initial Final Initial	1 128 141 24.5 24.1 8.4	2 128 138 24.8 24.3 8.4 7.1 7.2	128 139 25.6 24.5 8.4 7.2 7.2	4 129 127 25.0 25.2 83 65 75	129 142 24:88 74:8 8:3 6:0 7:5	129 143 255 245 85 55 55 55 55 55 55 55 55 55 55 55 55	7 120 141 28,9 244 24,3 617 7,4
Conductivity /µs/cm) Temp. (°C) D.O. (mg/L) pH	Day Initial Final Initial Final Initial Final	1 128 141 24.5 24.1 8.4 7.0	2 128 138 24.8 24.3 8.4 7.1	128 139 25.6 24.5 8.4 7.2 7.2	4 129 127 25.0 25.2 8.3 6.5	129 142 24,8 24,8 24,8 24,8 24,8 24,8 24,8 7,5 7,5 7,5 7,1	129 143 250 245 245 8%	7 129 14) 283 244 283 744 744 283 744 744 744 744 744 744 744 744 744 74
Conductivity /µs/cm) Temp. (°C) D.O. (mg/L) pH 100%	Day Initial Final Initial Final Initial Final Final Day	1 128 141 24,5 24,1 8,4 7,0 7,0 7,1	$ \begin{array}{c} 2 \\ 128 \\ 138 \\ 24.8 \\ 24.3 \\ 8.4 \\ 7.1 \\ 7.2 \\ 7.5 \\ 2 \end{array} $	128 139 25.6 24.5 8.4 7.2 7.2 7.2 7.2 7.2	$ \begin{array}{r} 4 \\ 129 \\ 127 \\ 75.0 \\ 25.2 \\ 83 \\ 615 \\ 75 \\ 7.5 \\ 7.0 \\ 4 \end{array} $	129 142 24,8 24,8 74,8 74,8 6,6 7,5 7,5 7,1	129 143 255 745 8:0 6:6 74.7 7.1	7 129 141 28,3 244 28,3 6,44 7,2 7,2 7,2
Conductivity µs/cm) Temp. (°C) D.O. (mg/L) pH <u>100%</u> Conductivity	Day Initial Final Initial Final Final Initial Final Day Initial	1 128 141 24.5 24.1 8.4 7.0 7.0 7.1 1 130	$ \begin{array}{c} 2 \\ 128 \\ 138 \\ 24.8 \\ 24.3 \\ 8.4 \\ 7.1 \\ 7.2 \\ 7.5 \\ 2 \\ 1.5 \\ 2 \\ $	128 139 25.6 24.5 8.4 7.2 7.2 7.2 7.2 7.2 3 130	4 129 127 25.2 83 65 75 75 75 75 75 75 75 75 75 75 75 75 75	129 142 24:8 24:8 74:8 8:3 6:6 7:5 7:1 5 130	1291 143 2553 245 245 245 85 65 745 75 75 75 75 75 75 75 75 75 75 75 75 75	7 120 141 25,3 24,9 5,7 6,7 7,4 7,2 7 132
Conductivity µs/cm) Temp. (°C) D.O. (mg/L) pH <u>100%</u> Conductivity	Day Initial Final Initial Final Initial Final Day Initial Final Final	1 128 141 24.5 24.1 8.4 7.0 7.0 7.1 7.1	$ \begin{array}{c} 2 \\ 128 \\ 138 \\ 24.3 \\ 8.4 \\ 7.1 \\ 7.2 \\ 7.5 \\ 24.3 \\ 8.4 \\ 7.1 \\ 7.2 \\ 7.2 \\ 7.2 \\ 7.2 \\ 7.2 \\ 141 \\ \end{array} $	128 139 25.6 24.5 8.4 7.2 7.2 7.2 7.2 7.2 7.2 7.2 130	4 129 127 25.0 25.2 83 65 75 75 75 75 750 4 130 130	129 142 24,8 74,8 74,8 7,5 7,5 7,5 7,5 7,5 7,5 7,5 7,5 7,5 7,5	129 143 2553 245 8°3 65 755 755 755 755 755 755 755 755 755	7 129 141 28,9 24,9 8,3 6,7 7,4 7,4 7,4 7,4 7,2 7 132 14)
Conductivity (µs/cm) Temp. (°C) D.O. (mg/L) pH	Day Initial Final Initial Final Initial Final Initial Final Day Initial Final Initial	1 128 141 24,5 24,1 8,4 7,0 7,0 7,1 1 130 137 130 137 25,0	$ \begin{array}{c} 2 \\ 128 \\ 138 \\ 24.8 \\ 24.3 \\ 8.4 \\ 7.1 \\ 7.2 \\ 7.2 \\ 7.5 \\ 2 \\ 141 \\ 25.7 \\ \end{array} $	128 139 25.6 24.5 8.4 7.2 7.2 7.2 7.2 7.2 7.2 3 130 138 25.8	4 129 127 25.0 25.2 83 65 75 7.0 4 130 24,1	129 142 24.8 75 8.3 6.6 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5	129 143 255 245 245 85 65 745 745 745 745 745 745 745 745 745 74	7 141 28,9 24,9 8,3 0,7 7,4 7,4 7,4 7,2 7,1 32 14) 25,5
Conductivity [µs/cm] Temp. (°C) D.O. (mg/L) pH 100% Conductivity [µs/cm]	Day Initial Final Initial Final Initial Final Day Initial Final Final Final	1 128 141 24,5 24,1 8,4 7,0 7,7 7,1 1 130 137 130 137 25,0 24,1	$ \begin{array}{c} 2 \\ 128 \\ 138 \\ 24.3 \\ 24.3 \\ 8.4 \\ 7.1 \\ 7.2 \\ 7.5 \\ 2 \\ (30 \\ 141 \\ 25.7 \\ 24.4 \\ 4 \end{array} $	128 139 25.6 24.5 8.4 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2	$ \begin{array}{c} 4 \\ 129 \\ 127 \\ 75.0 \\ 25.2 \\ 8.3 \\ 6.5 \\ 7.5 \\ 7.0 \\ 4 \\ 130 \\ 130 \\ 24.1 \\ 25.1 \\ 25.1 \\ \end{array} $	129 142 24.8 24.8 24.8 75 75 75 75 74.1 5 130 145 24.9 253	1243 2555 245 255 245 255 245 245 245 245 24	7 129 14) 28,9 24,9 8,3 6,7 7,4 7,2 7,2 132 14) 25,5 7,4,8
Conductivity (µs/cm) Temp. (°C) D.O. (mg/L) pH 100% Conductivity (µs/cm) Temp. (°C)	Day Initial Final Initial Final Initial Final Day Initial Final Initial Final Initial Final	1 128 141 24.5 24.1 8.4 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0	$ \begin{array}{c} 2 \\ 128 \\ 138 \\ 24.8 \\ 24.3 \\ 8.4 \\ 7.1 \\ 7.2 \\ 7.2 \\ 7.5 \\ 2 \\ 141 \\ 25.7 \\ \end{array} $	128 139 25.6 24.5 8.4 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2	4 129 127 25.2 83 65 75 75 75 75 75 75 75 75 75 7	129 142 24,8 74,8 74,8 8.3 6.6 7.5 7.1 5 130 145 24.9 25,3 8.4	129 143 255 245 255 245 255 255 255 255 255 255	7 129 141 28,3 244 3,3 6,7 7,44 7,2 7,2 7,2 132 141 25,5 24,8 8,3
Conductivity (µs/cm) Temp. (°C) D.O. (mg/L) pH 100% Conductivity (µs/cm) Temp. (°C) D.O. (mg/L)	Day Initial Final Initial Final Initial Final Initial Final Final Initial Final Initial Final Initial Final	1 128 141 24.5 24.1 8.4 7.0 7.0 7.0 7.0 7.1 1 130 137 25.0 24.1 8.4 6.8	$ \begin{array}{c} 2 \\ 128 \\ 138 \\ 24.8 \\ 24.3 \\ 8.4 \\ 7.1 \\ 7.2 \\ 7.5 \\ 24.3 \\ 9.4 \\ 7.1 \\ 7.2 \\ 7.1 \\ 24.4 \\ 9.6 \\ 7.1 \\ 9.6 \\ 7.1 \\ \end{array} $	128 139 25.6 24.5 8.4 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2	4 129 127 25.2 83. 65 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.	129 142 24,8 75 75 75 75 74 1 5 130 145 24,9 253 8,4 6,2	1243 25,5 24,5 25,5 25,5 25,5 25,5 20,5 20,5 20,5 20	7 129 141 28,9 24,9 6,7 6,7 7,17 7,2 7,17 25,5 7,4,8 8,9 6,0
Conductivity µs/cm) Temp. (°C) D.O. (mg/L) pH 100% Conductivity µs/cm) Temp. (°C)	Day Initial Final Initial Final Initial Final Initial Final Initial Final Initial Final Initial Final Initial	1 128 141 24,5 24,1 8,4 7,0 7,0 7,0 7,1 130 137 25,0 24,1 8,4 6,8 7,2	$ \begin{array}{c} 2 \\ 128 \\ 138 \\ 24.3 \\ 24.3 \\ 8.4 \\ 7.1 \\ 7.2 \\ 7.5 \\ 2 \\ (30 \\ 141 \\ 25.7 \\ 24.4 \\ 4 \end{array} $	128 139 25.6 24.5 8.4 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2	4 129 127 25.0 25.2 83 65 75 75 75 75 75 75 75 75 75 7	129 142 24.8 75 8.3 6.6 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7 129 141 28,9 24,9 8,3 6,7 7,4 7,4 7,4 7,4 7,2 7,4 7,2 7,4 7,2 7,4 7,2 7,4 7,2 7,4 7,5 7,4 7,5 7,4 7,5 7,5 7,5 7,5 7,5 7,5 7,5 7,5 7,5 7,5
Conductivity µs/cm) Temp. (°C) D.O. (mg/L) pH 100% Conductivity µs/cm) Temp. (°C) D.O. (mg/L)	Day Initial Final Initial Final Initial Final Initial Final Final Initial Final Initial Final Initial Final	1 128 141 24.5 24.1 8.4 7.0 7.0 7.0 7.0 7.1 1 130 137 25.0 24.1 8.4 6.8	$ \begin{array}{c} 2 \\ 128 \\ 138 \\ 24.8 \\ 24.3 \\ 8.4 \\ 7.1 \\ 7.2 \\ 7.5 \\ 24.3 \\ 9.4 \\ 7.1 \\ 7.2 \\ 7.1 \\ 24.4 \\ 9.6 \\ 7.1 \\ 9.6 \\ 7.1 \\ \end{array} $	128 139 25.6 24.5 8.4 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2	4 129 127 25.2 83. 65 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.	129 142 24,8 75 75 75 75 74 1 5 130 145 24,9 253 8,4 6,2	1243 25,5 24,5 25,5 25,5 25,5 25,5 20,5 20,5 20,5 20	7 129 14) 28,9 24,9 8,3 6,7 7 7,32 7,4 7,2 7 132 74) 255 7,4 8,5 7 14) 255 7,4 8,5 7 14) 255 7 14) 255 7 14) 255 7 14) 7 152 7 14) 7 152 7 14) 7 152 7 14) 7 152 7 14) 7 152 7 14) 7 155 7 157 15

BUREAU VERITAS LABORATORIES BBY2FCD-00215/14 Tab - Survival, Page 1 of 1

Client Name: Golder Associates Ltd. Job / Sample #: CO39809 XX 3669

Sample ID: MEL-13-01

					#	Surviving	g Organis	ms	and the state of the				
	Replicate	#Of Fish				Day							
Conc.	#	Seeded	1	2	3	4	5	6	7	% Sunvival	% Mortality	% Mean	SD
(% v/v)	Date	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun		76 WORtanty	Mortality	(%)
	А	10	10		10	0	10	þ	10	-	-	-	-
Control	В	10	10	10	10	10	10	10	10	_	-	H illingt	
	С	10	0	10	10	(D	10	10	0]	-	-		
	А	0	10	10	10	10	10	10	10	-	-	-	-
Site Control	В	10	10	10	01	16	10	10	10	-	-	Japan 1	
(Synthetic) c	10	\mathcal{W}	10	10	10	16	(0	10	-	-	ļ,	
	A	10	50	10	0	b	10	6	9	-	-	-	-
1.56	В	10	IC .	ĬŎ	10	b	10	po	10	-	-		
	С	10	10	10	(0	Þ	10	10	10	-	-		1.11
	Α	10	10	10	10	10	10	0	10	-	-	-	-
3.13	В	(10	10	01	10	10	10	16	10	-	-		
	С	lo	10	1D	10	12	10	10	10	-	-		
	А	10	10	0	10	10	10	jo	10	-	-	-	-
6.25	В	10	10	10	10	10	10	\mathcal{V}	10	-	-	14	
	С	10	10	10	(0)	P	10	P	10	-	-		
	А	10	10	10	(1)	10	10	b	10	-	-	-	-
12.5	В	10	10	10	91	10	10	10	10	-	-	1 Parts	
-	С	10	10	10	0)	10	10	Ø	10	-	-		
	Α	10	10	D	10	6	10	6	10	-	-	-	-
25	В	10	0	Q]	0910	10	q	9	9	-	-	hite.	
	С	10	10	G	C.qi	26	10	6	10	-	-	4.5	
	А	lo	0	D	10	6	10	þ	691	o -	-	-	-
50	В	10	ID	10	9	Ġ	9	ġ	9	-	-		
	С	ю	10	10	9	ġ	9	9	9	-	-	11.	
	А	10	10	10	10	\ ∕∘	10	6	10	-	-	-	-
100	В	(0	10	10	10	10	10	2	10	-	-		
	С	10	10	\mathbb{D}	10	R	10	$\langle \rangle$	10	-	-	Hi .:	
An	alyst	yp/mix	100	NS	Ý5	\sim	1/B	m	y 3				

* see test comments

A WE. YS LOZO JUNE 15 @ WE. YS ZOZO JUNE 19

ECOTOXICOLOGY

Randomization Chart

Client Name:	Golder Aa	ma	
Sample Name:	<u> </u>	ingo	

Start Date: 2020 Jun 12

Use the coloured dot to find appropriate conc'ns and put beakers back in proper position following daily water change.

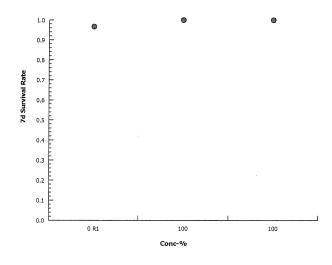
Back Wall		Position Map			
4	8	12	16	20	24
3	7	11	15	19	23
2	6	10	14	18	22
1	5	9	13	17	21

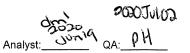
Front of Counter

Position #	Treatment	Replicate	Colour
6		А	
18	Control	В	Red
3		С	
21		А	
20	Site Control	В	White
25	(Synthetic)	С	
13		A	
26	1.56%	В	Orange
10		С	
2		А	
23	3.13%	В	Yellow
14		С	
5		А	
7	6.25%	В	Fl. Green
24		С	
4		А	
9	12.5%	В	Green
15	•	С	
27		A	
1	25%	В	Blue
16		С	
8		A	
12	50%	В	Purple
17		С	
22		А	
19	100%	В	Pink
11		С	•

Report Date:	19 Jun-20 17:04 (p 1 of 4)
Test Code:	PP-10735-0320 20-9088-9222

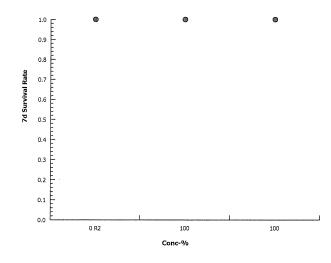
-										1001 0000	•		
Fathead Min	now 7	-d Larval S	urvival	and Growt	h Te	st						Bureau Veritas Laboratories	
nalysis ID: Analyzed:		Endpoint: Analysis:	7d Survival Rate Single 2x2 Contingency Table					CETIS Ver Official Re	CETISv1.9.2 Yes				
Batch ID:	13-1	526-7178		Test Type:	Gro	wth-Surviva	al (7d)			Analyst:	M. Ha	amad	
Start Date:	12 Ju	un-20 14:23	1	Protocol:					Reco	nstituted Water			
Ending Date	: 19 Ju	un-20 15:45	; .	Species:	Pim	Pimephales promelas Brine: Not Ap				pplicable			
Duration:	7d 1	h		Source:	Αqι	uatic Biosys	tems, CO			Age:			
Sample ID:	07-10	013-0430	1	Code:	C03	39804				Client:	Agnic	o Eagle Mines	
Sample Date	: 07 Ju	ın-20		Material:	Wa	ter	ν.			Project:			
Receipt Date	e: 11 Ju	un-20 08:20		Source:	Agr	nico Eagle N	Aines						
Sample Age:	: 5d 1	4h	:	Station:	ME	L 13-07							
Data Transfo	orm		Alt H	/p					Cor	nparison Re	sult		
Untransforme	ed		C > T					100% passed 7d survival rate					
Fisher Exact	Test			·····									
Control	vs	Group		Test S	Stat	P-Type	P-Value	Decision	(α:5%)			
Ref 1 melo	13-02	100		1.000	0	Exact	1.0000	Non-Signi	ificant	Effect			
Data Summa	ry												
Conc-%		Code	NR	R		NR + R	Prop NR	Prop R	%E	ffect			
0		R1	29	1		30	0.9667	0.03333	0.0%	6			
100			30	0		30	1	0	-3.4	5%			
7d Survival F	Rate De	etail											
Conc-%		Code	Rep 1	Rep 2		Rep 3							
0		R1	1.0000	0.900	0	1.0000							
· 00			1.0000	1.000	C	1.0000							

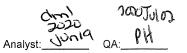




Report Date:	19 Jun-20 17:04 (p 2 of 4)
Test Code:	PP-10735-0320 20-9088-9222

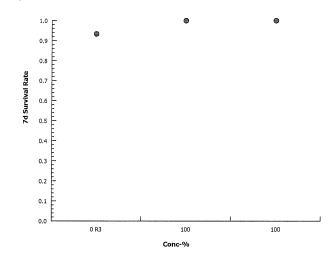
											-	
Fathead Min	างพ 7	7-d Larval S	urvival a	nd Growt	h Te	st						Bureau Veritas Laboratories
•				ndpoint: nalysis:	7d Survival Rate Single 2x2 Contingency Table					CETIS Ver Official Re	CETISv1.9.2 Yes	
Batch ID:	13-1	1526-7178	Т	est Type:	Gro	wth-Surviva	al (7d)			Analyst:	M. Ha	amad
Start Date:	12 J	lun-20 14:23	B P	rotocol:	EC/					Diluent:	Reco	nstituted Water
Ending Date:	19 J	lun-20 15:45	5 S	pecies:	Pim	Pimephales promelas Brine:				Not A	pplicable	
Duration:	7d	1h	S	ource:	Αqι	iatic Biosys	tems, CO					
Sample ID:	07-1	013-0430	С	ode:	C03	9804				Client:	Agnic	co Eagle Mines
Sample Date:	07 J	lun-20	M	laterial:	Wa	ter				Project:		
Receipt Date:	: 11 J	lun-20 08:20) S	ource:	Agr	ico Eagle N	<i>l</i> lines					
Sample Age:	5d	14h	S	tation:	ME	L 13-07						
Data Transfo	rm		Alt Hyp	o					Cor	nparison Re	esult	
Untransformed	d		C > T						100	% passed 7	d surviv	val rate
Fisher Exact	Test											
Control	vs	Group		Test S	Stat	P-Type	P-Value	Decision	(α:5%)		
Ref 2 melo	405	100		1.000	C	Exact	1.0000	Non-Sign	ificant	Effect		
Data Summai	у		*****									
Conc-%		Code	NR	R		NR + R	Prop NR	Prop R	%Ef	fect		
0		R2	30	0		30	1	0	0.0%	6		
100			30	0		30	1	0	0.0%	6		
7d Survival R	ate D	etail										
Conc-%		Code	Rep 1	Rep 2		Rep 3						
0		R2	1.0000	1.000)	1.0000						
00			1.0000	1.0000)	1.0000						

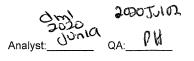




CETIS	Analytical	Report
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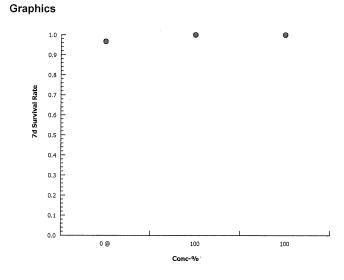
Fathead Mini	now 7	-d Larval S	urvival a	and Growt	h Te	st						Bureau Veritas Laboratories
nalysis ID:		9820-7893		Endpoint:		Survival Ra				CETIS Ver		CETISv1.9.2
Analyzed:	19	Jun-20 16:5	5 A	Analysis:	Sin	gle 2x2 Cor	ntingency Ta	ble		Official Re	sults:	Yes
Batch ID:	13-1	526-7178	Т	est Type:	Gro	wth-Surviva	al (7d)			Analyst:	M. Ha	amad
Start Date:	12 J	un-20 14:23	F	Protocol:	EC/	'EPS 1/RM/	22			Diluent:	Reco	nstituted Water
Ending Date:	19 J	un-20 15:45	5	species:	Pim					Not A	pplicable	
Duration:	7d 1	lh	S	ource:	Aqu	atic Biosys	tems, CO			Age:		
Sample ID:	07-1	013-0430	c	Code:	C03	39804				Client:	Agnic	o Eagle Mines
Sample Date	: 07 J	un-20	- N	laterial:	Wa	ter				Project:		
Receipt Date	: 11 J	un-20 08:20	S	ource:	Agr	ico Eagle N	<i>l</i> ines					
Sample Age:	5d 1	4h	S	station:	ME	L 13-07						
Data Transfo	rm		Alt Hy	р					Cor	nparison Re	esult	
Untransforme	d		C > T						100	al rate		
Fisher Exact	Test											
Control	vs	Group		Test S	Stat	P-Type	P-Value	Decision	(α:5%)		
Ref 3 melo	504	100		1.000) ·	Exact	1.0000	Non-Signi	ificant	Effect		
Data Summa	ry											
Conc-%		Code	NR	R		NR + R	Prop NR	Prop R	%E	fect		
0		R3	28	2		30	0.9333	0.06667	0.0	6		
100			30	0		30	1	0	-7.1	4%		
7d Survival R	late D	etail										
Conc-%		Code	Rep 1	Rep 2		Rep 3						
0		R3	0.9000	1.0000)	0.9000						
00			1.0000	1.0000	כ	1.0000						





CETIS Ana	alytical R	Report							Report D Test Cod		19 Jun-20 17:04 (p 4 o PP-10735-0320 20-9088-9		
Fathead Minn	now 7-d Lar	val Surviva	al and Grow	th Te	st						Burea	u Veritas La	boratories
nalysis ID:	08-9538-1		Endpoint:		Survival Ra				CETIS Version: CETISv1.9.2			1.9.2	
Analyzed:	19 Jun-20	16:55	Analysis:	Sin	gle 2x2 Co	ntingency Ta	ble		Official R	lesults:	Yes		
Batch ID:	13-1526-71	78	Test Type:	Gro	wth-Surviv	al (7d)			Analyst:	M. Ha	amad		
Start Date:	12 Jun-20	14:23	Protocol:	EC/	EPS 1/RM	/22			Diluent:	Reco	nstituted	Water	
Ending Date:	19 Jun-20	15:45	Species:	Pim	ephales pr	omelas			Brine:	Not A	Applicable		
Duration:	7d 1h		Source:	Aqu	atic Biosys	stems, CO			Age:				
Sample ID:	07-1013-04	30	Code:	C03	39804		·····		Client:	Agnic	co Eagle I	Vines	
Sample Date:	07 Jun-20		Material:	Wat	ter				Project:				
Receipt Date:	11 Jun-20 (08:20	Source:	Agn	ico Eagle I	Vines							
Sample Age:	5d 14h		Station:	MEI	L 13-07								
Data Transfor	m	Alt	Нур					Com	parison F	Result			
Untransformed	1	C > 1	т					100%	6 passed	7d surviv	al rate		
Fisher Exact	Test					**************************************		1814 - Le - L					
Group 1	vs Grou	up	Test	Stat	P-Type	P-Value	Decision	(α:5%)					
o pooled	· 100		1.000	0	Exact	1.0000	Non-Signi	ificant E	Effect				
Data Summar	у												
Conc-%	Code	NR	R		NR + R	Prop NR	Prop R	%Eff	ect				
0	@	87	3		90	0.9667	0.03333	0.0%					
100		30	0		30	1	0	-3.45	%				
7d Survival Ra	ate Detail												
Conc-%	Code	Rep	1 Rep 2	2	Rep 3	Rep 4	Rep 5	Rep	6 Re	р7	Rep 8	Rep 9	
0	@	0.90	00 1.000	0	0.9000	1.0000	1.0000	1.000	00 1.0	000	0.9000	1.0000	

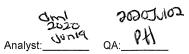
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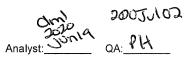
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1.0000

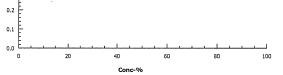


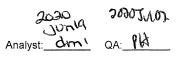
Report Date:	19 Jun-20 17:04 (p 1 of 2)
Test Code:	PP-10735-0320 20-9088-9222

								Т	est Code:	PP-107	/35-0320	0 20-9088-922
Fathea	ad Minn	ow 7-d Larval S	urvival and	d Grow	th Test					Burea	u Verita	s Laboratorie
nalys	sis ID:	21-1698-4845	End	lpoint:	7d Survival Rat	te		c	ETIS Vers	ion: CETIS	1.9.2	
Analyz	ed:	19 Jun-20 16:5	4 Ana	lysis:	Linear Interpola	ation (ICPIN)	c	Official Res	sults: Yes		
Batch	ID:	13-1526-7178	Tes	t Type:	Growth-Surviva	al (7d)	, ,	A	nalyst:	M. Hamad		
Start D	Date:	12 Jun-20 14:23		tocol:	EC/EPS 1/RM/	22			Diluent:	Reconstituted Water		
Ending	g Date:	19 Jun-20 15:45	5 Spe	cies:	Pimephales pro	omelas		E	Brine:	Not Applicable	;	
Duratio	on:	7d 1h	Sou	irce:	Aquatic Biosys	tems, CO		Α	\ge:			
Sampl	e ID:	07-1013-0430	Cod	le:	C039804			c	lient:	Agnico Eagle	Mines	
Sampl	e Date:	07 Jun-20	Mat	erial:	Water			P	Project:			
Receip	ot Date:	11 Jun-20 08:20	Sou	irce:	Agnico Eagle M	lines						
Sampl	e Age:	5d 14h	Sta	tion:	MEL 13-07							
Linear	Interpo	lation Options										
X Tran	sform	Y Transform	n See	d	Resamples	Exp 95%	CL Met	hod				
Log(X+	·1)	Linear	115	5209	200	Yes	Two	-Point Int	terpolation			
Point E	Estimate	es										
Level	%	95% LCL	95% UCL	τu	95% LCL	95% UCL						
EC5	>100	n/a	n/a	<1	n/a	n/a						
EC10	>100	n/a	n/a	<1	n/a	n/a						
EC15	>100	n/a	n/a	<1	n/a	n/a						
EC20	>100	n/a [·]	n/a	<1	n/a	n/a						
EC25	>100	n/a	n/a	<1	n/a	n/a						
EC40	>100	n/a	n/a	<1	n/a	n/a						
EC50	>100	n/a	n/a	<1	n/a	n/a				understandelige og den skale og se		
7d Sur	vival Ra	ate Summary				Calcu	lated Varia	ate(A/B)				
onc-%	6	Code	Count	Mean	Min	Max	Std Err	Std De	ev CV%	%Effect	Α	В
J		S1	3	0.966		1.0000	0.0333	0.0577			29	30
1.56			3	0.966		1.0000	0.0333	0.0577			29	30
3.13			3	1.000		1.0000	0.0000	0.0000			30	30
6.25			3	0.966		1.0000	0.0333	0.0577			29	30
12.5			3	1.000		1.0000	0.0000	0.0000			30	30
25			3	0.966		1.0000	0.0333	0.0577			29	30
50 100			3	0.966		1.0000	0.0333	0.0577			29	30
			3	1.000	0 1.0000	1.0000	0.0000	0.0000	0.00%	6 -3.45%	30	30
		ite Detail	. .	_	_ -							
Conc-%	<u>′o</u>	Code S1	Rep 1 1.0000	Rep 2								Charles and the second s
-		01										
1.56			1.0000	0.900								
3.13 2.25			1.0000	1.000								
3.25			0.9000	1.000								
12.5			1.0000	1.000								
25			1.0000	1.000								
50			0.9000	1.0000								
100			1.0000	1.0000	0 1.0000							



CETIS Ana	alytical Report			Report Date: Test Code:	19 Jun-20 17:04 (p 2 of 2) PP-10735-0320 20-9088-9222
Fathead Min	now 7-d Larval Survi	val and Growt	h Test		Bureau Veritas Laboratories
nalysis ID: Analyzed:	21-1698-4845 19 Jun-20 16:54	Endpoint: Analysis:	7d Survival Rate Linear Interpolation (ICPIN)	CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics					
1.0 0.9 1.8 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.7 0.8 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.0					





FATHEAD MINNOW SURVIVAL AND GROWTH TEST

Client Name: Golder Associates Ltd. (Agnico)

Sample ID: MEL-13-07

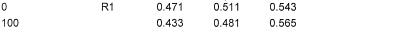
Job / Sample #: <u>C039804 XX3665</u>

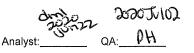
					#	f Survivin	g Organis	sms					
	Replicate	# Of Fish				Day	•						
Conc.	#	Seeded	1	2	3	4	5	6	7	% Survival	% Mortality	% Mean	SD
(% v/v)	Date	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun		70 Wortanty	Mortality	(%)
	A	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
Control	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	3.3%	5.8%
Site Control	В	10	10	10	10	10	10	10	9	90%	10%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	3.3%	5.8%
1.56	В	10	10	10	10	10	10	10	9	90%	10%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
3.13	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	9	90%	10%	3.3%	5.8%
6.25	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
12.5	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	3.3%	5.8%
25	В	10	10	10	10	10	10	10	10	100%	0%	and a second	
	С	10	10	10	10	10	10	10	9	90%	10%		E.
	А	10	10	10	9	9	9	9	9	90%	10%	3.3%	5.8%
50	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
100	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		je kora
An	alyst	MHM	MHM	NS	YS	MHM	MB	MHM	MHM				

* see test comments

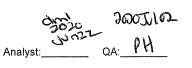
Proofed: Mars 2020JUID

Report Date: 22 Jun-20 16:55 (p 1 of 8) **CETIS Analytical Report** PP-10735-0320 | 20-9088-9222 **Test Code:** Fathead Minnow 7-d Larval Survival and Growth Test **Bureau Veritas Laboratories** Endpoint: nalysis ID: 20-0622-9798 Mean Dry Biomass-mg **CETIS Version:** CETISv1.9.2 Parametric-Two Sample **Official Results:** Analyzed: 22 Jun-20 16:52 Analysis: Yes M. Hamad Batch ID: 13-1526-7178 Test Type: Growth-Survival (7d) Analyst: Start Date: 12 Jun-20 14:23 Protocol: EC/EPS 1/RM/22 Diluent: Reconstituted Water Not Applicable Brine: Ending Date: 19 Jun-20 15:45 Species: Pimephales promelas Duration: 7d 1h Source: Aquatic Biosystems, CQ Age: Sample ID: 07-1013-0430 Code: C039804 Client: Agnico Eagle Mines Sample Date: 07 Jun-20 Material: Water Project: Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Sample Age: 5d 14h Station: MEL 13-07 Data Transform Alt Hyp **Comparison Result** PMSD Untransformed C > T 100% passed mean dry biomass-mg 18.38% Equal Variance t Two-Sample Test Control vs Conc-% Test Stat Critical MSD DF P-Type **P-Value** Decision(a:5%) 100 0.3498 2.132 0.093 4 CDF 0.3721 Non-Significant Effect Ref 1 merozor **Auxiliary Tests** Attribute Test Test Stat Critical P-Value Decision(a:5%) Extreme Value 1.499 0.5782 No Outliers Detected Grubbs Extreme Value Test 1.887 **ANOVA Table** Source Sum Squares Mean Square DF F Stat P-Value Decision(a:5%) Between 0.0003527 0.0003527 0.1223 0.7441 Non-Significant Effect 1 Error 0.0115307 0.0028827 4 5 0.0118833 ົວtal Distributional Tests Attribute Test Test Stat Critical P-Value Decision(a:1%) Variances Variance Ratio F Test 3.43 199 0.4514 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.9583 0.9814 0.43 Normal Distribution Mean Dry Biomass-mg Summary Conc-% Code Count 95% LCL 95% UCL Median Min Max CV% %Effect Mean Std Err 0 R1 0.5083 3 0.4187 0.5979 0.511 0.471 0.543 0.02083 7.10% 0.00% 100 3 0.493 0.327 0.659 0.481 0.433 0.565 0.03857 13.55% 3.02% Mean Dry Biomass-mg Detail Conc-% Code Rep 1 Rep 2 Rep 3 0





CETIS Ana	alytical Report			Report Date: Test Code:	22 Jun-20 16:55 (p 2 of 8) PP-10735-0320 20-9088-9222		
Fathead Minr	now 7-d Larval Survi	val and Growt	h Test				Bureau Veritas Laboratories
nalysis ID: Analyzed:	20-0622-9798 22 Jun-20 16:52	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample			CETIS Version Official Result	
Graphics							
0.6 0.5 0.4 0.4 0.3 0.2 0.1			Reject Null	Centered Untransformed	0.08 Image: Constraint of the constraint of		0
0.0	0 R1		100		-0.08 E -1.5	-1,0 -0,5 0	
	c	onc-%				Rankit	5

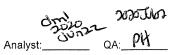


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Report Date:	22 Jun-20 16:55 (p 3 of 8)
Test Code:	PP-10735-0320 20-9088-9222

							lest	Code:	PP-107-	35-0320 Z	0-9000-922
Fathead Minno	ow 7-d Larval S	Survival ar	nd Growt	h Test					Bureau	u Veritas La	aboratorie
nalysis ID: Analyzed:	14-7223-4339 22 Jun-20 16:		ndpoint: nalysis:	Mean Dry Bion Parametric-Tw	•			IS Versior cial Result		1.9.2	
Batch ID:	13-1526-7178	Te	est Type:	Growth-Surviva	al (7d)		Anal	yst: M.	Hamad		
	12 Jun-20 14:2		otocol:	EC/EPS 1/RM/			Dilu	-	econstituted \	Nater	
Ending Date:	19 Jun-20 15:4	5 S r	pecies:	Pimephales pr	omelas		Brin	e: No	ot Applicable		
	7d 1h		ource:	Aquatic Biosys	tems, CO		Age	:			
Sample ID:	07-1013-0430	Co	ode:	C039804			Clier	nt: Ag	nico Eagle M	lines	
Sample Date:	07 Jun-20	Ма	aterial:	Water			Proj	ect:			
Receipt Date:	11 Jun-20 08:2	0 S c	ource:	Agnico Eagle N	<i>l</i> lines						
Sample Age:	5d 14h	St	ation:	MEL 13-07							
Data Transform	n	Alt Hyp					Comparis	son Resul	t		PMSD
Untransformed		C > T					100% pas	sed mean	dry biomass	-mg	17.09%
Equal Variance	e t Two-Sampl	e Test									
Control v	s Conc-%		Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)		
Ref 2 mel Oy	ro5 100		1.36	2.132	0.095 4	CDF	0.1227	Non-Sig	nificant Effec	t	
Auxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)		
Extreme Value	Grubbs E	Extreme Va	alue Test		1.482	1.887	0.6137	No Outli	ers Detected		
ANOVA Table											
Source	Sum Squ	ares	Mean	Square	DF	F Stat	P-Value	Decisio			
Between	0.005460	2	0.0054	1602	1	1.851	0.2453	Non-Sig	nificant Effec	t	
Error	0.011800		0.0029	9502	4						
"otal	0.017260	8			5						
Distributional 1	Fests										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)	•	
Variances		Ratio F Te			3.108	199	0.4869	Equal Va			
Distribution	Shapiro-V	Vilk W Norr	mality Tes	st	0.9598	0.43	0.8183	Normal I	Distribution		
Mean Dry Biom	nass-mg Sumr	nary									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	R2	3	0.5533	0.4592	0.6475	0.547	0.519	0.594	0.02188	6.85%	0.00%
100		3	0.493	0.327	0.659	0.481	0.433	0.565	0.03857	13.55%	10.90%
Mean Dry Biom	ass-mg Detail	l									
Conc-%	Code	Rep 1	Rep 2	Rep 3							
0	R2	0.519	0.594	0.547							
100		0 433	0 481	0 565							

.100 0.433 0.481 0.565



CETIS Ana	lytical Report				Report Test Co				5:55 (p 4 of 20-9088-922
Fathead Minn	iow 7-d Larval Survi	val and Growt	h Test		Bureau Veritas L				_aboratorie
nalysis ID: Analyzed:	14-7223-4339 22 Jun-20 16:53	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample			Version: Results:	CETISv1 Yes	.9.2	
Graphics 0.5 60.5 60.5 60.4 0.4 0.4 0.4 0.4 0.4 0.4 0.2 0.2 0.1			Reject Null	0.08 0.07 0.06 0.05 0.04 0.03 0.02 0.01 0.00 0.01 0.02 0.01 0.02 0.03 0.02 0.01 0.02 0.03 0.02 0.03 0.02 0.03 0.04 0.05 0.05 0.05 0.05 0.05 0.05 0.05		8	0		
0.0	0 R2		100	-0.08 2	-1.0 -0.5	5 0.0 Rankits	0.5	1.0	1.5

Driver 0000 J.M.D. Analyst: QA: <u>PH</u>

CETIS Anal	ytical Re	port					Report Date: 22 Jun-20 16:55 (p 5 of Test Code: PP-10735-0320 20-9088-922				
Fathead Minno	ow 7-d Larval	Survival a	nd Growt	h Test						, !	aboratories
nalysis ID:	15-8419-190	7 E	ndpoint:	Mean Dry B	iomass-mg		CET	IS Versio	n: CETISv1	.9.2	
Analyzed:	22 Jun-20 16	:55 A	nalysis:	Parametric-	Two Sample		Offic	cial Resul	ts: Yes		
Batch ID:	13-1526-7178	Т	est Type:	Growth-Surv	vival (7d)		Ana	lyst: M	. Hamad		
Start Date:	12 Jun-20 14:	23 P	rotocol:	EC/EPS 1/R	RM/22		Dilu	ent: R	econstituted V	Vater	
Ending Date:	19 Jun-20 15:	45 S	pecies:	Pimephales	promelas		Brin	e: N	ot Applicable		
Duration: 7	7d 1h	S	ource:	Aquatic Bios	systems, CO		Age	:			
Sample ID: (07-1013-0430	C	ode:	C039804		daarbad Gedaa (1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999	Clie	nt: Ag	gnico Eagle M	lines	
Sample Date: (07 Jun-20	м	aterial:	Water			Proj	ect:			
Receipt Date: 1	11 Jun-20 08::	20 S	ource:	Agnico Eagl	e Mines		-				
Sample Age: 5			ation:	MEL 13-07							
Data Transform	n	Alt Hyp)				Compari	son Resu	lt		PMSD
Untransformed		C > T					100% pas	ssed mear	dry biomass-	mg	16.14%
Equal Variance	e t Two-Samp	le Test				<u></u>					
Control v		6	Test	Stat Critica	I MSD DI	F P-Type	P-Value	Decisio	on(α:5%)		
Ref 3 metos	pr 100		0.812	9 2.132	0.085 4	CDF	0.2309	Non-Sig	inificant Effect		
Auxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)		
Extreme Value	Grubbs	Extreme V	alue Test		1.652	1.887	0.3058	No Outli	iers Detected		
ANOVA Table											
Source	Sum Sq	uares	Mean	Square	DF	F Stat	P-Value	Decisio	n(α:5%)		
Between	0.00156	82	0.001	5682	1	0.6608	0.4619	Non-Sig	nificant Effect		
Error	0.009492	27	0.002	3732	4						
Total	0.01106	08			5	· · ·					
Distributional T	Fests										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances	Variance	Ratio F Te	st		15.81	199	0.1190	Equal V	ariances		
Distribution	Shapiro-	Wilk W Nor	mality Te	st	0.9611	0.43	0.8285	Normal	Distribution		
Mean Dry Biom	ass-mg Sum	mary								 	
Conc-%	Code	Count	Mean	95% LC	CL 95% UCL	Median	Min	Мах	Std Err	CV%	%Effect
C	R3	3	0.525		0.5671	0.529	0.507	0.54	0.009701	3.20%	0.00%
100		3	0.493	0.327	0.659	0.481	0.433	0.565	0.03857	13.55%	6.15%
/lean Dry Biom	ass-mg Deta	il									
Conc-%	Code	Ren 1	Ren 2	Ren 3							

Conc-%	Code	Rep 1	Rep 2	Rep 3
0	R3	0.54	0.507	0.529
100		0.433	0.481	0.565

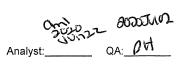


CETIS Ana	alytical Report		Report Date: Test Code:	22 Jun-20 16:55 (p 6 of 8) PP-10735-0320 20-9088-9222		
Fathead Minr	now 7-d Larval Surviv	al and Growt	h Test			Bureau Veritas Laboratories
nalysis ID: Analyzed:	15-8419-1907 22 Jun-20 16:55	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample		CETIS Version: Official Results	
Graphics						
0.6 0.5 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4			keject Null	Contracting the second	0 0	0
_{0.0} E	0 R3	I	J 100	-0.07 E	-1.0 -0.5 0.0	0.5 1.0 1.5
	Cor	1c-%			Rankits	

Report Date: 22 Jun-20 16:55 (p 7 of 8) Test Code:

PP-10735-0320 | 20-9088-9222

Fathead Minno	w 7-d Larval S	Survival and	d Growth	n Test					Bureau	ı Veritas La	aboratories
nalysis ID:	00-6604-9624 22 Jun-20 16:		•	Mean Dry Biom Parametric-Tw	•			IS Version		1.9.2	
nalyzed:			lysis:		•						
	13-1526-7178			Growth-Surviva				,	Hamad	N / - /	
	12 Jun-20 14:2			EC/EPS 1/RM/			Dilu		constituted V	vater	
Ending Date:				Pimephales pro			Brin		t Applicable		
Duration:	7d 1h	501	irce:	Aquatic Biosys	tems, CO	,	Age				
Sample ID:	07-1013-0430	Coc	le:	C039804			Clie	0	nico Eagle N	lines	
Sample Date: (Water			Proj	ect:			
Receipt Date: 7				Agnico Eagle N	/lines						
Sample Age: 8	5d 14h	Stat	ion:	MEL 13-07							
Data Transform	ı	Alt Hyp					Comparis	son Result			PMSD
Untransformed		C > T					100% pas	ssed mean	dry biomass	-mg	9.71%
Equal Variance	e t Two-Sampl	e Test									
Conc-% v	s Conc-%		Test S	tat Critical	MSD DF	P-Type	P-Value	Decisior	n(α:5%)		
0 partes	100		1.27	1.812	0.051 10	CDF	0.1163	Non-Sigr	ificant Effec	t	
Auxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decisior	ι(α:5%)		
Extreme Value	Grubbs I	Extreme Valu	ue Test		1.777	2.412	0.7027	No Outlie	ers Detected		
ANOVA Table							and a second				19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -
Source	Sum Squ	iares	Mean \$	Square	DF	F Stat	P-Value	Decision	ı(α:5%)		
Between	0.002916		0.0029	16	1	1.614	0.2327	Non-Sign	ificant Effec	t	
Error	0.018066		0.0018	066	10	_					
⁻otal	0.020982		1		11						
Distributional T	ests										
Attribute	Test				Test Stat	Critical	P-Value	Decision	ı(α:1%)		
Variances	Variance	Ratio F Test			3.908	11.04	0.1309	Equal Va	riances		
Distribution	Shapiro-V	Vilk W Norm	ality Tes	t	0.9364	0.8025	0.4524	Normal D	istribution		
Mean Dry Biom	ass-mg Sumr	mary									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Мах	Std Err	CV%	%Effect
0	@	9	0.529	0.503	0.555	0.529	0.471	0.594	0.01127	6.39%	0.00%
100		3	0.493	0.327	0.659	0.481	0.433	0.565	0.03857	13.55%	6.81%
Mean Dry Biom	ass-mg Detai										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	
0	@	0.54	0.507	0.529	0.519	0.594	0.547	0.471	0.511	0.543	
100		0.433	0.481	0.565							



CETIS Ana	alytical Report			Report Date: 22 Jun-20 16:55 (p 8 of 8) Test Code: PP-10735-0320 20-9088-9222	
Fathead Minr	now 7-d Larval Surviva	l and Growt	h Test		Bureau Veritas Laboratories
nalysis ID: Analyzed:	00-6604-9624 22 Jun-20 16:55	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample		CETIS Version: CETISv1.9.2 Official Results: Yes
Graphics					
0.6 0.5 0.4 0.4 0.3 0.2 0.1			Reject Null	Centered Untransformed	-0.01 -0.02 -0.03 -0.04 -0.05 -0.06 -0.07
0.0	0 @		100		-0.08
	Conc	-%			Rankits

 Report Date:
 22 Jun-20 16:55 (p 1 of 2)

 Test Code:
 PP-10735-0320 | 20-9088-9222

Fathead Minnow 7-d Larval Survival and Growth Test **Bureau Veritas Laboratories** Endpoint: Mean Dry Biomass-mg CETIS Version: CETISv1.9.2 nalysis ID: 18-2082-1589 Linear Interpolation (ICPIN) Analyzed: 22 Jun-20 16:52 Analysis: Official Results: Yes M. Hamad Batch ID: 13-1526-7178 Test Type: Growth-Survival (7d) Analyst: Start Date: 12 Jun-20 14:23 Protocol: EC/EPS 1/RM/22 Diluent: **Reconstituted Water** Ending Date: 19 Jun-20 15:45 Species: Pimephales promelas Brine: Not Applicable Duration: 7d 1h Source: Aquatic Biosystems, CO Age: Sample ID: 07-1013-0430 Code: C039804 Client: Agnico Eagle Mines Sample Date: 07 Jun-20 Material: Water Project: Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Sample Age: 5d 14h Station: MEL 13-07 Linear Interpolation Options

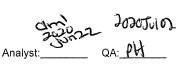
X Transform Y Transform Seed Resamples Exp 95% CL Method Log(X+1) Linear 1924986 200 Yes **Two-Point Interpolation Residual Analysis** Attribute Method Test Stat Critical P-Value Decision(a:5%) Grubbs Extreme Value Test 1.997 0.9186 No Outliers Detected Extreme Value 2.802

Point E	Point Estimates										
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL					
IC5	68.6	48.27	n/a	1.458	n/a	2.072					
IC10	93.98	45.26	n/a	1.064	n/a	2.209					
IC15	>100	n/a	n/a	<1	n/a	n/a					
IC20	>100	n/a	n/a	<1	n/a	n/a					
IC25	>100	n/a	n/a	<1	n/a	n/a					
`40	>100	n/a	n/a	<1	n/a	n/a					
50ئ،	>100	n/a	n/a	<1	n/a	n/a					

Mean Dry Biomass-mg Summary			Calculated Variate						
Conc-%	Code	Count	Mean	Min	Мах	Std Err	Std Dev	CV%	%Effect
0	S1	3	0.506	0.446	0.562	0.03355	0.0581	11.48%	0.0%
1.56		3	0.5167	0.449	0.587	0.03986	0.06904	13.36%	-2.11%
3.13		3	0.558	0.506	0.599	0.0274	0.04747	8.51%	-10.28%
6.25		3	0.5457	0.443	0.621	0.05317	0.09209	16.88%	-7.84%
12.5		3	0.6043	0.527	0.673	0.04237	0.07338	12.14%	-19.43%
25		3	0.5537	0.532	0.576	0.01271	0.02201	3.98%	-9.42%
50		3	0.5927	0.559	0.628	0.01994	0.03453	5.83%	-17.13%
100		3	0.493	0.433	0.565	0.03857	0.06681	13.55%	2.57%

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3
0	S1	0.562	0.446	0.51
1.56		0.587	0.514	0.449
3.13		0.506	0.569	0.599
6.25		0.443	0.573	0.621
12.5		0.613	0.673	0.527
25		0.532	0.576	0.553
50		0.559	0.591	0.628
100		0.433	0.481	0.565



CETIS Ana	alytical Report			Report Date:	22 Jun-20 16:55 (p 2 of 2)		
	· · · · · · · · · · · · · · · · · · ·			Test Code:	PP-10735-0320 20-9088-9222		
Fathead Minr	now 7-d Larval Surv	ival and Grow	th Test	Bureau Veritas Labo			
nalysis ID: Analyzed:	18-2082-1589 22 Jun-20 16:52	Endpoint: Analysis:	Mean Dry Biomass-mg Linear Interpolation (ICPIN)	CETIS Version: Official Results:	CETISv1.9.2 Yes		
Graphics							
0.7	• •						
0.6	Q						
Ę			******				
6 0.5 6							
Mean Dry Biomass-mg							
L 0.3							
E.							
0.2							

____] 100

80



0.1

0

20

40

Conc-%

60

FATHEAD MINNOW SURVIVAL AND GROWTH TEST

Tab -	Biomass,	Page	1	of	1
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				tes Ltd. (Agnico)			0000004 22/00005	
			MEL-13-07				C039804 XX3665	
	-		2020 June 17, 2 bby2-0260	2020 Jun 20		Drying Time (h): Drying Temp (°C):		
Deet	Conc. &	Initial #	Boat Wt.	Boat & Fish	Wt. of Fish			00
Boat #	Replicate	Of Fish	воаг wi. (g)	Wt. (g)	(mg)	Biomass/Replicate ¹ (mg)	Mean Biomass/Conc¹ (mg)	SD
304	0-A	10	0.80144	0.80714	5.70	0.570	0.573	0.06
305	В	10	0.80493	0.81008	5.15	0.515	0.070	0.00
306	C	10	0.80810	0.81443	6.33	0.633		
307	Site Ctrl-A	10	0.79177	0.79739	5.62	0.562	0.506	0.06
308	В	10	0.80906	0.81352	4.46	0.446	0.000	0.00
309	C	10	0.81217	0.81727	5.10	0.510		
310	1.56%-A	10	0.81361	0.81948	5.87	0.587	0.517	0.07
311	В	10	0.80485	0.80999	5.14	0.514		0.07
312	C	10	0.79729	0.80178	4.49	0.449		
313	3.13%-A	10	0.80236	0.80742	5.06	0.506	0.558	0.05
314	В	10	0.78473	0.79042	5.69	0.569		0.00
315	C	10	0.82537	0.83136	5.99	0.599		· Shining .
316	6.25%-A	10	0.81461	0.81904	4.43	0.443	0.546	0.09
317	В	10	0.79856	0.80429	5.73	0.573		
218	С	10	0.79863	0.80484	6.21	0.621		
,9	12.5%-A	10	0.80023	0.80636	6.13	0.613	0.604	0.07
320	В	10	0.80637	0.81310	6.73	0.673		
321	С	10	0.79973	0.80500	5.27	0.527		
322	25%-A	10	0.79829	0.80361	5.32	0.532	0.554	0.02
323	В	10	0.78474	0.79050	5.76	0.576		
324	С	10	0.78370	0.78923	5.53	0.553		n an
325	50%-A	10	0.79626	0.80185	5.59	0.559	0.593	0.03
326	В	10	0.80695	0.81286	5.91	0.591		
327	С	10	0.79326	0.79954	6.28	0.628		
328	100%-A	10	0.80523	0.80956	4.33	0.433	0.493	0.07
329	В	10	0.80372	0.80853	4.81	0.481		
330	С	10	0.80518	0.81083	5.65	0.565	States and a state of the second	
331	QA/QC		0.79185	0.79201	0.16			
332	QA/QC		0.79620	0.79639	0.19			er vi Zer statistica e e e e e e e e e e e e e e e e e e e
304	0-A	10	0.80152	0.80738	5.86			
	nalyst		NS	DML			ed into that replicate (i.e.	

¹ Biomass is calculated as the weight of fish per replicate divided by the number of fish initially seeded into that replicate (i.e. **10** fish per replicate).

Average Dry Weight of Control Fish (Average dry weight of control fish must be \geq 250 µg for test to be valid)

Boat #	Conc. &	# Surviving	Wt. of Fish	Mean Wt./	Mean Dry Wt.
	Replicate	Fish	(mg)	Fish (µg)	(µg)
304	0-A	10	5.70	570	573
305	В	10	5.15	515	
306	С	10	6.33	633	

BUREAU VERITAS LABORATORIES

ECOTOXICOLOGY

FATHEAD MINNOW SURVIVAL AND GROWTH TEST

BBY2FCD-00215/14 Tab - Obs, Page 1 of 2

							,
	Client Name	Golder Associates	Ltd. (Agnic	\sim	Job / Sample #:	(n29.804	WRUS
		June 12, 2020	LU. (Frynic	~)	· · · · · · · · · · · · · · · · · · ·	MEL-13-07	NN JOD
		June 19, 2020	a an ann an an Abhailtean an an Ann	•	Organism Lot #:		,
	Analyst(s):	MHamad 1	l.SU. N	hassi	NSperall	PUDDOUL	
			150 10		Deviations See I	BLNC: 🗆	
Befor	e Use Measuremer	nts (After tempera	ture adjustme	nt)	Worksheet Create		
Day	Date	Initial D.O. (% Sat)	Initial Temp (°C)	Aerated (min.)*	Post Aeration D.O. (% Sat)	Post Aeration Temp (°C)	Analyst
0	June 12, 2020	105,7	25,3	20	103.7	25,6	MIM
1	June 13, 2020	105.1	25.8	20	103.6	25.7	MIN
2	June 14, 2020	110.2	Z6.0	20	108.5	25,9	mo
3	June 15, 2020	109.6	Z4, 4	Zo	103,8	34.0	VS
4	June 16, 2020	110.1	25.5	20	101.8	251	MHM
5	June 17, 2020	113.2	25.9	20	101.9	25.7	Mitm
6	June 18, 2020	111.3	25,7	20	101.2	25.7	1717
	tion rate must be ≤1 mple Description	00 bubbles/min <u>Clear and Colo</u>		trument ID's:	BBY2-0366 Initials	MHqmac	
Sa	ample Hardness (mg	, - 0000,	72	Initials:	VS	Room #	106
Obse	rvations during the	Test (Organism	behaviour, add	litional test			
	rvations during the	e Test (Organism	behaviour, adc	litional test			
Obse Day 0	rvations during the		behaviour, ado	Carboy/Bo	information)		Analyst
Day	Date:	June 12, 2020	<	×~~~	information)		Analyst
Day		June 12, 2020 09່, 22 - ບ9່, ບ	12	Carboy/Bo	information) ttle #:) Test Seeded @:	141,23	Analyst
Day	Date:	June 12, 2020 09່, 22 - ບ9່, ບ	<	Carboy/Bo	information)	141,23	Analyst
Day	Date:	June 12, 2020 09່, 22 - ບ9່, ບ	12	Carboy/Bo	information) ttle #:) Test Seeded @:	141,23	Analyst
Day 0	Date: Pre-Aeration Time:	<u>June 12, 2020</u> <u>0ໆ',22 - ບໆ', L</u> Feedi	イン ng PM: し て	Carboy/Bo	information) ttle #:] Test Seeded @: Feeding Volume	141,23	Analyst MIM
Day	Date: Pre-Aeration Time: Date:	June 12, 2020 <u>0ໆ', 22 - ບໆ', ບ</u> Feedi June 13, 2020	イン ng PM: 16こ	Carboy/Bo	information) ttle #:] Test Seeded @: Feeding Volume ttle #:	ңц`,23 (uL): 50	Analyst MIM
Day 0	Date: Pre-Aeration Time: Date: Pre-Aeration Time:	June 12, 2020 <u>09',72 - 09', ບ</u> Feedi June 13, 2020 19',49 - 15`,0°	< ng PM: 16:1	Carboy/Bo	information) ttle #:] Test Seeded @: Feeding Volume ttle #: 3 Water change @	14',23 (uL): 50 : 16',20	Analyst MIM MIM
Day 0	Date: Pre-Aeration Time: Date: Pre-Aeration Time: Feeding AM: ひがい	June 12, 2020 <u>09',72 - 09', ບ</u> Feedi June 13, 2020 19',49 - 15`,0°	< ng PM: 16:1	Carboy/Bo	information) ttle #:] Test Seeded @: Feeding Volume ttle #: 3 Water change @	ңц`,23 (uL): 50	Analyst MIM
Day 0	Date: Pre-Aeration Time: Date: Pre-Aeration Time:	June 12, 2020 <u>09',72 - 09', ບ</u> Feedi June 13, 2020 19',49 - 15`,0°	< ng PM: 16:1	Carboy/Bo	information) ttle #:] Test Seeded @: Feeding Volume ttle #: 3 Water change @	14',23 (uL): 50 : 16',20	Analyst MIM
Day 0	Date: Pre-Aeration Time: Date: Pre-Aeration Time: Feeding AM: ひがい	June 12, 2020 <u>09',72 - 09', ບ</u> Feedi June 13, 2020 19',49 - 15`,0°	< ng PM: 16:1	Carboy/Bo	information) ttle #:] Test Seeded @: Feeding Volume ttle #: 3 Water change @	14',23 (uL): 50 : 16',20	Analyst MIM MIM
0 1	Date: Pre-Aeration Time: Date: Pre-Aeration Time: Feeding AM: ひがい	June 12, 2020 <u>09', 22 - 09', ບ</u> Feedi June 13, 2020 19', 49 - 15`, ວ ^ຣ ໂ <u></u> Feedi	< ng PM: 16 ت 1 ng PM: 17 * (Carboy/Bo	information) Itle #: 1 Test Seeded @: Feeding Volume Itle #: 3 Water change @ Feeding Feeding	14',23 (uL): 50 : 16',20	Analyst MIM MIM / CB
Day 0	Date: Pre-Aeration Time: Date: Pre-Aeration Time: Feeding AM: O () WQ Rep: $/$ WQ Rep: $/$ Date: Date:	June 12, 2020 <u>09',22 - 09',0</u> Feedi June 13, 2020 <u>19',49 - 15`,0°</u> <u>15</u> Feedi June 14, 2020	< ng PM: 16 ت 1 ng PM: (၇ * ۲	Carboy/Bo	information) itle #:] Test Seeded @: Feeding Volume itle #: Water change @ Feedir Feedir ttle #:	16', 20 (uL): 5D : 16', 20 ng Volume (uL):	Analyst MIM MIM
0 1	Date: Pre-Aeration Time: Date: Pre-Aeration Time: Feeding AM: \odot $\%$ $\%$ WQ Rep: $/$ Date: Date: Pre-Aeration Time:	June 12, 2020 <u>09',22 - 09', 0</u> Feedi June 13, 2020 <u>19',49 - 15',0°</u> <u>15 Feedi</u> June 14, 2020 <u>10',20 - 10 : 1</u>	<pre> 42 ng PM: 16: 1 ng PM: [?; < 40 </pre>	Carboy/Bo	information) itle #:] Test Seeded @: Feeding Volume itle #: Water change @ Feedir ttle #: Water change @	いい、ころ (uL): SD : 1 6 ', 20 ng Volume (uL): : 15:08	Analyst MIM MIM/US So
0 1	Date: Pre-Aeration Time: Date: Pre-Aeration Time: Feeding AM: $&$ $&$ $&$ WQ Rep: \bigwedge WQ Rep: \bigwedge Date: Pre-Aeration Time: Feeding AM: $&$	June 12, 2020 <u>09',22 - 09', 0</u> Feedi June 13, 2020 <u>19',49 - 15',0°</u> <u>15 Feedi</u> June 14, 2020 <u>10',20 - 10 : 1</u>	< ng PM: 16 ت 1 ng PM: (၇ * ۲	Carboy/Bo	information) itle #:] Test Seeded @: Feeding Volume itle #: Water change @ Feedir ttle #: Water change @	16', 20 (uL): 5D : 16', 20 ng Volume (uL):	Analyst MIM MIM/US So
0 1	Date: Pre-Aeration Time: Date: Pre-Aeration Time: Feeding AM: \odot $\%$ $\%$ WQ Rep: $/$ Date: Date: Pre-Aeration Time:	June 12, 2020 <u>09',22 - 09', 0</u> Feedi June 13, 2020 <u>19',49 - 15',0°</u> <u>15 Feedi</u> June 14, 2020 <u>10',20 - 10 : 1</u>	<pre> 42 ng PM: 16: 1 ng PM: [?; < 40 </pre>	Carboy/Bo	information) itle #:] Test Seeded @: Feeding Volume itle #: Water change @ Feedir ttle #: Water change @	いい、ころ (uL): SD : 1 6 ', 20 ng Volume (uL): : 15:08	Analyst MIM MIM/US So

BUREAU VERITAS LABORATORIES

ECOTOXICOLOGY

FATHEAD MINNOW SURVIVAL AND GROWTH TEST

BBY2FCD-00215/14 Tab - Obs, Page 2 of 2

(Agnico Client Name: Golder Associates Sample ID: MEL-13-07

Job / Sample #: <u>C039804</u> XX3665

Day		Analyst
3	Date: June 15, 2020 Carboy / Bottle #: 2	. Is
	Pre-Aeration Time: 14:45 ~ 15:05 Water change @: 16:50	
	Feeding AM: OT: OT: Feeding PM: IT: Strength Feeding AM: OT: OT: OT: OT: OT:	50
	WQ Rep: C	
4	Date: June 16, 2020 Carboy) Bottle #: 3	Mim
	Pre-Aeration Time: 09'-40-10:00 Water change @: 14'.20	
	Feeding AM: 07:45 Feeding PM: \\$`, 20 Feeding Volume (uL):	50
	WQ Rep: A	
1		
; 		1 In
5	Date: June 17, 2020 Carboy Bottle #: 3	MITA US
	Pre-Aeration Time: 08:15-08:35 Water change @: 11:57	/
	Feeding AM: 07:45 Feeding PM: 14:20 Feeding Volume (uL):	50
	WQ Rep: 13	
6	Date: June 18, 2020 Carboy)/ Bottle #:	m
	Pre-Aeration Time: 13',07-13',27 Water change @: 14'.10	<u> </u>
	Feeding AM: Sill Feeding PM: Sill Feeding AM: Sill Sill Sill	50
		MIT
7	Date: June 19, 2020	1101-
	Test ended @ \5\45 WQ rep: A	18 - Martin I 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19
) I		

ECOTOXICOLOGY

FATHEAD MINNOW SURVIVAL AND GROWTH TEST

Clier	nt Name:	Golder Assoc	ciates Ltd.	Agnico)				
Sa	mple ID:	MEL-13-07			Jo	b / Sample #:	<u>CU39804</u>	1/203665
Ar	nalvst(s):	YISU.	MHamach	, non	2 sal m	.O Toole	Manara	
				- /			15 MEAQ	
Control	Day	1	2	3	4	5	6	7
Conductivity	Initial	458	463	462	504	453	452	454
(µs/cm)	Final	466	475	479	508	515	509	51
Temp. (°C)	Initial Final	24:4	24.6	24.9	24,9	2513	25.0	2500
D.O. (mg/L)	Initial Final	811	7.8	8.7 7.2	8.0	8.1 6.8	8.4	8.0
pН	Initial Final	8.2 7.6	8.2	8.1 7.8	<u>81</u> 78	8.2	8.1	8:3
Synthetic	1 mai			<u> </u>		<u> </u>		
Site Control	Day	1	2	3	4	5	6	7
Conductivity	Initial	123	126	126	129	130	129	129
(µs/cm)	Final	140	153	133	140	141	137	138
Temp. (°C)	Initial	23.8	25.0	25.3	24.7	24.8	25.0	25.2
remp. (C)	Final	23.8	24.3	25.0	25.3	24.7	24.6	27.5
D.O. (mg/L)	Initial	y.z	811	8.3	7.9	8.2	8:3	812
2.0. (mg/L)	Final	7.3	6.9	7.1	615	6.9	6.9	6.9
рН	Initial	8.0	7.7	7.4	7.9	7.7	7.5	A-8-27
	Final	7.3	SID	7.2	7.3	7.4	7.3	7.2
1.56%	Day	1	2	3	4	5	6	7
Conductivity	Initial	125	126	125	127	130	128	179
(µs/cm)	Final	138	139	133	136	142	137	133
Temp. (°C)	Initial	24.1	24.8	ZS.3	25.0	24.8	24.9	25.3
Temp. (C)	Final	2317	24.4	25.0	25.3	2413	24.6	24.6
D.O. (mg/L)	Initial	8.4	8.0	8.3	812	80	8.3	8:2
D.O. (IIIg/L)	Final	7.3	6.8	7.3	617	7.1	7.0	7-0
pН	Initial	7.5	7.7	7.3	7.5	ŗ, ţ	7.7	7.7
	Final	7.1	7.8	7.2	7.2	7.3	みつ	7.3
3.13%	Day	1	2	3	4	5	6	7
Conductivity	Initial	124	125	12S	125	127	127	128
µs/cm)	Final	134	136	135	133	142	133	V34
Temp. (°C)	Initial Final	24.1	24,8	25.3	ZS:3 25:1	24.8	24.9	25.3
	Initial	8.4	8,2	8.3	8.2	8.3	8.3	8,2
D.O. (mg/L)	Final	7.2	6.9	6.9	7.0	4.2	7.3	Try
			<u> </u>		-			
рН	Initial	7.5	7.5	7,3	715	7.6	7.5	fra

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ECOTOXICOLOGY

FATHEAD MINNOW SURVIVAL AND GROWTH TEST

		Golder Assoc	ciates Ltd. 🛛 🖡	tgnico)			0.2980	ul corre
	-	MEL-13-07			Jo	b / Sample #:	<u>C03980</u>	M KNJ60
6.25%	Day	1	2	3	4	5	6	7
Conductivity	Initial	123	124	124	125	126	127	127
us/cm)	Final	136	139	132	133	140	140	139
Temp. (°C)	Initial	24.0	24.8	25.2	Z5.3	24.7	24.9	25.4
,	Final	23.9	24.0	25.2	25,4	24.6	25.0	254.6
D.O. (mg/L)	Initial	8.4	812	8.3	8.2	8.3	\$13	8,2
	Final	7.2	7.1	D25-261		7.0	7.1	6.9
рΗ	Initial	7.5	08-273		7.5	7.6	7.5	7.6
	Final	7.1	<u><u> </u></u>	7.0	711	7.1	7.1	<u>+ 1</u>
Analyst		MIN MIN	MM NS	mony	YS MILM	1717W	мнм	ilitio
aily WQ Revi	ewed by:	m mit	m bs	$\sim \sim$	ys mm	MUM	MHM	MM
12.5%	Day	1	2	3	4	5	6	7
Conductivity	Initial	177.	173	123	123	124	125	126
us/cm)	Final	131	133	129	136	140	139	14
	Initial	24.1	24.9	ZS,3	253	24,7	2510	25.4
Temp. (°C)	Final	23,8	14.2	25,2	25-0	24.8	24.8	25:0
	Initial	8.4	8,2	8.3	8.3	8.3	813	8.2
D.O. (mg/L)	Final	7.2	1 7.5	B25-3-6		6.9	7-0	70
	Initial	7.4	7.3	73	7.4	7.5	75	7.5
Hc	Final	7.0	7.6	7.1	7.7	7.1	7.1	7.2
			• • • • • • • • • • • • • • • • • • •	•	<u></u>	terre de la companya		
25%	Day	1	2	3	4	5	6	7
Conductivity	Initial	118	119	119	120	121	122	122
us/cm)	Final	128	131	127	131	131	131	133
Temp. (°C)	Final	24.2	24.9	ZS.3	Z5.0	24.8	74.9	2514
	Final	23.7	24.3	25,4	2500	25.1	27-8	24.8
D.O. (mg/L)	Initial	8.4	812	8,4	8.3	813	8,3	8.2
	Final	7,2	7.0	6.1	6.8	6.6	6.4	6.9
эΗ	Initial	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	7.3	7.3	7.4	7.5	7.3	7-5
	Final	7.0	7.5	6.9	70	7.0	7-0	f-1
50%	Day	1	2	3	4	5	6	7
Conductivity	Initial	112	114	112	114	115	116	114
us/cm)	Final	124	227*	164	136	130	135	131
	Initial	24.4	24.9	ZS.S	25.2	24.8	25:0	25.5
Temp. (°C)	Final	24.0	24.3	25.4	25,3	25.0	24.8	24.6
	Initial	8.5	83	8,5	8.3	8.3	813	8.2
D.O. (mg/L)	Final	7.1	7.0	5,8	618	613	6.3	6-8
- 1.1	Initial	7.3	7.3	7.2	7.4	7.5	7.4	7.5
рН	Final	7.0	7.4	7.0	7-1	7.0	7.0	71
		4	· · ·		_		~	
100%	Day	1	2	3	4	5	6	7
Conductivity	Initial	99	100	98	102	102	102	100
µs/cm)	Final	106	111	166	138	117	18	109
Temp. (°C)	Initial	25.0	25.0	25,9	74.8	24.9	25.2	2514
· · · /	Final	24.0	24.5	25:4	25,3	2411	24.6	24.8
D.O. (mg/L)	Initial	8.5	giy	8.7	8.5	8.4	813	8,2
	Final	7.1	6.8	6.0	613	6.4	6.6	6.6
	Initial	7.1	7.4		7.2	7.4	yry_	J.Y.
οH		7.0	17.5	6.9	71	710	7-0	7-1
рН	Final							14.A 2.4A
Analyst		MM HIM		IND MIM	y m	MHM hung	MAD WWY	m in
			MAY NS	$\sim \sim$	Pr	mm m	TYPE N	mm
nalyst		MM 111M		100 m	ep *= 272 E MHM 2010	rum m		mm

Agnico) Client Name: Golder Associates Ltd. Job / Sample #:

Sample ID: MEL-13-07

					#	Surviving	g Organis	ms					
	Replicate	# Of Fish				Day							
Conc.	#	Seeded	1	2	3	4	5	6	7	% Survival	% Mortality	% Mean	SD
(% v/v)	Date	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun		,,	Mortality	(%)
	А	10	10	10	0	10	10	16	2	-	-	-	-
Control	В	10	10	0	10	10	10	6	10	-	-		
	С	io	10	10	10	12	10	bo	10	-	· _		
	А	10	10	10	10	10	10	10	10	-	-	-	
Site Control	В	10	10	10	10	0	10	10	9	-	-	$= \left[\frac{1}{1+1} \right]_{1=1}^{1-1} \left[\frac{1}{1+1} \left[\frac{1}{1+1} \right]_{1=1}^{1-1} \left[\frac{1}{1+1} $	
(Synthetic)	С	10	0	10	10	10	10	Þ	ીગ	-	-		
	А	10	10	10	10	10	10	10	10	-	-	-	-
1.56	В	10	10	10	0]	10	10	10	9	-	-		
	С	10	0	N	10	10	ίÖ	10	10	-	-		
	А	4	10	10	10	10	10	10	10	-	-	-	-
3.13	В	10	10	10	10	ło	10	10	10	-	-		
	С	10	10	\mathbf{O}	(0	l0	10	10	10	-	-		
	А	þ	10	10	[0	lo.	10	10	9	-	-	-	-
6.25	В	16	10	10	01	10	10	10	6	-	-		
	С	10	10	01	01	0	10	10	16	-	-		
	A	e/	10	10	10	6	10	10	10	-	-	-	-
12.5	В	1e	10	10	0)	10	10	10	6	-	-		
	С	10	(0	10	0)	lo	10	10	10	-	-	t est	
	A	16	10	10	(0)	0	10	6	10	-	-	-	-
25	В	16	10	10	(0)	10	10	ĥ	10	-	-		
	С	10	16	10	(0)	(Ô -	ID	ί	9	-	-		
	A	10	10	6	9	9	9	9	9	-	-	-	-
50	В	10	10	10	10	10	10	6	10	-	-	1 1	
	С	6	10	NÕ	10	10	Ю	10	10	-	-		C.C.
	A	0)	10	10	10	10	10	10	jo	-	-	-	-
100	В	10	αĵ	10	10	1,0	10	10	0	-	-		
Į	С	0	10	G	10	ю	10	10	10	-	-		
A	nalyst	12	MHA	NS	Y5	Mir	aß	in	MIA				
* *	t comments												

* see test comments

Randomization Chart

Client Name:	Golder	Agnico	
Sample Name:	MEL-13-07		

Start Date: 2020 Jun 12

Use the coloured dot to find appropriate conc'ns and put beakers back in proper position following daily water change.

Back Wall		Position Map			
4	8	12	16	20	24
3	7	11	15	19	23
2	6	10	14	18	22
1	5	9	13	17	21

Front of Counter

Position #	Treatment	Replicate	Colour
17		А	
7	Control	В	Red
27		С	
26		А	
5	Site Control	В	White
8	(synthetic)	С	
20		А	
25	1.56%	В	Orange
1		С	
11		А	
9	3.13%	В	Yellow
14		С	
4		А	
13	6.25%	В	Fl. Green
18		С	
19		А	
16	12.5%	В	Green
6		С	
12		·A	
15	25%	В	Blue
21		С	
10		A	
23	50%	В	Purple
22		С	
3		A	
2	100%	B	Pink
24		С	

Report Date:	03 Jul-20
Test Code:	PP-10735-0120

03 Jul-20 13:35 (p 1 of 1) PP-10735-0120 | 00-3690-9242

Fathead Minr	now 7-d Larv	al Surviva	l and Growt	th Test				Bureau \	/eritas Laborato	
nalysis ID: Analyzed:	12-9023-43 19 Jun-20		Endpoint: Analysis:	7d Survival Ra Single 2x2 Co		ble	CETIS Ve Official R		CETISv1.9 Yes	9.2
Batch ID:	13-1526-71	'8	Test Type:	Growth-Surviv	ral (7d)		Analyst:	М. Н	amad	
Start Date:	12 Jun-20 1	4:10	Protocol:	EC/EPS 1/RN	1/22		Diluent:	Reco	onstituted Wa	ater
Ending Date:	: 19 Jun-20 1	4:44	Species:	Pimephales p	romelas		Brine:	Not A	Applicable	
Duration:	7d 1h		Source:	Aquatic Biosy	stems, CO		Age:			
Sample ID:	07-4234-15	'1	Code:	C039804			Client:	Agnie	co Eagle Mir	nes
Sample Date	e: 06 Jun-20		Material:	Water			Project:			
Receipt Date	: 11 Jun-20 0	B:20	Source:	Agnico Eagle	Mines					
Sample Age:	: 6d 14h		Station:	MEL 02-05						
	13-02. Ref2 is I			05-04.			Comparison	Posult		
Ref1 is Mel-03 Data Transfo Untransforme	orm ed	Mel-04-05. <u>Alt</u> H C > T	lyp	05-04.			Comparison F 100% passed 7		val rate	
Ref1 is Mel-03 Data Transfo Untransforme Fisher Exact	orm ed t Test	Alt H C > T	lyp -		D \/alua	Desision	100% passed 7		val rate	
Ref1 is Mel-03 Data Transfo Untransforme Fisher Exact Control	orm ed t Test vs Grou	Alt H C > T	lyp	Stat P-Type	P-Value 0.3060	Decision(100% passed 7		val rate	
Ref1 is Mel-03 Data Transfo Untransforme Fisher Exact Control Ref 1	orm ed t Test vs Grou 100	Alt H C > T	lyp - Test	Stat P-Type			100% passed 7		val rate	
Ref1 is Mel-03 Data Transfo Untransforme Fisher Exact Control Ref 1 Data Summa	orm ed t Test vs Grou 100	Alt H C > T	lyp - Test	Stat P-Type			100% passed 7		val rate	
Ref1 is Mel-03 Data Transfo Untransforme	orm ed t Test vs Grou 100 ary	Alt F C > 7	łyp - - - - - - - - - - - - - - - - - - -	Stat P-Type 50 Exact	0.3060	Non-Signi	100% passed (α:5%) ficant Effect		val rate	
Ref1 is Mel-03 Data Transfo Untransforme Fisher Exact Control Ref 1 Data Summa Conc-% 0	orm ed tTest vs Grou 100 ary Code	Ait F C > T p NR	Test 0.306	Stat P-Type 50 Exact NR + R	0.3060 Prop NR	Non-Signi Prop R	100% passed (α:5%) ficant Effect %Effect		val rate	
Ref1 is Mel-03 Data Transfo Untransforme Fisher Exact Control Ref 1 Data Summa Conc-% 0 100	orm ed t Test vs Grou 100 ary Code R1	Ait F C > 7 p NR 29	Hyp 	Stat P-Type 50 Exact NR + R 30	0.3060 Prop NR 0.9667	Non-Signi Prop R 0.03333	100% passed (α:5%) ficant Effect %Effect 0.0%		val rate	
Ref1 is Mel-03 Data Transfo Untransforme Fisher Exact Control Ref 1 Data Summa Conc-% 0 100	orm ed t Test vs Grou 100 ary Code R1	Ait F C > 7 p NR 29	Hyp Test 0.306 R 1 3	Stat P-Type 50 Exact NR + R 30 30	0.3060 Prop NR 0.9667	Non-Signi Prop R 0.03333	100% passed (α:5%) ficant Effect %Effect 0.0%		val rate	
Ref1 is Mel-03 Data Transfo Untransforme Fisher Exact Control Ref 1 Data Summa Conc-% 0 100 7d Survival F	orm ed t Test vs Grou 100 ary Code R1 Rate Detail	Ait H C > 7 p NR 29 27	Hyp Test 0.306 R 1 3 1 Rep 2	Stat P-Type 50 Exact NR + R 30 30 2 Rep 3	0.3060 Prop NR 0.9667	Non-Signi Prop R 0.03333	100% passed (α:5%) ficant Effect %Effect 0.0%		val rate	



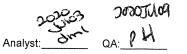
Report Date:	03 Jul-20 13:35 (p 1 of 1)
Test Code:	PP-10735-0120 00-3690-9242

Fathead Min	now 7-d Larva	i Survival a	nd Growth	n Test					Duieau	ı Veritas L	aboratori
nalysis ID: Analyzed:	08-0119-162 19 Jun-20 1		•	7d Survival Ra Single 2x2 Co		ıble	CETIS Ve Official R		CETISv1 Yes	l.9.2	
Batch ID:	13-1526-717	8 T e	est Type:	Growth-Surviv	al (7d)		Analyst:	М. Н	amad		
Start Date:	12 Jun-20 14	:10 Pr	otocol:	EC/EPS 1/RM	/22		Diluent:	Reco	onstituted V	Vater	
Ending Date	e: 19 Jun-20 14	:44 SI	pecies:	Pimephales pr	omelas		Brine:	Not A	Applicable		
Duration:	7d 1h	So	ource:	Aquatic Biosys	stems, CO		Age:				
Sample ID:	07-4234-157	1 Co	ode:	C039804			Client:	Agni	co Eagle M	lines	
Sample Date	e: 06 Jun-20	M	aterial:	Water			Project:				
Receipt Date	e: 11 Jun-20 08	:20 So	ource:	Agnico Eagle I	Mines						
Sample Age:	: 6d 14h	St	ation:	MEL 02-05							
Comments:											
Ref1 is Mel-0 Data Transfo		lel-04-05. Re <u>Alt Hyp</u> C > T		05-04.			Comparison F		val rate		
Ref1 is Mel-0 Data Transfo Untransforme	orm ed	Alt Hyp		05-04.					val rate		
Ref1 is Mel-0 Data Transfo Untransforme Fisher Exact	orm ed	Alt Hyp C > T			P-Value	Decision	100% passed 7		val rate		
Ref1 is Mel-0 Data Transfo Untransforme Fisher Exact Control	orm ed t Test	Alt Hyp C > T		Stat P-Type	P-Value 0.1186		100% passed 7		val rate		
Ref1 is Mel-0 Data Transfo Untransforme Fisher Exact Control Ref 2	orm ed t Test vs Group 100	Alt Hyp C > T	Test S	Stat P-Type			100% passed 7 (α: 5%)		val rate		
Ref1 is Mel-0 Data Transfo Untransforme Fisher Exact Control Ref 2 Data Summa	orm ed t Test vs Group 100	Alt Hyp C > T	Test S	Stat P-Type			100% passed 7 (α: 5%)		val rate		
	orm ed t Test vs Group 100 ary	Alt Hyp C > T	Test S 0.1186	Stat P-Type 5 Exact	0.1186	Non-Signi	100% passed 7 (α: 5%) ficant Effect		val rate		
Ref1 is Mel-0 Data Transfo Untransforme Fisher Exact Control Ref 2 Data Summa Conc-% 0	orm ed t Test vs Group 100 ary Code	Alt Hyp C > T	Test S 0.1186 R	Stat P-Type 5 Exact NR + R	0.1186	Non-Signi Prop R	100% passed 7 (α:5%) ficant Effect %Effect		val rate		
Ref1 is Mel-0 Data Transfo Untransforme Fisher Exact Control Ref 2 Data Summa Conc-% 0 100	orm ed t Test vs Group 100 ary Code R2	Alt Hyp C > T NR 30	Test S 0.1186 R 0	Stat P-Type 5 Exact NR + R 30	0.1186 Prop NR 1	Non-Signi Prop R 0	100% passed 7 (α:5%) ficant Effect %Effect 0.0%		val rate		
Ref1 is Mel-0 Data Transfo Untransforme Fisher Exact Control Ref 2 Data Summa Conc-%	orm ed t Test vs Group 100 ary Code R2	Alt Hyp C > T NR 30	Test S 0.1186 R 0	Stat P-Type 5 Exact NR + R 30 30	0.1186 Prop NR 1	Non-Signi Prop R 0	100% passed 7 (α:5%) ficant Effect %Effect 0.0%		val rate		
Ref1 is Mel-0 Data Transfor Untransforme Fisher Exact Control Ref 2 Data Summa Conc-% 0 100 7d Survival F	orm ed t Test vs Group 100 ary Code R2 Rate Detail	Alt Hyp C > T NR 30 27	Test S 0.1186 R 0 3	Stat P-Type 5 Exact NR + R 30 30 Rep 3	0.1186 Prop NR 1	Non-Signi Prop R 0	100% passed 7 (α:5%) ficant Effect %Effect 0.0%		val rate		



Report Date:	03 Jul-20 13:35 (p 1 of 1)
Test Code:	PP-10735-0120 00-3690-9242

	now 7-d Larval	Survivaran	d Growti	niest					Bureau Veritas Laboratorie
nalysis ID: Analyzed:	02-5070-3213 19 Jun-20 17:		dpoint: alysis:	7d Survival Ra Single 2x2 Co		able	CETIS Ve Official Re		CETISv1.9.2 Yes
Batch ID:	13-1526-7178	Tes	t Type:	Growth-Surviv	/al (7d)		Analyst:	M. Ha	amad
Start Date:	12 Jun-20 14:1	0 Pro		EC/EPS 1/RM			Diluent:		nstituted Water
Ending Date:	19 Jun-20 14:4	4 Spe	cies:	Pimephales p	romelas		Brine:		pplicable
Duration:	7d 1h	Sol	irce:	Aquatic Biosy	stems, CO		Age:		
Sample ID:	07-4234-1571	Coc	le:	C039804			Client:	Aanic	o Eagle Mines
Sample Date:	06 Jun-20	Mat	erial:	Water			Project:	, igine	
Receipt Date:	11 Jun-20 08:2	0 Sou	irce:	Agnico Eagle I	Mines				
Sample Age:	6d 14h	Stat		MEL 02-05					
	02 Pof2 in Mol	04.05 Def2	is Mal 0	5.04	·····				
Ref1 is Mel-03 Data Transfor		Alt Hyp	is Mel-0	5-04.			Comparison Re		······
Data Transfor Untransformed	m		is Mel-0	5-04.			Comparison Re 100% passed 7		al rate
Ref1 is Mel-03 Data Transfor Untransformed	m	Alt Hyp	is Mel-0	5-04.					al rate
Ref1 is Mel-03 Data Transfor Untransformed Fisher Exact T Control	m	Alt Hyp	is Mel-0 Test Si		P-Value	Decision	100% passed 7		al rate
Ref1 is Mel-03 Data Transfor Untransformed Fisher Exact T Control	m Fest	Alt Hyp		tat P-Type	P-Value 0.5000		100% passed 7		al rate
Ref1 is Mel-03 Data Transfor Untransformed Fisher Exact T	m Fest Vs Group 100	Alt Hyp	Test St	tat P-Type			100% passed 76		al rate
Ref1 is Mel-03 Data Transfor Untransformed Fisher Exact 1 Control N Ref 3	m Fest Vs Group 100	Alt Hyp	Test St	tat P-Type	0.5000	Non-Sign	100% passed 7 (α:5%) ificant Effect		al rate
Ref1 is Mel-03 Data Transfor Untransformed Fisher Exact 1 Control X Ref 3 Data Summary Conc-%	m Fest vs Group 100	Alt Hyp C > T	Test S 1 0.5000	tat P-Type Exact			100% passed 76		al rate
Ref1 is Mel-03 Data Transformed Fisher Exact 1 Control X Ref 3 Data Summary Conc-%	m Fest /s Group 100 / Code	Alt Hyp C > T NR	Test St 0.5000	tat P-Type Exact NR + R	0.5000 Prop NR	Non-Sign Prop R	100% passed 7 (α:5%) ificant Effect %Effect		al rate
Ref1 is Mel-03 Data Transfor Untransformed Fisher Exact 1 Control N Ref 3 Data Summary	m Fest vs Group 100 v Code R3	Alt Hyp C > T NR 28	Test Si 0.5000 R 2	tat P-Type Exact NR + R 30	0.5000 Prop NR 0.9333	Non-Sign Prop R 0.06667	100% passed 7 (α:5%) ificant Effect %Effect 0.0%		al rate
Ref1 is Mel-03 Data Transfor Untransformed Fisher Exact 1 Control N Ref 3 Data Summary Conc-%	m Fest vs Group 100 v Code R3	Alt Hyp C > T NR 28	Test Si 0.5000 R 2	tat P-Type Exact NR + R 30	0.5000 Prop NR 0.9333	Non-Sign Prop R 0.06667	100% passed 7 (α:5%) ificant Effect %Effect 0.0%		al rate



100

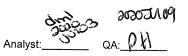
0.9000

0.9000

0.9000

Report Date:	03 Jul-20 13:35 (p 1 of 1)
Test Code:	PP-10735-0120 00-3690-9242

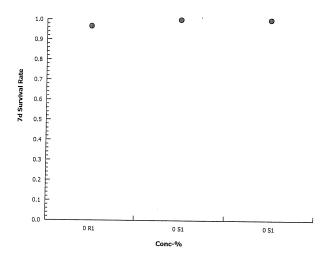
Fathead Minn	iow 7-d Larval	Survival a	nd Growt	h Test						Burea	au Veritas Laboratorie:
nalysis ID: Analyzed:	15-0572-5468 19 Jun-20 17:		ndpoint: nalysis:	7d Survival R Single 2x2 Co		able		ETIS Ver Official Re		CETIS [,] Yes	<i>v</i> 1.9.2
Batch ID: Start Date: Ending Date: Duration:	13-1526-7178 12 Jun-20 14:1 19 Jun-20 14:4 7d 1h	0 Pr 4 Sp	otocol:	Growth-Surviv EC/EPS 1/RM Pimephales p Aquatic Biosy	1/22 romelas		B	analyst: Diluent: Brine: age:		amad nstituted opplicable	
Sample Date:	11 Jun-20 08:2	Ма 0 Sc	ource:	C039804 Water Agnico Eagle MEL 02-05	Mines			lient: roject:	Agnic	o Eagle	Mines
Comments: Ref1 is Mel-03-	02. Ref2 is Mel	-04-05. Ref	3 is Mel-0	5-04.			0				
Untransformed		C > T						a <mark>rison Re</mark> passed 7d		al rate	
Fisher Exact T											
Group1 v	rs Group 100			tat P-Type	P-Value	Decision					
-	· · · · · · · · · · · · · · · · · · ·		0.1043	Exact	0.1643	Non-Sign	ificant Eff	ect			
Data Summary Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effec	:t			
0 100	@	87 27	3 3	90 30	0.9667 0.9	0.03333 0.1	0.0% 6.9%				
7d Survival Ra	te Detail					3 - CARACTAR AND - CARACTAR - AND					
onc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	7 1	Rep 8	Rep 9
D	@	0.9000	1.0000	0.9000	1.0000	1.0000	1.0000	1.000		0.9000	1.0000



Report Date:	03 Jul-20 13:35 (p 1 of 1)
Test Code:	PP-10735-0120 00-3690-9242

<u> </u>									11-10/00-00-00-00-00-00-0242
Fathead Minr	now 7-d Larval	Survival a	and Grow	th Test					Bureau Veritas Laboratories
nalysis ID:	20-7398-8377		indpoint:	7d Survival R			CE	ETIS Versio	on: CETISv1.9.2
Analyzed:	29 Jun-20 16	:24 A	nalysis:	Single 2x2 Co	ontingency Ta	able	Of	ficial Resu	l lts : Yes
Batch ID:	13-1526-7178	т	est Type:	Growth-Surviv	/al (7d)		An	alyst: N	Л. Hamad
Start Date:	12 Jun-20 14:	10 P	rotocol:	EC/EPS 1/RM	1/22		Dil	uent: F	Reconstituted Water
•	19 Jun-20 14:4	44 S	pecies:	Pimephales p	romelas		Br	ine: N	lot Applicable
Duration:	7d 1h	S	ource:	Aquatic Biosy	stems, CO		Ag		
Sample ID:	07-4234-1571	с	ode:	C039804			Cli	ent: A	gnico Eagle Mines
Sample Date:			aterial:	Water			Pro	oject:	
Receipt Date:	11 Jun-20 08:2	20 S	ource:	Agnico Eagle	Mines				
Sample Age:	6d 14h	S	tation:	MEL 02-05					
Comments:									
Ref1 is Mel-03-	02. Ref2 is Me	I-04-05. Re	ef3 is Mel-0)5-04.					
Data Transform	n	Alt Hyp)				Compa	ison Resu	
Untransformed		C > T						issed 7d su	
Fisher Exact T	est								
Control v	s Control		Test S	itat P-Type	P-Value	Decision	(a:5%)		
Site Water Con	tr Ref 1		0.5000		0.5000		ificant Effe	ct	
Auxiliary Tests	5			·····					
Attribute	Test				Test Stat	Critical	P-Value	Docisio	
					i coi oiai	Gritical	r-value		00005%)
Extreme Value		Extreme Va	alue Test		1.826	1.887	0.0968		n(α:5%) iers Detected
	Grubbs I	Extreme Va	alue Test						
Extreme Value	Grubbs I	Extreme Va	alue Test	NR + R	1.826	1.887	0.0968		
Extreme Value Data Summary	Grubbs I			NR + R 30	1.826 Prop NR	1.887 Prop R	0.0968 %Effect		
Extreme Value Data Summary	Grubbs I Code	NR	R		1.826	1.887	0.0968		
Extreme Value Data Summary Conc-%	Grubbs F Code R1 S1	NR 29	R 1	30	1.826 Prop NR 0.9667	1.887 Prop R 0.03333	0.0968 %Effect 3.33%		
Extreme Value Data Summary Conc-% 0	Grubbs F Code R1 S1	NR 29	R 1	30 30	1.826 Prop NR 0.9667	1.887 Prop R 0.03333	0.0968 %Effect 3.33%		
Extreme Value Data Summary Conc-% 0 7d Survival Rat	Grubbs F Code R1 S1 te Detail	NR 29 30	R 1 0	30	1.826 Prop NR 0.9667	1.887 Prop R 0.03333	0.0968 %Effect 3.33%		

Graphics



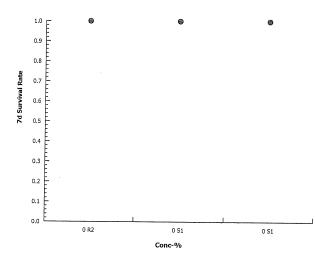


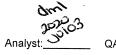
Report Date:	03 Jul-20 13:35 (p 1 of 1)
Test Code:	PP-10735-0120 00-3690-9242

				Test Coue.	PF-10/35-0120 00-3690-9242
Fathead Min	now 7-d Larval Survi	ival and Grow	th Test		Bureau Veritas Laboratories
nalysis ID:	18-5152-9513	Endpoint:	7d Survival Rate	CETIS Vers	sion: CETISv1.9.2
Analyzed:	29 Jun-20 16:24	Analysis:	Single 2x2 Contingency Table	Official Res	sults: Yes
Batch ID:	13-1526-7178	Test Type:	Growth-Survival (7d)	Analyst:	M. Hamad
Start Date:	12 Jun-20 14:10	Protocol:	EC/EPS 1/RM/22	Diluent:	Reconstituted Water
Ending Date:	19 Jun-20 14:44	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	7d 1h	Source:	Aquatic Biosystems, CO	Age:	
Sample ID:	07-4234-1571	Code:	C039804	Client:	Agnico Eagle Mines
Sample Date:	06 Jun-20	Material:	Water	Project:	
Receipt Date:	11 Jun-20 08:20	Source:	Agnico Eagle Mines	•	
Sample Age:	6d 14h	Station:	MEL 02-05		
Comments:					
Ref1 is Mel-03	-02. Ref2 is Mel-04-0	5. Ref3 is Mel-(05-04.		•
Data Transfor	m Alt	Нур		Comparison Res	sult
Untransformed	C >	> T	N	Ref 2 passed 7d s	survival rate

			071			Ret 2 passed 7d survival rate						
Fisher Exa	act Test	t										
Control	vs	Control		Test Stat	P-Type	P-Value	Decision	(α:5%)				
Site Water	Contr	Ref 2		1.0000	Exact	1.0000	Non-Sign	ificant Effect				
Data Sumr	nary		****									
Conc-%		Code	NR	R	NR + R	Prop NR	Prop R	%Effect				
0		R2	30	0	30	1	0	0.0%				
0		S1	30	0	30	1	Q	0.0%				
7d Surviva	I Rate [Detail				********						
onc-%		Code	Rep 1	Rep 2	Rep 3							
υ		R2	1.0000	1.0000	1.0000							
0		S1	1.0000	1.0000	1.0000							

Graphics

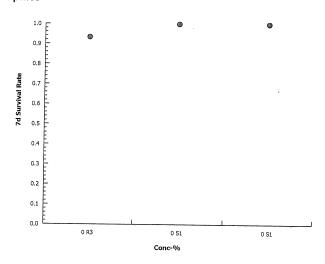


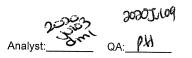




CETIS	Analytical	Report
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Fathead Minr	now 7-d Larval	Survival	and Grow	th Test		,				Bureau Veritas Laboratories
nalysis ID: Analyzed:	16-2650-6810 29 Jun-20 16		Endpoint: Analysis:	7d Survival R Single 2x2 Co		able		ETIS Vers		CETISv1.9.2 Yes
Batch ID: Start Date: Ending Date: Duration:	13-1526-7178 12 Jun-20 14:1 19 Jun-20 14:2 7d 1h	10 1 14 1	Fest Type: Protocol: Species: Source:	Growth-Surviv EC/EPS 1/RM Pimephales p Aquatic Biosy	1/22 romelas		Di	nalyst: luent: 'ine: je:		amad nstituted Water pplicable
Sample Date:	11 Jun-20 08:2	ת 0 פ	Code: /laterial: Source: Station:	Ç039804 Water Agnico Eagle MEL 02-05	Mines		CI	ient: oject:	Agnic	o Eagle Mines
Comments: Ref1 is Mel-03-	-02. Ref2 is Me	-04-05. R	ef3 is Mel-(05-04.						
Data Transform	m	Alt Hy	р				Compa	rison Res	sult	
Untransformed		C > T			· · · · · · · · · · · · · · · · · · ·		······	assed 7d		al rate
Fisher Exact T	est									
Control v Site Water Con	rs Control		Test S	tat P-Type	P-Value	Decision				
			0.2458	B Exact	0.2458	Non-Sign	ificant Effe	ct		
Auxiliary Tests	Test				Test Stat	Critical	P-Value	Decis	sion(a:	5%)
Extreme Value	Grubbs E	Extreme V	alue Test		1.826	1.887	0.0968	Νο Οι	utliers	Detected
Data Summary	,									
Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect			
	R3	28	2	30	0.9333	0.06667	6.67%	·····		
0	S1	30	0	30	1	0	0.0%			
7d Survival Rat	te Detail									
Conc-%	Code	Rep 1	Rep 2	Rep 3						
0	R3	0.9000	1.0000	0.9000	······		,,,,,,,			
0	S1	1.0000	1.0000	1.0000						
Graphics										





Client Name: Golder Associates Ltd. (Agnico)

Sample ID: Various

Job / Sample #: <u>C039804</u>

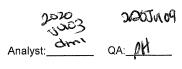
					#	Surviving	g Organis	ms					
	Replicate	# Of Fish				Day							
Conc.	#	Seeded	1	2	3	4	5	6	7	% Suprival	% Mortality	% Mean	SD
(% v/v)	Date	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun		76 Wortanty	Mortality	(%)
	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
Control	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%	2 - P 2	
	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
Site Control	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		
Soft	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
Water	В	10	10	10	10	10	10	10	10	100%	0%		
Control	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	9	90%	10%	10.0%	0.0%
MEL-02- 05 100%	В	10	10	10 .	10	10	10	10	9	90%	10%		
	С	10	10	10	9	9	9	9	9	90%	10%	5.10	
	А	10	10	10	10	10	10	10	10	100%	0%	3.3%	5.8%
MEL-03- 02 100%	В	10	10	10	9	9	9	9	9	90%	10%		
	С	10	10	10	10	10	10	10	10	100%	0%		
	А	10	10	10	10	10	10	10	10	100%	0%	0.0%	0.0%
MEL-04- 05 100%	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	10	10	10	10	10	10	10	100%	0%		1
	А	10	10	10	10	10	10	10	9	90%	10%	6.7%	5.8%
MEL-05- 04 100%	В	10	10	10	10	10	10	10	10	100%	0%		
	С	10	9	9	9	9	9	9	9	90%	10%		
Ar	nalyst	мнм	МНМ	NS	YS	MHM	MB	MHM	MHM				

* see test comments

Proofed: Mares 2020Juloz

Report Date:	03 Jul-20 19:19 (p 1 of 14)
Test Code:	PP-10735-0120 00-3690-9242

							1030	00000	11 10/1	0 0120 0	0 0000 02
Fathead Minn	iow 7-d Larval	Survival a	nd Growt	h Test					Bureau	Veritas L	aboratorie
nalysis ID:	18-0089-409		ndpoint:	Mean Dry Bior	-			IS Version		.9.2	
Analyzed:	22 Jun-20 17		nalysis:	Parametric-Tv			Offic	ial Result	s: res		
Batch ID:	13-1526-7178	з т	est Type:	Growth-Surviv	al (7d)		Anal		Hamad		
Start Date:	12 Jun-20 14:		rotocol:	EC/EPS 1/RM			Dilu		econstituted V	Vater	
Ending Date:	19 Jun-20 14:	44 S	pecies:	Pimephales pi			Brin		ot Applicable		
Duration:	7d 1h	S	ource:	Aquatic Biosys	stems, CO		Age:				
Sample ID:	07-4234-1571	С	ode:	C039804			Clier	•	inico Eagle N	lines	
Sample Date:			laterial:	Water			Proj	ect:			
•	11 Jun-20 08:		ource:	Agnico Eagle	Mines						
Sample Age:	6d 14h	S	tation:	MEL 02-05							
Comments:				~~ ~ <i>.</i>							
	-02. Ref2 is Me	el-04-05. Re Alt Hy	~	05-04.							
Data Transfor					son Resul			PMSD			
Untransformed	1	C > T					100% pas	sed mean	dry biomass	-mg	12.29%
Equal Varianc	ce t Two-Samp	ole Test									
1	vs Conc-	%		Stat Critical		P-Type	P-Value	Decisio			
Ref 1	100		-1.069	9 2.132	0.062 4	CDF	0.8273	Non-Sig	nificant Effec	t	
Auxiliary Test	S										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)		
Extreme Value	e Grubbs	Extreme V	alue Test		1.266	1.887	1.0000	No Outlie	ers Detected		
ANOVA Table											
Source	Sum Sc	uares	Mean	Square	DF	F Stat	P-Value	Decisio	n(α:5%)		
etween	0.00147	27	0.001	4727	1	1.143	0.3453	Non-Sigi	nificant Effec	t	
Error	0.00515	53	0.001	2888	4						
Total	0.00662	8			5						
Distributional	Tests										
Attribute	Test				Test Stat		P-Value	Decisio			
Variances		e Ratio F Te			1.02	199	0.9903	Equal Va			
Distribution	Shapiro	-Wilk W No	rmality Te	st	0.8796	0.43	0.2671	Normal [Distribution		
Mean Dry Bio	mass-mg Sun	nmary									
Conc-%	Code	Count	Mean			Median	Min	Мах	Std Err	CV%	%Effect
0	R1	3	0.508		0.5979	0.511	0.471	0.543	0.02083	7.10%	0.00%
100		3	0.539	7 0.4509	0.6284	0.554	0.499	0.566	0.02063	6.62%	-6.16%
100											
	mass-mg Deta	ail									
100 Mean Dry Bior Conc-%	mass-mg Deta Code	ail Rep 1	Rep 2	Rep 3							
Mean Dry Bio	•		Rep 2 0.511	Rep 3 0.543							



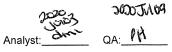
CETIS Ana	alytical Report					Report Date: Test Code:	03 Jul-20 19:19 (p 2 of 14) PP-10735-0120 00-3690-9242
Fathead Minr	iow 7-d Larval Survi	val and Growt	th Test				Bureau Veritas Laboratories
nalysis ID: Analyzed:	18-0089-4097 22 Jun-20 17:25	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample			CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics							
0.6 			Reject Null	Centered Untransformed	0.05 0.04 0.03 0.02 0.02 0.01 0.01 0.01 0.01 0.02 0.03 0.03 0.03 0.03 0.03 0.04 0.04 0.04 0.05 0.	•	0
0.1	0 RL	nc-%	100		0.04	-1.0 -0.5 0.0 Rankits	



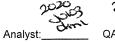
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Report Date:	03 Jul-20 19:19 (p 3 of 14)
Test Code:	PP-10735-0120 00-3690-9242

Fathead Minn	low 7-d Larval S	urvival and Grov	vth Test					Bureau	Veritas L	aboratorie	
nalysis ID: Analyzed:	00-8392-7028 22 Jun-20 17:2	Endpoint 5 Analysis:	Mean Dry Biom				TIS Version: CETISv1.9.2 icial Results: Yes				
Batch ID: Start Date: Ending Date: Duration:	13-1526-7178 12 Jun-20 14:10 19 Jun-20 14:44 7d 1h	Protocol:	: Growth-Surviva EC/EPS 1/RM/ Pimephales pro Aquatic Biosys	22 omelas		Analyst: M. Hamad Diluent: Reconstituted Water Brine: Not Applicable Age:					
Sample Date:	11 Jun-20 08:20	Code: Material: Source: Station:	C039804 Water Agnico Eagle M MEL 02-05	Client: Agnico Eagle Mines Project:							
Comments: Ref1 is Mel-03	-02. Ref2 is Mel-(04-05. Ref3 is Me	I-05-04.								
Data Transfor	m		Comparis	son Result	t		PMSD				
Untransformed			100% pas	sed mean	dry biomass-	-mg	11.59%				
Equal Varianc	ce t Two-Sample	Test						<u></u>			
Control	vs Conc-%	Test	Stat Critical	MSD DF	Р-Туре	P-Value	Decisio				
Ref 2	100	0.45	45 2.132	0.064 4	CDF	0.3365	Non-Sigi				
Auxiliary Test	s										
Attribute	Test			Test Stat	Critical	P-Value	Decisio	n(α:5%)			
Extreme Value	e Grubbs E	xtreme Value Tes	t	1.235	1.887	1.0000	No Outlie	ers Detected			
ANOVA Table											
Source	Sum Squa	ares Mea	n Square	DF	F Stat	P-Value	Decision(α:5%)				
etween	0.0002802		02802	1	0.2066	0.6730		nificant Effect			
Error	0.0054253	0.00	13563	4							
Total	0.0057055			5							
Distributional	Tests										
Attribute	Test			Test Stat	Critical	P-Value	Decisio	n(α:1%)			
Variances		Ratio F Test	<i>y</i>	1.125	199	0.9410	•	Equal Variances			
Distribution	Shapiro-W	ilk W Normality T	est	0.9331	0.43	0.6039	Normal [Distribution			
Mean Dry Bior	mass-mg Summ	ary									
Conc-%	Code	Count Mea		95% UCL	Median	Min	Мах	Std Err	CV%	%Effect	
0	R2	3 0.55		0.6475	0.547	0.519	0.594	0.02188	6.85%	0.00%	
100		3 0.53	97 0.4509	0.6284	0.554	0.499	0.566	0.02063	6.62%	2.47%	
Mean Dry Bior	mass-mg Detail										
Conc-%	Code	Rep 1 Rep	2 Rep 3								
0	R2	0.519 0.59									
100		0.499 0.56	6 0.554								

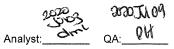


CETIS Ana	alytical Report					Report Date: Test Code:	03 Jul-20 19:19 (p 4 of 14) PP-10735-0120 00-3690-9242
Fathead Minr	now 7-d Larval Survi	val and Growt	h Test				Bureau Veritas Laboratories
nalysis ID: Analyzed:	00-8392-7028 22 Jun-20 17:25	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample			CETIS Version: Official Results	
Graphics							
0.6 0.5 0.4 0.3 0.2 0.1 0.1			Reject Null	Centered Untransformed	0.05 0.04 0.03 0.02 0.01 0.01 0.01 0.01 0.01 0.02 0.01 0.02 0.03	8	0
0.0	0 R2		100		0.04	-1.0 -0.5 0.0 Rankits	0.5 1.0 1.5

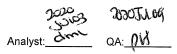


Report Date:	03 Jul-20 19:19 (p 5 of 14)
Test Code:	PP-10735-0120 00-3690-9242

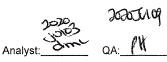
							103	. 00ue.	11-107	01201	0-0000-02-	
Fathead Minne	ow 7-d Larval S	Survival an	d Growt	h Test				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Bureau	Veritas L	.aboratorie	
nalysis ID:	19-1297-1011		dpoint:	Mean Dry Bion	CET	CETIS Version: CETISv1.9.2						
Analyzed:	22 Jun-20 17:2	25 An a	alysis:	Parametric-Tw	o Sample		Offi	cial Resul				
Batch ID:	13-1526-7178	Tes	st Type:	Growth-Surviva	al (7d)		Ana					
Start Date:	12 Jun-20 14:10) Pro	otocol:	EC/EPS 1/RM/	22		Dilu	ent: Re	econstituted V	Vater		
Ending Date:	19 Jun-20 14:44	4 Spe	ecies:	Pimephales pro	omelas		Brine: Not Applicable					
Duration:	7d 1h	So	urce:	Aquatic Biosys	tems, CO		Age:					
Sample ID:	07-4234-1571	Co	de:	C039804		in a sure and a sure a	Client: Agnico Eagle Mines					
Sample Date:	06 Jun-20	Jun-20 Material: Water										
Receipt Date:	11 Jun-20 08:20) So i	urce:	Agnico Eagle N	/lines							
Sample Age:	6d 14h	Sta	tion:	MEL 02-05								
Comments:												
Ref1 is Mel-03-	02. Ref2 is Mel-	04-05. Ref3	3 is Mel-0	05-04.								
Data Transform		A	son Resul			PMSD						
Untransformed			100% pas	sed mean	dry biomass-	mg	9.25%					
Equal Variance	e t Two-Sample	e Test										
Control v	s Conc-%		Test S	stat Critical	MSD DF	P-Type	P-Value	Decisio				
Ref 3	100		-0.628	8 2.132	0.049 4	CDF	0.7182	Non-Sig	nificant Effect			
Auxiliary Tests	;											
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)			
Extreme Value	Grubbs E	xtreme Val	ue Test		1.629	1.887	0.3429	No Outliers Detected				
ANOVA Table												
Source	Sum Squa	ares	Mean	Square	DF	F Stat	P-Value	Decisio	n(α:5%)			
etween	0.0003082	2	0.0003	3082	1	0.3954	0.5636	Non-Sig	Non-Significant Effect			
Error	0.0031173		0.0007	793	4							
Fotal	0.0034255	i			5							
Distributional 1	Fests											
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)			
/ariances		Ratio F Test	-		4.521	199	0.3623	Equal Variances				
Distribution	Shapiro-W	ilk W Norm	ality Tes	t	0.9108	0.43	0.4415	Normal Distribution				
lean Dry Biom	nass-mg Summ	ary										
Conc-%	Code	Count	Mean		95% UCL	Median	Min	Мах	Std Err	CV%	%Effect	
)	R3	3	0.5253		0.5671	0.529	0.507	0.54	0.009701	3.20%	0.00%	
00		3	0.5397	0.4509	0.6284	0.554	0.499	0.566	0.02063	6.62%	-2.73%	
lean Dry Biom	ass-mg Detail											
Conc-%	Code	Rep 1	Rep 2	Rep 3								
	R3	0.54	0.507	0.529								
00												



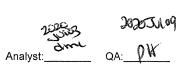
CETIS Ana	alytical Report				Report Date: Test Code:	03 Jul-20 19:19 (p 6 of 14) PP-10735-0120 00-3690-9242
Fathead Minn	iow 7-d Larval Survi	val and Growt	h Test	·····		Bureau Veritas Laboratories
nalysis ID: Analyzed:	19-1297-1011 22 Jun-20 17:25	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample		CETIS Version: Official Results	
Graphics						
0.6 0.5 0.4 0.4 0.4 0.3 0.2			Reject Null	0.04 0.03 0.02 0.01 0.01 0.00 0.01	•	0 0
0.1				-0.02 -0.03 -0.04	•	
0.0	0 R3	nc-%	100	-0.05		0.5 1.0 1.5
	co	nc-%			Rankits	



CETIS Analytical Report							-	ort Date: t Code:) 19:19 (p 7 of 14) 20 00-3690-9242		
Fathead Minno	ow 7-d Larval S	Survival and	Growth	n Test							aboratories	
nalysis ID: Analyzed:	19-4011-8204 22 Jun-20 17:2		-	Mean Dry Bior Parametric-Tw	-			CETIS Version: CETISv1.9.2 Official Results: Yes				
Batch ID:	13-1526-7178	Test	: Туре:	Growth-Surviv	al (7d)		Ana	lyst: M.	Hamad			
Start Date:	12 Jun-20 14:1	0 Prot	ocol:	EC/EPS 1/RM	/22		Dilu	ent: Re	constituted \	Vater		
Ending Date:	19 Jun-20 14:4	4 Spe	cies:	Pimephales pr	omelas		Brin	ie: No	t Applicable			
Duration:	7d 1h	Sou	rce:	Aquatic Biosys	stems, CO		Age	:				
Sample ID:	07-4234-1571	Cod	e:	C039804			Clie	nt: Ag	nico Eagle N	lines		
Sample Date:	06 Jun-20	Mate	erial:	Water			Proj	ect:				
Receipt Date:	-				Mines							
Sample Age:	6d 14h	Stat	ion:	MEL 02-05								
Comments: Ref1 is Mel-03-	02. Ref2 is Mel	-04-05. Ref3	is Mel-0	95-04.								
Data Transform	n	Alt Hyp					Compari	son Result	t		PMSD	
Untransformed							100% pas	ssed mean	dry biomass	-mg	7.81%	
Equal Variance	e t Two-Sample	e Test		······································								
Conc-% v	s Conc-%		Test S	tat Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)			
o pooled	100		-0.468	1.812	0.041 10	CDF	0.6751	Non-Sigi	nificant Effec	t		
Auxiliary Tests	;											
Attribute	Test				Test Stat	Critical	P-Value	Decision	n(α:5%)			
Extreme Value	Grubbs E	Extreme Valu	e Test		1.994	2.412	0.3457	No Outliers Detected				
ANOVA Table												
Source	Sum Squ	ares	Mean	Square	DF	F Stat	P-Value	Decisior	n(α:5%)			
etween	0.000256		0.0002	56	1	0.219	0.6499	Non-Significant Effect				
Error	0.011690	7	0.0011	691	10							
Total	0.011946	7			11							
Distributional 1	Tests											
Attribute	Test			1	Test Stat	Critical	P-Value	Decisior	n(α:1%)			
Variances	Variance	Ratio F Test			1.117	11.04	0.7466	Equal Variances				
Distribution	Shapiro-V	Vilk W Norma	ality Tes	t	0.9736	0.8025	0.9447	Normal E	Distribution			
Mean Dry Biom	nass-mg Sumn	nary										
Conc-%	Code	Count	Mean	95% LCL			Min	Мах	Std Err	CV%	%Effect	
0	@	9	0.529	0.503	0.555	0.529	0.471	0.594	0.01127	6.39%	0.00%	
100		3	0.5397	0.4509	0.6284	0.554	0.499	0.566	0.02063	6.62%	-2.02%	
Mean Dry Biom	nass-mg Detail											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9		
0	@	0.54	0.507	0.529	0.519	0.594	0.547	0.471	0.511	0.543		
100		0.499	0.566	0.554								

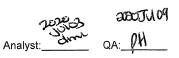


CETIS Ana	alytical Report			Report Date: Test Code:	03 Jul-20 19:19 (p 8 of 14) PP-10735-0120 00-3690-9242		
Fathead Minr	now 7-d Larval Survi	val and Growt	h Test		·····		Bureau Veritas Laboratories
nalysis ID: Analyzed:	19-4011-8204 22 Jun-20 17:26	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample			CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics							
0.6		F			0.08		
0.5 P	······	[Reject Null	1	D.06 - - -		•
Mean Dry Biomass-mg				Centered Untransformed	D.04 -		
					0.02 - - -	•	
0.2					0.00		
0.1				-().04 -	•	
0.0	0 @		100	-(0.06	<u> </u>	IJ 0.5 1.0 1.5 2.0
	Co	nc-%				Rankits	

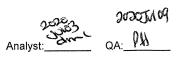


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							Test	coue.	FF-1073	5-012010	0-0000-02-
Fathead Minno	w 7-d Larval S	Survival ar	nd Growt	h Test					Bureau	Veritas La	aboratories
nalysis ID:	17-3150-3433	Er	dpoint:	Mean Dry Biom	nass-mg		CET	IS Version	: CETISv1	9.2	
-	29 Jun-20 16:	24 A r	alysis:	Parametric-Two	o Sample		Offic	ial Result	s: Yes		
Batch ID: 1	13-1526-7178	Te	st Type:	Growth-Surviva	al (7d)		Anal	yst: M.	Hamad		
Start Date: 1	12 Jun-20 14:1		otocol:	EC/EPS 1/RM/			Dilu	ent: Re	constituted W	/ater	
Ending Date: 1	19 Jun-20 14:4	4 Sp	ecies:	Pimephales pro	omelas		Brin	e: No	t Applicable		
	7d 1h		ource:	Aquatic Biosyst			Age				
Sample ID: 0	07-4234-1571	Co	de:	C039804			Clier	nt: Ag	nico Eagle M	nes	
Sample Date: 0	06 Jun-20	Ма	aterial:	Water			Proj	ect:			
Receipt Date: 1	11 Jun-20 08:2	0 S c	ource:	Agnico Eagle N	lines						
Sample Age: 6	3d 14h	St	ation:	MEL 02-05							
Comments:											
Ref1 is Mel-03-0	02. Ref2 is Mel	-04-05. Re	f3 is Mel-(05-04.							
Data Transform Alt Hyp								son Result			PMSD
Untransformed		C > T					Ref 1 pas	sed mean	dry biomass-r	ng	8.81%
Equal Variance	e t Two-Sampl	e Test									
Control vs	s Control		Test S	Stat Critical	MSD DF	Р-Туре	P-Value	Decision			
Site Water Cont	r Ref 1		0.173	2 2.132	0.045 4	CDF	0.4354	Non-Sigr	nificant Effect		
Auxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decisior	η(α:5%)		
Extreme Value	Grubbs I	Extreme Va	lue Test		1.61	1.887	0.3735	No Outlie	ers Detected		
ANOVA Table											
Source	Sum Squ	ares	Mean	Square	DF	F Stat	P-Value	Decisior	η(α:5%)		
stween	2.017E-0	5	2.017	E-05	1	0.03	0.8709	Non-Sigr	nificant Effect		
Error	0.002688	7	0.000	6722	4						
Total	0.002708	8			5						
Distributional T	Fests										
Attribute	Test				Test Stat	Critical	P-Value	Decisior	and the second		
/ariances		Ratio F Te			30.26	199	0.0640	Equal Va			
Distribution	Shapiro-V	Vilk W Nori	mality Te	st	0.9398	0.43	0.6574	Normal [Distribution		
Mean Dry Biom		nary									
Conc-%	Code	Count	Mean	95% LCL			Min	Мах	Std Err	CV%	%Effect
D	R1	3	0.508		0.5979	0.511	0.471	0.543	0.02083	7.10%	0.00%
0	S1	3	0.512	0.4957	0.5283	0.511	0.506	0.519	0.003786	1.28%	-0.72%
Mean Dry Biom	ass-mg Detai	I									
weath bry bioth											
•	Code	Rep 1	Rep 2	Rep 3							
Conc-%	Code R1	Rep 1 0.471	Rep 2 0.511	Rep 3 0.543				NG 1947			



CETIS Ana	alytical Report			Report Date: Test Code:			03 Jul-20 19:19 (p 14 of 14 PP-10735-0120 00-3690-924				
Fathead Minr	now 7-d Larval Survi	val and Growt	h Test					Bureau	Veritas I	Laboratori	es
nalysis ID: Analyzed:	17-3150-3433 29 Jun-20 16:24	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample			TIS Versio ficial Resul		CETISv1. Yes	9.2		
Graphics											
0.6 0.5 0.4 0.4 0.3 0.2 0.1	` 		Reject Null	0.040 0.035 0.025 0.025 0.015 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.015		•					
0.0	0 R1		0 S1	-0.030 -0.035 -0.040 -1.5	-1.0	-0.5 Rani	0.0 (its	0.5	1.0	J 1.5	

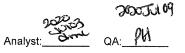


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CETIS Analytical Report

Report Date:	03 Jul-20 19:19 (p 11 of 14)
Test Code:	PP-10735-0120 00-3690-9242

							res	t Code:	PP-107	35-0120	00-3690-92
Fathead Minn	ow 7-d Larva	Survival	and Grow	th Test					Bureau	u Veritas I	_aboratorie
nalysis ID:	08-4655-434	8 E	Endpoint:	Mean Dry Bior	mass-mg		CET	IS Versio	n: CETISv	1.9.2	a.
Analyzed:	29 Jun-20 16	5:24 /	Analysis:	Parametric-Tw	vo Sample		Offi	cial Resu	lts: Yes		
Batch ID:	13-1526-7178	3 1	est Type:	Growth-Surviv	al (7d)		Ana	lyst: N	I. Hamad		
Start Date:	12 Jun-20 14:	:10 F	Protocol:	EC/EPS 1/RM	/22		Dilu	ient: R	econstituted \	Nater	
Ending Date:	19 Jun-20 14:	44 8	Species:	Pimephales pr	romelas		Brir	ne: N	ot Applicable		
Duration:	7d 1h	5	Source:	Aquatic Biosys	stems, CO		Age	:			
Sample ID:	07-4234-1571	C	Code:	C039804			Clie	nt: A	gnico Eagle M	lines	
Sample Date:	06 Jun-20	N	laterial:	Water			Pro	ject:			
Receipt Date:	11 Jun-20 08:	20 S	Source:	Agnico Eagle I	Mines						
Sample Age:	6d 14h	S	Station:	MEL 02-05							
Comments:									 		
Ref1 is Mel-03-	02. Ref2 is Me	el-04-05. R	ef3 is Mel-	05-04.							
Data Transform	n	Alt Hy	р					son Resu			PMSD
Untransformed	-	C > T					Ref 2 pas	sed mean	dry biomass-	mg	9.25%
Equal Variance	e t Two-Samp	ole Test									
Control v	rs Contro	1 11	Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	on(α:5%)		
Site Water Con	tr Ref 2		-1.861	2.132	0.047 4	CDF	0.9319	Non-Sig	nificant Effect	t	
Auxiliary Tests	5			9 8. Santa es aprovido y 11 anos en 1979.							
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:5%)		
Extreme Value	Grubbs	Extreme V	/alue Test	· · · · · · · · · · · · · · · · · · ·	1.672	1.887	0.2771		iers Detected		
ANOVA Table					· · · · · · · · · · · · · · · · · · ·				5.47 million 17.9744 million for the second second		Harrison
Source	Sum Sq	uares	Mean	Square	DF	F Stat	P-Value	Decisio	n(α:5%)		
tween	0.00256	27	0.0025		1	3.465	0.1362		nificant Effect		
Error	0.002958	87	0.0007	7397	4						
Total	0.00552	13			5						
Distributional 1	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)		
/ariances	Variance	Ratio F Te	est		33.4	199	0.0581	Equal V	ariances		an a
Distribution	Shapiro-	Wilk W No	rmality Tes	st	0.9283	0.43	0.5669	Normal	Distribution		
Vlean Dry Biom	nass-mg Sum	mary									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
)	R2	3	0.5533	0.4592	0.6475	0.547	0.519	0.594	0.02188	6.85%	0.00%
)	S1	3	0.512	0.4957	0.5283	0.511	0.506	0.519	0.003786	1.28%	7.47%
Mean Dry Biom	ass-mg Deta	il									1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -
Conc-%	Code	Rep 1	Rep 2	Rep 3							
)	R2	0.519	0.594	0.547							
)	S1	0.511	0.506	0.519							



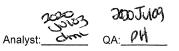
CETIS Ana	alytical Report			Report Date: Test Code:	03 Jul-20 19:19 (p 12 of 14) PP-10735-0120 00-3690-9242		
Fathead Minr	now 7-d Larval Survi	val and Grow	th Test			Bureau Veritas Laboratories	
nalysis ID: Analyzed:	08-4655-4348 29 Jun-20 16:24	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample		CETIS Version: Official Results:	CETISv1.9.2 Yes	
Graphics 0.6 0.5 0.5 0.4 0.4 0.4 0.2 0.2 0.1			Reject Null	0.04 0.03 0.03 0.01 0.01 0.01 0.00 0.01 0.01	• •	•	
o.o E	0 R2	I,,	0 S1	-0.05 -1.5	-1.0 -0.5 0.0	0.5 1.0 1.5	
	Co	onc-%			Rankits		



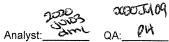
CETIS Analytical Report

Report Date:	03 Jul-20 19:19 (p 9 of 14)
Test Code:	PP-10735-0120 00-3690-9242

Fathead Minnow	/ 7-d Larval S	Survival a	ind Growt	h Test	<u></u>				Bureau	ı Veritas L	aboratories
· •	0-9293-1933 9 Jun-20 16:2		indpoint: nalysis:	Mean Dry Bior Parametric-Tw	-			IS Versio		.9.2	
	-1526-7178 Jun-20 14:10		est Type: rotocol:	Growth-Surviv EC/EPS 1/RM	• •			Analyst: M. Hamad Diluent: Reconstituted W		Vater	
Ending Date: 19			pecies:	Pimephales pr			Brin		ot Applicable	rator	
-	1h		ource:	Aquatic Biosys			Age				
Sample ID: 07	-4234-1571	с	ode:	C039804			Clie	nt: Ag	gnico Eagle N	lines	
Sample Date: 06	Jun-20	, M	laterial:	Water			Proj	ect:			
Receipt Date: 11	Jun-20 08:20) S	ource:	Agnico Eagle N	Vines						
Sample Age: 6d	14h	S	tation:	MEL 02-05							
Comments: Ref1 is Mel-03-02	. Ref2 is Mel-	04-05. Re	ef3 is Mel-(05-04.							
Data Transform		Alt Hyp)				Comparis	son Resul	t		PMSD
Untransformed		C > T					Ref 3 pas	Ref 3 passed mean dry biomass-mg			4.34%
Equal Variance t	Two-Sample	e Test								Balande alt anne an carganaire	
Control vs	Control I	I	Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)		
Site Water Contr	Ref 3		-1.28	2.132	0.022 4	CDF	0.8652	Non-Sig	nificant Effect		
Auxiliary Tests											**********************
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)		
Extreme Value	Grubbs E	xtreme V	alue Test		1.607	1.887	0.3782	No Outli	ers Detected		
ANOVA Table											
Source	Sum Squa	ares	Mean	Square	DF	F Stat	P-Value	Decisio	n(α:5%)		
etween	0.0002667	,	0.0002	2667	1	1.639	0.2696		nificant Effect		
Error	0.0006507	,	0.0001	1627	4	www					
Total	0.0009173	}			5						
Distributional Tes	sts										
Attribute	Test	-			Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances	Variance F				6.566	199	0.2643	Equal Va			
Distribution	Shapiro-W	ilk W Nor	mality Tes	st	0.9821	0.43	0.9616	Normal I	Distribution		
Mean Dry Biomas	ss-mg Summ	•									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Мах	Std Err	CV%	%Effect
0	R3	3	0.5253		0.5671	0.529	0.507	0.54	0.009701	3.20%	0.00%
0	S1	3	0.512	0.4957	0.5283	0.511	0.506	0.519	0.003786	1.28%	2.54%
Mean Dry Biomas	s-mg Detail								-		
Conc-%	Code	Rep 1	Rep 2	Rep 3							
Conc-% 0	Code R3	Rep 1 0.54	Rep 2 0.507	Rep 3 0.529	******						



CETIS Ana	alytical Report				Report Date: Test Code:	03 Jul-20 19:19 (p 10 of 14) PP-10735-0120 00-3690-9242
Fathead Minr	now 7-d Larval Survi	val and Growt	h Test			Bureau Veritas Laboratories
nalysis ID: Analyzed:	10-9293-1933 29 Jun-20 16:24	Endpoint: Analysis:	Mean Dry Biomass-mg Parametric-Two Sample		CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics					****	
0.6				0.015		
0.5 P			Reject Null	0.010		
Mean Dry Biomass-mg						6
				Centered Intransformed 00000 Centered 00000 Centered	•	
∑ [-0.005	•	
-				-0.010		
0.1				-0,015		
_{0.0} E	0 R3	I	0 S1	-0.020	-1.0 -0.5 0.0	0.5 1.0 1.5
	c	onc-%			Rankits	



FATHEAD MINNOW SURVIVAL AND GROWTH TEST

BBY2FCD-00215/14 Tab - Biomass, Page 1 of 1

	Cli	ient Name:	Golder Associa	ates Ltd. (Agnico)							
		Sample ID:				Job / Sample #:	C039804				
			2020 Jun 17, 2	020 Jun 22		Drying Time (h):					
			bby2-0260			Drying Temp (°C):					
Boat	Conc. &	Initial #	Boat Wt.	Boat & Fish	Wt. of Fish	Biomass/Replicate ¹	Mean Biomass/Conc ¹	SD			
#	Replicate	Of Fish	(g)	Wt. (g)	(mg)	(mg)	(mg)				
333	0-A	10	0.80753	0.81357	6.04	0.604	0.554	0.04			
334	В	10	0.79958	0.80483	5.25	0.525					
335	С	10	0.79940	0.80473	5.33	0.533					
336	Site Ctrl-A	10	0.80069	0.80580	5.11	0.511	0.512	0.01			
337	В	10	0.80624	0.81130	5.06	0.506					
338	С	10	0.79919	0.80438	5.19	0.519					
339	Soft Water Ctrl-A	10	0.80924	0.81460	5.36	0.536	0.566	0.03			
340	В	10	0.80080	0.80640	5.60	0.560					
341	С	10	0.79555	0.80158	6.03	0.603		and and a second se			
342	MEL-02-05 100%-A	10	0.81810	0.82309	4.99	0.499	0.540	0.04			
343	В	10	0.81632	0.82198	5.66	0.566					
344	С	10	0.80144	0.80698	5.54	0.554					
345	MEL-03-02 100%-A	10	0.79452	0.79923	4.71	0.471	0.508	0.04			
346	В	10	0.79925	0.80436	5.11	0.511		0.04			
347	С	10	0.79903	0.80446	5.43	0.543					
3	MEL-04-05 100%-A	10	0.79742	0.80261	5.19	0.519	0.553	0.04			
349	В	10	0.78833	0.79427	5.94	0.594	0.000	0.04			
350	С	.10	0.80137	0.80684	5.47	0.547					
351	MEL-05-04 100%-A	10	0.79964	0.80504	5.40	0.540	0.525	0.02			
352	В	10	0.80213	0.80720	5.07	0.507	0.020	0.02			
353	С	10	0.78768	0.79297	5.29	0.529					
354	QA/QC		0.79520	0.79534	0.14						
355	QA/QC		0.79277	0.79295	0.18						
333	0-A	10	0.80757	0.81355	5.98						
	Analyst		NS	DML							

¹ Biomass is calculated as the weight of fish per replicate divided by the number of fish initially seeded into that replicate (i.e. **10** fish per replicate).

Average Dry Weight of Control Fish (Average dry weight of control fish must be \geq 250 µg for test to be valid)

Boat #	Conc. & Replicate	# Surviving Fish	Wt. of Fish (mg)	Mean Wt./ Fish (µg)	Mean Dry Wt.
333	0-A	10	6.04	604	(μg) 554
334	В	10	5.25	525	
335	С	10	5.33	533	

ECOTOXICOLOGY FATHEAD MINNOW SURVIVAL AND GROWTH TEST Client Name: Golder Associates Ltd. (A on v.c.o.) Date Started: June 13, 2020 Dob / Sample #: OO 20, 6904 Date Started: June 13, 2020 Job / Sample #: Organism Lot #: Analystig: "Mikamade (Y, So M, O'Tosle, Mirror 658 ELNC: or Worksheet Created: or Metados 10, 53, 25, 82 CO 48, 82 S5, 44, 44, 46, 47, 47, 40, 48, 48, 48, 44, 44, 44, 44, 44, 44, 44							BUREAU V	ERITAS LAB BBY2	ORATORIES FCD-00215/14				
Client Name: <u>Golder Associates Ltd.</u> (<u>Agynech</u>) Date Started: <u>June 12, 2020</u> Date Started: <u>June 19, 2020</u> Analyst(s): <u>(MKaynech r Y, SU M.O'Tech y Marg S #)</u> Before Use Measurements (After temperature adjustment) Date Sample <u>Initial</u> Initial Temp <u>Aerated</u> Post Aeration <u>Posts</u> Analyst (S): <u>(MKaynech r Y, SU M.O'Tech y Marg S #)</u> Before Use Measurements (After temperature adjustment) Date <u>Sample ID</u> <u>Initial</u> Initial Temp <u>Aerated</u> <u>Post Aeration Posts</u> Analyst (S): <u>(MKaynech r Y)</u> (S S S Z C) (98, 8 25, 4 HIM. <u>MEL-02:05</u> 103, 3 25, 8 ZO (98, 8 25, 4 HIM. <u>MEL-02:05</u> 103, 7 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (04, 6 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (104, 6 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (104, 6 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (104, 6 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (104, 6 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (104, 6 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (104, 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (104, 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (104, 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (104, 25, 9 ZO (102, 1 2, 5, 4 HIM. <u>MEL-03:02</u> (104, 1 25, 6 ZO (107, 1 2, 5, 8 HM. <u>MEL-03:02</u> (104, 1 25, 6 ZO (107, 1 2, 5, 8 HM. <u>MEL-03:02</u> (104, 1 25, 6 ZO (107, 2 Z5, 8 HVO <u>MEL-03:02</u> (109, 1 25, 8 ZO (107, 2 Z5, 8 HVO <u>MEL-03:02</u> (109, 1 25, 8 ZO (107, 2 Z5, 8 HVO <u>MEL-03:02</u> (109, 1 2, 5, 6 ZO (107, 3 Z5, 7 HVA <u>MEL-03:02</u> (107, 3 Z5, 2 ZO (107, 3 Z5, 8 HVO <u>MEL-03:02</u> (107, 3 Z5, 2 ZO (107, 3 Z5, 7 HVA <u>MEL-03:02</u> (107, 3 Z5, 5 ZO (107, 3 Z5, 7 HVA <u>MEL-03:02</u> (107, 3 Z5, 7 ZO (107, 3 Z5, 7 HVA <u>MEL-03:02</u> (101, 1 2, 5, 6 ZO (103, 7 Z5, 7 HVA <u>MEL-03:02</u> (101, 1 2, 5, 6 ZO (103, 7 Z5, 7 HVA <u>MEL-03:02</u> (101, 1 2, 5, 6 ZO (103, 7 Z5, 7 HVA <u>MEL-03:02</u> (101, 1 2, 5, 7 ZO (20, 7), 25, 7 HVA <u>MEL-03:02</u> (101, 1 2, 5, 7 ZO (20, 7), 25, 7 HVA <u>MEL-03:02</u> (101, 1 2, 5, 7 ZO (20, 7), 25, 7 HVA <u>MEL-03:02</u> (101, 1 2, 5, 7 ZO (20, 7), 25, 7 HVA <u>MEL-03:02</u> (101, 1 2, 5, 7 ZO (20, 7), 25, 7 HVA <u>MEL-03:02</u> (101,	ECOI	OXICOLOGY	FATH		NOW SURVIN	AL AND G	ROWTH TEST	Tab - Ol	os, Page 1 of 3				
Date Started: June 12, 2020 U Sample ID: NorkSock Date Ended:: June 19, 2020 Organism Lot #: Acadoology Before Use Measurements (After temperature adjustment) Deviations - See BLNC: a Worksheet Created: a Date Sample Initial Temp (% Sat) Aeration (°C) Post Aeration Aeration Temp (°C) Analyst Aeration Temp (°C) Analyst Mei:03-02 Initial Temp (°C) Aeration (°C) Post Aeration Aeration Temp (°C) Analyst Mei:03-02 Initial Temp (°C) Aeration Temp (°C) Analyst Mei:03-02 Initial Temp (°C) Initial Temp (°C) Aeration Temp (°C) Analyst Mei:03-02 Initial Temp (°C) Init		Client Name	Golder Asso	ciates Ltd.	(Agnico)		Job / Sample #:	00399	04				
Analyst(s): <u>Intermed</u> , Y, SU M, O, Totle, , Marq 5 fill Before Use Measurements (After temperature adjustment) Deviations - See BLNC: Diversition Analyst Worksheet Created: :: Day Date Sample Initial D, O, (% Sat) Initial Temp (°) Aratad (min.)* Dot, (% Sat) Post Aeration Temp (°) Analyst (°) 0 June 12, 2020 MEL-02-05 [03:3] 25:8 2.0 98:8 2.5:4 HHM 1 June 12, 2020 MEL-03-02 (U-1.6 2.5:7 2.0 1.00:9 2.5:5 HHM 1 June 13, 2020 MEL-03-02 (Q-1.6 2.5:7 2.0 1.00:4 2.5:5 HHM 1 June 13, 2020 MEL-03-02 91:3 2.5:7 Y/A Y/A Y/A Y/A 2 June 14, 2020 MEL-03-02 10:5 2.5:6 2.0 10:7:4 2.5:8 moo 3 June 15, 2020 MEL-03-02 10:9 2.5:8 2.0 10:9:3 2.5:7 moo 4 June 14, 2020 M					0		Sample ID:	_vorious					
Before Use Measurements (After temperature adjustment) Developments (After temperature adjustment) Developments (Miler temperature adjustment) <th< td=""><td></td><td>Date Ended</td><td>June 19, 202</td><td>:0</td><td></td><td></td><td>⊾ Organism Lot #:</td><td>AB201</td><td>5612</td></th<>		Date Ended	June 19, 202	:0			⊾ Organism Lot #:	AB201	5612				
Before Use Measurements (After temperature adjustment) Developments (After temperature adjustment) Developments (Miler temperature adjustment) <th< td=""><td></td><td>Analyst(s):</td><td>Mitamac</td><td>1,4.50</td><td>) m.0'T</td><td>sle, de</td><td>2-9581</td><td></td><td></td></th<>		Analyst(s):	Mitamac	1,4.50) m.0'T	sle, de	2-9581						
Date Sample Initial D.O. (% Sat) Initial Temp (°C) Aerated (min.)* Post Aeration D.O. (% Sat) Analyst Aeration Temp (°C) 0 June 12, 2020 MEL-03-02 (U-1.6) $(03,3)$ $2.5,8$ $2O$ $(96,8)$ $2.5,5$ $(100,9)$ $2.5,5$ (1144) 1 June 13, 2020 MEL-03-02 $(04,1,6)$ $2.5,9$ $2O$ $(100,9)$ $2.5,5$ (1144) 1 June 13, 2020 MEL-03-02 $(25,9)$ $2O$ $(102,1)$ $2.5,5$ (1144) 1 June 13, 2020 MEL-03-02 $(25,9)$ $10A$ $10A$ $11A$ $10A$ $10A$ 2 June 14, 2020 MEL-03-02 $(25,8)$ $11A$ $25,6$ $2O$ 107.4 25.8 noo 3 June 14, 2020 MEL-03-02 $11A$ $25,6$ $2O$ 107.4 25.8 noo 4 June 15, 2020 MEL-03-02 $11A$ $25,6$ $2O$ 107.3 25.8 noo 5		Deviations - See Blinc:											
Date Sample (% Sat) D.O. (% Sat) Initial Temp (% Sat) Aerated (% Sat) Post Aeration D. (% Sat) Aeration Temp (C) Analyst Temp (C) 0 June 12, 2020 MEL-02-05 103.3 2.5% ZO 100.9% 2.5% HIM 1 June 12, 2020 MEL-03-02 104.6 2.5% 2.0% 1.02% 1.25% HIM 1 June 13, 2020 MEL-03-02 1.25% 2.0% 1.02% 2.5% HIM 1 June 13, 2020 MEL-03-02 1.2% 2.5% 1.0% MIL MIM 2 June 14, 2020 MEL-03-02 1.2% 2.5% 1.0% MIL MIM 2 June 14, 2020 MEL-04-05 11% 2.5% 2.0% 107.4 2.5% mo 3 June 15, 2020 MEL-04-05 11% 2.5% 2.0% 107.3 2.5% mo 4 June 16, 2020 1.0% 2.5% 2.0% 1.0% 2.5% mo 5	Befor	e Use Measurei	nents (After t	1	adjustment)		Worksheet Creat	ed: 🗆					
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$\begin{array}{c c c c c c c c c c c c c c c c c c c $			MEL-02-05		25,8	20	48.8		MHM				
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1 June 13, 2020 MEL-03-02 $q^2_12_2$ $2S, q$ VA VIA			MEL-02-05			NA			MITM				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			MEL-03-02	•									
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$\begin{array}{c c c c c c c c c c c c c c c c c c c $			MEL-05-04	91.9	25.8								
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			MEL-02-05		25,6								
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			MEL-03-02										
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			MEL-05-04										
3 June 15, 2020 $\frac{MEL-03-02}{MEL-04-05} \frac{109, z}{2} \frac{29, 9}{20} \frac{20}{103, 0} \frac{39, 0}{29, 1} \frac{39, 0}{93, 0} \frac{39, 0}{29, 0} \frac{39, 0}{29$			MEL-02-05					-					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		hun - 45, 0000	MEL-03-02	109,2					ys				
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$\begin{array}{c c c c c c c c c c c c c c c c c c c $		lune 10, 0000	MEL-03-02	110-2	25.5	20			MIM				
$\frac{MEL-05-04}{5} \left(\frac{19}{9}, \frac{7}{4}, \frac{25}{2}, \frac{20}{20}, \frac{101}{9}, \frac{3}{25}, \frac{25}{2}, \frac{111}{10}, \frac{111}{10}, \frac{111}{25}, \frac{25}{2}, \frac{20}{20}, \frac{103}{3}, \frac{3}{25}, \frac{25}{8}, \frac{111}{10}, \frac{111}$	4	June 16, 2020	MEL-04-05	110.5				25.3					
$ \frac{5}{100000000000000000000000000000000000$			MEL-05-04			20		25.2					
$ \frac{5}{1000} = 17,2020 \frac{\text{MEL-03-02}}{\text{MEL-04-05}} = \frac{111\cdot1}{13\cdot0} = \frac{25\cdot6}{20} = \frac{20}{100\cdot1} = \frac{125\cdot7}{125\cdot7} = \frac{111\cdot1}{11+11} = \frac{111\cdot1}{125\cdot7} = \frac{111\cdot1}{125\cdot7} = \frac{111\cdot1}{11+11} = \frac{111\cdot1}{125\cdot7} = \frac{1111\cdot1}{125\cdot7} = \frac{111\cdot1}{125\cdot7} = \frac{111\cdot1}{125\cdot7} = \frac{1111\cdot1}{125\cdot7$			MEL-02-05		25.2	20							
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$\begin{array}{c c c c c c c c c c c c c c c c c c c $	5	June 17, 2020	MEL-04-05	113.0	26.0			25.7					
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			MEL-05-04		25.8	20	100.7	2517					
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			MEL-02-05	111.8	25.7	20	100.0	25.7	MM				
MEL-04-05 110.8 25.7 20 99.4 25.7 100mm MEL-05-04 111.6 25.8 20 101.6 25.6 100 *Aeration rate must be ≤100 bubbles/min Instrument ID's: 1313/12-0366 Sample Descriptions: MEL-02-05 Clear, Colourless Initials MHM	6	luno 19, 2020	MEL-03-02		25.7	20			MITM				
MEL-05-04 III.6 ZS.8 ZO IOI.6 ZS.6 m. *Aeration rate must be ≤100 bubbles/min Instrument ID's: 1313/12-0366 *Aeration rate must be ≤100 bubbles/min Instrument ID's: 1313/12-0366 Sample Descriptions: MEL-02-05 Clear, Colourless Initials MHM	0	June 10, 2020	MEL-04-05	110.8	25,7	20	99.4	25.7	mm				
Sample Descriptions: MEL-02-05 <u>Clear, Workers</u> Initials MHM			MEL-05-04		25.8	20	101.6	25.6	m.				
Sample Descriptions: MEL-02-05 <u>Clear, Workers</u> Initials MHM													
Sample Descriptions: MEL-02-05 <u>Clear, Whatess</u> Initials MHM													
Descriptions: MEL-02-05 <u>Clear, What Courses</u> Initials MHM		Sample			*	Room #	TOT JUG PR	(.909030/0	5				
			MEL-02-05	Clear,	Coloritess		Initials MHM						
MEL-03-02 (Jear, Olarless Initials MITM		•											
MEL-04-05 (LAARCISCOVERSS Initials MHM			MEL-04-05	. '			•						
			MEL-05-04		columless		Initials	Mitra					
$MEL_{0} = 0.5 - 0.4 \qquad (3.5) + 0.5 $													

ECOI	FOXICOLOGY	FAT		W SURVIV		GROWTH TEST		FCD-00215/14 bs, Page 2 of 3
	Client Name:	Golder Asso	ociates Ltd. (P	ramed		Job / Sample #: _	CO.39 8	м
		Vario		0				
	le Hardness (mg /L CaCO3):	MEL-02-05 MEL-03-02 MEL-04-05 MEL-05-04	32 72 28 36		Initials: Initials: Initials: Initials:	yr yr yr yr		
Obse	rvations during	the Test (Or	rganism behavi	our, additio	nal test inf	formation)		
Day								Analyst
0	Date:	June 12, 20	20	đ	Carboy B	ottle #: 2,		m/y.
	Pre-Aeration Tir	ne: 13'.06	-13:26		\bigcirc	Test Seeded @: \	4.10	
			Feeding PM:	16:15		Feeding Volume (u	m .	
1	Date: Pre-Aeration Tir Feeding AM: ඌ WQ Rep: A		20 Feeding PM:	(7 7:00	Carboy/ Bo	Water change @: \	ς,γ2 Volume (uL)	- 50
2	Date:	June 14, 20	20	(Carboy / Bo	ottle #:		NTS 45
	Pre-Aeration Tir	ne:				Water change @:	14:58	
	Feeding AM: 🔿	9:05	Feeding PM:	16:10		Feeding	Volume (uL)	
3	Date:	June 15, 20	20	(arboy)/ Bo	ottle #: 1,2,7	,3	<i>ys</i>
	Pre-Aeration Tin	ne: 14:	50 ~ 15:1	0	9	Water change @:	17:05	
	Feeding AM: 0	7100	Feeding PM:	17:5	8	Feeding	Volume (uL)	: 50
	· .					۵		
4	Date:	June 16, 20	20	(a	Carboy / B	ttle #: 1, 3, 3		onthy
	Pre-Aeration Tin					Water change @:	13:10	
	Feeding AM: 🕐			15.20			Volume (uL)	:50
	WQ Rep: 🏷		X					

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BUREAU VERITAS LABORATORIES

			BUREAU VERITAS LAB BBY2	BORATORIES PCD-00215/14
ECO	TOXICOLOGY	FATHEAD MINNOW SURV		bs, Page 3 of 3
	Client Name: Sample ID:	Golder Associates Ltd. (Agnico)	Job / Sample #: <u>CO3436</u>	04
Day				Analyst
5	Date:	June 17, 2020	Carboy/ Bottle #: 2, 2, 2, 2	mm all
	Pre-Aeration Tir	······	ـــــــــــــــــــــــــــــــــــــ	
	Feeding AM: 🖄	7:45 Feeding PM: 14:20	Feeding Volume (uL)	:50
	WQ Rep: 🕑			
6	Date:	June 18, 2020	Carboy) Bottle #: \ 1 21213	m
	Pre-Aeration Tin		Water change @: 14,40	
		281,15 Feeding PM: 15:00	Feeding Volume (uL):	50
	WQ Rep:			
7		June 19, 2020		Mn
	Test ended @	14,44 WQ rep: A		

]

QWEMHM 2023ULA

FATHEAD MINNOW SURVIVAL AND GROWTH TEST

Client Name: Golder Associates Ltd. (Agnico)										
Sample ID: <u>Vox 005</u> Job / Sample #: <u>CO20, SOM</u>										
Sample ID: VOXIOOS Job / Sample #: COZOXSOM Analyst(s): MHOMOR , Y. SU, WAYORSA, M.O'TOLE NSheroplo										
Control	Day	1	$\frac{2}{1/2}$	3	4	5	6	7		
Conductivity	Initial Final	458	463	461	512	453	452	454 512		
(µs/cm)	Initial	9 FO 24.4	24.6	24,4	24.9	25.3	25.0	25.0		
Temp. (°C)	Final	2410	24.2	24.9	25.5	25.0	25.0	250		
D.O. (mg/L)	Initial Final	8.1	7.8	8.2	8.0	811	8.4	8:0		
	Initial	8.2	812	8.1	8.1	8.2	8-1	8:3		
рН	Final	デチ	8.1	79	7.5	7.6	7.6	7.5		
Synthetic			<u>میں میں معمل اور میں میں میں میں میں میں میں میں میں میں</u>							
Site Control	Day	1	2	3	4	5	6	7		
Conductivity	Initial	125	126	130	129	130	129	129		
(µs/cm)	Final	137	139	142	135	141	142	140		
Temp. (°C)	Initial	23.8	2510	24.8	14.7	24.8	25.0	2512		
	Final	24.0	24.2	25.0	2513	24.6	24-6	24.8		
D.O. (mg/L)	Initial Final	8.2 7.5	8.1	83	7.9	8.2 7.2	8.0	812		
	Initial	8.0	7.7	7, 3 08.07.5	7.9	7.7	7.5	7-8		
рН	Final	7.5	8.2	7.7	7.7.	7.3	$\frac{7.3}{75}$	7.4		
						T				
Soft Water										
Control	Day	1	2	3	4	5	6	7		
Conductivity	Initial	104	105	105	108		110			
(µs/cm)	Final	120	134	122	118	123	120	124		
Temp. (°C)	Initial Final	23.6	24.7	25.1	24.2	24.7	24.4	24.9		
	Initial	8.8	8.1	8.2	812	8.2	813	B12		
D.O. (mg/L)	Final	7.6	7.7	7.3	7.0	Tiu		7.0		
	Initial	7.5	7.6	7.5	7.6	7.7	7.6	716		
рН	Final	7.3	8.0	7.2	7.2	7.2	7.2	7.3		
MEL-02-05 100%	D.	4	6		4	F	0	7		
	Day	1	2	3	4	5	6	7		
Conductivity	Initial	125	123	123	122	123	123	123		
(µs/cm)	Final	134	133	131 25.4	130	134	13.5	130		
Temp. (°C)	Initial Final	24.0	25.5	25.4	24.0	24.6	24.7 24-8	24.9		
	Initial	8.6	811	0	817	812	814	813		
D.O. (mg/L)	Final	7.6	7.3	\$.7	7-1	618	6.8	7-0		
·	Initial	7.3	7.1	7.0	7.2	7.7	Ful	7.4		
рН	Final	7.3	7,8	7.3	7.2	712	72	71		
		the second se	<u>i L L L</u>							

@WE NO 2020 Jun 14

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FATHEAD MINNOW SURVIVAL AND GROWTH TEST

Client Name: Golder Associates Ltd. (Agnico) Sample ID: <u>VOCIDOS</u> Job / Sample #: <u>COBA 804</u>										
MEL-03-02 100%	Day	1	2	3	4	5	6	7		
Conductivity (µs/cm)	Initial Final	70	68	69 78	68 75	69 81 8-78	69	69		
Temp. (°C)	Initial Final	25.3	25:6	25,3	24,4 25,0	24.6	24.5	24.9		
D.O. (mg/L)	Initial Final	8:4	7.4	89	8.8	8.3	8.3	8.2		
рН	Initial Final	7.2	7.1	7.1	7.2	7.5	7.7	7.4		
Analyst		MM HIPM	mm NK	mo m	VSIM	MIAM TIM	Mity MM	MM M		
Daily WQ Revie	ewed by:	mm		mo m	US M	men min	Mign m	MM		
						1.0. (.00)	1,000,00			
MEL-04-05 100%	Day	1	2	3	4	5	6	7		
Conductivity	Initial	104	103	103	104	98	103	104		
(µs/cm)	Final	116	116	108	120	เร	117	121		
Temp. (°C)	Initial Final	25.3	25,7	25.5 25.3	24.0	24.6	24.5	24.9		
D.O. (mg/L)	Initial Final	8.4	オン	8,9	8.6	812	8,2	816		
pН	Initial Final	7.2	7,1	7.\ 7.\ 7.1	7.4	7.5	6.3 7.5 7.1	6°D 7°3 7.3		
	rinai	+ 2	1.75		4.2	7.0	<i>†</i> `	+.2		
MEL-05-04 100%	Day	1	2	3	4	5	6	7		
Conductivity	Initial	97	100	Glo	105	97	Go/	104		
(µs/cm)	Final	112		103	112	118	119	1:13		
Temp. (°C)	Final Final	25:3	25:7 24.0	25.5 25.4	24.7	24.8	24.7	24.9 25.0		
D.O. (mg/L)	Initial Final	8.5	7.5	8,8	816	8.3	813	814'		
pН	Initial Final	7,2,7,2	7.1	7.1	7.9	7.5	7:5	7.7		
Daily WQ Revie	ewed by:	MW IMIM		mount	ys m	MIN MM	THIM M	mm		

(B) WEMHMZOZOJUNIJ

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Client Name: Golder Associates Ltd. (Agnico) Job / Sample #: ______________

Sample ID: Vorido5

# Surviving Organisms													
	Replicate	# Of Fish				Day							
Conc.	#	Seeded	1	2	3	4	5	6	7			% Mean	SD
(% v/v)	Date	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	% Survival % Mortalit	% Mortality	Mortality	(%)
	А	6	16	10	(0	10	10	10	10	-	-	-	-
Control	В	lo	10	\mathbb{N}	(0	10	10	10	10	-	-	1.14	
	С	0	10	10	[Ø	10	10	0	10	-	-		
0.1	А	10	10	10	lO	10	10	10	5	-	-	-	-
Site Control	В	10	10	10	(0	lo	10	ما	10	-	-	ti se da	
(Synthetic	C	10	(0	10	10	IU	10	10	(0	-	-		
Soft .	A	10	10	10	(0	\∕ ⊘	10	6	10	-	-	-	-
Water Control	В	10	10	10	[0]	0	10	(0)	10	-	-		
Control	С	(0	10	Ň	(0	10	10	10	10	-	-		
	А	0	10	NO	10	10	10	10	9	-	-	-	-
MEL-02- 05 100%	В	(o	10	10	$\langle \mathcal{O} \rangle$	16	10	10	9	-	-	$(1, 1)^{*}$	
	С	10	10	10	٩	9	9	9	9	-	-		
	А	10	10	N)	01	10	10	6	10		-	-	-
MEL-03- 02 100%	В	16	10	10	9	G	9	9	9	-	-		
	С	60	10	Ŋ	10	10	10	ю	GJ-	-	-		
	A	0	16	10	01	10	10	10	10	-	-	-	-
MEL-04- 05 100%	В	10	10	10	[0]	10	10	10	10	-	-		
	С	10	10	10	01	10	10	jo	10	-	-		
MEL-05- 04 100%	А	(/0	6	10	lO	10	10	10	9	-	-	-	-
	В	ю	10	Ň	10	60	10	10	10	-	-		
	С	10	9	9	9	G	٩	9	9	-	-		
Ana	alyst	Im	1711	NS	45	him	B	m	MIM				

* see test comments

Randomization Chart

Client Name: <u>G</u>	iolder (Agnico)	Start Date: 2020 Jun 12
Sample Name:	Various	

Use the coloured dot to find appropriate conc'ns and put beakers back in proper position following daily water change.

Back Wall		Position Map			
4	8	12	16	20	24
3	7	11	15	19	23
2	6	10	14	18	20
<u> </u>	5	9	13	17	21

Front of Counter

Position #	Treatment	Replicate	Colour
10		А	
9	Control	В	Red
17		С	
7		А	
5	Site Control	В	White
8	(synthetic)	С	
4	0-50 000	A	
21	Soft Water Control	В	Orange
19	Control	С	
2		А	
13	MEL-02-05	В	Yellow
3		С	
15		А	
16	MEL-03-02	В	Fl. Green
12		С	
20		А	
14	MEL-04-05	В	Green
18		С	
1		А	
11	MEL-05-04	В	Blue
6		С	

ORG/	ANISMS -	
A 1 1 10		

BUREAU VERITAS LABORATORIES BBY2FCD-00070/6 Page _____ of _____

ACCLIMATION AND HOLDING CONDITIONS

	Client #'s	10735	,3120	_ Date & Time of Arrival: _ <u>2020 てい</u> 12④ いうひ						
Orga	nism Lot #:	_AB200	5612	Age	upon Arrival:	22440				
Water (L) per Sh	ipping Bag:	_ <u> ^2</u>	L	Organism: Fathed Minnow)			
Number of Shipping Bags:2				_	Ordered:	178	1780			
Arrival Conditions	Light Intensity (lux): $100-500$									
Bag ID	# Dead	% Dead	Cond (µS/cm)) Salinity (ppt)	Temp (°C)	DO (mg/L)	рН	Feeding	Analyst		
A	0	0	360	24.2	9.7	7.5	W14	MIHM		
					· · ·					
	Pit		2							
			3002	meza						

Daily Conditions During Holding/Acclimation

	Morta	alities						
Date	# Dead	% Dead	Cond (µS/cm) Salinity (ppt)	Temp (°C)	Nater Quali DO (mg/L)	рН	Feeding	Analyst
B	0	0	(ppt) 360	24.3	10.8	7.4	NIA	inm
							1-121	
/								
							······	
				-RH and				
					e Jun a			
					40			
		·						
Total Mortalities							l	

Equipment ID: BBY2-0036

Comments (e.g. feeding times and quantities; fish behaviour, acclimation conditions): Analyst did WQ. Fish look normal N/A mp 2020 JUL 08

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BUREAU VERITAS LABORATORIES

JUN

BBY2FCD-00069/3 Tab: CaSO4; Page 1 of 1

09

FATHEAD MINNOW WATER HARDNESS ADJUSTMENT

BATCH ID:

(Date Hardened)

2020

(For water hardness 100-140 mg/L)

<u> </u>	Enter Numbers Here	
Volume of Water (L)	200	
Desired Hardness (mg/L)	130	

Keep this set to a desired hardness of 130, so water will always be on the harder side, as fathead minnows are cultured in water at a hardness of 103-142 mg/L CaCO₃.

Chemical Weights	MgSO₄ (g)	CaSO₄ (g)	NaHCO₃ (g)	KCI (g)
Brand	Fisher	Alfa Aesar	Fisher	Fisher
Lot #	183674	Q09 E068	189522	195613
Calculated	19.5000	15.3400	31.2000	1.3000
Actual	19.4998	15.3401	31.1999	1.3003
Balance: BB12-020	0			
Analyst: M. Thom		-		
Date: 2020 JU	n 09	-		

Water Quality:	
Temp (°C): 24,2 pH: 8,1	Hardness (mg/L CaCO₃): <u>136</u>
DO (mg/L): <u>7・</u> 4	
Conductivity (µS/cm): 456	Instrument ID: _3BY2-0366
Analyst: Mitamay	Date: 2020Jun)D
Comments: NA	
	<u>i</u>
	n na har att a attaca ana ana ana ana ana ana ana ana ana

Note: Hardness = Ca and Mg as mg/L CaCO₃

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BUREAU VERITAS LABORATORIES

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and a

BBY2FCD-00069/3

Tabi CaSO4; Page 1-of 1

	· Summing - That will make -	MINNOW WATER HA	RDNESS	ADJUSTMENT	un ficher fichten fich	
		BATCH	ID :	2030 Tim (Date Hardened)		in a second s Second second sec
·········	(For	water hardness 100-1	40 mg/L)		· · · · · · · · · · · · · · · · · · ·	• • • • • • •
Volume of Wat	<i></i> .	Numbers Here]		

Desired Hardness (mg/L) 130

Keep this set to a desired hardness of 130, so water will always be on the harder side, as fathead minnows are cultured in water at a hardness of **103-142** mg/L $CaCO_3$

		T				
Chemical Weights	MgSO₄ (g)	CaSO ₄ (g)	NaHCO₃ (g)	KCI (g)		
Brand	Fisher	Alfa Acsar	Fisher	Fisher		
Lot #	187776	ROJE068	187782	172053		
Calculated	19.5000	15.3400	31.2000	1.3000		
Actual	19,5004	15.3401	31.2004	1.3004		
Balance: <u>BB42-02</u>	60					
Analyst: DSleve	11.7					
Date: 2020 30	m.4					
Water Quality:						
Temp (°C): <u>ZS 8</u> pH:			("	101		
		Hardne	ess (mg/L CaCO ₃): _	36		
DO (mg/L):						
Conductivity (µS/cm):t	58.	Instrument ID: BBY2-0366				
Analyst: Milamad		Date: 2020 Juni 6				
Comments: NIA						
Note: Hardness - Ca and Ma as			and and the second	n í kedre av eftaði sjögni verta með statistikan menndigi fyrir av 1990 - 1		

Note: Hardness = Ca and Mg as mg/L CaCO₃

Lewnor
+
MH4
Mater
Synthetic
2-11-30003

	Difference from target	(max)	Contraction of the second states		ACTIVE ADDRESS OF ADDRESS	Contraction of the local division of the loc				And a strength of and the	UEI	JUE!	
			63 -1.9	39 0.9	99 -1.8	0.0	219 -0.3	173 11.5	532 2.3	781 0.6	7.429595769 #VALUE!	0.312173086 #VALUE!	
	sum		18.54802663	8.262436139	16.95115199	0	1.413260219	2.622401073	11.87421532	5.586739781	7.4295957	0.3121730	
	12	NaCl	A DESCRIPTION OF		7.26558497				4.73441503				12 2.4 3.4003
0	23	CaCI*2H2O		8.262436139	7.307968092						7.429595769		23 12 4.6 2.4 4.600 3.4003
0	80	CaCO3	and the second se				100		AND INCOME ADDRESS OF	CONTRACTOR OF A			0:0
4	5	KC			2.377598927			2.622401073	A STATE OF A				7 5 5 0.0 1.4 1.0 0.0 1.4004 1.0004
60	7	MgSO4	and the second	Contraction of the second	And the second second		1.413260219			5.586739781			7 1.4 1.400
60	0	CaSO4*2H2O		0			A CONTRACTOR OF			0	0		0:0
96	26	NaHCO3	18.54802663		and the second second			A DESCRIPTION OF TAXABLE PARTY OF TAXABL	7.139800285	Contraction of the state		0.312173086	26 5.2 5.2004
Moderately hard water	Amount of salt (mg) in 1L of water	S		A D. L. AND MARKED MARK AND A DAMAGE		A DESCRIPTION OF A DESC			ADDRESS AND ADDRESS				Total check (mg/L) 26 g/200L Actual wtcg) 5.3004
Mc	Amo	Molar Mass Salts	60.01	40.08	35.45		24.30	39.10	23.10	96.06	18.02	1.01	Tota 8/2 A

Balance: BBY2-0360 Analyst. PH Date: 2020 Junell

Synthetic Writer CWCD

Conductivity= 126.0 ws/cm Plt = 7.5 Temperature= 24.1

DO Cm9127 = 8:3

Hardness: 32 mall (a Cos

BIH we according

594201

Fisher

171430

Fisher

Mgsoy Kcl Cacl. 3H, C

Esoeu

Fisher

205681

Fisher

NaH CO3

Brand Lot#

183674



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BUREAU VERITAS LABORATORIES Office 604 734 7276 4606 Canada Way Burnaby, BC V5G 1K5

Toll Free 800 665 8566 Fax 604 731 2386

LEMNA MINOR TOXICITY TEST ON:

MEL-13-01, MEL-13-07,& MEL-02-05

Prepared for:

Agnico Eagle Mines Ltd 10200, Route de Preissac Rouyn-Noranda, QC JOY 1C0

Prepared by:

Ecotoxicology Group Bureau Veritas Laboratories

Job No.: C039804 July 2020



Summary of Test Results for Samples from Agnico Eagle Mines Ltd Job C039804

13-01						
Test Lemna Minor: Frond Increase Dry weight		C25 (%v/v)	IC50 or LC50 (%v/v)			
		- /A, N/A)	>97 (N/A, N/A)			
ffect vs	MEL-03-02	MEL-04-05	MEL-05-04	Pooled references		
Frond Increase Dry weight	No No	No No	No No	No No		
	Frond Increase Dry weight ffect vs Frond Increase	IC25 or LO Frond Increase Dry weight >97 (N, ffect vs MEL-03-02 Frond Increase No	IC25 or LC25 (%v/v) Frond Increase - Dry weight >97 (N/A, N/A) ffect vs MEL-03-02 MEL-04-05 Frond Increase No No	IC25 or LC25 (%v/v) IC50 or L0 Frond Increase - >97 (N/A, N/A) ffect vs MEL-03-02 MEL-04-05 MEL-05-04 Frond Increase No No No		

N/A = Not available

95% confidence limits in parentheses

Sample: MEL-13-07

Test		IC25 or LO	C25 (%v/v)	IC50 or LC50 (%v/v)			
Lemna Minor.	Frond Increase Dry weight		- /A, N/A)	>97 (N/A, N/A) -			
Significant E	ffect vs	MEL-03-02	MEL-04-05	MEL-05-04	Pooled references		
Lemna Minor.	Frond Increase Dry weight	Yes (I) No	Yes (I) Yes (I)	Yes (I) Yes (I)	Yes (I) Yes (I)		

N/A = Not available

(I) = Sample Inhibition

95% confidence limits in parentheses



Summary of Test Results for Samples from Agnico Eagle Mines Ltd Job C039804

Sample: MEL-02-05							
Significant Effect vs	MEL-03-02	MEL-04-05	MEL-05-04	Pooled references			
<i>Lemna Minor</i> : Frond Increase Dry weight	No No	No No	No No	No No			

Sample: Site Control (Synthetic Control)

Significant Effect vs	MEL-03-02	MEL-04-05	MEL-05-04
<i>Lemna Minor</i> . Frond Increase	No	No	No
Dry weight	No	No	No



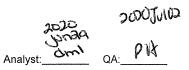
Lemna minor Test Data Summary

Client Name/Location	Agnico-Eagles Mines Ltd. / Rouyn-Noranda, QC
Testing Lab/Location	Bureau Veritas Laboratories / Burnaby, BC
Collection Approach	6 samples, each split into 3-6 subsamples
Sample Information	
Sample ID	MEL-13-01, MEL-13-07, MEL-02-05, MEL-03-02, MEL-04- 05, and MEL-05-04
Sample collection date (y/m/d)	2020/June/06 & 2020/June/07
Date (y/m/d)/time of sample receipt at lab	2020/Jun/11 @ 08:20
Test Organisms	
Species	Lemna minor (Landolt clone 7730)
Source	Axenic in-house culture started from organisms obtained from Canadian Phycological Culture Centre, CPCC #492
Growth medium used for culturing	Hoagland's E+ Medium
Age of culture at start of test	10 days
Appearance/Any unusual treatment of culture	Good. No unusual appearance or treatment of culture prior to use in test
Culture health monitoring	Mean number of fronds in health monitoring vessels (38.3) displayed a ≥8-fold increase by the end of 7 days in APHA medium. See "Plant Subculture and Acclimation for Tests" data sheet.
Acclimation time and test medium	Plants were acclimated to APHA medium 18-24 hours prior to testing
Test Conditions & Facilities	
Test method	EPS 1/RM/37 Second Edition - January 2007 BBY2SOP-00053 Lemna minor 7 Day Growth Inhibition Test
Test type	Static
Date test started (y/m/d)	2020/Jun/12
Date test completed (y/m/d)	2020/Jun/19
Test vessels	200 mL transparent polypropylene cups with plastic Petri dish lids
Persons performing test	N. Shergill, M. Brassil, P. Howes, Y. Su
Test location	Temperature and photoperiod controlled room, under same conditions as culture vessels
Light intensity, quality & photoperiod	24 hour full spectrum fluorescent light: 74-90 µmol/(m ² s)
Rate and duration of preaeration	~100 bubbles/minute for 20 minutes
Procedure for pH adjustment	No pH adjustment of sample
Procedure for filtration	The sample was not filtered
Control(s)	Lab control: APHA medium
	Site water (Synthetic water) control: Control/ dilution water based on client recipe (Deionized water with reagent grade

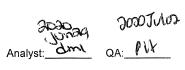
	chamicala)
	chemicals) Soft water control: Fathead minnow lab control water diluted
	with deionized water to 40 mg/L CaCO ₃
Chemicals added to control/dilution water	APHA Nutrient stocks A, B, and C, as described in method at 10ml/L
	Test medium prepared using Milli-Q water (ASTM type 1)
Type and quantity of chemicals added to test sample prior to testing (i.e., nutrient spiking)	APHA Nutrient stocks A, B, and C, as described in method at 10 ml/L
Number and concentration of test solutions	7 (97, 48.5, 24.2, 12.1, 6.0, 3.0, 1.5% v/v) plus laboratory control, synthetic/site water control, and soft water control (Where applicable)
Volume and depth of solution in test vessels	150 mL & ≥4 cm
Number of replicates per concentration	4 (plus 1 for measurements)
Number of fronds/plant and Number of plants/test vessel	3 fronds per plant; 2 plants per test vessel
Sample pH before and after addition of APHA stocks A, B, and C	See "Test Data and Observations" sheet
Temperature of test solutions and control during the test	See "Test Data and Observations" sheet
pH of test solutions and control at test initiation and completion	See "Test Data and Observations" sheet
Test observation frequency	Plants were observed daily for growth, necrosis, chlorosis, algal growth, and any abnormalities
Test observations	Plant growth appeared healthy and fronds appeared dark green in the control and the 1.5 to 97% v/v concentrations for all samples.
	Green algae present in 48.5% and 97% for sample MEL-13-01
	Green algae present in 97% for sample MEL-13-07.
Test observations and/or deviations from test method and standard practices	There was nothing unusual about the test, no other deviations from the test method, and no problems with the test.
Results	Results contained in this report refer only to the testing of samples as submitted.
Frond increase endpoint statistics	
Name and citation of program(s) and	CETIS v1.9.2.4 –
methods used for calculating statistical endpoint(s)	Linear Interpolation (ICPIN)
	Equal Variance t Two-Sample Test
Weighting techniques applied?	N/A
Residuals Analysis	N/A
Frond increase in controls and in each treatment (mean \pm SD)	See "Frond Increase" data sheet
Significant stimulation in sample	No, see Dunnett Multiple Comparison Test and Equal Variance t Two-Sample Test in CETIS
Percent stimulation for frond increase	See "Frond Increase" spreadsheet

in the test solutions	
Any outliers and justification for their removal	None
Dry weight endpoint statistics	
Name and citation of program(s) and methods used for calculating statistical endpoint(s)	CETIS v1.9.2.4 – Linear Interpolation (ICPIN) Equal Variance t Two-Sample Test
Weighting techniques applied?	N/A
Residuals Analysis	N/A
Dry weights (mean ± SD)	See "Dry Weights" data sheet
Significant stimulation in sample	No, see Dunnett Multiple Comparison Test and Equal Variance t Two-Sample Test in CETIS
Percent stimulation for dry weight in the test solutions	See "Dry Weights" data sheet
Any outliers and justification for their removal	None
Quality Assurance	
Test validity criteria	
 Average number of fronds in the control are ≥48 fronds A minimum of an 8-fold frond increase 	 Average number of fronds in Controls: MEL-13-01: 66.5 MEL-13-07: 57.8 MEL-02-05: 70.5 MEL-03-02: 70.5 MEL-04-05: 70.5 MEL-05-04: 70.5 Amount of Frond Increase: MEL-13-07: 9.6 fold MEL-02-05: 11.8 fold MEL-04-05: 11.8 fold MEL-04-05: 11.8 fold MEL-04-05: 11.8 fold
Reference Toxicant test: IC25 (95% CL) (µg Ni/L) for frond increase	8.6 (N/A, 75.9)
Reference toxicant test historic mean IC25 & 2SD range (µg Ni/L) for frond increase	10.1; 2SD range: (4.6, 22.4)
Invalid Reference toxicant test?	No
Date of Reference toxicant test and test duration	2020/Jun/04 7 days
Conditions of reference toxicant test	Same as test conditions

nalysis ID: 08-5028-2771 Analyzed: Endpoint: Frond Increase Analysis: CETIS Version: CETISV1.9.2 Official Results: Batch ID: 10-5417-7042 Test Type: Lemna Growth Analyst: M. Brassil Start Date: 12 Jun-20 Protocol: EC/EPS 1/RM/37 Diluent: APHA Media Ending Date: 19 Jun-20 Species: Lemna minor Brine: Not Applicable Duration: 7d 0h Source: Canadian Phycological Culture Centre Age: Sample ID: 16-3674-6015 Code: C039804 Client: Agnico Eagle Mines Sample Age: 5d 0h Station: MEL 13-01 Data Transform Alt Hyp Comparison Result Untransformed C <> T 97% passed frond increase Equal Variance t Two-Sample Test Control vs Conc-% Test Stat Critical MSD DF P-Type P-Value Decision(\alpha:5%)	s Laboratories PMSD 19.51%
Analyzed:29 Jun-20 16:50Analysis:Parametric-Two SampleOfficial Results:YesBatch ID:10-5417-7042Test Type:Lemna GrowthAnalyst:M. BrassilStart Date:12 Jun-20Protocol:EC/EPS 1/RM/37Diluent:APHA MediaEnding Date:19 Jun-20Species:Lemna minorBrine:Not ApplicableDuration:7d 0hSource:Canadian Phycological Culture CentreAge:Sample ID:16-3674-6015Code:C039804Client:Agnico Eagle MinesSample Date:07 Jun-20Material:WaterProject:2-11-0691Receipt Date:11 Jun-20 08:20Source:Agnico Eagle MinesSample Age:Comparison ResultData TransformAlt HypComparison ResultUntransformedC <> T97% passed frond increaseEqual Variance t Two-Sample TestControlvsConc-%Test StatCriticalMSDDFP-TypeP-ValueDecision(α:5%)	
Start Date:12 Jun-20Protocol:EC/EPS 1/RM/37Diluent:APHA MediaEnding Date:19 Jun-20Species:Lemna minorBrine:Not ApplicableDuration:7d 0hSource:Canadian Phycological Culture CentreAge:Sample ID:16-3674-6015Code:C039804Client:Agnico Eagle MinesSample Date:07 Jun-20Material:WaterProject:2-11-0691Receipt Date:11 Jun-20 08:20Source:Agnico Eagle MinesSample Age:5d 0hStation:MEL 13-01Data TransformAlt HypComparison ResultUntransformedC <> T97% passed frond increaseEqual Variance t Two-Sample TestTest Stat CriticalMSD DF P-TypeP-ValueDecision(α:5%)	
Start Date:12 Jun-20Protocol:EC/EPS 1/RM/37Diluent:APHA MediaEnding Date:19 Jun-20Species:Lemna minorBrine:Not ApplicableDuration:7d 0hSource:Canadian Phycological Culture CentreAge:VectorSample ID:16-3674-6015Code:C039804Client:Agnico Eagle MinesSample Date:07 Jun-20Material:WaterProject:2-11-0691Receipt Date:11 Jun-20 08:20Source:Agnico Eagle MinesSample Age:Station:MEL 13-01Data TransformAlt HypComparison ResultUntransformedC <> T97% passed frond increaseEqual Variance t Two-Sample TestTest Stat CriticalMSDDF P-TypeP-ValueDecision(α:5%)	
Duration: 7d 0h Source: Canadian Phycological Culture Centre Age: Sample ID: 16-3674-6015 Code: C039804 Client: Agnico Eagle Mines Sample Date: 07 Jun-20 Material: Water Project: 2-11-0691 Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Sample Age: 5d 0h Station: MEL 13-01 Data Transform Alt Hyp Comparison Result Untransformed C <> T 97% passed frond increase Equal Variance t Two-Sample Test Test Stat Critical MSD DF P-Type P-Value Decision(α:5%)	
Duration:7d 0hSource:Canadian Phycological Culture CentreAge:Sample ID:16-3674-6015Code:C039804Client:Agnico Eagle MinesSample Date:07 Jun-20Material:WaterProject:2-11-0691Receipt Date:11 Jun-20 08:20Source:Agnico Eagle MinesProject:2-11-0691Sample Age:5d 0hStation:MEL 13-01MEL 13-01Meterial:VarianceData TransformAltHypComparison ResultOmparison ResultUntransformedC <> T97% passed frond increaseEqual Variance t Two-Sample TestTest StatCriticalMSDDF P-TypeP-ValueDecision(α:5%)	
Sample Date: 07 Jun-20 Material: Water Project: 2-11-0691 Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Source: Agnico Eagle Mines Sample Age: 5d 0h Station: MEL 13-01 Comparison Result Data Transform Alt Hyp Comparison Result Untransformed C <> T 97% passed frond increase Equal Variance t Two-Sample Test Test Stat Critical MSD DF P-Type P-Value Decision(α:5%)	
Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Sample Age: 5d 0h Station: MEL 13-01 Data Transform Alt Hyp Comparison Result Untransformed C <> T 97% passed frond increase Equal Variance t Two-Sample Test Test Stat Critical MSD DF P-Type P-Value Decision(α:5%)	
Sample Age: 5d 0h Station: MEL 13-01 Data Transform Alt Hyp Comparison Result Untransformed C <> T 97% passed frond increase Equal Variance t Two-Sample Test 5000000000000000000000000000000000000	
Data Transform Alt Hyp Comparison Result Untransformed C <> T 97% passed frond increase Equal Variance t Two-Sample Test Equal Variance t Two-Sample Test Control vs Conc-% Test Stat Critical MSD DF P-Type P-Value Decision(α:5%)	
Untransformed C <> T 97% passed frond increase Equal Variance t Two-Sample Test Fest Stat Critical MSD DF P-Type P-Value Decision(α:5%)	
Untransformed C <> T 97% passed frond increase Equal Variance t Two-Sample Test Fest Stat Critical MSD DF P-Value Decision(α:5%)	19 51%
Control vs Conc-% Test Stat Critical MSD DF P-Type P-Value Decision(α:5%)	10.0170
Ref 1 no 0302 97 0.2155 2.447 14.19 6 CDF 0.8365 Non-Significant Effect	
Auxiliary Tests	
Attribute Test Test Stat Critical P-Value Decision(α:5%)	
Extreme Value Grubbs Extreme Value Test 1.481 2.127 0.9357 No Outliers Detected	
ANOVA Table	
Source Sum Squares Mean Square DF F Stat P-Value Decision(α:5%)	
Between 3.125 3.125 1 0.04644 0.8365 Non-Significant Effect	
Error 403.75 67.2917 6	
otal 406.875 7	
Distributional Tests	
Attribute Test Test Stat Critical P-Value Decision(α:1%)	
VariancesVariance Ratio F Test1.7147.470.6704Equal Variances	
Distribution Shapiro-Wilk W Normality Test 0.9535 0.6451 0.7461 Normal Distribution	
Frond Increase Summary	
Conc-% Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV%	%Effect
0 R1 4 72.75 58.09 87.41 72.5 62 84 4.608 12.67	% 0.00%
97 4 71.5 60.29 82.71 72.5 62 79 3.524 9.869	6 1.72%
Frond Increase Detail	
Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4	
0 R1 84 70 62 75	
97 73 72 62 79	



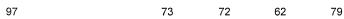
CETIS Ana	alytical Report				Report Date:	29 Jun-20 16:51 (p 2 of 10)
					Test Code:	LM-10735-0220 14-6119-7024
Lemna Grow	th Inhibition Test					Bureau Veritas Laboratories
nalysis ID:	08-5028-2771	Endpoint:			CETIS Version:	CETISv1.9.2
Analyzed:	29 Jun-20 16:50	Analysis:	Parametric-Two Sample		Official Results:	Yes
Graphics						
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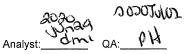


CETIS Analytical Report Test Code: LM-10735-0220 | 14-6119-7024 **Bureau Veritas Laboratories** Lemna Growth Inhibition Test **CETIS Version:** CETISv1.9.2 nalysis ID: 02-2119-2854 Endpoint: Frond Increase Analyzed: 29 Jun-20 16:50 Analysis: Parametric-Two Sample Official Results: Yes M. Brassil Batch ID: 10-5417-7042 Test Type: Lemna Growth Analyst: Start Date: 12 Jun-20 Protocol: EC/EPS 1/RM/37 Diluent: **APHA Media** Ending Date: 19 Jun-20 Species: Lemna minor Brine: Not Applicable 7d Oh Source: Duration: Canadian Phycological Culture Centre Age: 16-3674-6015 C039804 Sample ID: Code: Client: Agnico Eagle Mines Sample Date: 07 Jun-20 Material: Water Project: 2-11-0691 Receipt Date: 11 Jun-20 08:20 Agnico Eagle Mines Source: Sample Age: 5d 0h MEL 13-01 Station: Data Transform **Comparison Result** PMSD Alt Hyp Untransformed C <> T 21.88% 97% passed frond increase Equal Variance t Two-Sample Test P-Value Control vs Conc-% Test Stat Critical DF P-Type Decision(a:5%) MSD 0.9645 2.447 CDF 0.3720 Non-Significant Effect Ref 2 mel 0405 97 17.12 6 **Auxiliary Tests** Attribute Test Test Stat Critical P-Value Decision(a:5%) Extreme Value 1.446 2.127 1.0000 No Outliers Detected Grubbs Extreme Value Test **ANOVA** Table Source Sum Squares Mean Square DF F Stat P-Value Decision(a:5%) Between 91.125 1 0.9302 0.3720 Non-Significant Effect 91.125 6 587.75 97.9583 Error ⁻otal 678.875 7 **Distributional Tests** Attribute Test Test Stat Critical P-Value Decision(a:1%) Variance Ratio F Test 47.47 0.3988 Variances 2.945 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.9197 0.6451 0.4273 Normal Distribution Frond Increase Summary Conc-% Code Mean 95% LCL 95% UCL Median Min Max CV% %Effect Count Std Err 0 R2 4 78.25 59.01 97.49 79.5 65 89 6.047 15.45% 0.00% 97 4 71.5 60.29 82.71 72.5 62 79 3.524 9.86% 8.63% Frond Increase Detail Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 0 R2 71 65 88 89

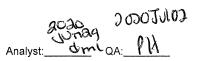
Report Date:

29 Jun-20 16:51 (p 3 of 10)

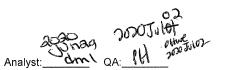


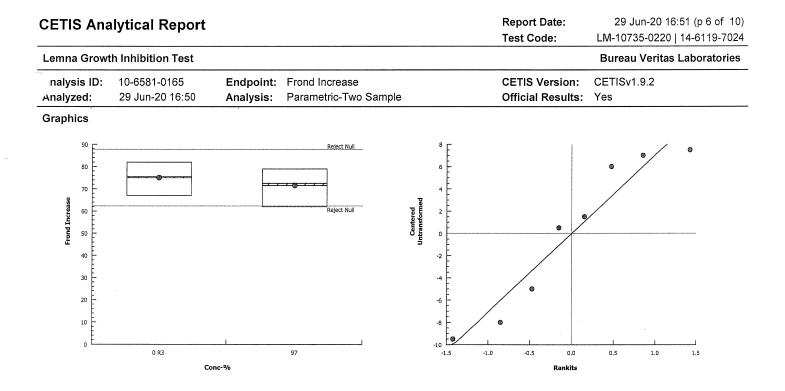


nalysis ID: 02-2119-2854 Analyzed: 29 Jun-20 16:50 Endpoint: Frond Increase Analysis: Parametric-Two Sample Official Results: Yes Graphics	-20 16:51 (p 4 of 10) 0220 14-6119-7024		Report Date: Test Code:				lytical Report	CETIS Ana
Analyzed: 29 Jun-20 16:50 Analysis: Parametric-Two Sample Official Results: Yes Graphics u u u u u u u u u u u u u	eritas Laboratories	Bureau Veritas La		·····			h Inhibition Test	Lemna Growt
Purpue to the second se	2	CETISv1.9.2 Yes				-		-
Reject Null Reject Null Rejec					,,			Graphics
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0 R2 97 -1.5 -1.0 -0.5 0.0 0.5 Conc-%	1.0 1.5	0.5 1.0	-1.0 -0.5 0.0	-1.5	97			



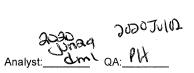
CETIS Analyt	ical Repo	ort					-	Report Date: 29 Jun-20 1 Test Code: LM-10735-0220			
Lemna Growth In	hibition Tes	t								u Veritas L	
nalysis ID: 10	-6581-0165	En	dpoint:	Frond Increase				IS Versio		1.9.2	
Analyzed: 29) Jun-20 16:5	0 An a	alysis:	Parametric-Two	o Sample		Offic	ial Resu	Its: Yes		
Batch ID: 10-	5417-7042	Tes	st Type:	Lemna Growth			Ana	yst: N	/I. Brassil		
Start Date: 12	Jun-20	Pro	tocol:	EC/EPS 1/RM/	37		Dilu	ent: A	APHA Media		
Ending Date: 19	Jun-20	Spe	ecies:	Lemna minor			Brin	e: N	ot Applicable		
Duration: 7d	0h	So	urce:	Canadian Phyc	ological Cul	ture Centre	Age				
Sample ID: 16-	3674-6015	Co	de:	C039804			Clie	nt: A	gnico Eagle N	lines	
Sample Date: 07	Jun-20	Ma	terial:	Water			Proj	ect: 2	-11-0691		
Receipt Date: 11		So	urce:	Agnico Eagle N	lines						
Sample Age: 5d			tion:	MEL 13-01							
Data Transform		Alt Hyp					Comparis	son Resu	ılt		PMSD
Untransformed		C <> T					97% pass	ed frond	increase		16.93%
Equal Variance t	Two-Sample	Test									
Control vs	Conc-%		Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	on(α:5%)		
Ref 3 melobout	97		0.674	6 2.447	12.69 6	CDF	0.5250	Non-Si	gnificant Effec	t	
Auxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:5%)		
Extreme Value	Grubbs E	xtreme Val	ue Test		1.399	2.127	1.0000		liers Detected	a an Art Malaka Ara	
ANOVA Table											
Source	Sum Squa	ares	Mean	Square	DF	F Stat	P-Value	Decisio	on(α:5%)		
Between	24.5		24.5		1	0.4551	0.5250	Non-Significant Effect			
Error	323		53.83	33	6				-		
otal	347.5				7	_					
Distributional Tes	ts			nan gan na sa			· · · · ·				
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:1%)		
Variances	Variance F	Ratio F Tes	t	۵۰۰ کار در اور در او 	1.168	47.47	0.9016	Equal \	/ariances	- an	
Distribution	Shapiro-W	ilk W Norm	nality Tes	st	0.8961	0.6451	0.2666	Normal	Distribution		
Frond Increase S	ummary										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Мах	Std Err	CV%	%Effect
0	R3	4	75	62.88	87.12	75.5	67	82	3.808	10.15%	0.00%
97		4	71.5	60.29	82.71	72.5	62	79	3.524	9.86%	4.67%
Frond Increase De	etail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4						
0	R3	70	67	81	82						
			72	62							





Report Date: 29 Jun-20 16:51 (p 7 of 10) **CETIS Analytical Report** LM-10735-0220 | 14-6119-7024 **Test Code:** Lemna Growth Inhibition Test **Bureau Veritas Laboratories** 12-4272-6527 **CETIS Version:** halysis ID: Endpoint: Frond Increase CETISv1.9.2 Analyzed: 29 Jun-20 16:50 Analysis: Parametric-Two Sample Official Results: Yes Batch ID: 10-5417-7042 Test Type: Lemna Growth M. Brassil Analyst: Start Date: 12 Jun-20 Protocol: EC/EPS 1/RM/37 Diluent: **APHA Media** Ending Date: 19 Jun-20 Species: Lemna minor Brine: Not Applicable Duration: 7d Oh Source: Canadian Phycological Culture Centre Age: Sample ID: 16-3674-6015 Code: C039804 Client: Agnico Eagle Mines Sample Date: 07 Jun-20 Material: Water 2-11-0691 Project: Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Sample Age: 5d 0h MEL 13-01 Station: **Data Transform** Alt Hyp **Comparison Result** PMSD C <> T Untransformed 97% passed frond increase 14.42% Equal Variance t Two-Sample Test Conc-% vs Conc-% Test Stat Critical MSD DF P-Type P-Value Decision(a:5%) ROOLES 0.7568 0 97 2.145 10.86 14 CDF 0.4617 Non-Significant Effect **Auxiliary Tests** Attribute Test **P-Value** Test Stat Critical Decision(a:5%) Extreme Value Grubbs Extreme Value Test 1.612 2.586 1.0000 No Outliers Detected ANOVA Table Source Sum Squares Mean Square DF F Stat P-Value Decision(a:5%) Between 44.0833 44.0833 0.5727 0.4617 Non-Significant Effect 1 Error 1077.67 76.9762 14 otal 1121.75 15 **Distributional Tests** Attribute Test **Test Stat** Critical **P-Value** Decision(a:1%) Variances Variance Ratio F Test 1.7 43.52 0.7295 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.9546 0.8408 0.5663 Normal Distribution Frond Increase Summary Conc-% Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV% %Effect 0 12 75.33 62 89 @ 69.5 81.17 73 2.652 12.20% 0.00% 97 4 71.5 60.29 82.71 72.5 62 79 3.524 9.86% 5.09% Frond Increase Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	@	70	67	81	82	71	65	88	89	84	70
		62	75								
97		73	72	62	79						



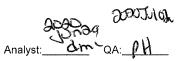
CETIS Ana	alytical Report				Report Date:	29 Jun-20 16:51 (p 8 of 10)
	· ·				Test Code:	LM-10735-0220 14-6119-7024
Lemna Grow	th Inhibition Test					Bureau Veritas Laboratories
nalysis ID:	12-4272-6527	Endpoint:	Frond Increase		CETIS Version:	CETISv1.9.2
Analyzed:	29 Jun-20 16:50	Analysis:	Parametric-Two Sample		Official Results:	Yes
Graphics						
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Analyst: _____ QA:____

CETIS Analytical Report

29 Jun-20 16:51 (p 9 of 10) LM-10735-0220 | 14-6119-7024

Lemna Growt	h Inhibition Te	st							Bureau	Veritas La	aporatorio
nalysis ID: Analyzed:	07-3944-7550 29 Jun-20 16:		dpoint: alysis:	Frond Increas Parametric-Co		atments		TIS Versior icial Result		.9.2	
Batch ID:	10-5417-7042	Те	st Type:	Lemna Growth	ı		Ana	alyst: M.	Brassil		
Start Date:	12 Jun-20	Pre	otocol:	EC/EPS 1/RM	/37		Dil	uent: AF	PHA Media		
Ending Date:	19 Jun-20	Sp	ecies:	Lemna minor			Bri	ne: No	t Applicable		
Duration:	7d Oh	So	urce:	Canadian Phy	cological Cu	lture Centre	Age	e:			
Sample ID:	16-3674-6015	Co	de:	C039804			Clie	ent: Ag	nico Eagle M	lines	
Sample Date:	07 Jun-20	Ма	terial:	Water			Pro	oject: 2-1	11-0691		
Receipt Date:	11 Jun-20 08:2	.0 So	urce:	Agnico Eagle	Mines						
Sample Age:	5d Oh	Sta	ation:	MEL 13-01							
Data Transfor	m	Alt Hyp			·		NOEL	LOEL	TOEL	ΤU	PMSD
Untransformed	1	C <> T					97	> 97	n/a	1.031	20.18%
Dunnett Multi	ple Compariso	n Test									
Control v	vs Conc-%	,	Test S	stat Critical	MSD D	F P-Type	P-Value	Decisio	n(α:5%)		
Site Water Cor	ntr 1.5		0.1478	3 2.814	14.28 6	CDF	1.0000		nificant Effect		
	3		0.4435	5 2.814	14.28 6	CDF	0.9976	Non-Sigi	nificant Effect	t	
	6		0.1971	2.814	14.28 6	CDF	1.0000	Non-Sigi	nificant Effect		
	12.1		1.084	2.814	14.28 6	CDF	0.8043		nificant Effect		
	24.2		0.9363		14.28 6	CDF	0.8862	-	nificant Effect		
	48.5		0.8378		14.28 6	CDF	0.9287	-	nificant Effect		
a a fail a dha an	97		0.1478	3 2.814	14.28 6	CDF	1.0000	Non-Sigr	nificant Effect		
Auxiliary Tests	S										
Attribute	Test				Test Stat	Critical	P-Value	Decisior	η(α:5%)		
xtreme Value	Grubbs	Extreme Va	lue Test	, 	2.455	2.938	0.3237	No Outlie	ers Detected		
ANOVA Table											
Source	Sum Squ	lares	Mean	Square	DF	F Stat	P-Value	Decisior	η(α:5%)		
Between	163.469		23.352	27	7	0.4537	0.8578	Non-Sigr	nificant Effect		
Error	1235.25		51.468	8	24	_					
Total	1398.72				31						
Distributional	Tests										
Attribute	Test				Test Stat	······	P-Value	Decisior	n(α:1%)		
Variances		quality of Va			8.573	18.48	0.2848	Equal Va			
Distribution	Shapiro-V	Vilk W Norn	nality Tes	t	0.9737	0.9081	0.6065	Normal E	Distribution		
Frond Increase	e Summary										
Conc-%	Code	Count	Mean	95% LCL		the design of the second s	Min	Max	Std Err	CV%	%Effect
)	S1	4	70.75	61.62	79.88	69	66	79	2.869	8.11%	0.00%
		4	71.5	57.12	85.88	67.5	66	85	4.518	12.64%	-1.06%
		4	73	69.1	76.9	73	70	76	1.225	3.36%	-3.18%
}		4	69.75	60.53	78.97	70.5	62	76	2.898	8.31%	1.41%
3					04 40	77	72	79	1 510	4 0 0 0 /	7 770/
3 5 12.1		4	76.25	71.32	81.18	77			1.548	4.06%	-7.77%
3 5 12.1 24.2		4 4	75.5	56.3	94.7	74.5	62	91	6.035	15.99%	-6.71%
1.5 3 5 12.1 24.2 48.5 97		4									



CETIS Analytical Report

Report Date: 29 Jun-20 16:51 (p 10 of 10) Test Code:

LM-10735-0220 | 14-6119-7024

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Lemna Grow	h Inhibition Te	st		· · · · ·			Bureau Veritas Laboratories
nalysis ID: Analyzed:	07-3944-7550 29 Jun-20 16:51		Endpoint: Frond Incre Analysis: Parametric		e ontrol vs Treatments	CETIS Version: Official Results:	CETISv1.9.2 Yes
Frond Increas	se Detail		,				
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4		
0	S1	66	79	68	70		
1.5		67	85	66	68		
3		76	70	73	73		
6		70	7,1	62	76		
12.1		79	76	72	78		

77

82

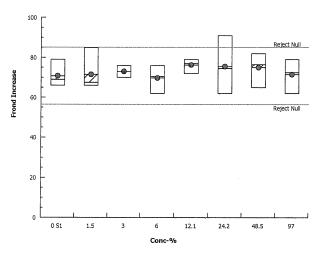
79

Graphics

24.2

48.5

97



62

75

73

72

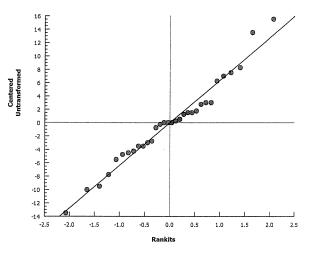
78

72

91

65

62





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Report Date: 29 Jun-20 16:51 (p 1 of 2) **CETIS Analytical Report Test Code:** LM-10735-0220 | 14-6119-7024 Lemna Growth Inhibition Test **Bureau Veritas Laboratories** CETIS Version: nalysis ID: 09-2478-3308 Endpoint: Frond Increase CETISv1.9.2 Analyzed: 29 Jun-20 16:45 Analysis: Linear Interpolation (ICPIN) Official Results: Yes Batch ID: 10-5417-7042 Test Type: Lemna Growth Analyst: M. Brassil Start Date: 12 Jun-20 Protocol: EC/EPS 1/RM/37 Diluent: APHA Media Ending Date: 19 Jun-20 Species: Lemna minor Brine: Not Applicable Duration: 7d Oh Source: Canadian Phycological Culture Centre Age: Sample ID: 16-3674-6015 C039804 Code: Client: Agnico Eagle Mines Sample Date: 07 Jun-20 Material: Water Project: 2-11-0691 Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Sample Age: 5d 0h Station: MEL 13-01 **Linear Interpolation Options** X Transform Y Transform Seed Resamples Exp 95% CL Method Log(X+1) Linear 449937 200 **Two-Point Interpolation** Yes **Residual Analysis** Attribute Method Test Stat Critical P-Value Decision(a:5%) Extreme Value Grubbs Extreme Value Test 2.455 2.938 0.3237 No Outliers Detected Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC5	>97	n/a	n/a	<1.031	n/a	n/a
IC10	>97	n/a	n/a	<1.031	n/a	n/a
IC15	>97	n/a	n/a	<1.031	n/a	n/a
IC20	>97	n/a	n/a	<1.031	n/a	n/a
IC25	>97	n/a	n/a	<1.031	n/a	n/a
`40	>97	n/a	n/a	<1.031	n/a	n/a
50،	>97	n/a	n/a	<1.031	n/a	n/a

Frond Increase Summary			Calculated Variate							
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	
0	S1	4	70.75	66	79	2.869	5.737	8.11%	0.0%	
1.5		4	71.5	66	85	4.518	9.037	12.64%	-1.06%	
3		4	73	70	76	1.225	2.449	3.36%	-3.18%	
6		4	69.75	62	76	2.898	5.795	8.31%	1.41%	
12.1		4	76.25	72	79	1.548	3.096	4.06%	-7.77%	
24.2		4	75.5	62	91	6.035	12.07	15.99%	-6.71%	
48.5		4	75	65	82	3.629	7.257	9.68%	-6.01%	
97		4	71.5	62	79	3.524	7.047	9.86%	-1.06%	
		•			. 5	2.561		0.0070		

Frond Increase Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	S1	66	79	68	70
1.5		67	85	66	68
3		76	70	73	73
6		70	71	62	76
12.1		79	76	72	78
24.2		62	72	91	77
48.5		75	78	65	82
97		73	72	62	79

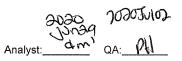
CETIS Ana	alytical Report		Report Date: Test Code:	29 Jun-20 16:51 (p 2 of 2) LM-10735-0220 14-6119-7024			
Lemna Grow	th Inhibition Test				Bureau Veritas Laboratories		
nalysis ID: Analyzed:	09-2478-3308 29 Jun-20 16:45	Endpoint: Analysis:	Frond Increase Linear Interpolation (ICPIN)	CETIS Version: Official Results:	CETISv1.9.2 Yes		
Graphics							
70 000 000 000 000 000 000 000 000 000	•						

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20

40

Conc-%

Lemna minor Growth InhibitionTest Data

Client Name: Golder Associates Ltd. (Agnico)

Job# / Sample #: <u>C039804 XX3664</u>

Sample ID: MEL-13-01

Analyst(s): N. Shergill, M. Brassil

Start Date: <u>June 12, 2020</u> End Date: <u>June 19, 2020</u>

Conc. & Replicate	Initial Number of Fronds	Final Number of Fronds	Frond Increase	Mean Increase in # Fronds per Conc'n	SD	% Stimulatio
Control-A	6	62	56	60.5	3.7	
B	6	66	60	00.0	0.7	·
C	6	67	61			
0	6	71	65			
Site Control-A	6	72	66	70.8	5.7	16.94
B	6	85	79	70.0	0.7	10.54
C	6	74	68			
C	6	74	70			
1.5%-A	6	73	67	71.5	9.0	18.18
B	6	91	85	/1.5	9.0	10.10
C	6	91 72	66	······		
C	6	72	68			
				70.0	0.4	20.00
3.0%-A	6	82	76	73.0	2.4	20.66
В	6	76	70			
C D	6	79	73			
	6	79	73			
6.0%-A	6	76	70	69.8	5.8	15.29
В	6	77	71	· · ·		
С	6	68	62			
D	6	82	76			
12.1%-A	6	85	79	76.3	3.1	26.03
В	6	82	76			
С	6	78	72			
D	6	84	78			
24.2%-A	6	68	62	75.5	12.1	24.79
В	6	78	72			
С	6	97	91			
D	6	83	77			
48.5%-A	6	81	75	75.0	7.3	23.97
В	6	84	78			
С	6	71	65			
D	6	88	82			
97%-A	6	79	73	71.5	7.0	18.18
В	6	78	72	9		
С	6	68	62			
D	6	85	79			1
nalyst	NS	MB				

N/S - No growth stimulation (frond increase) compared to the Control

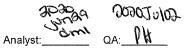
Control Validity Criteria: Mean final # of fronds in Controls on day 7 must be ≥8 times initial # of fronds

Mean Final # of Fronds on Day 7	66.5
Control Frond Increase	11.1
Validity Criteria Met?	Yes

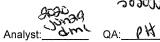
Test Code:	LM-10735-0220
Report Date:	29 Jun-20 16:

29 Jun-20 16:58 (p 1 of 10) LM-10735-0220 | 14-6119-7024 Bureau Veritas Laboratories

							rest	Code:	LIVI-107	35-0220 1	4-0119-70
Lemna Growth	Inhibition Te	st							Burea	u Veritas L	aboratorie
nalysis ID:	09-2706-4563	F	Endpoint:	Total Dry Weig	aht-ma		CET	IS Version	: CETISv	1.9.2	
•	29 Jun-20 16:		Analysis:	Parametric-Tw				cial Result			
Batch ID: 1	10-5417-7042	Т	est Type:	Lemna Growth	1	,,,	Ana	lvst: M.	Brassil		
	12 Jun-20		Protocol:	EC/EPS 1/RM			Dilu	•	'HA Media		
Ending Date: 1			Species:	Lemna minor			Brin		t Applicable		
-	7d Oh		Source:	Canadian Phy	cological Cul	ture Centre	Age				
Sample ID: 1	16-3674-6015	C	Code:	C039804			Clie	nt: Aa	nico Eagle N	/ines	
Sample Date: 0			/laterial:	Water			Proj	Ŭ	11-0691		
Receipt Date: 1			Source:	Agnico Eagle I	Mines		,				
Sample Age: 5			Station:	MEL 13-01							
Data Transform Untransformed	1	<u>Alt Hy</u> C <> T	•					son Result	: y weight-mg		PMSD 17.61%
Untransformed		0.01					97% pass		y weight-mg	·	17.01%
Equal Variance	e t Two-Samp	le Test									
Control vs				Stat Critical		P-Type	P-Value	Decisior			
Ref 1 mel 030	<u>97</u>		0.502	2.447	1.328 6	CDF	0.6336	Non-Sigr	nificant Effec	:t	
Auxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decisior	ı(α:5%)		
Extreme Value	Grubbs	Extreme V	/alue Test		1.569	2.127	0.7319	No Outlie	ers Detected		
ANOVA Table		4									
Source	Sum Squ	lares	Mean	Square	DF	F Stat	P-Value	Decisior	n(α:5%)		
Between	0.148513		0.148	513	1	0.252	0.6336	Non-Sigr	nificant Effec	:t	
Error	3.53638		0.589	396	6						
otal	3.68489				7						
Distributional T	ests										
Attribute	Test				Test Stat	Critical	P-Value	Decision	n(α:1%)		
Variances	Variance	Ratio F T	est		1.57	47.47	0.7201	Equal Va	riances		
Distribution	Shapiro-\	Vilk W No	rmality Te	st	0.9308	0.6451	0.5235	Normal D	Distribution		
Total Dry Weigh	nt-mg Summa	ary							******		
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	R1	4	7.545	6.195	8.895	7.635	6.43	8.48	0.4243	11.25%	0.00%
		4	7.817	6.74	8.895	8.005	6.89	8.37	0.3387	8.66%	-3.61%
97									*****		
	nt-mg Detail										
Total Dry Weigh	nt-mg Detail Code	Rep 1	Rep 2	Rep 3	Rep 4						
97 Total Dry Weigł Conc-% 0	-	Rep 1 8.48	Rep 2 7.75	Rep 3	Rep 4						



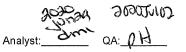
CETIS Ana	alytical Report				Report Date: Test Code:	29 Jun-20 16:58 (p 2 of 10) LM-10735-0220 14-6119-7024
Lemna Growt	th Inhibition Test					Bureau Veritas Laboratories
nalysis ID: Analyzed:	09-2706-4563 29 Jun-20 16:56	Endpoint: Analysis:	Total Dry Weight-mg Parametric-Two Sample		CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics			Reject Null	Cautered Contractor Co	•	
	0 R1	onc-%	97	-1.5	-1.0 -0.5 0.0 Rankits	0.5 1.0 1.5



29 Jun-20 17:01 (p 1 of 4) LM-10735-0220 | 14-6119-7024

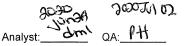
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							rest	Code:	LIVI-TU7	55-0220 T	4-0119-70
Lemna Growt	th Inhibition Te	est							Bureau	ı Veritas L	aboratorie
nalysis ID:	11-3013-9805	5 E	ndpoint:	Total Dry Weig	aht-ma		CET	IS Versio	n: CETISV	1.9.2	
Analyzed:	29 Jun-20 17:		nalysis:	Parametric-Tw				cial Resul			
Batch ID:	10-5417-7042	T	est Type:	Lemna Growth			Ana	lvst: N	I. Brassil		
Start Date:	12 Jun-20		rotocol:	EC/EPS 1/RM			Dilu	-	PHA Media		
Ending Date:			pecies:	Lemna minor			Brin		ot Applicable		
Duration:	7d 0h		ource:	Canadian Phy	cological Cul	ture Centre	Age				
Sample ID:	16-3674-6015	c	ode:	C039804			Clie	nt: A	gnico Eagle N	lines	
Sample Date:			laterial:	Water			Proj		-11-0691		
•	11 Jun-20 08:2		ource:	Agnico Eagle I	Mines		,				
Sample Age:			tation:	MEL 13-01							
Data Transfor		Alt Hyp			<u></u>		Comparis	son Resu	lt	<u> </u>	PMSD
Untransformed						ry weight-mg		20.08%			
Equal Variance	e t Two-Samp	le Test	ų			· · · · · · · · · · · · · · · · · · ·	·				
•	vs Conc-%		Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	on(α:5%)		
Ref 2 meron			0.865	******	1.69 6	CDF	0.4203		nificant Effec	t	
Auxiliary Test	s										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:5%)		
Extreme Value	Grubbs	Extreme V	alue Test		1.73	2.127	0.4288		iers Detected	adamagenesian in alder inder alle lager (164-164-	adalah ki dalam yang yang yang kina ki di Aki
ANOVA Table			,								
Source	Sum Squ	Jares	Mean	Square	DF	F Stat	P-Value	Decisio	on(α:5%)		
Between	0.714012	2	0.714	012	1	0.7483	0.4203	Non-Sig	nificant Effec	t	
Error	5.72517		0.954	196	6						
otal	6.43919				7						
Distributional	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:1%)		
Variances	Variance	Ratio F Te	est		3.16	47.47	0.3699	Equal V	ariances		
Distribution	Shapiro-V	Wilk W Nor	mality Tes	st	0.9713	0.6451	0.9079	Normal	Distribution		
Total Dry Weiç	ght-mg Summa	ary									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Мах	Std Err	CV%	%Effect
0	R2	4	8.415	6.499	10.33	8.25	7.18	9.98	0.602	14.31%	0.00%
97		4	7.817	6.74	8.895	8.005	6.89	8.37	0.3387	8.66%	7.10%
Total Dry Weig	ght-mg Detail						•		1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 1999, 19		
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4						
0	R2	7.85	7.18	8.65	9.98						



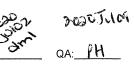
CETIS Ana	alytical Report				Report D Test Coc		29 Jun-20 17:01 (p 2 of 4) LM-10735-0220 14-6119-7024
Lemna Grow	th Inhibition Test				1		Bureau Veritas Laboratories
nalysis ID: Analyzed:	11-3013-9805 29 Jun-20 17:01	Endpoint: Analysis:	Total Dry Weight-mg Parametric-Two Sample		CETIS Ve Official F		CETISv1.9.2 Yes
Graphics				1.6	_		_
Total Dry Weight+mg			Reject Null	Centered Cen		•	
2	0 R2 CC	l	97	-0.6 -0.8 -1.0 -1.2 -1.4 -1		0.0 Rankits	0.5 1.0 1.5

Report Date: 29 Jun-20 17:01 (p 3 of 4) **CETIS Analytical Report** LM-10735-0220 | 14-6119-7024 Test Code: Lemna Growth Inhibition Test **Bureau Veritas Laboratories** nalysis ID: 09-7933-2576 Endpoint: Total Dry Weight-mg **CETIS Version:** CETISv1.9.2 Parametric-Two Sample Analyzed: 29 Jun-20 17:01 Analysis: Official Results: Yes Batch ID: 10-5417-7042 Test Type: Lemna Growth Analyst: M. Brassil Start Date: Protocol: EC/EPS 1/RM/37 Diluent: APHA Media 12 Jun-20 Ending Date: 19 Jun-20 Species: Lemna minor Brine: Not Applicable Duration: 7d Oh Source: Canadian Phycological Culture Centre Age: Sample ID: 16-3674-6015 Code: C039804 Client: Agnico Eagle Mines Sample Date: 07 Jun-20 Material: Water Project: 2-11-0691 Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Sample Age: 5d 0h Station: MEL 13-01 **Data Transform** Alt Hyp **Comparison Result** PMSD Untransformed C <> T 97% passed total dry weight-mg 16.65% Equal Variance t Two-Sample Test Control vs Conc-% Test Stat Critical MSD DF P-Type P-Value Decision(a:5%) Ref 3 melosory 97 1.176 2.447 1.415 6 CDF 0.2840 Non-Significant Effect **Auxiliary Tests** Attribute Test Test Stat Critical P-Value Decision(a:5%) Extreme Value Grubbs Extreme Value Test 1.371 2.127 1.0000 No Outliers Detected ANOVA Table Source Sum Squares Mean Square DF F Stat P-Value Decision(a:5%) Between 0.9248 0.2840 0.9248 1 1.384 Non-Significant Effect Error 4.01035 0.668392 6 4.93515 7 otal **Distributional Tests** Attribute Test Test Stat Critical P-Value Decision(a:1%) Variances Variance Ratio F Test 47.47 0.6073 1.914 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.8837 0.6451 0.2042 Normal Distribution **Total Dry Weight-mg Summary** Conc-% Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV% %Effect 0 R3 4 8.497 7.006 9.989 8.605 7.46 9.32 0.4685 11.03% 0.00% 97 4 8.895 6.89 7.817 6.74 8.005 8.37 0.3387 8.66% 8.00% Total Dry Weight-mg Detail Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 0 R3 7.95 7.46 9.26 9.32 97 8.37 8.27 6.89 7.74



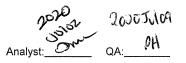
CETIS Ana	alytical Report				Report Date: Test Code:	29 Jun-20 17:01 (p 4 of 4) LM-10735-0220 14-6119-7024
Lemna Grow	th Inhibition Test					Bureau Veritas Laboratories
nalysis ID: Analyzed:	09-7933-2576 29 Jun-20 17:01	Endpoint: Analysis:	Total Dry Weight-mg Parametric-Two Sample		CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics			Reject Null			
10			Reject Null	1.2 1.0 0.8 0.6 0.2 0.2 0.4 0.6 0.4 0.6 0.8 0.0 0.2 0.4 0.6 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0	•
_ه لــــــ	0 R3	l %	97	-1.2 -1.4 -1.5	-1.0 -0.5 0.0 Rankits	0.5 1.0 1.5

CETIS Ana	CETIS Analytical Report							•	•			20 17:29 (p 1 of 2) 20 14-6119-7024	
Lemna Grow	th Inhibitio	on Test								Burea	u Veritas L	aboratories	
nalysis ID: Analyzed:	15-8155- 02 Jul-20		Endpoint: Analysis:		al Dry Weig ametric-Tw				IS Version: cial Results		1.9.2		
Batch ID: Start Date: Ending Date: Duration:	10-5417-7 12 Jun-20 19 Jun-20 7d Oh		Test Type: Protocol: Species: Source:	EC/ Len	/EPS 1/RM/ nna minor	/37	lture Centre	Ana Dilu Brin Age	ent: APH e: Not	Brassil IA Media Applicable			
Sample ID: Sample Date: Receipt Date: Sample Age:	11 Jun-20		Code: Material: Source: Station:	Wa Agr	39804 ter hico Eagle N L 13-01	Mines		Clie Proj		ico Eagle N 1-0691	<i>A</i> ines		
Data Transfor	m	Alt	Нур					Compari	son Result			PMSD	
Untransformed	ł	C <>	·Τ					97% pass	sed total dry	weight-mg		14.49%	
Equal Variand	ce t Two-S	ample Test		·									
Conc-%	vs Co	nc-%	Test	Stat	Critical	MSD DI	P-Type	P-Value	Decision	(α:5%)			
0 podec	> 97		0.608	1	2.145	1.182 14	CDF	0.5529	Non-Signi	ficant Effec	xt		
Auxiliary Test	S						y						
Attribute	Tes	st				Test Stat	Critical	P-Value	Decision	(α:5%)			
Extreme Value	e Gru	ibbs Extrem	e Value Test			1.982	2.586	0.5643	No Outlier	s Detected			
ANOVA Table						· ·							
Source	Sum	n Squares	Mean	Squ	are	DF	F Stat	P-Value	Decision	(α:5%)			
Between		6675	0.336	,		1	0.3698	0.5529		ficant Effec	xt		
Error	12.7	473	0.910	521		14	_						
ʻɔtal	13.0	84				15							
Distributional	Tests												
Attribute	Test					Test Stat	Critical	P-Value	Decision(α:1%)			
Variances	Varia	ance Ratio F	Test		1 1 1 1 1 1 1	2.253	43.52	0.5471	Equal Var	iances			
Distribution	Shap	oiro-Wilk W	Normality Te	st		0.9845	0.8408	0.9893	Normal Di	stribution			
Total Dry Weig	ght-mg Su	mmary											
Conc-%	Cod	e Coui	nt Mean		95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
0	@	12	8.152		7.507	8.798	7.9	6.43	9.98	0.2935	12.47%	0.00%	
97		4	7.817		6.74	8.895	8.005	6.89	8.37	0.3387	8.66%	4.11%	
Total Dry Wei	ght-mg De	tail											
Conc-%	Code	e Rep	1 Rep 2	!	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10	
0	@	7.95	7.46		9.26	9.32	7.85	7.18	8.65	9.98	8.48	7.75	
		6.43	7.52										
97		8.37	8.27		6.89	7.74							

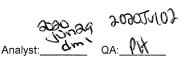


Analyst:___

CETIS Ana	alytical Report				Report Date:	02 Jul-20 17:29 (p 2 of 2)
					Test Code:	LM-10735-0220 14-6119-7024
Lemna Grow	th Inhibition Test					Bureau Veritas Laboratories
nalysis ID:	15-8155-2611	Endpoint:			CETIS Version:	CETISv1.9.2
Analyzed:	02 Jul-20 17:29	Analysis:	Parametric-Two Sample		Official Results:	Yes
Graphics				2.0 -	I	
-			Reject Null	1.5		8
8 – Eu -	7779777	7.7		1.0 1.0		8 8
Total Dry Weight-mg			Reject Null	Centered Untransformed		
Total				5 _{0.0}		
* -				-0.5		
2				-1.0	©	
		Į		-1.5	I	
Ū	0 @		97	-2.0 -1.		0.5 1.0 1.5 2.0
	Co	onc-%			Rankits	



Report Date: 29 Jun-20 16:58 (p 9 of 10) **CETIS Analytical Report** Test Code: LM-10735-0220 | 14-6119-7024 Lemna Growth Inhibition Test **Bureau Veritas Laboratories** nalysis ID: 15-8497-4482 Endpoint: Total Dry Weight-mg **CETIS Version:** CETISv1.9.2 Parametric-Control vs Treatments Analyzed: 29 Jun-20 16:57 Analysis: Official Results: Yes Batch ID: 10-5417-7042 Test Type: Lemna Growth M. Brassil Analyst: Start Date: EC/EPS 1/RM/37 APHA Media 12 Jun-20 Protocol: Diluent: Ending Date: 19 Jun-20 Species: Lemna minor Brine: Not Applicable Duration: 7d Oh Source: Canadian Phycological Culture Centre Age: Sample ID: 16-3674-6015 Code: C039804 Client: Agnico Eagle Mines Sample Date: 07 Jun-20 Material: Water 2-11-0691 Project: Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Sample Age: 5d Oh Station: MEL 13-01 Alt Hyp Data Transform NOEL LOEL τu TOEL PMSD Untransformed C <> T 97 > 97 n/a 1.031 17.98% **Dunnett Multiple Comparison Test** Critical Control vs Conc-% Test Stat MSD DF P-Type P-Value Decision(a:5%) Site Water Contr 1.5 0.4838 2.814 1.425 6 CDF 0.9960 Non-Significant Effect 3 0.1037 2.814 1.425 6 CDF 1.0000 Non-Significant Effect 6 0.7554 2.814 1.425 6 CDF 0.9556 Non-Significant Effect 12.1 0.6468 2.814 1.425 6 CDF 0.9796 Non-Significant Effect 24.2 0.1728 2.814 1.425 6 CDF 1.0000 Non-Significant Effect 48.5 0.4048 2.814 1.425 6 CDF 0.9986 Non-Significant Effect 97 0.2123 2.814 1.425 6 CDF 1.0000 Non-Significant Effect **Auxiliary Tests** Attribute Test Test Stat Critical P-Value Decision(a:5%) xtreme Value Grubbs Extreme Value Test 2.742 2.938 0.1135 No Outliers Detected **ANOVA Table** Source Sum Squares Mean Square DF F Stat P-Value Decision(a:5%) Between 1.4963 0.213757 7 0.4168 0.8823 Non-Significant Effect Error 12.3075 0.512811 24 Total 13.8038 31 **Distributional Tests** Attribute Test Test Stat Critical P-Value Decision(a:1%) Variances Bartlett Equality of Variance Test 9.497 18.48 0.2189 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.9081 0.9674 0.4305 Normal Distribution **Total Dry Weight-mg Summary** Conc-% Code Count 95% LCL 95% UCL Median Min Mean Max Std Err CV% %Effect 0 **S**1 4 7.925 7.068 8.782 7.725 7.53 8.72 0.2693 6.80% 0.00% 1.5 4 7.68 6.192 9.168 7.395 6.9 9.03 3.09% 0.4677 12.18% 3 4 7.872 7.593 8.152 7.825 7.73 8.11 0.08778 2.23% 0.66% 6 4 7.542 6.712 8.373 7.06 6.92% 7.52 8.07 0.2608 4.83% 12.1 4 8.253 7.392 9.113 8.295 7.59 8.83 0.2704 6.55% -4.13% 24.2 4 10.01 8.012 6.01 7.785 6.74 9.74 0.6291 15.70% -1.10% 48.5 4 9.002 8.13 7.258 8.175 7.42 8.75 0.274 6.74% -2.59%



8.66%

1.36%

0.3387

97

4

7.817

6.74

8.895

8.005

6.89

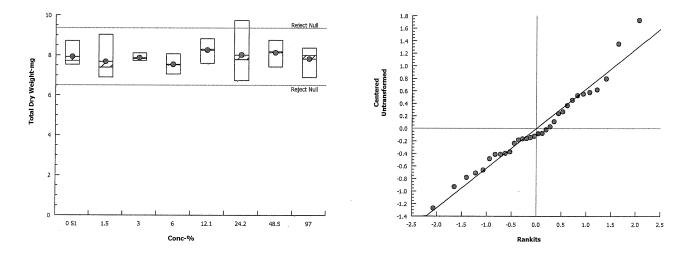
8.37

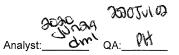
Report Date: 29 Jun-20 16:58 (p 10 of 10) Test Code:

LM-10735-0220 | 14-6119-7024

Lemna Grow	th Inhibition Te	Bureau Veritas Laboratories					
nalysis ID: analyzed:	15-8497-4482 29 Jun-20 16:57		Endpoint: Analysis:	, , ,		CETIS Version: Official Results:	CETISv1.9.2 Yes
Total Dry Wei	ght-mg Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4		
0	S1	7.69	8.72	7.76	7.53		
1.5		7.52	9.03	7.27	6.9		
3		8.11	7.9	7.73	7.75		
6		7.13	7.91	7.06	8.07		
12.1		8.83	8.52	7.59	8.07		
24.2		6.74	7.64	9.74	7.93		
48.5		7.42	8.24	8.11	8.75		
97		8.37	8.27	6.89	7.74		

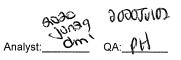
Graphics





I M-10735-0220 | 14-6119-7024

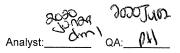
		· · · · · · · · · · · · · · · · · · ·							Те	st Code:		LM-107	735-0220	14-6119-70
Lemna	a Growt	h Inhibition Tes	st									Burea	u Verita	s Laboratori
nalys	is ID:	01-2247-1043		Endpoint:	Total Dry Weig	Iht-ma			CE	ETIS Vers	sion:	CETISV	1.9.2	
Analyz		29 Jun-20 16:5		Analysis:	Linear Interpola	-	V)			ficial Re				
Batch I	ID:	10-5417-7042	-	Fest Type:	Lemna Growth			÷.	Ar	alyst:	Bureau Veritas Labo ersion: CETISv1.9.2 lesults: Yes M. Brassil APHA Media Not Applicable Agnico Eagle Mines 2-11-0691			
Start D)ate:	12 Jun-20		Protocol:	EC/EPS 1/RM/					luent:				
Ending	g Date:	19 Jun-20	9	Species:	Lemna minor					ine:				
Duratio	on:	7d Oh	5	Source:	Canadian Phyc	ological Cu	ilture (Centre	Ag	le:				
Sample	e ID:	16-3674-6015	(Code:	C039804				CI	ient:	Agnio	co Eagle I	Mines	
Sample	e Date:	07 Jun-20	r	Material:	Water				Pr	oject:	-	-		
Receip	t Date:	11 Jun-20 08:20) (Source:	Agnico Eagle N	/lines				-				
Sample	e Age:	5d Oh	5	Station:	MEL 13-01									
Linear	Interpo	lation Options												1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -
X Trans	sform	Y Transform	n S	Seed	Resamples	Exp 95%	6 CL	Meth	nod					
Log(X+	1)	Linear	7	77968	200	Yes		Two-	Point Inte	rpolation				
Residu	al Anal	ysis												
Attribut	te	Method			Test Stat	Critical	P-V	alue	Decisio	n(α:5%)				
Extreme	e Value	Grubbs Ex	xtreme V	alue Test	2.742	2.938	0.11	135		iers Dete	cted			
Point E	stimate	s		***				·····						
_evel	%	95% LCL	95% U	CL TU	95% LCL	95% UCL								
C5	>97	n/a	n/a	<1.03	1 n/a	n/a								
C10	>97	n/a	n/a	<1.03	1 n/a	n/a								
C15	>97	n/a	n/a	<1.03	1 n/a	n/a								
C20	>97	n/a	n/a	<1.03		n/a								
C25	>97	n/a	n/a	<1.03		.n/a								
340 350	>97	n/a	n/a	<1.03		n/a								
<u> </u>	>97	n/a	n/a	<1.03	1 n/a	n/a	·							
		ht-mg Summar	ry	·		Ca	lculate	ed Va	riate					
Conc-%	, 0 	Code	Count	Mean	Min	Max	Std		Std Dev			%Effect		
) I.5		S1	4	7.925	7.53	8.72	0.26		0.5387	6.80%		0.0%		
1.5 }			4	7.68	6.9 7.73	9.03	0.46		0.9353	12.18		3.09%		
5			4 4	7.872 7.542	7.73 7.06	8.11 8.07	0.08		0.1756	2.23%		0.66%		
, 2.1			4	8.253	7.59	8.83	0.26 0.27		0.5216 0.5408	6.92% 6.55%		4.83% -4.13%		
2.1			4	8.012	6.74	9.74	0.27		1.258	15.70		-4.13% -1.1%		
8.5			4	8.13	7.42	8.75	0.02		0.548	6.74%		-2.59%		
)7			4	7.817	6.89	8.37	0.33		0.6773	8.66%		1.36%		
otal Dr	ry Weig	ht-mg Detail				·····								
Conc-%		Code	Rep 1	Rep 2	Rep 3	Rep 4								
)		S1	7.69	8.72	7.76	7.53								
.5			7.52	9.03	7.27	6.9								
			8.11	7.9	7.73	7.75								
			7.13	7.91	7.06	8.07					`			
2.1			8.83	8.52	7.59	8.07								
4.2			6.74	7.64	9.74	7.93								
8.5			7.42	8.24	8.11	8.75								
7			8.37	8.27	6.89	7.74								



JETIS Ana	alytical Report			Report Date: Test Code:	29 Jun-20 16:58 (p 2 of 2) LM-10735-0220 14-6119-7024
Lemna Growt	th Inhibition Test				Bureau Veritas Laboratories
nalysis ID: Analyzed:	01-2247-1043 29 Jun-20 16:56	Endpoint: Analysis:	Total Dry Weight-mg Linear Interpolation (ICPIN)	CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics					
Total Dry Weight-mg					

____J 100

80



٥E

20

40

Conc-%

60

BUREAU VERITAS LABORATORIES

BBY2FCD-00330/5 Tab: Weights, Page 1 of 1

Lemna minor Growth Inhibition Test Data

	Client Name:	Golder Asso (Agnico)	ciates Ltd.	_	Job# / Sample #:	C039804 XX3664		_
	Sample ID:	MEL-13-01		_	Oven Temp (°C):	60		_
We	eighing Dates:	2020 Jun 17.	2020 Jun 22	-	Drying Time (h):	>24		-
	Analyst(s):			-	Balance ID:			-
	, (naryot(0).			-	Balance iD.	<u></u>		-
Boat #	Conc. & Replicate	Final # of Fronds	Boat Wt. (g)	Boat & Frond Dry Weight (g)	Dry Weight per Rep. (mg)	Mean Dry Weight per Conc (mg)	SD	% Stimulation
356	Control-A	62	0.81216	0.81852	6.36	6.67	0.43	
357	В	66	0.79954	0.80616	6.62			
358	С	67	0.79011	0.79653	6.42			
359	D	71	0.80579	0.81308	7.29			
360	Site Control-A	72	0.80900	0.81669	7.69	7.93	0.54	18.77
361	В	85	0.81090	0.81962	8.72			
362	С	74	0.79486	0.80262	7.76			
363	D	76	0.80918	0.81671	7.53			
364	1.5%-A	73	0.81227	0.81979	7.52	7.68	0.94	15.10
365	В	91	0.81294	0.82197	9.03	-		
366	С	72	0.80552	0.81279	7.27			
367	D	74	0.80177	0.80867	6.90			
368	3.0%-A	82	0.77881	0.78692	8.11	7.87	0.18	17.98
369	B	76	0.82365	0.83155	7.90			
370	С	79	0.81335	0.82108	7.73			
371	D	79	0.80623	0.81398	7.75			
372	6.0%-A	76	0.80242	0.80955	7.13	7.54	0.52	13.04
373	В	77	0.79516	0.80307	7.91			
374	С	68	0.79782	0.80488	7.06			
375	D	82	0.80229	0.81036	8.07			
376	12.1%-A	85	0.82225	0.83108	8.83	8.25	0.54	23.68
377	В	82	0.80671	0.81523	8.52			
378	С	78	0.80391	0.81150	7.59			
379	D	84	0.81179	0.81986	8.07			
380	24.2%-A	68	0.82027	0.82701	6.74	8.01	1.26	20.08
381	В	78	0.80153	0.80917	7.64			
382	С	97	0.80776	0.81750	9.74			
383	D	83	0.78941	0.79734	7.93			
384	48.5%-A	81	0.79660	0.80402	7.42	8.13	0.55	21.84
385	В	84	0.80489	0.81313	8.24			
386	С	71	0.80677	0.81488	8.11			
387	D	88	0.80218	0.81093	8.75			
388	97%-A	79	0.79783	0.80620	8.37	7.82	0.68	17.16
389	В	78	0.79715	0.80542	8.27			
390	С	68	0.80507	0.81196	6.89			
391	D	85	0.79323	0.80097	7.74			
392	QA/QC	N/A	0.79050	0.79066	0.16	-	-	-
393	QA/QC	N/A	0.79464	0.79473	0.09	-	-	
356	0-A	62	0.81211	0.81875	6.64	-	-	
А	nalyst	MB	NS	DML				

N/S - No growth stimulation (dry weight) compared to the Control

BUREAU VERITAS LABORATORIES BBY2FCD-00330/5

Tab: Observations, Page 1 of 1

Lemna minor Growth InhibitionTest Data

Clie	ent Name:	Golder A	ssociates l	Ltd.	_		Start Date:	June 12, 2	020		_
S	ample ID:	MEL-13-	01		_		End Date:	June 19, 2	020		-
San	nple Date:	Jor	sous	ſ	-	Job#	/ Sample #	<u>C:0398</u>	<u> 24 / XX</u>	3664	-
ŀ	Analyst(s):	Nishergi	es us	-essil j	2. Huves	Orga	nism Lot #:	CP200	2526	(P 200	2602
			•	r addition o		_					-1
		w sample		ocks A, B, 8	<u>s</u> C	-	ation time	pH after	aeration		
	7.68	. U 4 NS2020		. 0		20	Dmin	l.	ð	I	
APHA Stocks F	Prep Date:	2020	En24			Instr	ument IDs:	BB42	-001	42	-
Thermo	ometer ID:	BB42	- 0438	5 Pla	ant Shelf #:	3	Test Vol	lume (mL):	150	\underline{m}	-
Sample De	escription:	Clear		olow	-less						
Concentration				Temperati	ure Monito	ring			pH Mo	nitoring	
(%)	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 0	Day 7	
Control	25	26	27	Offm	27	26	26	D7	8.2	8-5	
Site Control	25	27	27	02627	27	26	26	27	\$ 3	8.5	
1.5	25	26	27	20	27	26	26	27	8.3	8.6	
3.0									•		
6.0											
12.1	25	26	27	θĴ	27	26	26	27	8.3	8.8	
24.2											
48.5											
97.0	a5	27	26	ອງ	27	36	26	27	8.1	9.4	
Analyst	NS	MB	NS	PH	NB	uß	ws	WB	NS	aB	
Date	2070 Juni2	2020	230014	1020vils	Pozani	2 Jole17	June 8	10 Fann	2020 JUNIZ	2020 Jare A	
Observations du	iring the	Test			•						
	Date:	June 12,	2020					Analyst:	utra	1551	
Day 0		ts per Tes		2		14	# of Frond	s per Plant			
(Test Initiation)			: Dar	k gree	h, he	ally	Test :	Seeded @:	<u>15:22</u>		
	Other co	mments:		-abs-	COLLAD	t tut =	-8-3-	temps	; usied	2020 Janen	
	Date:	June 13,	`					Anchust	12 ABras	5	
	Obser-	June 13,	Site	1	Г			Analyst:	00014	>a <u> </u>	1
	vations:	Control	Control	1.5%	3%	6%	12.1%	24.2%	48.5%	97%	
Day 1		DG,H	DG, H	14,4	DG, H	DG,H	JG, H	DG,H	0G, M	DG,H	
	Other Co	mments:	All s	ol/hs	clear	r + co	plound	255			

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Lemna minor Growth InhibitionTest Data

С	lient Name	: Golder A	ssociates l	Ltd.	-		Start Date:	June 12, 2	020	
		MEL -13	5-0)			Job#	/ Sample #	(6399	304 / Y	\$\$3664
	Date:	June 14,	2020		-			Analyst:	Notor	QUA
Day 2	Obser- vations:	Control	Site Control	1.5%	3%	6%	12.1%	24.2%	48.5%	97%
,		DGH	NGH	DG.H	DG.H	DG.H	DG1H	DG.H	107.tt	DE H
	Other C	omments:	-n/g							
	Date:	June 15,	2020				W 2010-10-10-10-10-10-10-10-10-10-10-10-10-	Analyst:	p-Have	5
	Obser-	Construct	Site	1 50/	20/	60/	10.10/	04.00/	40 50/	070/
Day 3	vations:	Control DG1H	Control 0G1VF	1.5% DG74	3% 06-,14	6% 0G7 W	12.1% DG,H	24.2% DG14	48.5% DG,4	97% 06,17
	Other C	omments:			1 00 10	0011.	1.00111		170 14	00)14
					-				u bo	cecil
	Date:	June 16,		T	-		1	Analyst:	WBra	
Day 4	Obser- vations:	Control	Site Control	1.5%	3%	6%	12.1%	24.2%	48.5%	97%
Day 4		Det, H	DG, H	DG, H	DG, 14	D6, H	DG, H	DG,H	D&,H	0G, H
	Other C	omments:	nla	٤					,	
7	Date:	June 17,	2020	ana ang kang kang kang kang kang kang ka				Analyst:	uora	< <u> </u>
	Obser-		Site	ľ	-			7 thaiyot.		
Day 5	vations:	Control	Control	1.5%	3%	6%	12.1%	24.2%	48.5%	97%
		DG,H	DG,H	DG, H	DG, H	DGT H	DG, H	DG, H	NG,H	Day H
	Other C	omments:	ALL SI	olins a	plear	(Ud		olocirle	55.	
	Date:	June 18,	2020		•			Analyst:	ubr	10554
	Obser-	Control	Site	1 50/	20/	69/	10.49/	24.00/	40 50/	070/
Day 6	vations:	Control Dk,H	Control	1.5% Dbr, H	3% Dat, H	6% Db, H	12.1% Db,H	24.2% DG, H	48.5% D&,H	97% DG,H,A
	Other C	omments:					<u></u>	<u>o yn</u>	<u>0 - / (</u>	
			<u></u>						has	257
	Date:	<u>June 19,</u> d Time O	2020 320J	in 19	\bigcirc	2:10		Analyst:	nonas	
	Obser-		Site				[
Day 7	vations:	Control	Control	1.5%	3%	6%	12.1%	24.2%	48.5%	97%
		L	Db, H	DG,H	DG,H	OG,H	DG, H	DE,H	DG,H,A	De,HA
·	Other C	omments: 5, oth		grleh ar k	algar color		bases	of 41	8.5%.7	- 417.
_egend:		ark Green		$\mathbf{C} = Chlore$		A = Greer		CD = Color	av doctrour	
-egenu.		ght Green		N = Necro		T = Trans	•	RD = Root		
	-	lthy, Norm	al	$\mathbf{G} = \text{Gibbo}$		S = small				a
	Other :				·- ,					

Lemna minor Growth InhibitionTest Data

Client Name: Golder Associates Ltd.

Job# / Sample #: <u>CO39 804</u>

Sample ID: MEL-13-01 Analyst(s) Start Date: <u>June 12, 2020</u> End Date: June 19, 2020

Conc. &	Initial Number	Final Number	Frond	Mean Increase in #	SD	%
Replicate	of Fronds	of Fronds	Increase	Fronds per Conc'n	i	Stimulation
Control-A	6	62,				
В	6	,66				
С	6	67.				
D	6	71				
Site Control-A	6	72				N/S
В	6	85.				
С	6	74				
D	6	Ta				
1.5%-A	6	13				N/S
В	6	91		· .		
С	. 6	72				
D	6	74				
3.0%-A	6	82				N/S
В	6	76				
С	6	79				
D	6	79			. •	
6.0%-A	6	76	ul 94			N/S
В	6	71				
С	6	68				
D	6	82				-
12.1%-A	6	85				N/S
В	6	82				
С	-6	78				
D	6	.84				
24.2%-A	6	68				N/S
В	6	78				
С	6	97				
D	6	. 33				
48.5%-A	6	8				N/S
В	6	84	-			
С	6					
D	6	88	=			
97%-A	6	79				N/S
В	6	78				
С	6	68				
D	6	95				
Analyst		185				

N/S - No growth stimulation (frond increase) compared to the Control

Control Validity Criteria: Mean final # of fronds in Controls on day 7 must be ≥8 times initial # of fronds

	,
Mean Final # of Fronds on Day 7	#DIV/0!
Control Frond Increase	#DIV/0!
Validity Criteria Met?	#DIV/0!

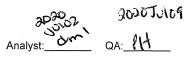
Randomization Chart

Client Name	Golder			Test Date:	2020 Jun 12	-	
Sample Name	: MEL-13-01			Shelf #:	<u> </u>	-	
Back Wall			Position Map)			
5	10	15	20	25	30	35	40
4	9	14	19	24	29	34	39
3	8	13	18	23	28	33	38
2	7	12	17	22	27	32	37
1	6	11	16	21	26	31	36

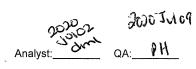
Front of Counter

Position #	Treatment	Replicate	Colour
21		А	
42		В	
30	Control	С	Red
10		D	
6		Measure	
35		А	
38		В	
26	Site Control	С	White
29		D	
5		Measure	
39	-	A	
33		В	
20	1.5%	С	Orange
8		D	
18		Measure	
22		A	
4		В	
15	3.0%	С	Yellow
13		D	
43		Measure	
19		A	
7		В	
14	6.0%	С	Fl. Green
40		D	
9		Meas.	
27	······································	A	
25		В	
41	12.1%	С	Teal
23		D	
45		Measure	
28	· · · · · · · · · · · · · · · · · · ·	A	
11		В	
12	24.2%	С	Blue
1		D	
3		Measure	
36		A	
34		В	
2	48.5%	С	Purple
17		D	-
37		Measure	
44		A	
32		В	
31	97%	С	Pink
24 16		D Moasuro	
16		Measure	

CETIS Analy	tical Repo	rt				•	ort Date: Code:		Jul-20 18:5 35-0320 1	3 (p 1 of 0-2620-09
Lemna Growth Ir	hibition Test		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·				u Veritas L	
nalysis ID: 15	5-2720-0159	Endpoint	Frond Increase	9		CET	IS Version	: CETISv	1.9.2	
Analyzed: 02	2 Jul-20 18:49	Analysis:	Parametric-Tw	o Sample		Offic	cial Result	s: Yes		
Batch ID: 14	-7281-3650	Test Type	: Lemna Growth			Anal	yst: M.	Brassil		
Start Date: 12	Jun-20 15:39	Protocol:	EC/EPS 1/RM/	/37		Dilu	ent: AP	HA Media		
Ending Date: 19	Jun-20 13:25	Species:	Lemna minor			Brin	e: No	t Applicable		
Duration: 6d	22h	Source:	Canadian Phyo	cological Cul	ture Centre	Age:				
Sample ID: 08	-2245-2202	Code:	C039804			Clier	nt: Ag	nico Eagle N	/lines	
Sample Date: 07	Jun-20	Material:	Water			Proj	ect: 2-1	1-0691		
Receipt Date: 11	Jun-20 08:20	Source:	Agnico Eagle N	Vines						
Sample Age: 5d	16h	Station:	MEL 13-07							
Comments:										
Ref1 is Mel-03-02.	. Ref2 is Mel-04	4-05. Ref3 is Mel	I- 05-04.							
Data Transform		Alt Hyp				Comparis	son Result			PMSD
Untransformed		C <> T				97% failed	d frond incr	ease		16.23%
Equal Variance t	Two-Sample 1	Fest				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
Control vs	Control II	Test	Stat Critical	MSD DF	P-Type	P-Value	Decision	ı(α:5%)		
Ref 1	97*	4.24	8 2.447	11.81 6	CDF	0.0054	Significar	nt Effect		
Auxiliary Tests										
Attribute	Test			Test Stat	Critical	P-Value	Decision	(α:5%)		
Extreme Value	Grubbs Ext	reme Value Tes	t	1.78	2.127	0.3542		rs Detected		
ANOVA Table										
Source	Sum Squar	es Meai	n Square	DF	F Stat	P-Value	Decision	(α:5%)		
tween	840.5	840.	5	1	18.04	0.0054	Significar	······		
Error	279.5	46.58	833	6			Ū			
Total	1120			7						
Distributional Tes	sts									
Attribute	Test			Test Stat	Critical	P-Value	Decision	(α:1%)		
Variances	Variance Ra	tio F Test		10.29	47.47	0.0871	Equal Va			
Distribution	Shapiro-Will	< W Normality Te	est	0.9624	0.6451	0.8327	Normal D	istribution		
Frond Increase S	ummary									
Conc-%	Code	Count Mear	n 95% LCL	95% UCL	Median	Min	Мах	Std Err	CV%	%Effect
)	R1 4	4 72.75	5 58.09	87.41	72.5	62	84	4.608	12.67%	0.00%
97		4 52.25	5 47.68	56.82	52	49	56	1.436	5.50%	28.18%
	etail							h h	2000-0001-00-00-00-00-00-00-00-00-00-00-0	
Frond Increase D										
	Code I	Rep 1 Rep 3	2 Rep 3	Rep 4						
Frond Increase D Conc-%		Rep 1 Rep 2 34 70	2 Rep 3 62	Rep 4 75						999 (1990) - 1990 (1990) - 1990 (1990) - 1990 (1990) - 1990 (1990) - 1990 (1990) - 1990 (1990) - 1990 (1990) -



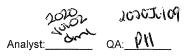
CETIS Ana	alytical Report				Report Date: Test Code:	02 Jul-20 18:53 (p 2 of 10) LM-10735-0320 10-2620-0901
Lemna Growt	th Inhibition Test					Bureau Veritas Laboratories
nalysis ID: Analyzed:	15-2720-0159 02 Jul-20 18:49	Endpoint: Analysis:	Frond Increase Parametric-Two Sample	ан а	CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics						
⁹⁰ E			Reject Null	¹²		ø
80			<u> </u>	8		
70 - 8 -	· · · · · · · · · · · · · · · · · · ·			-		
Frond Increase			Reject Null	Centered Untransformed		0
Ę		L				
40				-	•	
20				-4		
10				-8		
٥ E		·····		-12		l
	0 R1	onc-%	97	-1.5	-1.0 -0.5 0.0 Rankits	0.5 1.0 1.5



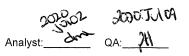
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CETIS Analytical Report	ort						ort Date: : Code:			3 (p 3 of 10 0-2620-090	
Lemna Growth	Inhibition Te	st							Burea	u Veritas L	aboratories
	00-7787-2605	E	ndpoint:	Frond Increa	se		CET	IS Versio	on: CETISv	1.9.2	
Analyzed: (02 Jul-20 18:5	0 A	nalysis:	Parametric-T	wo Sample		Offic	cial Resu	ılts: Yes		
Batch ID: 14	4-7281-3650	т	est Type:	Lemna Grow	th		Anal	lyst: N	M. Brassil		
Start Date: 12	2 Jun-20 15:3		rotocol:	EC/EPS 1/R			Dilu	-	APHA Media		
Ending Date: 19	9 Jun-20 13:2	5 S	pecies:	Lemna minor			Brin	e: N	Not Applicable		
Duration: 60	d 22h	S	ource:	Canadian Ph	ycological Cu	lture Centre	Age	. .			
Sample ID: 08	8-2245-2202	С	ode:	C039804			Clier	nt: A	Agnico Eagle I	Vines	
Sample Date: 07	7 Jun-20	N	laterial:	Water			Proj	ect: 2	2-11-0691		
Receipt Date: 1	1 Jun-20 08:20	0 s	ource:	Agnico Eagle	Mines						
Sample Age: 50	d 16h	S	tation:	MEL 13-07							
Comments:											
Ref1 is Mel-03-02	2. Ref2 is Mel-	-04-05. Re	ef3 is Mel-	05-04.							
Data Transform		Alt Hy	<u> </u>				Comparis				PMSD
Untransformed		C <> T					97% failed	d frond in	crease		19.43%
Equal Variance	t Two-Sample	e Test									
Control vs	Control	H	Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisi	on(a:5%)		
Ref 2	97*	1995 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5	4.183	2.447	15.21 6	CDF	0.0058		ant Effect		faile in a second data and
Auxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:5%)		
Extreme Value	Grubbs E	xtreme V	alue Test		1.628	2.127	0.6091		liers Detected		
ANOVA Table				· · · · · · · · · · · · · · · · · · ·							
Source	Sum Squ	ares	Mean	Square	DF	F Stat	P-Value	Decisio	on(α:5%)		
∍tween	1352		1352		1	17.5	0.0058	Signific	ant Effect		
Error	463.5		77.25		6						
Total	1815.5				7						
Distributional Te	ests										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:1%)		
/ariances	Variance I	Ratio F Te	est		17.73	47.47	0.0412	Equal \	/ariances		
Distribution	Shapiro-W	/ilk W Nor	mality Tes	st	0.9628	0.6451	0.8359	Normal	Distribution		
Frond Increase S	Summary										
Conc-%	Code	Count	Mean	95% LCI	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
\ \	R2	4	78.25	59.01	97.49	79.5	65	89	6.047	15.45%	0.00%
J		4	52.25	47.68	56.82	52	49	56	1.436	5.50%	33.23%
-											
97	Detail										
97 Frond Increase D	Detail Code	Rep 1	Rep 2	Rep 3	Rep 4						
0 97 Frond Increase E Conc-% 0		Rep 1 71	Rep 2 65	Rep 3 88	Rep 4 89						



CETIS Ana	lytical Report				Report Date:	02 Jul-20 18:53 (p 4 of 10)
					Test Code:	LM-10735-0320 10-2620-0901
Lemna Growt	h Inhibition Test					Bureau Veritas Laboratories
nalysis ID:	00-7787-2605	Endpoint:	Frond Increase		CETIS Version:	CETISv1.9.2
Analyzed:	02 Jul-20 18:50	Analysis:	Parametric-Two Sample		Official Results:	Yes
Graphics	•					
¹⁰⁰ Г				¹² F	1	~
-			Reject Null	10		0
80 -				8 E		
- se	U III					
			Reject Null	Centered Untransformed		
Frond						na mana mana mana mana mana mana mana m
-		L		-2		
40 -				-4 -	Ű	
-				-6		
20 -				-10		
-				-12		
۰ ــــــ	0 R2	l	97	-14 E	-1.0 -0.5 0.0	0.5 1.0 1.5
		onc-%			Rankits	



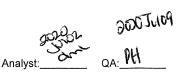
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CETIS Analytical Report	CETIS Analytical Report	
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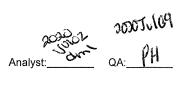
 Report Date:
 02 Jul-20 18:53 (p 5 of 10)

 Test Code:
 LM-10735-0320 | 10-2620-0901

Lemna Growth Inhibition Test **Bureau Veritas Laboratories** nalysis ID: 00-6910-7817 Endpoint: Frond Increase **CETIS Version:** CETISv1.9.2 Official Results: Analyzed: 02 Jul-20 18:50 Analysis: Parametric-Two Sample Yes Batch ID: 14-7281-3650 Test Type: Lemna Growth Analyst: M. Brassil Start Date: 12 Jun-20 15:39 EC/EPS 1/RM/37 Diluent: APHA Media Protocol: Ending Date: 19 Jun-20 13:25 Species: Lemna minor Brine: Not Applicable Duration: 6d 22h Source: Canadian Phycological Culture Centre Age: Sample ID: 08-2245-2202 Code: C039804 Client: Agnico Eagle Mines Sample Date: 07 Jun-20 Material: Water Project: 2-11-0691 Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Sample Age: 5d 16h Station: MEL 13-07 Comments: Ref1 is Mel-03-02. Ref2 is Mel-04-05. Ref3 is Mel-05-04. **Comparison Result** PMSD **Data Transform** Alt Hyp Untransformed C <> T 97% failed frond increase 13.28% Equal Variance t Two-Sample Test Control Control II Test Stat Critical DF P-Type P-Value Decision(a:5%) vs MSD Ref 3 97* 6 CDF 0.0014 Significant Effect 5.59 2.447 9.958 Auxiliary Tests Attribute Test Test Stat Critical P-Value Decision(a:5%) Extreme Value Grubbs Extreme Value Test 1.501 2.127 0.8864 No Outliers Detected ANOVA Table Source Sum Squares DF P-Value Mean Square F Stat Decision(a:5%) 1035.12 1035.12 0.0014 tween 1 31.25 Significant Effect Error 198.75 33.125 6 Total 1233.88 7 Distributional Tests Attribute Test Critical Decision(a:1%) Test Stat P-Value Variances Variance Ratio F Test 47.47 Equal Variances 7.03 0.1435 Distribution Shapiro-Wilk W Normality Test 0.9556 0.6451 0.7668 Normal Distribution Frond Increase Summary Conc-% Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV% %Effect 0 R3 4 75 62.88 87.12 75.5 67 82 3.808 10.15% 0.00% 97 52.25 47.68 52 4 56.82 49 56 1.436 5.50% 30.33% Frond Increase Detail Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 0 R3 70 67 82 81 97 52 56 49 52

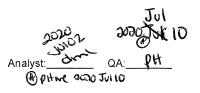


CETIS Ana	alytical Report				Report Date:	02 Jul-20 18:53 (p 6 of 10)
	· · ·	·····			Test Code:	LM-10735-0320 10-2620-0901
Lemna Grow	th Inhibition Test					Bureau Veritas Laboratories
nalysis ID:	00-6910-7817	Endpoint:			CETIS Version:	CETISv1.9.2
Analyzed:	02 Jul-20 18:50	Analysis:	Parametric-Two Sample		Official Results:	Yes
Graphics				8 –		
[Reject Null	Ê		
80 - 	•••••			6 -		e
			Reject Null	4 - F Paur C		•
Frond Increase				Centered Untransformed		
40					•	
30 E				-2 -		
20				-4 -		
10				-6		
₀ تــــــ	0 R3	L	97	-8	ll 1.0 -0.5 0.0	0.5 1.0 1.5
	C	onc-%			Rankits	

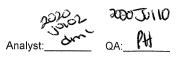


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CETIS Ana	lytical Rep	oort						ort Date: t Code:			3 (p 7 of 10) 0-2620-0901
Lemna Growth	n Inhibition Te	est							Burea	u Veritas L	aboratories
nalysis ID: Analyzed:	09-1079-3559 02 Jul-20 18:		Endpoint: Analysis:	Frond Increase Parametric-Tw				'IS Versior cial Result		1.9.2	
Batch ID:	14-7281-3650		Test Type:	Lemna Growth	1		Ana	lyst: M.	Brassil		
	12 Jun-20 15:3		Protocol:	EC/EPS 1/RM	/37		Dilu	ent: AF	PHA Media		
Ending Date:		25	Species:	Lemna minor			Brir	ne: No	ot Applicable		
Duration:	6d 22h		Source:	Canadian Phy	cological Cu	lture Centre	Age	:	·····		
•	08-2245-2202		Code:	C039804			Clie		nico Eagle N	lines	
Sample Date:			Material:	Water			Pro	ect: 2-	11-0691		
Receipt Date:			Source:	Agnico Eagle I	Mines						
Sample Age:	5d 16h		Station:	MEL 13-07							
Comments: Ref1 is Mel-03-	02. Ref2 is Me	I-04-05. F	Ref3 is Mel-	05-04.							
Data Transform	n	Alt H	/p				Compari	son Resul	t		PMSD
Untransformed		C <> .	Γ	**************************************	······		97% faile	d frond inc	rease		13.56%
Equal Variance	e t Two-Samp	le Test				95-919881.017,52-81					
Conc-% v	s Control	I	Test S	Stat Critical	MSD DI	P-Type	P-Value	Decisio	n(α:5%)		
0 Q00/02	97*		4.845	2.145	10.22 14	CDF	2.6E-04	Significa	nt Effect		
Auxiliary Tests	6										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)		
Extreme Value	Grubbs	Extreme	Value Test		1.714	2.586	1.0000	No Outlie	ers Detected		
ANOVA Table											
Source	Sum Sq	uares	Mean	Square	DF	F Stat	P-Value	Decision	n(α:5%)		
tween	1598.52		1598.		1	23.47	2.6E-04	Significa	nt Effect		
Error	953.417		68.10 ⁻	12	14	_					
Total	2551.94				15						
Distributional 1											
Attribute	Test		•		Test Stat	·····	P-Value	Decision			
Variances Distribution	Variance		est ormality Tes	. +	10.23 0.9704	43.52 0.8408	0.0807 0.8443	Equal Va	ariances Distribution		
					0.9704	0.6406	0.6443	Normai L	Jistribution		
Frond Increase	•	•									
Conc-%	Code	Count			95% UCL		Min	Max	Std Err	CV%	%Effect
0 97	@	12 4	75.33 52.25	69.5 47.68	81.17 56.82	73 52	62 49	89 56	2.652 1.436	12.20% 5.50%	0.00% 30.64%
Bernin kan series and a series of the state of the series	Deteil	•			00.02	JL	10		1,700	0.0070	
Frond Increase		Den 4	D 0		Dan 1	Den f	Dan û	Dec 7	D -1 0	D 6	D
Conc-%	Code	Rep 1 70	Rep 2 67	Rep 3 81	Rep 4 82	Rep 5	Rep 6 65	Rep 7 88	Rep 8	Rep 9	Rep 10
U	@	70 62	67 75	01	02	11	00	00	89	84	70
97		52	56	49	52						



CETIS Ana	alytical Report				Report Date: Test Code:	02 Jul-20 18:53 (p 8 of 10) LM-10735-0320 10-2620-0901
Lemna Grow	th Inhibition Test					Bureau Veritas Laboratories
nalysis ID: Analyzed:	09-1079-3559 02 Jul-20 18:50	Endpoint: Analysis:	Frond Increase Parametric-Two Sample	на н	CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics				**		
100 - - - - - - - - - - - - - - - - - - -	<u></u>		Reject Null	Centered Untransformed 0 0 -2 	0.600	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
۰ لــــــــــــــــــــــــــــــــــــ	0 @	onc-%	97	-12 F -14 -2.0 -1	5 -1.0 -0.5 0.0 Rankits	0.5 1.0 1.5 2.0



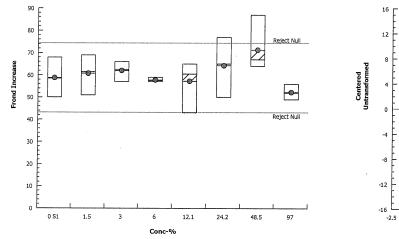
02 Jul-20 18:53 (p 9 of 10) LM-10735-0320 | 10-2620-0901 • •

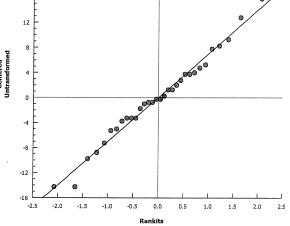
Lemna Growth I		οι						Ba 5 141	Burea	u Veritas L	aporatori
-	0-1687-2728 2 Jul-20 18:5		ndpoint: nalysis:	Frond Increas Parametric-Co		atments		IS Version cial Resul		1.9.2	
Batch ID: 14	-7281-3650	Te	est Type:	Lemna Growt	h		Ana	lyst: M	. Brassil		
Start Date: 12	2 Jun-20 15:3	9 P I	rotocol:	EC/EPS 1/RM	1/37		Dilu	ent: Al	PHA Media		
Ending Date: 19	Jun-20 13:2	5 SI	pecies:	Lemna minor			Brir	ne: No	ot Applicable		
Duration: 6d	22h	Se	ource:	Canadian Phy	cological Cu	Iture Centre	Age	:			
Sample ID: 08	-2245-2202	C	ode:	C039804			Clie	nt: Ag	gnico Eagle I	Mines	
Sample Date: 07	Jun-20	M	aterial:	Water			Proj	ect: 2-	11-0691		
Receipt Date: 11	Jun-20 08:2	0 S a	ource:	Agnico Eagle	Mines						
Sample Age: 5d	16h	St	ation:	MEL 13-07							
Comments: Ref1 is Mel-03-02	. Ref2 is Mel	-04-05. Re	f3 is Mel-0	5-04.				ta da de la compañía			
Data Transform		Alt Hyp)				NOEL	LOEL	TOEL	TU	PMSD
Untransformed		C <> T					97	> 97.	n/a	1.031	26.48%
Dunnett Multiple	Compariso	n Test									
Control vs	Conc-%		Test S	tat Critical	MSD DI	P-Type	P-Value	Decisio	n(α:5%)		
Site Water Contr	1.5		0.3617	2.814	15.56 6	CDF	0.9993	Non-Sig	nificant Effec	;t	
	3		0.5878	2.814	15.56 6	CDF	0.9878	Non-Sig	nificant Effec	rt	
	6		0.1809		15.56 6	CDF	1.0000	Non-Sig	nificant Effec	:t	
	12.1		0.2713	2.814	15.56 6	CDF	0.9999	Non-Sig	nificant Effec	t	
	24.2		0.9948	2.814	15.56 6	CDF	0.8562	Non-Sig	nificant Effec	:t	
	48.5		2.261	2.814	15.56 6	CDF	0.1535	Non-Sig	nificant Effec	:t	
	97		1.176	2.814	15.56 6	CDF	0.7455	Non-Sig	nificant Effec	t	
ixiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)		
Extreme Value	Grubbs E	Extreme Va	lue Test		2.289	2.938	0.5553	No Outlie	ers Detected		
ANOVA Table											
Source	Sum Squ	ares	Mean S	quare	DF	F Stat	P-Value	Decisior	n(α:5%)		
Between	884.719		126.388		7	2.067	0.0874	Non-Sigr	nificant Effec	t	
Error	1467.25		61.1354	1	24	_					
Fotal	2351.97				31						
Distributional Tes	sts										
Attribute	Test				Test Stat		P-Value	Decisior	n(α:1%)		
/ariances		uality of V			15.31	18.48	0.0322	Equal Va	riances		
Distribution	Shapiro-W	/ilk W Norr	nality Test	····	0.9844	0.9081	0.9125	Normal D	Distribution		
Frond Increase Si	ummary										
Conc-%	Code	Count	Mean	95% LCL		Median	Min	Max	Std Err	CV%	%Effect
_	S1	4	58.75	46.89	70.61	58.5	50	68	3.728	12.69%	0.00%
.5		4	60.75	47.6	73.9	61.5	51	69	4.131	13.60%	-3.40%
		4	62	55.77	68.23	62.5	57	66	1.958	6.32%	-5.53%
. /		4	57.75	56.23	59.27	57.5	57	59	0.4787	1.66%	1.70%
2.1		4	57.25	41.75	72.75	60.5	43	65	4.871	17.02%	2.55%
4.2		4	64.25	45.9	82.6	65	50	77	5.764	17.94%	-9.36%
		4	71.25	54.34	88.16	67	64	87	5.313	14 010/	-21.28%
8.5 7		4	52.25	47.68	56.82	52	49	07	0.010	14.91%	11.06%

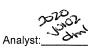
2020 900J1110 deer QA: PX Analyst:

CETIS Ana	alytical Repo	ort				Report Date: Test Code:	02 Jul-20 18:53 (p 10 of 10) LM-10735-0320 10-2620-0901
Lemna Grow	th Inhibition Tes	t					Bureau Veritas Laboratories
וalysis ID: ⊿nalyzed:	00-1687-2728 02 Jul-20 18:51		Endpoint: Analysis:	Frond Increas Parametric-C	se ontrol vs Treatments	CETIS Version: Official Results:	CETISv1.9.2 Yes
Frond Increas	se Detail						
Conc-%	Code	Rep 1	Rep 2	2 Rep 3	Rep 4		
0	S1	60	68	57	50		
1.5		57	66	69	51		
3		61	64	66	57		
6		57	57	59	58		
12.1		60	61	65	43		
24.2		77	61	69	50		
48.5		66	64	68	87		
97		52	56	49	52		











Report Date:	02 Jul-20 18:53 (p 1 of 2)
Test Code:	LM-10735-0320 10-2620-0901

Lemna Grow	th Inhibition Test					Bureau Veritas Laboratories
าalysis ID: ุ่ ¬nalyzed:	09-8821-3810 02 Jul-20 18:51	Endpoint: Analysis:	Frond Increase Linear Interpolation (ICPIN)	CETIS Ver Official Re		CETISv1.9.2 Yes
Batch ID: Start Date: Ending Date: Duration:	14-7281-3650 12 Jun-20 15:39 19 Jun-20 13:25 6d 22h	Test Type: Protocol: Species: Source:	Lemna Growth EC/EPS 1/RM/37 Lemna minor Canadian Phycological Culture Centre	Analyst: Diluent: Brine: Age:		rassil A Media Applicable
Sample ID: Sample Date: Receipt Date: Sample Age:	: 11 Jun-20 08:20	Code: Material: Source: Station:	C039804 Water Agnico Eagle Mines MEL 13-07	Client: Project:	Agnic 2-11-	co Eagle Mines 0691

Comments:

Ref1 is Mel-03-02. Ref2 is Mel-04-05. Ref3 is Mel-05-04.

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95%	6 CL Met	hod	
Log(X+1)	Linear	242089	200	Yes	Two	-Point Interpolation	
Residual Analy	rsis						
Attribute	Method		Test Stat	Critical	P-Value	Decision(α:5%)	
Extreme Value	Grubbs Extren	ne Value Test	2.289	2.938	0.5553	No Outliers Detected	

Point Estimates

1 01110 2						
Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC5	60.85	n/a	75.97	1.643	1.316	n/a
IC10	76.27	48.68	n/a	1.311	n/a	2.054
·?15	95.55	65.46	n/a	1.047	n/a	1.528
,20	>97	n/a	n/a	<1.031	n/a	n/a
IC25	>97	n/a	n/a	<1.031	n/a	n/a
IC40	>97	n/a	n/a	<1.031	n/a	n/a
IC50	>97	n/a	n/a	<1.031	n/a	n/a

Frond Increas	se Summary		Calculated Variate							
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	
0	S1	4	58.75	50	68	3.728	7.455	12.69%	0.0%	
1.5		4	60.75	51	69	4.131	8.261	13.60%	-3.4%	
3		4	62	57	66	1.958	3.916	6.32%	-5.53%	
6		4	57.75	57	59	0.4787	0.9574	1.66%	1.7%	
12.1		4	57.25	43	65	4.871	9.743	17.02%	2.55%	
24.2		4	64.25	50	77	5.764	11.53	17.94%	-9.36%	
48.5		4	71.25	64	87	5.313	10.63	14.91%	-21.28%	
97		4	52.25	49	56	1.436	2.872	5.50%	11.06%	

Frond Increase Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	S1	60	68	57	50
1.5		57	66	69	51
3		61	64	66	57
6		57	57	59	58
12.1		60	61	65	43
24.2 ′		77	61	69	50
48.5		66	64	68	87
97		52	56	49	52



ETIS Ana	lytical Report		Report Date: Test Code:	02 Jul-20 18:53 (p 2 of 2) LM-10735-0320 10-2620-0901		
_emna Growt	h Inhibition Test			Bureau Veritas Laboratories		
nalysis ID: nalyzed:	09-8821-3810 02 Jul-20 18:51	Endpoint: Analysis:	Frond Increase Linear Interpolation (ICPIN)	CETIS Version: Official Results:	CETISv1.9.2 Yes	
Graphics				n an		
20 Frond Increase 00 0		2 				

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Analyst: _____ QA: ____

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Conc-%

60

Lemna minor Growth InhibitionTest Data

Client Name: Golder Associates Ltd. (Agnico)

Job# / Sample #: C039804 XX3665

Start Date: June 12, 2020

Sample ID: MEL-13-07

Analyst(s): N. Shergill, M. Brassil

End Date: June 19, 2020

Conc. &	Initial Number	Final Number	Frond	Mean Increase in #	SD	% Stimulation	
Replicate	of Fronds	of Fronds	Increase	Fronds per Conc'n		Stimulation	
Control-A	6	61	55	51.8	6.6		
B	6	62	56				
С	6	60	54		· · · · · · · · · · · · · · · · · · ·		
D	6	48	42				
Site Control-A	6	66	60	58.8	7.5	13.53	
В	6	74	68				
С	6	63	57				
D	6	56	50				
1.5%-A	6	63	57	60.8	8.3	17.39	
В	6	72	66				
С	6	75	69				
D	6	57	51				
3.0%-A	6	67	61	62.0	3.9	19.81	
В	6	70	64				
С	6	72	66				
D	6	63	57				
6.0%-A	6	63	57	57.8	1.0	11.59	
В	6	63	57				
С	6	65	59				
D	6	64	58				
12.1%-A	6	66	60	57.3	9.7	10.63	
В	6	67	61				
С	6	71	65				
D	6	49	43				
24.2%-A	6	83	77	64.3	11.5	24.15	
В	6	67	61				
С	6	75	69	······································			
D	6	56	50				
48.5%-A	6	72	66	71.3	10.6	37.68	
В	6	70	64			,,,,,,	
C	6	74	68				
D	6	93	87			1	
97%-A	6	58	52	52.3	2.9	0.97	
В	6	62	56				
C	6	55	49			1	
D	6	58	52				
Analyst	NS	MB					

N/S - No growth stimulation (frond increase) compared to the Control

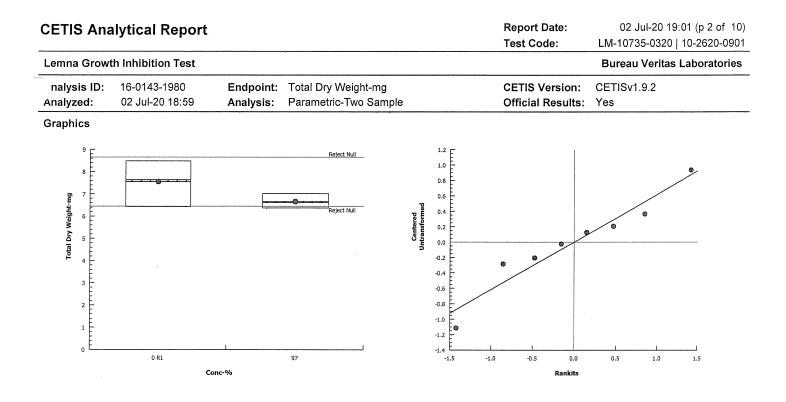
Control Validity C	riteria: Mean final # of fronds in Contro	ols on day 7	must be ≥8 times initial # of fronds
	Mean Final # of Fronds on Day 7	57.8	Proofed By: Phones
	Control Frond Increase	9.6	
	Validity Criteria Met?	Yes	2070 JULIO

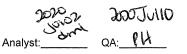
Report Date: Test Code:

02 Jul-20 19:01 (p 1 of 10) LM-10735-0320 | 10-2620-0901

Lemna Growth	h Inhibition Te	st							Bure	au Veritas L	aboratorie
nalysis ID: Analyzed:	16-0143-1980 02 Jul-20 18:5		Endpoint: Analysis:	Total Dry Wei Parametric-Tv				'IS Versio cial Resul		sv1.9.2	
Start Date: Ending Date:	14-7281-3650 12 Jun-20 15:3 19 Jun-20 13:2 6d 22h	9 F 5 S	Fest Type: Protocol: Species: Source:	Lemna Growt EC/EPS 1/RM Lemna minor Canadian Phy	1/37	lture Çentre	Ana Dilu Brin Age	ent: A e: N	. Brassil PHA Media ot Applicab	e	
Sample ID: () Sample Date: () Receipt Date: ? Sample Age: ?	11 Jun-20 08:2	N 0 S	Code: //aterial: 6ource: 6tation:	C039804 Water Agnico Eagle MEL 13-07	Mines		Clie Proj		gnico Eagle 11-0691	Mines	
Comments: Ref1 is Mel-03-(02. Ref2 is Mel	-04-05. R	ef3 is Mel-(05-04.							
Data Transform	n	Alt Hy	р				Comparis	son Resu	lt		PMSD
Untransformed		C <> T					97% pass	ed total d	y weight-m	g	14.60%
Equal Variance	e t Two-Sampl	e Test		·····		· · · · · · · · · · · · · · · · · · ·					
Control v			Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)		
Ref 1	97		1.977	2.447	1.102 6	CDF	0.0954	Non-Significant Effect			
Auxiliary Tests	;			· · · · · · · · · · · · · · · · · · ·							
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)		
Extreme Value		Extreme V	/alue Test		1.892	2.127	0.2177		ers Detecte	ed	
ANOVA Table							···				
Source	Sum Squ	ares	Mean	Square	DF	F Stat	P-Value	Decisio	n(a:5%)		
etween	1.5842		1.5842		1	3.908	0.0954		nificant Effe	ect	
Error	2.4322		0.4053		6	0.000	0.0001	Hon olg	innount En		
Total	4.0164				7						
Distributional T	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances	Variance	Ratio F Te	est	·····	7.939	47.47	0.1227		ariances		6 h may an main an man a Ar Aran a Ar Ar
Distribution	Shapiro-V	vilk W No	rmality Tes	st	0.9577	0.6451	0.7883	Normal Distribution			
Total Dry Weigl	ht-mg Summa	ry									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	R1	4	7.545	6.195	8.895	7.635	6.43	8.48	0.4243	11.25%	0.00%
97		4	6.655	6.176	7.134	6.615	6.37	7.02	0.1506	4.53%	11.80%
Total Dry Weigł	ht-mg Detail									-	*****
0	Code	Rep 1	Rep 2	Rep 3	Rep 4						
Conc-%			-	-							
0	R1	8.48	7.75	6.43	7.52						

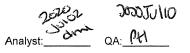




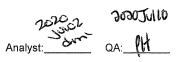


LM-10735-0320 | 10-2620-0901

Lemna Growt	th Inhibition Te	est							Burea	u Veritas L	aboratorie
nalysis ID: Analyzed:	05-6579-7956 02 Jul-20 19:		indpoint: analysis:	Total Dry Wei Parametric-Tw				IS Version cial Results		1.9.2	
Batch ID:	14-7281-3650	Т	est Type:	Lemna Growth	1		Ana	lyst: M.	Brassil		
Start Date:	12 Jun-20 15:	39 P	rotocol:	EC/EPS 1/RM	/37		Dilu	ent: AP	HA Media		
Ending Date:	19 Jun-20 13:2	25 S	pecies:	Lemna minor			Brin	e: Not	Applicable		
Duration:	6d 22h	S	ource:	Canadian Phy	cological Cu	ulture Centre	Age	:			
Sample ID:	08-2245-2202	C	ode:	C039804			Clie	nt: Agr	nico Eagle N	Aines	
Sample Date:	07 Jun-20	N	laterial:	Water			Proj	ect: 2-1	1-0691		
Receipt Date:	11 Jun-20 08:2	20 S	ource:	Agnico Eagle I	Vlines						
Sample Age:	5d 16h	S	tation:	MEL 13-07							
Comments: Ref1 is Mel-03	-02. Ref2 is Me	I-04-05. Re	ef3 is Mel-(05-04.							*******
Data Transfor	m	Alt Hy	p				Comparis	son Result			PMSD
Untransformed	1	C <> T					97% faile	d total dry w	eight-mg		18.04%
Equal Varianc	e t Two-Samp	le Test					01-11-11-11-11-11-11-11-11-11-11-11-11-1				
Control	vs Control	П	Test S	Stat Critical	MSD D	F P-Type	P-Value	Decision	(α:5%)		
Ref 2	97*		2.836	2.447	1.518 6	CDF	0.0297	Significant Effect			
Auxiliary Test	s ·										
Attribute	Test				Test Stat	Critical	P-Value	Decision	(a:5%)		
Extreme Value	Grubbs	Extreme V	alue Test		1.926	2.127	0.1833		rs Detected		
ANOVA Table											
Source	Sum Sq	uares	Mean	Square	DF	F Stat	P-Value	Decision	(α:5%)		
etween	6.1952		6.1952	2	1	8.044	0.0297	Significan	t Effect		
Error	4.621		0.7701	167	6						
Total	10.8162				7						
Distributional	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decision	(α:1%)		
Variances	Variance	Ratio F Te	est		15.98	47.47	0.0476	Equal Var	iances	******	
Distribution	Shapiro-\	Wilk W Nor	mality Tes	;t	0.9525	0.6451	0.7369	Normal D	istribution		
Total Dry Weig	ght-mg Summa	ary									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	R2	4	8.415	6.499	10.33	8.25	7.18	9.98	0.602	14.31%	0.00%
97		4	6.655	6.176	7.134	6.615	6.37	7.02	0.1506	4.53%	20.92%
Total Dry Weig	ht-mg Detail						1994 - 1995 - 1996 - ₁ 996 - 1996 -	*****	alad Bill of a United to an any consequent sets		
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4						
)	R2	7.85	7.18	8.65	9.98						



CETIS Ana	alytical Report					Report Date:	02 Jul-20 19:01 (p 6 of 10)
	· · ·					Test Code:	LM-10735-0320 10-2620-0901
Lemna Growt	th Inhibition Test						Bureau Veritas Laboratories
\nalysis ID:	05-6579-7956	Endpoint:	Total Dry Weight-mg			CETIS Version:	CETISv1.9.2
Analyzed:	02 Jul-20 19:00	Analysis:	Parametric-Two Sample			Official Results:	Yes
Graphics							
10			Reject Null		1.6 F	1	0
-					1.4		
-	Pr				1.2		
Б Е				Ŧ	1.0 E		
eight			Reject Null	orme	0.6		
Total Dry Weight-mg				Centered Untransformed	0.4		•
Total					0.2		
4					-0.2		
-					-0.4		
2 -					-0.6	•	
2					-0.8		
-					-1.2		
٥ لــــــ	0 R2	t	97		-1.4 E -1.5	-1.0 -0.5 0.0	J 0.5 1.0 1.5
	с	onc-%				Rankits	



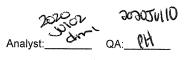
 Report Date:
 02 Jul-20 19:01 (p 7 of 10)

 Test Code:
 LM-10735-0320 | 10-2620-0901

Lemna Growt	th Inhibition Te	st							Burea	u Veritas L	aboratorie
nalysis ID: Analyzed:	07-7062-5135 02 Jul-20 19:0		Endpoint: Analysis:	Total Dry Weig Parametric-Tw		internet and a second		IS Version		1.9.2	
Batch ID: Start Date: Ending Date: Duration:	14-7281-3650 12 Jun-20 15:3 19 Jun-20 13:2 6d 22h	39 25	Test Type: Protocol: Species: Source:	Lemna Growth EC/EPS 1/RM Lemna minor Canadian Phys	/37	lture Centre	Ana Dilu Brin Age	ent: Al e: No	. Brassil PHA Media ot Applicable		
Sample ID: Sample Date: Receipt Date: Sample Age:	11 Jun-20 08:2	20	Code: Material: Source: Station:	C039804 Water Agnico Eagle I MEL 13-07	Vines		Clie Proj		gnico Eagle N 11-0691	<i>l</i> ines	
Comments: Ref1 is Mel-03	-02. Ref2 is Me	I-04-05. F	Ref3 is Mel-	05-04.							
Data Transfor		Alt H					Comparis	son Resul	t		PMSD
Untransformed		C <> -	Г				97% faile	d total dry	weight-mg		14.17%
Equal Varianc	e t Two-Samp	le Test									
Control	vs Control	11	Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)		
Ref 3	97*		3.744	2.447	1.204 6	CDF	0.0096		int Effect		
Auxiliary Test	s	**************************************							4.4.4		
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(a:5%)		
Extreme Value		Extreme	Value Test		1.61	2.127	0.6451		ers Detected		
ANOVA Table											
Source	Sum Squ	aree	Морр	Square	DF	F Stat	P-Value	Decisio	$\alpha(\alpha, E^{0}/)$		
etween	6.78961		6.7896		1	14.02	0.0096	Decision Significa			
Error	2.90618		0.4843		6	11.02	0.0000	olgiilliou			
Total	9.69579				7	_					
Distributional	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances	Variance	Ratio F 1	est		9.681	47.47	0.0945	Equal Va			
Distribution	Shapiro-V	Vilk W N	ormality Tes	ŧ	0.9622	0.6451	0.8309		Distribution		
Total Dry Weig	ght-mg Summa	ıry									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Мах	Std Err	CV%	%Effect
0	R3	4	8.497	7.006	9.989	8.605	7.46	9.32	0.4685	11.03%	0.00%
97		4	6.655	6.176	7.134	6.615	6.37	7.02	0.1506	4.53%	21.68%
Total Dry Weig	ht-mg Detail	11-11-1									
Total Diy Hoig											
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4						
	Code R3	Rep 1 7.95	Rep 2	Rep 3 9.26	Rep 4 9.32						



	: Date: 02 Jul-20 19:01 (p 8 of 10)
Analyzed: 02 Jul-20 19:00 Analysis: Parametric-Two Sample Official Craphics	ode: LM-10735-0320 10-2620-0901 Bureau Veritas Laboratories
Reject Null Reject Null Reject Null Project Null Proje	Version: CETISv1.9.2 I Results: Yes
0 R3 97 -1.5 -1.0 -0.5 Conc-%	



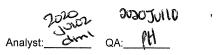
Report Date: 02 Jul-20 19:01 (p 9 of 10) Test Code:

LM-10735-0320 | 10-2620-0901

Sample ID: 0.8–2245-2202 Code: C039804 Client: Agnico Eagle Mines Sample Date: 07 Jun-20 Material: Water Project: 2:11-0691 Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Project: 2:11-0691 Sample Date: 07 Jun-20 Material: Water Project: 2:11-0691 Sample Age: 5d 16h Station: MEL 13-07 Comments: 2:11-0691 9////////////////////////////////////	Lemna Growt	th Inhibiti	ion Test								Burea	u Veritas L	aboratorie	
Start Date: 12 Jun-20 15:39 Ending Date: Protocol: EC/EPS 1/RM/37 Ending Date: Diluent: APHA Media Brine: Not Applicable Ending Date: 19 Jun-20 13:25 Sample Date: Source: Condein Phycological Culture Centre Age: Sample Di: 08-2245-2202 Code: CO39804 Co19804 Age: Sample Date: 07 Jun-20 08:20 Source: Material: Water Project: 2:11-0691 Sample Date: 19 Jun-20 08:20 Source: Agnico Eagle Mines 2:11-0691 PMSD Comments: Recipt Date: 19 Jun-20 08:20 Source: Agnico Eagle Mines 2:11-0691 PMSD Comments: Recipt Date: 19 Jun-20 08:20 Source: Agnico Eagle Mines PMSD Data Transform Alt Hyp Comparison Result PMSD Durtandformed C <> T 97% failed total dry weight-mg 13:86% Equal Variance T wo-Sample Test Control II Test Stat Critical P-Value Decision(ci:5%) Extreme Value Gout>E 14 2.07 0.0130 Significant Effect Significant Effect				• •								/1.9.2		
Start Date: 12 Jun-20 15:39 Ending Date: Protocol: EC/EPS JR/RW37 Dilluent: Brine: APHA Media Brine: Not Applicable Duration: 6d 22h Source: Canadian Phycological Culture Centre Brine: Not Applicable Sample Dot: 07 Jun-20 Material: Water Project: 2-11-0691 Sample Date: 07 Jun-20 Material: Material: Material: Material: Material: Project: 2-11-0691 Sample Date: 07 Jun-20 Source: Source: Aprico Eagle Mines 2-11-0691 2-11-0691 Sample Age: 5d 16h Station: MEL 13-07 97% failed total dry weight-mg 13 86% Untransform It Hyp Comparison Result PNSD Untransform C <> T 2.844 2.145 1.29 14 OP Poly/s failed total dry weight-mg 13 86% Untransform C <> T 2.844 2.145 1.29 14 OP 0.0130 Significant Effect 33 86% Equid Variance Test Stat Cr	Batch ID:	14-7281-	-3650	Test Type	: Lei	mna Growth		*****	Ana	alvst: N	I. Brassil			
Duration: 6d 22h Source: Canadian Phycological Culture Centre Age: Sample ID: 08-2245-2202 Code: C039804 Client: Agno: Agno: Sample Date: 07 Jun-20 Material: Water Project: 2-11-0691 Sample Age: 5d 15h Station: MEL 13-07 Project: 2-11-0691 Comments: Recipt Date: 11 Jun-20 008-20. Ref1 is Mel-05-04. PMSD PMSD Data Transform Alt Hyp Comparison Result PMSD Data Transform Alt Hyp Source: 97% failed total dry weight-mg 13.85% Equal Variance Two-Sample Test Control II Test Stat Critical MSD DF P-Type P-Value Decision(a:5%) 20< ccCeCe	Start Date:	12 Jun-2	0 15:39	Protocol:	EC	EPS 1/RM	/37			•				
Duration: 6d 22h Source: Canadian Phycological Culture Centre Age: Sample Date: 07 Jun-20 Katerial: Water Project: 2-11-0691 Sample Date: 07 Jun-20 Material: Water Project: 2-11-0691 Sample Age: 5d 16h Station: MEL 13-07 2-11-0691 Comments: Recipt Date: 11.01n-20 0053000000000000000000000000000000000	Ending Date:	19 Jun-2	0 13:25	Species:	Ler	mna minor			Brii)		
Sample Date: Or Jun-20 Material: Water Project: 2-11-0691 Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Project: 2-11-0691 Sample Age: 5d 16h Station: MEL 13-07 Project: 2-11-0691 Comments: Receipt Date: 11 Jun-20 08:20 Source: Agnico Eagle Mines Project: 2-11-0691 Comments: Ref1 is Mel-04-05. Ref3 is Mel-05-04. Data Transform All Hyp Comparison Result PMSD Data Transform All Hyp Test Stat Critical MSD P P-Type P-Value Decision(α:5%) 97% failed total dry weight-mg 13.85% Equal Variance Two-Sample Test Test Stat Critical MSD P -Value Decision(α:5%) Version (α:5%) AuxIllary Tests Test Test Stat Critical P-Value Decision(α:5%) Version (α:5%) Extreme Value Grubbs Extreme Value Test 2.074 2.686 0.4200 No Outliers Detected Version (α:5%) Source Sum Source	Duration:	6d 22h		Source:	Са	nadian Phy	cological Cu	ulture Centre	Age					
Sample Date: Of Jun-20 Material: Waterial: Waterial: Waterial: Sample Age: Sauto: Material: Material: Material: Material: Material: Sauto:	Sample ID:	08-2245-	2202	Code:	CO	39804		····	Clie	ent: A	gnico Eagle I	Mines		
Sample Age: 5d 16h Station: MEL 13-07 Comments: Ref1 is Mel-03-02. Ref2 is Mel-04-05. Ref3 is Mel-05-04. Comparison Result PMSD Data Transform Alt Hyp Comparison Result PMSD Untransformed C <> T 97% failed total dry weight-mg 13.85% Equal Variance t Two-Sample Test Conc-% vs Control II Test Stat Critical MSD DF P-Type P-Value Decision(α:5%) 13.85% Equal Variance t Two-Sample Test 2.844 2.145 1.129 14 CDF 0.0130 Significant Effect 40.85%	Sample Date:	07 Jun-2	0	Material:	Wa	iter			Pro					
Comments: Ref1 is MeI-03-02. Ref2 is MeI-04-05. Ref3 is MeI-05-04. Data Transform Alt Hyp Comparison Result PMSD Data Transform Alt Hyp Comparison Result PMSD Untransformed C $<> T$ 97% failed total dry weight-mg 13.85% Equal Variance t Two-Sample Test Control II Test Stat Critical MSD DF P-Type P-Value Decision(α :5%) Control II Test Stat Critical P-Value Decision(α :5%) Auxiliary Test Control II Test Stat Critical P-Value Decision(α :5%) Extreme Value Grubs Extreme Value Test Corte Test Corte Mean Square DF F Stat P-Value Decision(α :5%) Sumce Sum Square DF F Stat P-Value Deci	Receipt Date:	11 Jun-2	0 08:20	Source:	Agı	nico Eagle I	Mines			-				
Ref 1 is Mei-03-02. Ref2 is Mei-04-05. Ref3 is Mei-05-04. Comparison Result PMSD Operation Result PMSD Operation Result PMSD Comparison Result PMale Decision(a:6%) Comparison Result Test Stat Critical P-Value Decision(a:6%) Auxiliary Test Cont Test Stat Critical P-Value Decision(a:6%) Auxiliary Test Cont Test Stat Critical P-Value Decision(a:6%) Extreme Value Grubs Extreme Value Cont Test Stat Critical P-Va	Sample Age:	5d 16h		Station:										
Data Transform Alt Hyp Comparison Result PMSD Untransformed C <> T 97% failed total dry weight-mg 13.85% Equal Variance t Two-Sample Test Equal Variance t Two-Sample Test 97% failed total dry weight-mg 13.85% Conc-% vs Control II Test Stat Critical MSD DF P-Yalue Decision(α:5%) - 0 QCOC 97* 2.844 2.145 1.129 14 CDF 0.0130 Significant Effect -	Comments:					-								
Untransformed C <> T 97% failed total dry weight-rng 13.85% Equal Variance t Two-Sample Test Conc-% vs Control II Test Stat Critical MSD DF P-Yalue Decision(α:5%) 0 0 QCCCC 97* 2.844 2.145 1.129 14 CDF 0.0130 Significant Effect 4 4 4 4 0 QCCCCC 97* 2.844 2.145 1.129 14 CDF 0.0130 Significant Effect 4 4 4 0 2.074 2.586 0.4200 No Outliers Detected 4 4 0 2.575 0.4200 No Outliers Detected 4 4 0.0130 Significant Effect 4 0.0130 Significant Effect 4 1 </td <td></td> <td></td> <td>IS MeI-04-0</td> <td>5. Ref3 is Mel-</td> <td>05-0</td> <td>4.</td> <td></td> <td></td> <td></td> <td>·····</td> <td></td> <td></td> <td></td>			IS MeI-04-0	5. Ref3 is Mel-	05-0	4.				·····				
Critical MSD DF P-Type P-Value Decision(a:5%) Decision(a:5%) Conc-% vs Control II Test Stat Critical MSD DF P-Type P-Value Decision(a:5%) 0 QCOC 97* 2.844 2.145 1.129 14 CDF 0.0130 Significant Effect Auxiliary Tests Auxiliary Tests Auxiliary Tests Test Stat Critical P-Value Decision(a:5%) Extreme Value Grubbs Extreme Value Test 2.074 2.884 P-Value Decision(a:5%) Extreme Value Test Test Stat Critical P-Value Decision(a:5%) Source Sum Squares Mean Square DF F Stat P-Value Decision(a:5%) Source Sum Squares Mean Square DF F Stat P-Value Decision(a:5%) Test Stat Critical P-Value Decision(a:1%) Colspan= 6 P-Value Decision(a:1%) Source Sum Squares Mean Square Test Stat Critical P-Value Decision(a:1%) Test Stat Critical P-Value Decision(a:1%) Colspan= 6 P-Value Decision(a:1%) Colspan= 6 <th colsp<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th>	<td></td>													
Conc-% vs Control I Test Stat Critical MSD DF P-Yalue Decision(α:5%) 0<0000000000000000000000000000000000		·		-					97% faile	d total dry	weight-mg		13.85%	
0 φr* 2.844 2.145 1.129 14 C/F 1.100 Decision(q,15,1/) Auxiliary Tests Attribute Test Test Stat Critical P-Value Decision(q,15,1/) Extreme Value Grubbs Extreme Value Test 2.074 2.586 0.4200 No Outliers Detected ANOVA Table Source Sum Squares Mean Square DF F Stat P-Value Decision(α:5%) Source Sum Squares Mean Square DF F Stat P-Value Decision(α:5%) Source Sum Squares Mean Square DF F Stat P-Value Decision(α:5%) Error 11.6431 0.831652 14 5 Olstributional Tests Test Stat Critical P-Value Decision(α:1%) Attribute Test Test Stat Critical P-Value Decision(α:1%) Attribute Test Test Stat Critical P-Value Decision(α:1%) Attribute Test Test <th< td=""><td></td><td></td><td>•</td><td>st</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>			•	st										
Auxiliary Tests Test Stat Critical P-Value Decision(α:5%) Extreme Value Grubbs Extreme Value Test 2.074 2.586 0.4200 No Outliers Detected ANOVA Table Source Sum Squares Mean Square DF F Stat P-Value Decision(α:5%) Source Sum Squares Mean Square DF F Stat P-Value Decision(α:5%) etween 6.72752 6.72752 1 8.089 0.0130 Significant Effect Fror 11.6431 0.831652 14 Total 18.3706 15 Distributional Tests Test Test Stat Critical P-Value Decision(α:1%) Attribute Test Test Stat Critical P-Value Decision(α:1%) Attribute Test Test Stat Critical P-Value Decision(α:1%) Attribute Test Test Stat Critical P-Value Decision(α:1%)									P-Value	Decisio	n(α:5%)			
AttributeTestTest StatCriticalP-ValueDecision(α :5%)Extreme ValueGrubbs Extreme Value Test2.0742.5860.4200No Outliers DetectedANOVA TableSum SquaresMean SquareDFF StatP-ValueDecision(α :5%)Source6.727526.7275218.0890.0130Significant EffectError11.64310.83165214Total18.3706155Test StatCriticalP-ValueDecision(α :1%)VariancesVariance Ratio F Test11.443.520.0694Equal VariancesOlecision(α :1%)Variance Ratio F Test11.443.520.0694Equal VariancesOperation (Colspan="4">SourceOperation (Colspan="4">Code0.97570.84080.9207Normal DistributionConc-%CodeCountMean95% LCL95% UCLMedianMinMaxStd ErrCV%%EffectOperation (Colspan="4">Conc-%CodeCountMean95% LCL95% UCLMedianMinMaxStd ErrCV%%Effect0@128.1527.5078.7987.96.439.980.293512.47%0.00%0@128.1527.5078.7987.96.439.980.293512.47%0.00%0@128.1527.507 </td <td>o peded</td> <td>97</td> <td>*</td> <td>2.844</td> <td></td> <td>2.145</td> <td>1.129 14</td> <td>1 CDF</td> <td>0.0130</td> <td>Significa</td> <td>ant Effect</td> <td></td> <td></td>	o peded	97	*	2.844		2.145	1.129 14	1 CDF	0.0130	Significa	ant Effect			
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ANOVA Table Sum Squares Mean Square DF F Stat P-Value Decision(α:5%) etween 6.72752 6.72752 1 8.089 0.0130 Significant Effect Error 11.6431 0.831652 14 Significant Effect Frotal 18.3706 15 Decision(α:1%) Attribute Test Test Critical P-Value Decision(α:1%) /ariances Variance Ratio F Test 11.4 43.52 0.0694 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.9757 0.8408 0.9207 Normal Distribution Total Dry Weight-mg Summary Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV% %Effect 0 @ 12 8.152 7.507 8.798 7.9 6.43 9.98 0.2935 12.47% 0.00% 17 4 6.655 6.176 7.134	Attribute	Te	st				Test Stat	Critical	P-Value	Decisio	n(α:5%)			
Source Sum Squares Mean Square DF F Stat P-Value Decision(α:5%) etween 6.72752 6.72752 1 8.089 0.0130 Significant Effect Error 11.6431 0.831652 14 Significant Effect Total 18.3706 15 Significant Effect Obstributional Tests Test Test Stat Critical P-Value Decision(α:1%) Attribute Test Test Test Stat Critical P-Value Decision(α:1%) Attribute Test Test 0.9757 0.8408 0.9207 Normal Distribution Obstribution Shapiro-Wilk W Normality Test 0.9757 0.8408 0.9207 Normal Distribution Total Dry Weight-mg Summary Stone-% Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV% %Effect 0 @ 12 8.152	Extreme Value	Gr	ubbs Extrer	ne Value Test			2.074	2.586	0.4200	No Outl	ers Detected			
etween 6.72752 6.72752 1 8.089 0.0130 Significant Effect Error 11.6431 0.831652 14 Significant Effect Significant Effect Fotal 18.3706 15 Significant Effect Significant Effect Distributional Tests Test Test Stat Critical P-Value Decision(α:1%) Attribute Test Test 11.4 43.52 0.0694 Equal Variances Obstribution Shapiro-Wilk W Normality Test 0.9757 0.8408 0.9207 Normal Distribution Fotal Dry Weight-mg Summary Conc-% Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV% %Effect 0 @ 12 8.152 7.507 8.798 7.9 6.43 9.98 0.2935 12.47% 0.00% 0/7 4 6.655 6.176 7.134 6.615 6.37 7.02 0.1506 4.53% 18.37% Total D	ANOVA Table													
etween 6.72752 6.72752 1 8.089 0.0130 Significant Effect Error 11.6431 0.831652 14 15 15 15 Otational Tests Test Test Stat Critical P-Value Decision(α:1%)	Source	Sur	n Squares	Mean	Squ	are	DF	F Stat	P-Value	Decisio	n(α:5%)			
Total 18.3706 15 Distributional Tests Test Test Critical P-Value Decision(α:1%) Attribute Test Test Test Stat Critical P-Value Decision(α:1%) /ariances Variance Ratio F Test 11.4 43.52 0.0694 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.9757 0.8408 0.9207 Normal Distribution Fotal Dry Weight-my Summary State 7.507 8.798 7.9 6.43 9.98 0.2935 12.47% 0.00% 00 @ 12 8.152 7.507 8.798 7.9 6.43 9.98 0.2935 12.47% 0.00% 017 4 6.655 6.176 7.134 6.615 6.37 7.02 0.1506 4.53% 18.37% Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 07 6.43 7.52 7.46 9.26 9.32 7.85 7.18 8.65	etween	6.72	2752	6.727	52		1	8.089	0.0130					
Distributional Tests Test Test Stat Critical P-Value Decision(α:1%) /ariances Variance Ratio F Test 11.4 43.52 0.0694 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.9757 0.8408 0.9207 Normal Distribution Fotal Dry Weight-mg Summary Stop of the state 0.9757 0.8408 0.9207 Normal Distribution Once-% Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV% %Effect 0 @ 12 8.152 7.507 8.798 7.9 6.43 9.98 0.2935 12.47% 0.00% 17 4 6.655 6.176 7.134 6.615 6.37 7.02 0.1506 4.53% 18.37% Total Dry Weight-mg Detail Econe-% Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 Conc-% Code Re	Error	11.6	5431	0.831	652		14							
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Variances Variance Ratio F Test 11.4 43.52 0.0694 Equal Variances Distribution Shapiro-Wilk W Normality Test 0.9757 0.8408 0.9207 Normal Distribution Total Dry Weight-mg Summary Conc-% Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV% %Effect 0 @ 12 8.152 7.507 8.798 7.9 6.43 9.98 0.2935 12.47% 0.00% 07 4 6.655 6.176 7.134 6.615 6.37 7.02 0.1506 4.53% 18.37% Total Dry Weight-mg Detail Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 0 @ 7.95 7.46 9.26 9.32 7.85 7.18 8.65 9.98 8.48 7.75 0 @ 7.95 7.46 9.26 9.32 <td< td=""><td>Distributional</td><td>Tests</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Distributional	Tests												
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Conc-% Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV% %Effect 0 @ 12 8.152 7.507 8.798 7.9 6.43 9.98 0.2935 12.47% 0.00% 107 4 6.655 6.176 7.134 6.615 6.37 7.02 0.1506 4.53% 18.37% 107 4 6.655 6.176 7.134 6.615 6.37 7.02 0.1506 4.53% 18.37% 107 Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 10 @ 7.95 7.46 9.26 9.32 7.85 7.18 8.65 9.98 8.48 7.75 10 @ 7.95 7.46 9.26 9.32 7.85 7.18 8.65 9.98 8.48 7.75	Variances	Vari	ance Ratio	F Test			11.4	43.52	0.0694	Equal V	ariances			
Conc-% Code Count Mean 95% LCL 95% UCL Median Min Max Std Err CV% %Effect 0 @ 12 8.152 7.507 8.798 7.9 6.43 9.98 0.2935 12.47% 0.00% 07 4 6.655 6.176 7.134 6.615 6.37 7.02 0.1506 4.53% 18.37% Total Dry Weight-mg Detail Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 0 @ 7.95 7.46 9.26 9.32 7.85 7.18 8.65 9.98 8.48 7.75 6.43 7.52 .	Distribution	Sha	piro-Wilk W	/ Normality Te	st		0.9757	0.8408	0.9207	Normal I	Distribution			
@ 12 8.152 7.507 8.798 7.9 6.43 9.98 0.2935 12.47% 0.00% 97 4 6.655 6.176 7.134 6.615 6.37 7.02 0.1506 4.53% 18.37% Total Dry Weight-mg Detail Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 @ 7.95 7.46 9.26 9.32 7.85 7.18 8.65 9.98 8.48 7.75 6.43 7.52 7.52 7.55 7.18 8.65 9.98 8.48 7.75	Total Dry Weig	iht-mg Su	ummary											
17 4 6.655 6.176 7.134 6.615 6.37 7.02 0.1506 4.53% 18.37% Total Dry Weight-mg Detail Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 0 0 7.95 7.46 9.26 9.32 7.85 7.18 8.65 9.98 8.48 7.75 6.43 7.52 0 0 0.2933 12.47% 0.00% 0.00% 18.37%	Conc-%			unt Mean		95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect	
Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 @ 7.95 7.46 9.26 9.32 7.85 7.18 8.65 9.98 8.48 7.75 6.43 7.52 7.52 7.85 7.18 8.65 9.98 8.48 7.75	C	@			-				6.43	9.98	0.2935	12.47%	0.00%	
Conc-% Code Rep 1 Rep 2 Rep 3 Rep 4 Rep 5 Rep 6 Rep 7 Rep 8 Rep 9 Rep 10 @ 7.95 7.46 9.26 9.32 7.85 7.18 8.65 9.98 8.48 7.75 6.43 7.52 7.52 7.18 8.65 9.98 8.48 7.75	97		4	6.655		6.176	7.134	6.615	6.37	7.02	0.1506	4.53%	18.37%	
@ 7.95 7.46 9.26 9.32 7.85 7.18 8.65 9.98 8.48 7.75 6.43 7.52	Total Dry Weig	ht-mg De	etail											
@ 7.95 7.46 9.26 9.32 7.85 7.18 8.65 9.98 8.48 7.75 6.43 7.52	Conc-%		le Rep	o1 Rep 2		Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10	
	0	@				9.26	9.32	7.85	7.18					
7 6.45 7.02 6.37 6.78														
	97		6.45	5 7.02		6.37	6.78							



CETIS Ana	alytical Report				Report Date: Test Code:	02 Jul-20 19:01 (p 10 of 10) LM-10735-0320 10-2620-0901
Lemna Growt	th Inhibition Test			 ***************		Bureau Veritas Laboratories
nalysis ID: Analyzed:	08-0213-8976 02 Jul-20 19:00	Endpoint: Analysis:	Total Dry Weight-mg Parametric-Two Sample		CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics	777\$777		Reject Null	2.0 1.5 1.0 0.5 -1.0 -1.5	0 0 0 0 0 0	000
0.	0 @ C	l	97	-2.0 -2.0 -1.5	1 1 -1.0 -0.5 0.0 Rankits	0.5 1.0 1.5 2.0



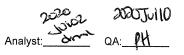
001-349-190-8

 Report Date:
 02 Jul-2

 Test Code:
 LM-10735-03

02 Jul-20 19:01 (p 3 of 10) LM-10735-0320 | 10-2620-0901

Lemna Growth	Inhibition T	est							Bureau	u Veritas L	aboratori
\nalysis ID:	17-7682-797		ndpoint:	Total Dry Wei	aht-ma		CE	TIS Vers			
Analyzed:	02 Jul-20 19		nalysis:	Parametric-Co		atments		icial Res		1.9.2	
Batch ID: 1	14-7281-3650) Te	est Type:	Lemna Growth	า		An	alyst:	M. Brassil		
Start Date: 1	12 Jun-20 15:	39 Pi	otocol:	EC/EPS 1/RM	/37		Dil	uent:	APHA Media		
Ending Date: 1	19 Jun-20 13:	25 S J	pecies:	Lemna minor			Bri	ne:	Not Applicable		
Duration: 6	3d 22h	Ś	ource:	Canadian Phy	cological Cu	Ilture Centre	Age	ə:			
Sample ID: 0	08-2245-2202	C	ode:	C039804			Clie	ent:	Agnico Eagle M	lines	1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -
Sample Date: 0			aterial:	Water			Pro	ject:	2-11-0691		
Receipt Date: 1			ource:	Agnico Eagle I	Mines						
Sample Age: 5	5d 16h	St	ation:	MEL 13-07							
Comments: Ref1 is Mel-03-0	02. Ref2 is Me	el-04-05. Re	f3 is Mel-()5-04.							
Data Transform		Alt Hyp					NOEL	LOEL	. TOEL	TU	PMSD
Untransformed		C <> T					97	> 97	n/a	1.031	19.719
Dunnett Multipl	e Compariso	on Test							an a		
Control vs	s Conc-%	6	Test S	tat Critical	MSD DI	F P-Type	P-Value	Decis	sion(a:5%)		
Site Water Contr	r 1.5		0.5706	6 2.814	1.344 6	CDF	0.9896		Significant Effect	t	
	3		0.7643	3 2.814	1.344 6	CDF	0.9531		Significant Effect		
	6		0.3141	2.814	1.344 6	CDF	0.9997		Significant Effect		
	12.1		0.6701	2.814	1.344 6	CDF	0.9755		Significant Effect		
	24.2		2.188	2.814	1.344 6	CDF	0.1757		Significant Effect		
	48.5		2.712	2.814	1.344 6	CDF	0.0622		Significant Effect		
	97		0.3455	5 2.814	1.344 6	CDF	0.9995		Significant Effect		
uxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decis	ion(α:5%)		
	Grubbs	Extreme Va	lue Test		2.819	2.938	0.0831	Νο Οι	utliers Detected		i an
Extreme Value											
· · ·											
ANOVA Table	Sum Sq	uares	Mean	Square	DF	F Stat	P-Value	Decis	ion(α:5%)		
ANOVA Table Source	Sum Sq 7.12722	uares	Mean 1.0181		DF 7	F Stat 2.232	P-Value 0.0674		ion(α:5%) Significant Effect		
ANOVA Table Source Between		uares		7					ion(α:5%) Significant Effect	:	
ANOVA Table Source Between Error	7.12722	uares	1.0181	7	7						
ANOVA Table Source Between Error Fotal	7.12722 10.9463 18.0735	uares	1.0181	7	7 24					:	
ANOVA Table Source Between Error Fotal Distributional Te Attribute	7.12722 10.9463 18.0735	uares	1.0181	7	7 24	2.232		Non-S			
ANOVA Table Source Between Error Fotal Distributional Te Attribute	7.12722 10.9463 18.0735 ests Test	uares	1.0181 0.4560	7 95	7 24 31	2.232	0.0674	Non-S Decis	ignificant Effect	:	
Extreme Value ANOVA Table Source Between Error Total Distributional Te Attribute /ariances Distribution	7.12722 10.9463 18.0735 ests Test Bartlett E		1.0181 0.4560 ariance Te	7 95 	7 24 31 Test Stat	2.232 Critical	0.0674 P-Value	Non-S Decis Equal	ignificant Effect ion(α:1%)	:	
ANOVA Table Source Between Error Fotal Distributional Te Attribute /ariances	7.12722 10.9463 18.0735 ests Test Bartlett E Shapiro-N	quality of V Wilk W Norr	1.0181 0.4560 ariance Te	7 95 	7 24 31 Test Stat 16.28	2.232 Critical 18.48	0.0674 P-Value 0.0227	Non-S Decis Equal	ignificant Effect ion(α:1%) Variances		
ANOVA Table Source Between Error Fotal Distributional Te Attribute /ariances Distribution Fotal Dry Weigh Conc-%	7.12722 10.9463 18.0735 ests Test Bartlett E Shapiro-V t-mg Summa Code	quality of V Wilk W Norr	1.0181 0.4560 ariance Te nality Test Mean	7 95 	7 24 31 Test Stat 16.28 0.9732	2.232 Critical 18.48	0.0674 P-Value 0.0227	Non-S Decis Equal	ignificant Effect ion(α:1%) Variances	CV%	%Effect
ANOVA Table Source Between Error Fotal Distributional Te Attribute /ariances Distribution Fotal Dry Weigh Conc-%	7.12722 10.9463 18.0735 ests Test Bartlett E Shapiro-V t-mg Summa	quality of V Wilk W Norr	1.0181 0.4560 ariance Te nality Test	7 95 est t	7 24 31 Test Stat 16.28 0.9732	2.232 Critical 18.48 0.9081	0.0674 P-Value 0.0227 0.5931	Non-S Decis Equal Norma	ignificant Effect ion(α:1%) Variances al Distribution		%Effect 0.00%
ANOVA Table Source Between Error Total Distributional Te Attribute /ariances Distribution Total Dry Weigh Conc-%	7.12722 10.9463 18.0735 ests Test Bartlett E Shapiro-V t-mg Summa Code	quality of V Wilk W Norr ary Count	1.0181 0.4560 ariance Te nality Test Mean	7 95 est t 95% LCL	7 24 31 Test Stat 16.28 0.9732 95% UCL	2.232 Critical 18.48 0.9081 Median	0.0674 P-Value 0.0227 0.5931 Min	Non-S Decis Equal Norma Max	ignificant Effect ion(α:1%) Variances al Distribution Std Err	CV%	
ANOVA Table Source Between Error Total Distributional Te Attribute /ariances Distribution Total Dry Weigh Conc-%	7.12722 10.9463 18.0735 ests Test Bartlett E Shapiro-V t-mg Summa Code	equality of V Wilk W Norr ary Count 4	1.0181 0.4560 ariance Te nality Test Mean 6.82	7 95 est t 95% LCL 5.941	7 24 31 Test Stat 16.28 0.9732 95% UCL 7.699	2.232 Critical 18.48 0.9081 Median 6.845	0.0674 P-Value 0.0227 0.5931 Min 6.12	Non-S Decis Equal Norma Max 7.47	ignificant Effect ion(α:1%) Variances al Distribution Std Err 0.2761	CV% 8.10%	0.00%
ANOVA Table Source Between Error Total Distributional Te Attribute /ariances Distribution Total Dry Weigh Conc-%	7.12722 10.9463 18.0735 ests Test Bartlett E Shapiro-V t-mg Summa Code	equality of Va Wilk W Norr ary Count 4 4	1.0181 0.4560 ariance Te nality Test <u>Mean</u> 6.82 7.092	7 95 est t 95% LCL 5.941 5.895	7 24 31 Test Stat 16.28 0.9732 95% UCL 7.699 8.29	2.232 Critical 18.48 0.9081 Median 6.845 7.105	0.0674 P-Value 0.0227 0.5931 Min 6.12 6.33	Non-S Decis Equal Norma 7.47 7.83	ignificant Effect ion(α:1%) Variances al Distribution <u>Std Err</u> 0.2761 0.3762	CV% 8.10% 10.61%	0.00% -4.00%
ANOVA Table Source Between Error Total Distributional Te Attribute /ariances Distribution Total Dry Weigh Conc-%	7.12722 10.9463 18.0735 ests Test Bartlett E Shapiro-V t-mg Summa Code	equality of V Wilk W Norr ary Count 4 4 4 4	1.0181 0.4560 ariance Te nality Tesi Mean 6.82 7.092 7.185	7 95 est t 95% LCL 5.941 5.895 6.948	7 24 31 Test Stat 16.28 0.9732 95% UCL 7.699 8.29 7.422	2.232 Critical 18.48 0.9081 Median 6.845 7.105 7.24	0.0674 P-Value 0.0227 0.5931 Min 6.12 6.33 6.97	Non-S Decis Equal Norma 7.47 7.83 7.29	ignificant Effect ion(α:1%) Variances al Distribution Std Err 0.2761 0.3762 0.07444	CV% 8.10% 10.61% 2.07%	0.00% -4.00% -5.35% -2.20%
ANOVA Table Source Between Error Fotal Distributional Te Attribute Variances Distribution	7.12722 10.9463 18.0735 ests Test Bartlett E Shapiro-V t-mg Summa Code	Equality of Va Wilk W Norr ary Count 4 4 4 4 4	1.0181 0.4560 ariance Te nality Tesi Mean 6.82 7.092 7.185 6.97	7 95 est t 95% LCL 5.941 5.895 6.948 6.642	7 24 31 Test Stat 16.28 0.9732 95% UCL 7.699 8.29 7.422 7.298	2.232 Critical 18.48 0.9081 Median 6.845 7.105 7.24 7.04	0.0674 P-Value 0.0227 0.5931 Min 6.12 6.33 6.97 6.67	Non-S Decis Equal Norma Max 7.47 7.83 7.29 7.13 7.86	ignificant Effect ion(α:1%) Variances al Distribution Std Err 0.2761 0.3762 0.07444 0.103	CV% 8.10% 10.61% 2.07% 2.95% 9.23%	0.00% -4.00% -5.35% -2.20% -4.69%
ANOVA Table Source Between Error Total Distributional Te Attribute /ariances Distribution Total Dry Weigh Conc-%	7.12722 10.9463 18.0735 ests Test Bartlett E Shapiro-V t-mg Summa Code	quality of V Wilk W Norr ary Count 4 4 4 4 4 4 4	1.0181 0.4560 ariance Te nality Test Mean 6.82 7.092 7.185 6.97 7.14	7 95 est t 95% LCL 5.941 5.895 6.948 6.642 6.092	7 24 31 Test Stat 16.28 0.9732 95% UCL 7.699 8.29 7.422 7.298 8.188	2.232 Critical 18.48 0.9081 Median 6.845 7.105 7.24 7.04 7.21	0.0674 P-Value 0.0227 0.5931 Min 6.12 6.33 6.97 6.67 6.28	Non-S Decis Equal Norma Max 7.47 7.83 7.29 7.13	ignificant Effect ion(α:1%) Variances al Distribution <u>Std Err</u> 0.2761 0.3762 0.07444 0.103 0.3293	CV% 8.10% 10.61% 2.07% 2.95%	0.00% -4.00% -5.35% -2.20%



Report Date: Test Code:

02 Jul-20 19:01 (p 4 of 10) LM-10735-0320 | 10-2620-0901

Lemna Grow	th Inhibition Te	est					Bureau Veritas Laboratories
`nalysis ID: Analyzed:	17-7682-7977 02 Jul-20 19:		•	Total Dry Weight-mg Parametric-Control vs Treatments		CETIS Version: Official Results:	CETISv1.9.2 Yes
Total Dry Wei	ght-mg Detail						м на
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4		
0	S1	6.87	7.47	6.82	6.12		
1.5		6.57	7.83	7.64	6.33		
3		7.28	7.2	7.29	6.97		
6		7.13	6.67	7.01	7.07		
12.1		7.08	7.86	7.34	6.28		
24.2		9.54	7.25	8.27	6.4		
48.5		7.9	7.64	7.93	8.99		
97		6.45	7.02	6.37	6.78		

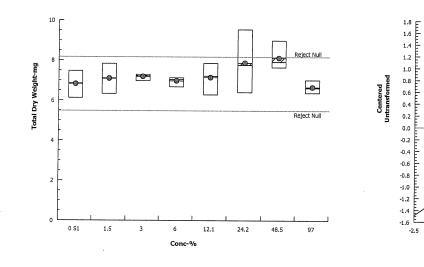
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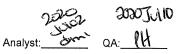
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-2.0 -1.5 -1.0 -0.5 0,0 0.5 1.0 1.5 2.0 2.5

Rankits

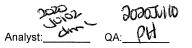
Graphics





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CETI	S Ana	alytical Rep	ort						Report Date Fest Code:	ə:	02 Jul-20 19:01 (p 1 of 2 LM-10735-0320 10-2620-090
Lemna	a Growt	th Inhibition Te	st								Bureau Veritas Laboratories
nalys Analyz	sis ID: zed:	21-3654-8647 02 Jul-20 19:0		dpoint: alysis:	Total Dry Weig Linear Interpol		1)		CETIS Vers		CETISv1.9.2 Yes
Batch	ID:	14-7281-3650	Tes	st Type:	Lemna Growth		÷		Analyst:	M. Br	assil
Start [Date:	12 Jun-20 15:3	9 Pro	otocol:	EC/EPS 1/RM	/37			Diluent:	APH/	A Media
Ending	g Date:	19 Jun-20 13:2	5 Sp	ecies:	Lemna minor			E	Brine:	Not A	Applicable
Durati	on:	6d 22h	So	urce:	Canadian Phys	cological Cu	Iture Centi	re 🖌	Age:		
Sampl	le ID:	08-2245-2202	Co	de:	C039804			(Client:	Agnic	co Eagle Mines
Sampl	le Date:	07 Jun-20	Ma	terial:	Water			F	Project:	2-11-	
Receip	ot Date:	11 Jun-20 08:20	0 So i	urce:	Agnico Eagle N	Aines			•		
Sampl	e Age:	5d 16h	Sta	tion:	MEL 13-07						
Comm Ref1 is		-02. Ref2 is Mel·	-04-05. Ref3	3 is Mel-	05-04.						
Linear	Interpo	lation Options									
X Tran	·····, ···	Y Transform	n See	d	Resamples	Exp 95%	CL Me	thod			
Log(X+	-1)	Linear	793	261	200	Yes	Tw	o-Point In	terpolation		
Residu	ual Anal	ysis									
Attribu	ite	Method			Test Stat	Critical	P-Value	Decis	ion(α:5%)		
Extrem	e Value	Grubbs E	xtreme Valu	e Test	2.819	2.938	0.0831		tliers Detec	ted	
Point E	Estimate	es		,							
Level	%	95% LCL	95% UCL	τu	95% LCL	95% UCL					
IC5	71.37	58.26	n/a	1.401	n/a	1.716			· · · · · · · · · · · · · · · · · · ·		and a summary base of a sum of the language of the sum of
IC10	>97	n/a	n/a	<1.03	1 n/a	n/a					
°C15	>97	n/a	n/a	<1.03 ⁻	1 n/a	n/a					
J20	>97	n/a	n/a	<1.03 [,]	l n/a	n/a					
C25	>97	n/a	n/a	<1.03 [.]	l n/a	n/a					
C40	>97	n/a	n/a	<1.03 ⁻	n/a	n/a					
C50	>97	n/a	n/a	<1.03 ⁻	n/a	n/a					
Fotal D	ry Weig	ht-mg Summai	ry			Cal	culated V	ariate			
Conc-%	6	Code	Count	Mean	Min	Max	Std Err	Std De	ev CV%		%Effect
)		S1	4	6.82	6.12	7.47	0.2761	0.5523	8.10%		0.0%
.5			4	7.092	6.33	7.83	0.3762	0.7523			-4.0%
3			4	7.185	6.97	7.29	0.07444	0.1489			-5.35%
6			4	6.97	6.67	7.13	0.103	0.2059			-2.2%
2.1			4	7.14	6.28	7.86	0.3293	0.6587			-4.69%
24.2			4	7.865	6.4	9.54	0.6766	1.353	17.219		-15.32%
8.5			4	8.115	7.64	8.99	0.2988	0.5977			-18.99%
97			4	6.655	6.37	7.02	0.1506	0.3012			2.42%
otal D	ry Weig	ht-mg Detail									
onc-%	0	Code	Rep 1	Rep 2	Rep 3	Rep 4					
		S1	6.87	7.47	6.82	6.12					
.5			6.57	7.83	7.64	6.33					



7.28

7.13

7.08

9.54

7.9

6.45

7.2

6.67

7.86

7.25

7.64

7.02

7.29

7.01

7.34

8.27

7.93

6.37

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7.07

6.28

6.4

8.99

6.78

3

6

12.1

24.2

48.5

97

CETIS Ana	alytical Report			Report Date: Test Code:	02 Jul-20 19:01 (p 2 of 2) LM-10735-0320 10-2620-0901
Lemna Growt	th Inhibition Test				Bureau Veritas Laboratories
nalysis ID: Analyzed:	21-3654-8647 02 Jul-20 19:01	Endpoint: Analysis:	Total Dry Weight-mg Linear Interpolation (ICPIN)	CETIS Version: Official Results:	CETISv1.9.2 Yes
Graphics			······································		
Total Dry Weight-mg	y				
ہ ل ے۔۔			80 100		
		10-%			

Analyst: _____ QA: ____

Lemna minor Growth Inhibition Test Data

Tab: Weights, Page 1 of 1

	Client Name:	Golder Assoc (Agnico)	ciates Ltd.		Job# / Sample #	: C039804 XX3665		
	Sample ID:	MEL-13-07		-	-			
We			2020 Jun 22		Oven Temp (°C) Drying Time (h)			-
	Analyst(s):				-			
Boat #	Conc. & Replicate	Final # of Fronds	Boat Wt. (g)	Boat & Frond Dry Weight (g)	Dry Weight per Rep. (mg)	Mean Dry Weight per Conc (mg)	SD	% Stimulation
394	Control-A	61	0.78949	0.79591	6.42	6.21	0.71	
395	В	62	0.80679	0.81362	6.83			
396	С	60	0.79501	0.80142	6.41			
397	D	48	0.79968	0.80486	5.18			
398	Site Control-A	66	0.80784	0.81471	6.87	6.82	0.55	9.82
399	В	74	0.79743	0.80490	7.47			
400	С	63	0.80527	0.81209	6.82			
401	D	56	0.80723	0.81335	6.12			1
402	1.5%-A	63	0.79938	0.80595	6.57	7.09	0.75	14.21
403	В	72	0.80944	0.81727	7.83			
404	С	75	0.79139	0.79903	7.64			
405	D	57	0.79573	0.80206	6.33			
406	3.0%-A	67	0.79342	0.80070	7.28	7.19	0.15	15.70
407	В	70	0.79119	0.79839	7.20			10.10
408	С	72	0.79878	0.80607	7.29			
409	D	63	0.80213	0.80910	6.97			
410	6.0%-A	63	0.80182	0.80895	7.13	6.97	0.21	12.24
411	В	63	0.80304	0.80971	6.67	0.07	0.2.1	12.27
412	C	65	0.79402	0.80103	7.01			
413	D	64	0.79725	0.80432	7.07	·		
414	12.1%-A	66	0.79000	0.79708	7.08	7.14	0.66	14.98
415	В	67	0.79829	0.80615	7.86	7.14	0.00	14.30
416	C	71	0.79561	0.80295	7.34		,	
417	D	49	0.79705	0.80333	6.28			
418	24.2%-A	83	0.81704	0.82658	9.54	7.87	1.35	26.65
419	B	67	0.80075	0.80800	7.25	1.01	1.00	20.03
420	C	75	0.79392	0.80219	8.27			
421	D	56	0.79398	0.80038	6.40			
422	48.5%-A	72	0.80422	0.81212	7.90	8.11	0.60	20.69
423	B	72	0.80685	0.81449	7.64	0.11	0.60	30.68
424	C	74	0.80295	0.81088	7.93			
425	D	93	0.80715	0.81614	8.99		7	
426	97%-A					0.05	0.00	7.47
420		58	0.78571	0.79216	6.45	6.65	0.30	7.17
	BC	62	0.79683	0.80385	7.02			
428 429		55 58	0.80369	0.81006	6.37			
				0.79860	6.78			
430		N/A	0.79855	0.79834	-0.21	-	-	-
431		N/A	0.80432	0.80418	-0.14	-	-	
394	0-A	61 MP	0.78951	0.79607	6.56	-	-	
A	nalyst	MB	NS	DML				

N/S - No growth stimulation (dry weight) compared to the Control

Tab: Observations, Page 1 of 1

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Lemna minor Growth InhibitionTest Data

Cli	ent Name:	: Golder A	Associates I	Ltd. Ann	(o)		Start Date	: June 12, 2	2020	
	Sample ID:			6.9				: June 19, 2		
			Fonder	_	-	.lob#		003		
	Analyst(s):	1	A 4	Ana<-	87 P.Ha					
,		K NON				J Olga	nisin Lot #.	- CPZC	0602	*
	pH of ray	w sample		r addition o ocks A, B, a		Pro por	ation time		aeration	
	1.9	•		<u>م، 8</u>	<u> </u>	-	min	1.8	aeration	
APHA Stocks F				1			ument IDs:	BGN2	-00-	12
			-0438	\sim	ant Shelf #:	4_	_ Test Vo	lume (mL):)
Sample De	escription:	<u>_clea</u>	v E (dou	cless			5-7-10-10-10-10-10-10-10-10-10-10-10-10-10-		
Concentration	I			Tomporati	ure Monitor	ina				
(%)	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Dave	Day 7	I	nitoring
Control	24	25	25 25	26	21 21	25	Day 6 26	Day 7	Day 0	Day 7
Site Control	24	25	25	25	27	26	25	26	8.3	85
1.5	24	25	25	36	27	25	26	26		8.6
3.0				00				00	8,3	0.0
6.0										a she she ya
12.1	24	25	25	25	27	25	25	26	8.3	8.5
24.2			0-5	- <i>4</i> 5	51	<u></u>			013	0.0
48.5				d in the second				all and a second		
97.0	24	25	25	26	27	25	25	26	01	q,0
Analyst	NS	us	NS	PH	uB	uß	NB	ŴS	8.1	uB
Date	2020 32mz	2020	202014	mound	20.7EN	2620	Potend	8 Jure 19	N5 3070 35012	2020 June 19
Observations du			D OLMIT	Juney	~ Jmu	Tate	June	o an crj	JUNUE	JUNK
		June 12,	2020					Analyst:	cetro	2551
		ts per Tes		2		. م	# of Frond	ls per Plant:		
Day 0 (Test Initiation)	Plant Ob	servations	: Dor	k gre	Oht	- heat	М	· Seeded @:	15:3	9
(*****************	Other cor	mments:	na	< t	contr.	st mec	Sure	f11 00		-scolod
	a	16:	15-1	JS JC	N/Z			- data	م` ا	
	Date:	June 13,	2020					Analyst:	itthe	stil
	Obser-	Control	Site	4 50/	20/	00/	10 10/	04.0%	40.50/	070/
Day 1	vations:	Control AG, H	Control DG, H	1.5% 16, H	3% DG , H	6% N& H	12.1% DG.H	24.2% DG, H	48.5% DG,A	97% DG,H
1	l Other Co		6 /1	solins		at P	100 h	A (0)		55.
			114		<u>"""h</u> at"			<u> </u>		v

Lemna minor Growth InhibitionTest Data

C	lient Name	: Golder As	ssociates l	_td. (Agnie	<u>(</u> 0)		Start Date	: <u>June 12, 2</u>	020	
		MEL-	13-07	7	·	Job#	/ Sample #	<u> Co3</u>	2804	
	Date:	June 14,	2020					Analyst:	Nikher	-01 RD-
Day 2	Obser- vations:	Control	Site Control	1.5%	3%	6%	12.1%	24.2%	48.5%	97%
		Dart	-	DGH	DGH	Digit	DG.H	06.tt	D6,11	DGIH
	Other Co	omments: _	nla		*					-
· · ·	Date:	June 15, 2	2020					Analyst:	P. Henres	2
	Obser-		Site	4.50/						
Day 3	vations:	Control DG, It	Control 06-1H	1.5%	3% 06.1t	6% 06,14	12.1% DG,14	24.2%	48.5%	97%
,	Other Co	omments:		DG74	100,0	10018	I DOJN	105-1H	OG7H	or,H
••••••••••••••••••••••••••••••••••••••			v						. A	
	Date:	June 16, 2		I	- I	T	· · · · · · · · · · · · · · · · · · ·	Analyst:	Hox	ISSY
Day 4	Obser- vations:	Control	Site Control	1.5%	3%	6%	12.1%	24.2%	48.5%	97%
Day 4		DG,H	Dt, H	DG, H	DG,H	DG, H	DG,H	D6, H	D6, H	06,17
	Other Co	omments:	Na	ç			·····			
	Date:	June 17, 2	2020					Analyst:	ufre	1581
	Obser-		Site							
Day 5	vations:	Do,H	Control DG, H	1.5% DG, H	3% Da, H	6% 36, H	12.1% DG, H	24.2% D45 H	48.5% DGH	97% DG, H
	Other Co	omments:	1	olins	<u> </u>		or f		rless	<u> </u>
					11		γ		iA	
	Date:	June 18, 2				1		Analyst:	uş	14531
Day 6	Obser- vations:	Control	Site Control	1.5%	3%	6%	12.1%	24.2%	48.5%	97%
Day 6		Dtc, H	DK,H	Dt,H	DG,H	DG,H	D6, H	D6, H	DG,H	16, H
	Other Co	omments:	019				,			,
	Date:	June 19, 2	2020			194		Analyst:	MARIN	STIL
	Test End		13:	25		_		,		
Day 7	Obser-		Site	4 50/	00/					
Dayi	vations:	Control	Control DE, H	1.5% DG, H	3% DG,H	6%	12.1% DG, H	24.2% 04, H	48.5% DG,H	97% DG, M, A
	Other Co	mments: 5				Igae.		base o	d 97	7.
	19-1	· ^ -	othons	clear	~ + (aburl	es		4	
Legend:	DG = Da	rk Green		C = Chloro	osis	A = Green	Algae	CD = Color	ny destroye	d
	LG = Lig			N = Necro		T = Transp	parent	RD = Root	s destroyed	I
		thy, Norma	l	G = Gibbo	sity	S = small	fronds			
	Other :									

Lemna minor Growth Inhibition Test Data

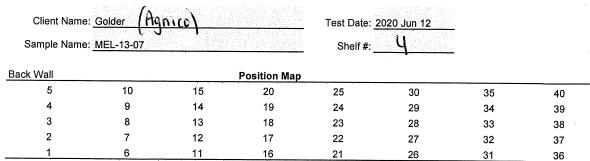
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Tab: Weights, Page 1 of 1

Sample ID: MEL-13-07 Dying Time (h): $\int GH$ Meighing Date: $GDT Jun (h)$ Dying Time (h): $\int GH$ Bate tell: $GB (G) Dot (h)$ Bate tell: $GB (G) Dot (h)$ Bate tell: $GB (G) Dot (h)$ Bott W: Bate tell: $GB (G) Dot (h)$ Bott W: Dy Weight Mean Dry Mean Dry Weight Mean Dry Mean Dry Mean Dry Mean Dry Mean Dry Weight Mean Dry Mean Dry Weight Mean Dry Mea		Client Name:	Golder Assoc	ciates Ltd.	_	Job# / Sample #:	0039304		_		
Weighing Date: Dor, Time (n): $\gamma \mathcal{A}^{d}$ Balance (D: $\delta \mathcal{A}^{d}$ - $\delta \mathcal{A}^{d}$ Balance (D: $\delta \mathcal{A}^{d}$ - $\delta \mathcal{A}^{d}$ Boat # Conc. & final # Boat W: Boat & Frond Dry Weight (g) Per Rep. (mg) Per Conc. (mg) SD $\frac{5}{5}$ (multion) 394 Control-A 0 Dot $ -$ </td <td></td> <td>Sample ID:</td> <td>MEL-13-07</td> <td></td> <td colspan="7">j</td>		Sample ID:	MEL-13-07		j						
Analyston Balance ID: $\delta N > 0^{2}(0)$ Boat # Conc. & Replicate Final # of Fronds Boat Wt. (g) Dry Weight (g) per Rep. (mg) Mean Dry Weight per Conc (mg) SD % Stimulation 394 Control A A - - - - 395 B - 0.2 - - - - 396 C bD - - - - - - 396 C bD -	We	eighing Dates:	2020 Jun 1]	-				-		
Boat # Conc. & Replicate Final # of Fronds Boat & Frond (g) Dry Weight per Rep. (mg) Mean Dry Weight per Conc. (mg) SD % Stimulation 396 B - </td <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>-</td>					-	-					
Data # Replicate of Fronds (g) Dry Weight (g) per Rep. (mg) per Conc (mg) SU Stimulation 395 B 0/2 -	r			•	-				-		
394 Control-A A <t< td=""><td>Boat #</td><td></td><td></td><td></td><td></td><td></td><td></td><td>SD</td><td></td></t<>	Boat #							SD			
395 B $$ $$ $$ $$ $$ 396 C b $$ $$ $$ $$ $$ 397 D $$ $$ $$ $$ $$ N/S 398 Site Control-A MG $$ $$ $$ $$ N/S 399 B -1 $$ $$ $$ $$ N/S 400 C 6.3 $$ $$ $$ N/S 404 C 7.2 $$ $$ $$ N/S 405 $3.0\%A$ 7.7 $$ $$ N/S 406 $3.0\%A$ 7.7 $$ $$ N/S 410 $6.0\%A$ 6.7 $$ $$ N/S 411 B 6.3 $$ $$ N/S 411 B 6.3 $$ $$ N/S 411 B 6.3 </td <td>304</td> <td></td> <td></td> <td>(9)</td> <td></td> <td></td> <td></td> <td></td> <td></td>	304			(9)							
396 C b0			0169								
397 D $$											
398 Site Control-A MQ N/S 399 B 74 400 C 6.3 401 D N/S 401 D N/S 402 1.5%-A 6.3 N/S 403 B -72 N/S 404 C 72 N/S 405 D SY N/S 406 3.0%-A 7- N/S 407 B -7O N/S N/S 410 6.0%-A 6.7 N/S 411 B -04 N/S											
399 B 7.14 2 400 C 63 402 1.5%-A 63 N/S 403 B -72 N/S 404 C 75 406 3.0%-A 67 N/S 406 3.0%-A 67 N/S 407 B -70 N/S 408 C 74 N/S 409 D -53 N/S 411 B -64 N/S 411 B -64 N/S 411 B -64 N/S 418 242%-A <									N/S		
400 C 3 401 D -56 402 1.5%-A 63 N/S 403 B -72 N/S 404 C 72 N/S 405 D -57 N/S 406 3.0%-A 72 N/S 407 B 740 N/S 409 D -62 N/S 411 B 632 N/S 411 B 637 411 D <			14						14/0		
401 D -56 $$ $$ $$ $$ $$ $$ N/S 403 B -2 $$ $$ $$ $$ N/S 403 B -2 $$ <			63-								
402 1.5%-A 63 N/S 403 B /2 404 C 75 406 $3.0%-A$ $7 406$ $3.0%-A$ $7 407$ B -70 408 C $7 410$ $6.0%-A$ $6 411$ B 63											
403 B 72 404 C 72 405 D N/S 406 3.0%-A 7 N/S 407 B -70 N/S 408 C 72 408 C 72 409 D N/S 411 B N/S 411 B N/S 413 D N/S N/S 414 12.1%-A 5 N/S N/S 416 C 71 <td< td=""><td>402</td><td>1.5%-A</td><td></td><td></td><td></td><td></td><td></td><td></td><td>N/S</td></td<>	402	1.5%-A							N/S		
405 D $r - S7$ N/S 406 3.0%-A 97 N/S 407 B -70 N/S 408 C 74 N/S 409 D 72 N/S 410 6.0%-A 63 N/S 411 B -63 N/S 411 B -63 N/S 411 B -64 N/S 411 12.1%-A 0 N/S 414 12.1%-A 9 N/S 416 C 91 N/S 418 24.2%-A 93 N/S 420 C 75 N/S 421 D 50	403					·					
406 $3.0\%-A$ $7/-$ N/S 407 B $7/0$ 408 C $7/-$ 409 D -0.3 410 $6.0\%-A$ 6.0% N/S 411 B -53 N/S 412 C 57 N/S 413 D , -0.4 N/S 414 12.1%-A 9 N/S 415 B 97 N/S 416 C 71 N/S 418 24.2%-A 32 N/S 420 C 75 421	404	С	75								
407 B 70 $$ $$ $$ $$ $$ 408 C 72 $$ $$ $$ $$ $$ 410 $6.0\% - A$ 6.7 $$ <t< td=""><td>405</td><td>D</td><td>, -57</td><td></td><td>26.622784</td><td></td><td></td><td></td><td></td></t<>	405	D	, -57		26.622784						
408 C 74 410 $6.0\% - A$ $$ $$ $$ $$ N/S 411 B -6.3 $$ $$ $$ $$ $$ $$ N/S 412 C 5.5 $$	406	3.0%-A	67						N/S		
409 D -63 $$ $$ $$ N/S 411 B -63 $$ $$ $$ N/S 411 B -63 $$ $$ $$ $$ N/S 412 C 5 $$ $$ $$ $$ $$ 413 D 04 $$ $$ $$ $$ $$ $$ 414 12.1%-A 6 $$ <td>407</td> <td>В</td> <td>-70</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	407	В	-70								
410 6.0%-A 6 N/S 411 B -3 412 C 5 413 D N/S 414 12.1%-A 5 N/S N/S 415 B 67 N/S N/S 416 C 71 N/S 417 D N/S 418 24.2%-A 53 N/S 421 D -50 N/S 422 48.5%-A 7-2 N/S	408	С	Thy								
411 B -63 $$ $$ $$ $$ $$ 412 C 5 $$ $$ $$ $$ $$ $$ 413 D $$ </td <td>409</td> <td>Ð</td> <td>-67</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	409	Ð	-67								
412 C 5 413 D 414 12.1%-A 6 N/S 415 B 67 N/S 416 C 7 N/S 417 D N/S 418 24.2%-A 33 N/S 419 B 67 N/S 420 C 75 N/S 421 D 50 N/S 422 48.5%-A 72 N/S 424 C 71	410	6.0%-A	63.						N/S		
413 D \dots \dots \dots \dots \dots N/S 414 12.1%-A	411	and the second sec	-63								
414 12.1%-A 66 N/S 415 B 67 -		the second s									
415 B Q1 Image: Constraint of the second											
416 C $71 - 1$ 417 D 44 N/S 418 24.2%-A y N/S 419 B 67 N/S 420 C 75 N/S 421 D 50 421 D 50 421 D 50 422 48.5%-A $7-2$ N/S 423 B $1-0$ 424 C $71-2$ N/S 426 $97%-A$ <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>N/S</td>									N/S		
417 D 4.4 N/S 418 $24.2%$ -A 33 N/S 419 B 67 N/S 420 C 75 421 D 56 422 $48.5%$ -A $7-A$ N/S 423 B 10 N/S 424 C 74 N/S 424 C 74 N/S 425 D N/S 426 $97%$ -A N/S 427 B 62 N/S 428 C 555 430 QA/QC		Management and a second s									
418 $24.2%-A$ 33 $$ $$ $$ $$ N/S 419 B 67 $$		the second s									
419 B 67 Image: Second s			<u> </u>								
419 B C 75- 420 C 75- 421 D 50 N/S 422 48.5%-A 7 N/S 423 B 7-0 N/S 424 C 71 424 C 71 425 D N/S 426 97%-A 5-53 N/S 427 B 6-2 N/S 428 C 555 430 QA/QC N/A 394 0-A 6-1			<u> </u>						N/S		
421 D So N/S 422 48.5%-A 7-2 N/S 423 B 7-0 N/S 424 C 714 424 C 714 425 D N/S 426 97%-A N/S 427 B N/S 428 C 55 428 C 55 430 QA/QC N/A 431 QA/QC N/A 394 0-A	1		b [*] /								
422 48.5%-A 7-2 N/S 423 B 1-0 Image: Constraint of the second secon			-12-								
423 B T-O Image: Constraint of the state of the			700								
120 100 100 100 100 100 100 100 424 C 7/1			-						N/S		
425 D			-								
426 97%-A 58 N/S 427 B 6-2 N/S 428 C 55- 429 D 58 430 QA/QC N/A 431 QA/QC N/A 394 0-A			·14- az				· · · · · · · · · · · · · · · · · · ·				
427 B 6-2 428 C 555- 429 D 558 430 QA/QC N/A 431 QA/QC N/A 394 0-A G			A-EO						N/O		
428 C 55- 429 D 5% 430 QA/QC N/A 431 QA/QC N/A 394 0-A			1-20						N/5		
429 D 5% 430 QA/QC N/A 431 QA/QC 394 0-A			55								
430 QA/QC N/A -			- <i>JU</i> -58	11 19 19 19 19 19 19 19 19 19 19 19 19 1							
431 QA/QC N/A -											
394 0-A 6									-		
		The second s									
						STREET OF THE LOCAL STREET		and the state of the			

N/S - No growth stimulation (dry weight) compared to the Control

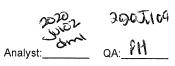
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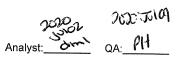
Front of Counter

Position #	Treatment	Replicate	Colour
16		А	
27		В	
21	Control	C	Red
22		D	
30		Measure	
24		A	
28		В	
42	Site Control	С	White
41		D	
43		Measure	
9		А	
12		В	
11	1.5%	С	Orange
36		D	
10		Measure	
37		А	
17		В	
1	3.0%	С	Yellow
33		D	
3		Measure	
40		А	
4		В	
32	6.0%	С	FI. Green
14		D	
6		Meas.	
38		А	
23		В	
13	12.1%	С	Teal
39		D	
25		Measure	
29		A	
8		В	
7	24.2%	С	Blue
20		D	
18		Measure	
2		A	
31		В	
34	48.5%	С	Purple
5		D	
45		Measure	
26		A	
44		В	
15	97%	С	Pink
35		D	

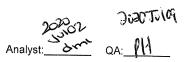
CETIS Analy	tical Rep	ort					•	ort Date: t Code:			13 (p 1 of 16 12-1579-417!
Lemna Growth Ir	hibition Tes	st						· · · · · · · · · · · · · · · · · · ·			.aboratories
	2-0437-6506		ndpoint:	Frond Increas	-			IS Versio		1.9.2	
Analyzed: 02	2 Jul-20 19:12	2 A	nalysis:	Parametric-Tv	vo Sample		Offic	cial Resu	lts: Yes		
Batch ID: 16-	1531-7750	Т	est Type:	Lemna Growt	า		Ana	lyst: N	/I. Brassil		
Start Date: 12	Jun-20 15:01	P	rotocol:	EC/EPS 1/RM	1/37		Dilu	ent: A	PHA Media		
Ending Date: 19	Jun-20 15:22	2 S	pecies:	Lemna minor			Brin	e: N	lot Applicable		
Duration: 7d	0h	S	ource:	Canadian Phy	cological Cu	lture Centre	Age	:			
Sample ID: 00-	5473-3468	С	ode:	C039804			Clie	nt: A	gnico Eagle N	Aines	
Sample Date: 06	Jun-20	М	aterial:	Water			Proj	ect: 2	-11-0691		
Receipt Date: 11	Jun-20 08:20) S	ource:	Agnico Eagle	Mines						
Sample Age: 6d	15h	St	tation:	MEL 02-05							
Comments:											
Ref1 is Mel-03-02.	Ref2 is Mel-	04-05. Re	f3 is Mel-0	05-04.							
Data Transform		Alt Hyp)				Comparis	son Resu	lt		PMSD
Untransformed		C <> T					97% pass	ed frond	increase		22.66%
Equal Variance t	Two-Sample	Test									
Control vs	Conc-%		Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	on(α:5%)		
Ref 1	97		1.967	2.447	16.49 6	CDF	0.0968	Non-Sig	gnificant Effec	ŧ	
Auxiliary Tests						·····					
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:5%)		
Extreme Value	Grubbs E	xtreme Va	alue Test		1.36	2.127	1.0000	No Out	liers Detected		
ANOVA Table											
Source	Sum Squa	ares	Mean	Square	DF	F Stat	P-Value	Decisio	on(α:5%)		
etween	351.125		351.12	25	1	3.867	0.0968	Non-Sig	nificant Effec	t	
Error	544.75		90.791	7	6						
Total	895.875				7						
Distributional Tes	ts										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:1%)		
Variances	Variance R	Ratio F Te	st		1.138	47.47	0.9177	Equal V	ariances		
Distribution	Shapiro-W	ilk W Nor	mality Tes	t	0.9256	0.6451	0.4773	Normal	Distribution		
Frond Increase Su	ummary										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	R1	4	72.75	58.09	87.41	72.5	62	84	4.608	12.67%	0.00%
97		4	86	70.36	101.6	86.5	74	97	4.916	11.43%	-18.21%
	tail										
Frond Increase De	, can										
Frond Increase De Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4						
		Rep 1 84	Rep 2 70	Rep 3 62	Rep 4 75						

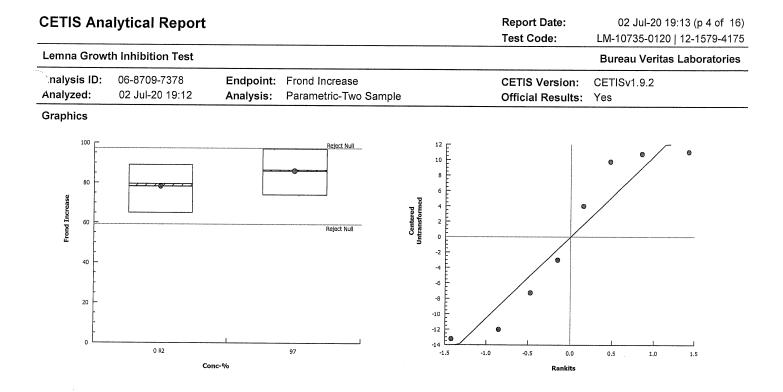


CETIS Ana	alytical Report				Report Date: Test Code:	02 Jul-20 19:13 (p 2 of 16)
Lemna Grow	th Inhibition Test				Test Code:	LM-10735-0120 12-1579-4175 Bureau Veritas Laboratories
∖nalysis ID: Analyzed:	12-0437-6506 02 Jul-20 19:12	Endpoint: Analysis:	Frond Increase Parametric-Two Sample		CETIS Version: Official Results:	CETISv1.9.2
Graphics					-	
- 00 - 00 - 00 - 00 - 00 - 00 - 00 - 00			Reject Null	12 Centraled 8	0	e e
20 -				-8	•	1
	0 R1	nc-%	97	-1.5 -	1.0 -0.5 0.0 Rankits	0.5 1.0 1.5

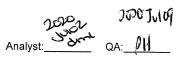


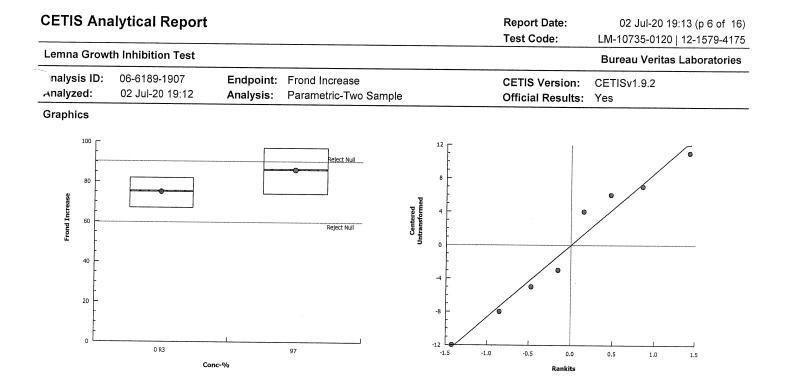
CETIS Ana	alytical Re	port						port Date st Code:			:13 (p 3 of 1 12-1579-41
Lemna Grow	th Inhibition T	est			-						Laboratorie
nalysis ID:	06-8709-737		•	Frond Increa			CE	TIS Vers			
Analyzed:	02 Jul-20 19		Analysis:	Parametric-T			Of	ficial Res	ults: Yes		
Batch ID:	16-1531-7750	-	Test Type:	Lemna Grow			An	alyst:	M. Brassil		
Start Date:	12 Jun-20 15		Protocol:	EC/EPS 1/RM			Dil	uent:	APHA Media		
-	19 Jun-20 15	22	Species:	Lemna minor				ne:	Not Applicable	e	
Duration:	7d 0h		Source:	Canadian Phy	ycological C	ulture Centre	e Ag	e:			
Sample ID:	00-5473-3468		Code:	C039804			Cli	ent:	Agnico Eagle I	Mines	
Sample Date:			Material:	Water					2-11-0691	Wines.	
Receipt Date:	11 Jun-20 08:	20	Source:	Agnico Eagle	Mines			.joot.	2 11 0001		
Sample Age:	6d 15h		Station:	MEL 02-05							
Comments:											
Ref1 is Mel-03	-02. Ref2 is Me	el-04-05. F	Ref3 is Mel-0	95-04.							
Data Transfor		Alt Hy	/p				Compar	ison Res	ult		PMSD
Untransformed	l	C <> 7	-					sed frond			24.37%
Equal Varianc	e t Two-Samp	le Test									
Control V	vs Conc-%	, 0	Test S	tat Critical	MSD D	F P-Type	P-Value	Desist			
Ref 2	97		0.9945		19.07 6		0.3584		on(α:5%) ignificant Effec		
Attribute Extreme Value ANOVA Table	Test Grubbs	Extreme \	/alue Test		Test Stat 1.299	2.127	P-Value 1.0000		on(α:5%) tliers Detected		
_											
Source etween	Sum Squ	lares	Mean S		DF	F Stat	P-Value	Decisio	on(α:5%)		
Error	120.125 728.75		120.12		1	0.989	0.3584	Non-Si	gnificant Effec	t	
Total	848.875		121.458	3	6						
Distributional 1	Tests			,							
Attribute	Test				Test Stat	Critical	DVat	.	4 40.5		
Variances		Ratio F Te	est		1.513		P-Value		on(α:1%)		
Distribution			rmality Test		0.8742	47.47 0.6451	0.7419 0.1658	•	/ariances		
Frond Increase			-					Normal	Distribution		
Conc-%	Code	Count	Mean	95% LCL	0.5%	Madian	N.4.1				
)		4	78.25	59.01	95% UCL 97.49		Min	Max	Std Err	CV%	%Effect
97		4	86	70.36	97.49 101.6	79.5 86.5	65 74	89 97	6.047 4.916	15.45%	0.00%
Frond Increase	Detail								4.310	11.43%	-9.90%
Conc-%	Code	Rep 1	Rep 2	Rep 3	Pop 4						
)		71	65	88	Rep 4 89	·····					
7		97	90	88 74	69 83						
		0.	50	/ 4	00						





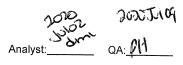
							Rep	t Code:	LM_10	735_0120 1	12-1579-41
Lemna Grow	th Inhibition Te	st					165	t coue.	······································		aboratorie
Analysis ID:	06-6189-1907	E	ndpoint:	Frond Increas			CEI	IS Versi		·····	
Analyzed:	02 Jul-20 19:1		nalysis:	Parametric-Tv	-			cial Res		1.9.2	
Batch ID:	16-1531-7750	т	est Type:	Lemna Growt	h				M. Brassil	**************************************	
Start Date:	12 Jun-20 15:0		rotocol:	EC/EPS 1/RM				•	APHA Media		
Ending Date:	19 Jun-20 15:2	22 s	pecies:	Lemna minor			Brin		Not Applicable		
Duration:	7d Oh		ource:	Canadian Phy	cological Cu	ulture Centre	Age		i i i i i i i i i i i i i i i i i i i		
Sample ID:	00-5473-3468	с	ode:	C039804			Clie	nt:	Agnico Eagle I	lines	
Sample Date:	06 Jun-20	M	laterial:	Water			Proj		2-11-0691	unico	
Receipt Date:	11 Jun-20 08:2	0 s	ource:	Agnico Eagle	Mines		110		2 11 0001		
Sample Age:	6d 15h		tation:	MEL 02-05							
Comments:						······					
Ref1 is Mel-03	-02. Ref2 is Mel	-04-05. Re	ef3 is Mel-0)5-04.							
Data Transfor	m	Alt Hyp)				Comparis	son Res	ult		PMSD
Untransformed	l	C <> T					97% pass	ed frond	increase		20.29%
Equal Varianc	e t Two-Sample	e Test									
.	/s Conc-%		Test S	tat Critical	MSD DI	F P-Type	P-Value	Decisi	on(α:5%)		
Ref 3			The second		1100 01	i iypo	i -value	Decisi	Un(u.576)		
	97		1.769	2.447	15.22 6	CDF	0 1273	Non-Si	ignificant Effec	+	
- 			1.769	2.447	15.22 6	CDF	0.1273	Non-Si	ignificant Effec	t	
Auxiliary Test	5		1.769	2.447						t	
Auxiliary Test: Attribute	s Test	Extreme V/		2.447	Test Stat	Critical	P-Value	Decisi	on(a:5%)	t	
Auxiliary Tests Attribute Extreme Value	s Test	Extreme Va		2.447				Decisi		t	
Auxiliary Tests Attribute Extreme Value ANOVA Table	s Test Grubbs E		alue Test		Test Stat 1.474	Critical 2.127	P-Value 0.9543	Decisi	on(a:5%)		
Auxiliary Tests Attribute Extreme Value ANOVA Table Source	s Test Grubbs E Sum Squ		alue Test Mean S	2.447 Square	Test Stat 1.474 DF	Critical 2.127 F Stat	P-Value 0.9543 P-Value	Decisi No Out	on(α:5%) tliers Detected on(α:5%)		
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween	s Test Grubbs E Sum Squ 242		alue Test Mean S 242	Square	Test Stat 1.474 DF 1	Critical 2.127	P-Value 0.9543	Decisi No Out	on(α:5%) tliers Detected		
Auxiliary Tests Attribute Extreme Value ANOVA Table Source	s Test Grubbs E Sum Squ		alue Test Mean S	Square	Test Stat 1.474 DF 1 6	Critical 2.127 F Stat	P-Value 0.9543 P-Value	Decisi No Out	on(α:5%) tliers Detected on(α:5%)		
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error Total	s Test Grubbs E Sum Squ 242 464 706		alue Test Mean S 242	Square	Test Stat 1.474 DF 1	Critical 2.127 F Stat	P-Value 0.9543 P-Value	Decisi No Out	on(α:5%) tliers Detected on(α:5%)		
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error Fotal Distributional	s Test Grubbs E Sum Squ 242 464 706		alue Test Mean S 242	Square	Test Stat 1.474 DF 1 6 7	Critical 2.127 F Stat 3.129	P-Value 0.9543 P-Value 0.1273	Decisi No Out Decisi Non-Si	on(α:5%) tliers Detected on(α:5%) gnificant Effec		
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error Fotal Distributional Attribute	s Grubbs E Sum Squa 242 464 706 Tests Test	ares	Mean S 242 77.333	Square	Test Stat 1.474 DF 1 6 7 Test Stat	Critical 2.127 F Stat 3.129 Critical	P-Value 0.9543 P-Value 0.1273 P-Value	Decision No Out Decision Non-Si Decision	on(α:5%) tliers Detected on(α:5%) gnificant Effec on(α:1%)		
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error	s Grubbs E Sum Squ 242 464 706 Tests	ares	Mean S 242 77.333	Square 3	Test Stat 1.474 DF 1 6 7	Critical 2.127 F Stat 3.129	P-Value 0.9543 P-Value 0.1273 P-Value 0.6850	Decisi No Out Decisi Non-Si Decisi Equal \	on(α:5%) tliers Detected on(α:5%) gnificant Effec on(α:1%) /ariances		
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error Fotal Distributional Attribute Variances Distribution	s Test Grubbs E Sum Squ 242 464 706 Tests Test Variance F Shapiro-W	ares	Mean S 242 77.333	Square 3	Test Stat 1.474 DF 1 6 7 Test Stat 1.667	Critical 2.127 F Stat 3.129 Critical 47.47	P-Value 0.9543 P-Value 0.1273 P-Value	Decisi No Out Decisi Non-Si Decisi Equal \	on(α:5%) tliers Detected on(α:5%) gnificant Effec on(α:1%)		
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error Total Distributional Attribute Variances Distribution Frond Increase	s Test Grubbs E Sum Squ 242 464 706 Tests Test Variance F Shapiro-W	ares	Mean S 242 77.333	Square 3	Test Stat 1.474 DF 1 6 7 Test Stat 1.667 0.9489	Critical 2.127 F Stat 3.129 Critical 47.47 0.6451	P-Value 0.9543 P-Value 0.1273 P-Value 0.6850 0.6996	Decisi No Out Decisi Non-Si Decisi Equal \ Normal	on(α:5%) tliers Detected on(α:5%) gnificant Effec on(α:1%) /ariances Distribution	t	% Ettoot
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error Total Distributional Attribute /ariances	s Test Grubbs E Sum Squa 242 464 706 Tests Test Variance F Shapiro-W s Summary	ares Ratio F Te: /ilk W Norr	Alue Test Mean S 242 77.333 st mality Test Mean	Square 3 95% LCL	Test Stat 1.474 DF 1 6 7 Test Stat 1.667 0.9489 95% UCL	Critical 2.127 F Stat 3.129 Critical 47.47 0.6451 Median	P-Value 0.9543 P-Value 0.1273 P-Value 0.6850 0.6996 Min	Decisi No Out Decisi Non-Si Decisi Equal \ Normal	on(α:5%) tliers Detected on(α:5%) gnificant Effec on(α:1%) /ariances Distribution	t CV%	%Effect
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error Fotal Distributional Attribute /ariances Distribution Frond Increase Conc-%	S Test Grubbs E Sum Squa 242 464 706 Tests Test Variance F Shapiro-W Summary Code	ares Ratio F Tes /ilk W Norr Count	Alue Test Mean S 242 77.333 st mality Test	Square 3	Test Stat 1.474 DF 1 6 7 Test Stat 1.667 0.9489	Critical 2.127 F Stat 3.129 Critical 47.47 0.6451	P-Value 0.9543 P-Value 0.1273 P-Value 0.6850 0.6996	Decisi No Out Decisi Non-Si Decisi Equal \ Normal	on(α:5%) tliers Detected on(α:5%) gnificant Effec on(α:1%) /ariances Distribution	t CV% 10.15%	%Effect 0.00% -14.67%
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error Total Distributional Attribute Variances Distribution Frond Increase Conc-%	s Test Grubbs E Sum Squa 242 464 706 Tests Test Variance F Shapiro-W Summary Code R3	ares Ratio F Tes /ilk W Norr Count 4	Alue Test Mean S 242 77.333 st mality Test Mean 75	Square 3 95% LCL 62.88	Test Stat 1.474 DF 1 6 7 Test Stat 1.667 0.9489 95% UCL 87.12	Critical 2.127 F Stat 3.129 Critical 47.47 0.6451 Median 75.5	P-Value 0.9543 P-Value 0.1273 P-Value 0.6850 0.6996 Min 67	Decisi No Out Decisi Non-Si Decisio Equal N Normal Max 82	on(α:5%) tliers Detected on(α:5%) gnificant Effec on(α:1%) /ariances Distribution Std Err 3.808	t CV%	0.00%
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error Total Distributional Attribute /ariances Distribution Frond Increase Conc-%	s Test Grubbs E Sum Squa 242 464 706 Tests Test Variance F Shapiro-W Summary Code R3	ares Ratio F Tes /ilk W Norr Count 4	Alue Test Mean S 242 77.333 st mality Test Mean 75	Square 3 95% LCL 62.88 70.36	Test Stat 1.474 DF 1 6 7 Test Stat 1.667 0.9489 95% UCL 87.12 101.6	Critical 2.127 F Stat 3.129 Critical 47.47 0.6451 Median 75.5	P-Value 0.9543 P-Value 0.1273 P-Value 0.6850 0.6996 Min 67	Decisi No Out Decisi Non-Si Decisio Equal N Normal Max 82	on(α:5%) tliers Detected on(α:5%) gnificant Effec on(α:1%) /ariances Distribution Std Err 3.808	t CV% 10.15%	0.00%
Auxiliary Tests Attribute Extreme Value ANOVA Table Source etween Error Total Distributional Attribute /ariances Distribution Frond Increase	s Test Grubbs E Sum Squ 242 464 706 Tests Test Variance F Shapiro-W Shapiro-W Summary Code R3	ares Ratio F Tee /ilk W Norr Count 4 4	Alue Test Mean S 242 77.333 st mality Test Mean 75 86	Square 3 95% LCL 62.88	Test Stat 1.474 DF 1 6 7 Test Stat 1.667 0.9489 95% UCL 87.12	Critical 2.127 F Stat 3.129 Critical 47.47 0.6451 Median 75.5	P-Value 0.9543 P-Value 0.1273 P-Value 0.6850 0.6996 Min 67	Decisi No Out Decisi Non-Si Decisio Equal N Normal Max 82	on(α:5%) tliers Detected on(α:5%) gnificant Effec on(α:1%) /ariances Distribution Std Err 3.808	t CV% 10.15%	0.00%

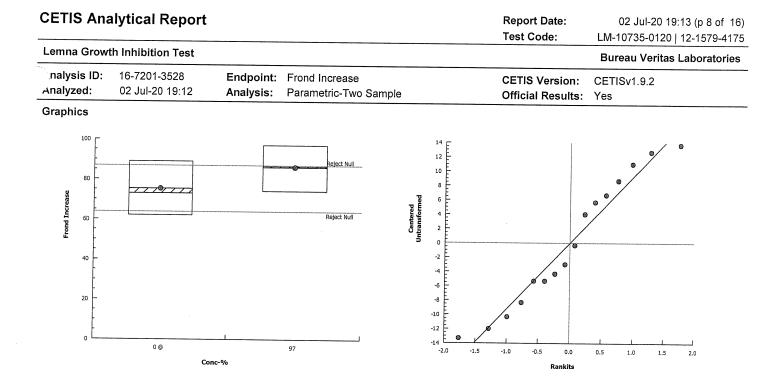


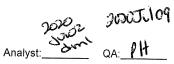


J0202	DEDETURG	
Analyst:	QA:	

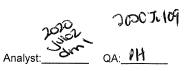
CETIS Analytical Report						Report Date: Test Code:			02 Jul-20 19:13 (p 7 of LM-10735-0120 12-1579-/		
Lemna Grow	th Inhibition T	est						<u></u>	· · · · · · · · · · · · · · · · · · ·		Laboratorie
∖nalysis ID: Analyzed:	16-7201-352 02 Jul-20 19	-	Endpoint: Analysis:	Frond Increas				TIS Versi icial Resi		v1.9.2	n
Batch ID:	16-1531-7750)	Test Type:	Lemna Growt	h		Ana	alyst: I	M. Brassil		
Start Date:	12 Jun-20 15:	:01	Protocol:	EC/EPS 1/RM	1/37			•	APHA Media		
Ending Date:	19 Jun-20 15:	:22	Species:	Lemna minor			Bri		Not Applicable	9	
Duration:	7d Oh		Source:	Canadian Phy	cological Cu	ulture Centre	Age	-			
Sample ID:	00-5473-3468	5	Code:	C039804			Clie	ent: A	Agnico Eagle	Mines	<u></u>
Sample Date:	06 Jun-20		Material:	Water					2-11-0691	Winness	
Receipt Date:	11 Jun-20 08:	20	Source:	Agnico Eagle	Mines			,			
Sample Age:	6d 15h		Station:	MEL 02-05							
Comments: Ref1 is Mel-03	-02. Ref2 is Me	əl-04-05. F	Ref3 is Mel-()5-04.							
Data Transfor		Alt H	(Compari	son Resu	ult		PMSD
Untransformed		C <> 1	Γ				97% pas	sed frond	increase		15.34%
Equal Varianc	e t Two-Samp	le Test								8999-87)	
	/s Conc-%	6	Test S	tat Critical	MSD D	F P-Type	P-Value	Decisi	on(α:5%)		
o poores	9 7		1.98	2.145	11.55 14		0.0677		gnificant Effe	ct	
Auxiliary Tests	6				5						
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:5%)		
Extreme Value	Grubbs	Extreme	/alue Test		1.516	2.586	1.0000		liers Detected		
ANOVA Table				*** <u>**********************************</u>							
Source	Sum Sq	uares	Mean	Square	DF	F Stat	P-Value	Docisio	$n(\alpha, 5\%)$		
etween	341.333		341.33		1	3.921	0.0677		on(α:5%) gnificant Effec	.+	
Error	1218.67		87.047		14	0.021	0.0077	101-51	grinicant Ellec	,L	
Total	1560				15						
Distributional	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:1%)		
Variances		Ratio F T			1.145	7.6	0.7478		ariances		
Distribution	Shapiro-\	Wilk W No	rmality Test		0.9391	0.8408	0.3387	•	Distribution		
Frond Increase	Summary										
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
)	@	12	75.33	69.5	81.17	73	62	89	2.652	12.20%	0.00%
)7		4	86	70.36	101.6	86.5	74	97	4.916	11.43%	-14.16%
rond Increase	Detail										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
	@	70	67	81	82	71	65	88	89	84	70
		62	75							Ψ,	10
7		97	90	74	83						

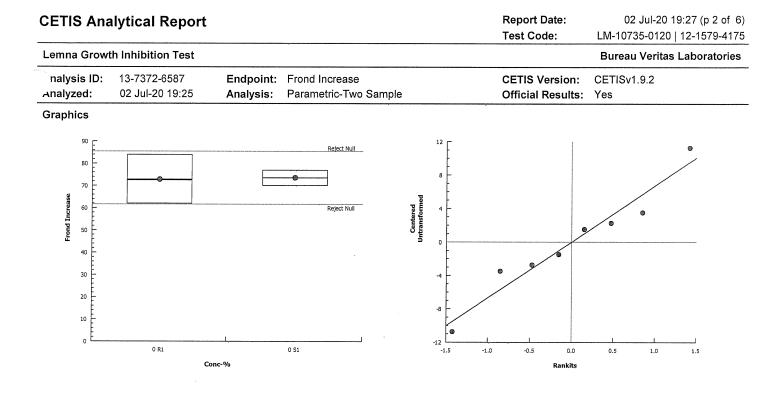


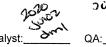




CETIS Analy	tical Rep	ort						•	ort Date: t Code:			27 (p 1 of 6 2-1579-417
Lemna Growth Ir	hibition Te	st								······································		aboratorie
	3-7372-6587 2 Jul-20 19:2		ndpoint: nalysis:		rease ic-Two Sample				IS Version		1.9.2	
Batch ID: 16	-1531-7750	Τe	est Type:	Lemna G	rowth			Anal	lyst: M.	Brassil		
Start Date: 12	Jun-20 15:0	1 Pr	otocol:	EC/EPS	1/RM/37			Dilu	ent: AP	HA Media		
Ending Date: 19	Jun-20 15:2	2 S p	pecies:	Lemna m	inor			Brin	e: Not	t Applicable		
Duration: 7d	0h	So	ource:	Canadian	Phycological C	Cultu	re Centre	Age	н.,			
Sample ID: 00-	-5473-3468	Co	ode:	C039804				Clier	nt: Agi	nico Eagle N	lines	
Sample Date: 06	Jun-20	Ma	aterial:	Water				Proj		1-0691		
Receipt Date: 11	Jun-20 08:20) S a	ource:	Agnico Ea	agle Mines			-				
Sample Age: 6d	15h	St	ation:	MEL 02-0	5							
Comments:	5 6 1 11			- /								
Ref1 is Mel-03-02.	Ref2 is Mel-			05-04.								
Data Transform		Alt Hyp			• • • • • • • • • • • • • • • • • • •			· · · · · · · · · · · · · · · · · · ·	son Result			PMSD
Untransformed		C <> T						Ref 1 pas	sed frond ir	lcrease		16.19%
Equal Variance t	Two-Sample	e Test										
Control vs	Control	1	Test S	Stat Criti	cal MSD I	DF F	P-Type	P-Value	Decision	(α:5%)		
Site Water Contr	Ref 1		0.1542	2 2.44	7 11.9 6	5 C	CDF	0.8825	Non-Sign	ificant Effec	t	
Auxiliary Tests												
Attribute	Test				Test Sta	at C	Critical	P-Value	Decision	(α:5%)		
Extreme Value	Grubbs E	Extreme Va	lue Test		1.767	2	2.127	0.3734	No Outlie	rs Detected		
ANOVA Table												******
Source	Sum Squ	ares	Mean	Square	DF	F	Stat	P-Value	Decision	(α:5%)		
etween	1.125		1.125		1	C	.02379	0.8825		ificant Effec	t	
Error	283.75		47.291	17	6				•			
Total	284.875				7							
Distributional Tes	ts											
Attribute	Test				Test Sta	nt C	ritical	P-Value	Decision	(α:1%)		
Variances	Variance F	Ratio F Tes	st		8.784	4	7.47	0.1075	Equal Va	riances		
Distribution	Shapiro-W	/ilk W Norr	nality Tes	ŧ	0.9677	0	.6451	0.8792	Normal D	istribution		
Frond Increase Su	ummary									· · · · · · · · · · · · · · · · · · ·		
Conc-%	Code	Count	Mean	95%	LCL 95% UC	LN	ledian	Min	Мах	Std Err	CV%	%Effect
C	R1	4	72.75	58.09		7	2.5	62	84	4.608	12.67%	0.00%
0	S1	4	73.5	68.55	78.45	7	3.5	70	77	1.555	4.23%	-1.03%
Frond Increase De	etail											
Conc-%	Code	Rep 1	Rep 2	Rep 3	B Rep 4							
				and the second se								
)	R1	84	70	62	75							









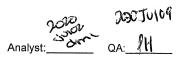
Analyst:

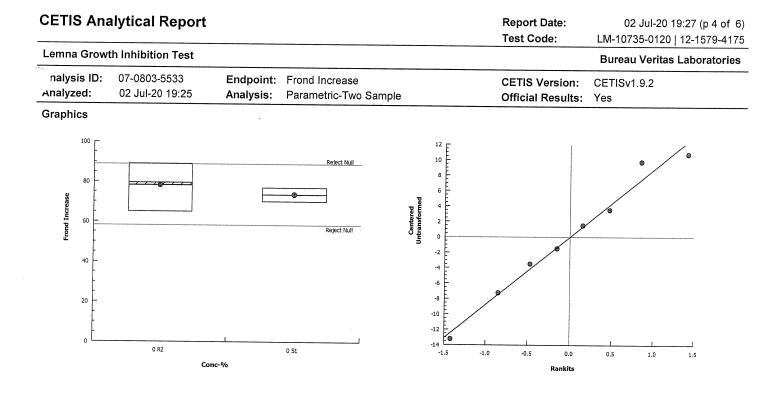
911

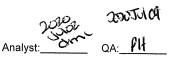
Report Date: Test Code:

02 Jul-20 19:27 (p 3 of 6) LM-10735-0120 | 12-1579-4175

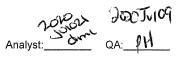
	-						Tes	t Code:	LM-107	735-0120 1	2-1579-41
Lemna Growt	h Inhibition Te	est							Burea	u Veritas L	aboratorie
nalysis ID:	07-0803-5533	3 1	Endpoint:	Frond Increase	e		CET	IS Versio	on: CETISv	1.9.2	
Analyzed:	02 Jul-20 19:	25	Analysis:	Parametric-Tw	vo Sample		Offi	cial Resu	ı lts: Yes		
Batch ID:	16-1531-7750		Test Type:	Lemna Growth	ו		Ana	lvst: N	M. Brassil		
Start Date:	12 Jun-20 15:0	D1 I	Protocol:	EC/EPS 1/RM	/37		Dilu		APHA Media		
Ending Date:	19 Jun-20 15:2	22	Species:	Lemna minor			Brin		Not Applicable		
Duration:	7d Oh		Source:	Canadian Phy	cological Cu	lture Centre	Age		ier appreciate		
Sample ID:	00-5473-3468		Code:	C039804			Clie	nt: A	Agnico Eagle I	Vines	
Sample Date:	06 Jun-20	r	Material:	Water			Proj		-11-0691		
Receipt Date:		20 5	Source:	Agnico Eagle I	Mines		,				
Sample Age:			Station:	MEL 02-05							
Comments:											
Ref1 is Mel-03-	·····	I-04-05. R	ef3 is Mel-0	05-04.							
Data Transfor		Alt Hy					Comparis				PMSD
Untransformed		C <> T					Ref 2 pas	sed frond	increase		20.78%
Equal Varianc	e t Two-Samp	le Test									
	s Control	П	Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	on(α:5%)		
Site Water Con	ntr Ref 2		0.7608	3 2.447	15.28 6	CDF	0.4756	Non-Sig	gnificant Effec	xt .	
Auxiliary Tests	5										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:5%)		
Extreme Value	Grubbs	Extreme \	/alue Test		1.621	2.127	0.6237	No Out	liers Detected		
ANOVA Table											
Source	Sum Squ	lares	Mean	Square	DF	F Stat	P-Value	Decisio	on(α:5%)		
etween	45.125		45.125	5	1	0.5788	0.4756	~~~~	gnificant Effec	:t	
Error	467.75		77.958	33	6						
Total	512.875				7						
Distributional	Tests								•		
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:1%)		
		Ratio F T	est		15.13	47.47	0.0514		ariances		
	Variance								Distribution		
Variances			rmality Tes	t	0.9694	0.6451	0.8931	Normai	Biotribution		
Variances Distribution	Shapiro-V		rmality Tes	t	0.9694	0.6451	0.8931	Norma			
Variances Distribution Frond Increase	Shapiro-V		rmality Tes Mean	t 95% LCL		0.6451 Median	0.8931 	Max	Std Err	CV%	%Effect
Variances Distribution Frond Increase Conc-%	Shapiro-V Summary	Vilk W No	 ,							CV% 15.45%	%Effect
Variances Distribution Frond Increase Conc-%	Shapiro-V e Summary Code	Vilk W No Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err		
Variances Distribution Frond Increase Conc-%	Shapiro-V Summary Code R2 S1	Vilk W No Count 4	Mean 78.25	95% LCL 59.01	95% UCL 97.49	Median 79.5	Min 65	Max 89	Std Err 6.047	15.45%	0.00%
Variances Distribution Frond Increase Conc-%	Shapiro-V Summary Code R2 S1	Vilk W No Count 4	Mean 78.25	95% LCL 59.01	95% UCL 97.49	Median 79.5	Min 65	Max 89	Std Err 6.047	15.45%	0.00%
Variances Distribution Frond Increase Conc-% D Trond Increase	Shapiro-V e Summary Code R2 S1 e Detail	Vilk W No Count 4 4	Mean 78.25 73.5	95% LCL 59.01 68.55	95% UCL 97.49 78.45	Median 79.5	Min 65	Max 89	Std Err 6.047	15.45%	0.00%

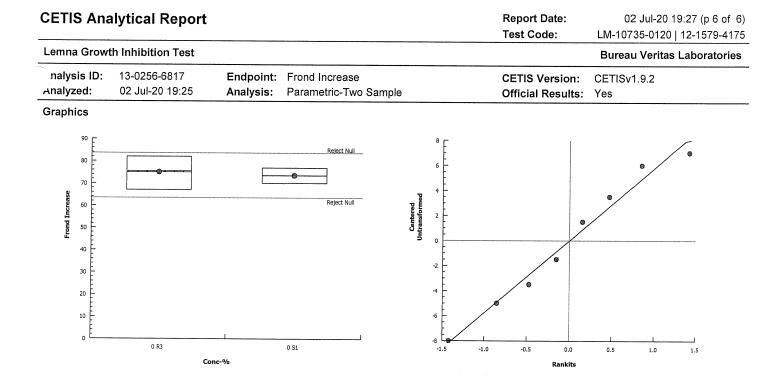






CETIS Analyt	tical Rep	ort						•	ort Date: t Code:			27 (p 5 of 6 2-1579-417
Lemna Growth In	nhibition Te	st								Burea	u Veritas L	aboratories
	3-0256-6817 2 Jul-20 19:2		ndpoint: nalysis:		nd Increase ametric-Tw				IS Versior		1.9.2	
Batch ID: 16-	-1531-7750	Т	est Type:	Len	nna Growth			Ana	lyst: M.	Brassil		
Start Date: 12	Jun-20 15:0)1 P	rotocol:	EC/	EPS 1/RM/	37		Dilu	ent: AF	PHA Media		
Ending Date: 19	Jun-20 15:2	2 S	pecies:	Len	nna minor			Brin	e: No	t Applicable		
Duration: 7d	0h	S	ource:	Car	adian Phyc	cological Cul	ture Centre	Age	:			
Sample ID: 00-	5473-3468	C	ode:	C03	9804			Clie	nt: Ag	inico Eagle N	lines	
Sample Date: 06	Jun-20	М	aterial:	Wat	ter			Proj	ect: 2-*	11-0691		
Receipt Date: 11	Jun-20 08:2	0 S	ource:	Agn	ico Eagle N	lines						
Sample Age: 6d	15h	St	ation:	MEI	_ 02-05							
Comments: Ref1 is Mel-03-02.	Ref2 is Mel	-04-05. Re	f3 is Mel-	05-04	1 .							
Data Transform		Alt Hyp)					Comparis	son Result	t		PMSD
Untransformed		C <> T						Ref 3 pas	sed frond i	ncrease		13.69%
Equal Variance t	Two-Sampl	e Test										
Control vs	Control	11	Test S	Stat	Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)		
Site Water Contr	Ref 3		0.364	7	2.447	10.06 6	CDF	0.7278	Non-Sigi	nificant Effec	t	
Auxiliary Tests												
Attribute	Test					Test Stat	Critical	P-Value	Decisio	ı(α:5%)		
Extreme Value	Grubbs I	Extreme Va	alue Test			1.486	2.127	0.9251	No Outlie	ers Detected		
ANOVA Table												
Source	Sum Squ	ares	Mean	Squ	are	DF	F Stat	P-Value	Decisior	n(α:5%)		
etween	4.5		4.5			1	0.133	0.7278		nificant Effec	t	
Error	203		33.83	33		6						
Total	207.5	****				7						•••••••••••••••••••••••••••••••••••••••
Distributional Tes	sts											
Attribute	Test					Test Stat	Critical	P-Value	Decisior	n(α:1%)		
Variances		Ratio F Te				6	47.47	0.1753	Equal Va			
Distribution	Shapiro-V	Vilk W Nor	mality Tes	st		0.9587	0.6451	0.7976	Normal E	Distribution		
Frond Increase Su	ummary											
Conc-%	Code	Count	Mean		95% LCL		Median	Min	Max	Std Err	CV%	%Effect
0	R3	4	75		62.88	87.12	75.5	67	82	3.808	10.15%	0.00%
0	S1	4	73.5		68.55	78.45	73.5	70	77	1.555	4.23%	2.00%
	etail											
Frond Increase De	stan											
	Code	Rep 1	Rep 2		Rep 3	Rep 4						
Frond Increase De Conc-% 0		Rep 1 70	Rep 2 67		Rep 3 81	Rep 4 82			······			





Tab: Frond Counts, Page 1 of 1

Lemna minor Growth InhibitionTest Data

Client Name: Golder Associates Ltd. (Agnico)

Job# / Sample #: <u>C039804</u>

Sample ID: Various

Analyst(s): <u>M. Brassil</u>

Start Date: June 12, 2020

End Date: June 19, 2020

Conc. & Replicate	Initial Number of Fronds	Final Number of Fronds	Frond Increase	Mean Increase in # Fronds per Conc'n	SD	% Stimulation
Control-A	6	67	61	64.5	4.8	
В	6	73	67	04.5	4.0	
С	6	66	60			
D	6	76	70		· · · · · · · · · · · · · · · · · · ·	
Site Control-A	6	78	72	73.5	3.1	13.95
B	6	83	77	10.0	0.1	10.80
С	6	81	75			
D	6	76	70			
Soft Water Ctrl-A	6	73	67	75.3	12.3	16.67
В	6	69	63		12.0	10.07
С	6	88	82			
D	6	95	89			1
MEL-02-05 97.0-A	6	103	97	86.0	9.8	33.33
В	6	96	90		0.0	00.00
С	6	80	74			
D	6	89	83			
MEL-03-02 97.0-A	6	90	84	72.8	9,2	12.79
B	6	76	70			12.70
C	6	68	62			
D	6	81	75			
MEL-04-05 97.0-A	6	77	71	78.3	12.1	21.32
В	6	71	65			
С	6	94	88			
D	6	95	89			
MEL-05-04 97.0-A	6	76	70	75.0	7.6	16.28
В	6	73	67			
С	6	87	81			
D	6	88	82			
Analyst	MB	MB				

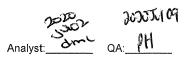
N/S - No growth stimulation (frond increase) compared to the Control

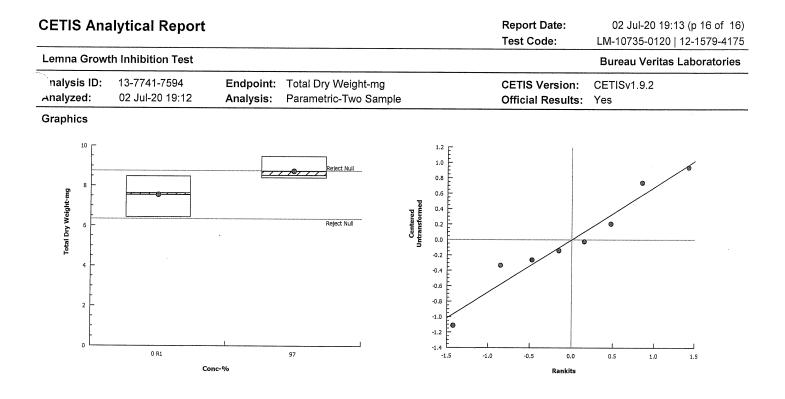
Control Validity Criteria: Mean final # of fronds in Controls on day 7 must be ≥8 times initial # of fronds

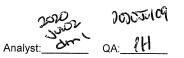
Mean Final # of Fronds on Day 7	70.5
Control Frond Increase	11.8
Validity Criteria Met?	Yes

LM-10735-0120 | 12-1579-4175

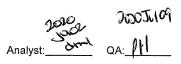
Lemna Growt	th Inhibition Te	est							Burea	u Veritas L	aboratorie
nalysis ID: Analyzed:	13-7741-7594 02 Jul-20 19∷		ndpoint: nalysis:	Total Dry Wei Parametric-Tv			CET				
Batch ID:	16-1531-7750	Т	est Type:	Lemna Growt	h		Ana	lyst: M.	Brassil		
Start Date:	12 Jun-20 15:0	D1 P	rotocol:	EC/EPS 1/RM	1/37		Dilu	ent: AF	PHA Media		
Ending Date:	19 Jun-20 15:2	22 S	pecies:	Lemna minor			Brin	e: No	ot Applicable		
Duration:	7d Oh	S	ource:	Canadian Phy	cological Cul	ture Centre	Age	:			
Sample ID:	00-5473-3468	с	ode:	C039804			Clie	nt: Ag	nico Eagle N	lines	
Sample Date:	06 Jun-20	M	aterial:	Water			Proj	ect: 2-	11-0691		
Receipt Date:	11 Jun-20 08:2	20 S	ource:	Agnico Eagle	Mines						
Sample Age:	6d 15h	St	tation:	MEL 02-05							
Comments: Ref1 is Mel-03	-02. Ref2 is Me	l-04-05. Re	f3 is Mel-	05-04.							
Data Transfor	m	Alt Hyp)				Comparis	son Resul	t		PMSD
Untransformed C <> T									y weight-mg		15.95%
Equal Varianc	ce t Two-Samp	le Test							·····		
Control	vs Conc-%)	Test S	Stat Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)		
Ref 1	97		2.414	2.447	1.204 6	CDF	0.0523	Non-Sig	nificant Effec	t	
Auxiliary Test	S								·//=····		
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:5%)		
Extreme Value	Extreme Value Grubbs Extreme Value Test					2.127	0.4277		ers Detected		
ANOVA Table			******							9398-401 <i>888</i> -6-8-6-6-6-	
Source	Sum Squ	lares	Mean	Square	DF	F Stat	P-Value	Decisio	n(α:5%)		
etween	2.82031		2.820	31	1	5.828	0.0523	Non-Sig	nificant Effec	t	
Error	2.90377		0.4839	963	6	_					
Total	5.72409				7						
Distributional	Tests										
Attribute	Test				Test Stat	Critical	P-Value	Decision	n(α:1%)		
Variances	Variance	Ratio F Te	st		2.905	47.47	0.4045	Equal Va	ariances		
Distribution	Shapiro-V	Wilk W Nor	mality Tes	st	0.9574	0.6451	0.7846	Normal [Distribution		
Total Dry Wei	ght-mg Summa	ary									
Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
Ĵ,	R1	4	7.545	6.195	8.895	7.635	6.43	8.48	0.4243	11.25%	0.00%
97		4	8.733	7.94	9.525	8.53	8.4	9.47	0.2489	5.70%	-15.74%
Total Dry Weig	ght-mg Detail			1							
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4						
)	R1	8.48	7.75	6.43	7.52						
5											

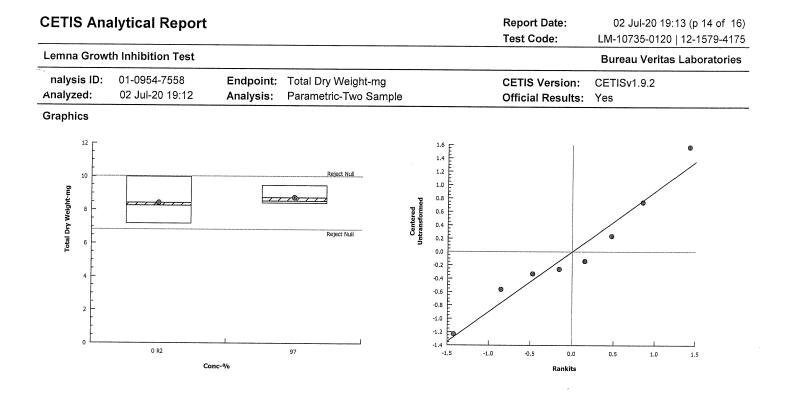




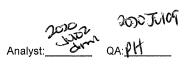


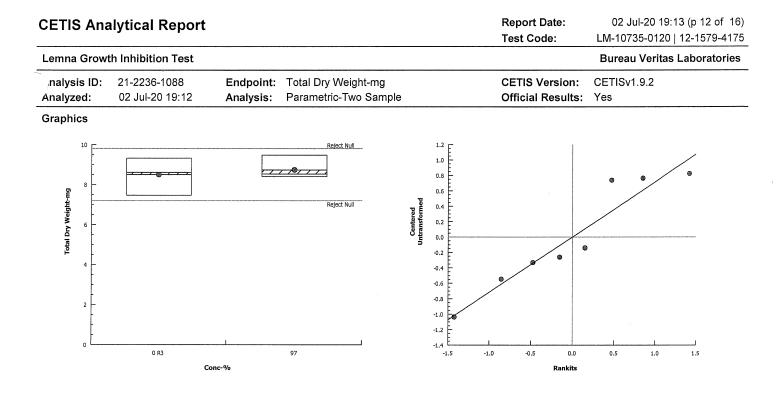
CETIS Analytical Report									•	ort Date: t Code:		ul-20 19:13 35-0120 1	
Lemna Gro	wth In	hibition Te	st									u Veritas L	
nalysis ID	: 01	-0954-7558	E	ndpoint:	Tota	al Dry Weig	iht-mg		CET	IS Versio	n: CETISv	1.9.2	
Analyzed:	02	Jul-20 19:1	2 A	nalysis:	Par	ametric-Tw	o Sample		Offi	cial Resu	lts: Yes		
Batch ID:	16-	1531-7750	Т	est Type:	Len	nna Growth			Ana	lyst: Ⅳ	1. Brassil		
Start Date:	12 .	Jun-20 15:0		rotocol:		EPS 1/RM			Dilu	-	PHA Media		
Ending Date	e: 19.	Jun-20 15:2	2 S	pecies:	Len	nna minor			Brin	e: N	lot Applicable		
Duration:	7d	0h	S	ource:	Car	nadian Phyo	cological Cu	lture Centre	Age	:			
Sample ID:	00-	5473-3468	с	ode:	C03	39804		an a	Clie	nt: A	gnico Eagle N	/lines	
Sample Dat	te: 06 .	Jun-20	M	aterial:	Wat	ter			Proj		-11-0691		
Receipt Dat	te: 11 .	Jun-20 08:20	0 s	ource:	Agn	nico Eagle N	/lines						
Sample Age	e: 6d	15h	S	tation:	MEI	L 02-05							
Comments:													
Ref1 is Mel-	03-02.	Ref2 is Mel-	-04-05. Re	ef3 is Mel-0	05-04	4.							
Data Transf	form		Alt Hyp)					Comparis	son Resu	lt		PMSD
Untransformed C <> T									97% pass	ed total d		18.94%	
Equal Varia	nce t 1	wo-Sample	e Test										
Control	vs	Conc-%		Test S	Stat	Critical	MSD DF	P-Type	P-Value	Decisio	on(α:5%)		
Ref 2		97		0.4874	4	2.447	1.594 6	CDF	0.6433	Non-Sig	nificant Effec	:t	
Auxiliary Te	sts												
Attribute		Test					Test Stat	Critical	P-Value	Decisio	on(α:5%)		
Extreme Val	ue	Grubbs E	Extreme V	alue Test			1.835	2.127	0.2823		iers Detected		
ANOVA Tab	le												
Source		Sum Squ	ares	Mean	Squ	are	DF	F Stat	P-Value	Decisio	on(α:5%)		
etween		0.201613		0.2016	513		1	0.2375	0.6433	Non-Sig	nificant Effec	t	
Error		5.09257		0.8487	762		6			-			
Total		5.29419					7						
Distribution	al Test	ts											
Attribute		Test					Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances		Variance F	Ratio F Te	st			5.848	47.47	0.1809	······································	ariances		
Distribution		Shapiro-W	/ilk W Nor	mality Tes	t		0.9611	0.6451	0.8202	Normal	Distribution		
Fotal Dry We	eight-n	ng Summai	ry									t to the termination of the second	
Conc-%		Code	Count	Mean		95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
)		R2	4	8.415		6.499	10.33	8.25	7.18	9.98	0.602	14.31%	0.00%
97			4	8.733		7.94	9.525	8.53	8.4	9.47	0.2489	5.70%	-3.77%
otal Dry We	eight-n	ng Detail											
Conc-%		Code	Rep 1	Rep 2		Rep 3	Rep 4						
)		R2	7.85	7.18		8.65	9.98					•••••••••••••••••••••••••••••••••••••••	
,													

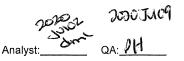




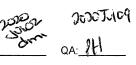
CETIS Analytical Report								•	ort Date: Code:		02 Jul-20 19:13 (p 11 of 16 LM-10735-0120 12-1579-417			
Lemna Growt	th Inhibition [•]	Test		90 KARALANYA						Burea	u Veritas La	aboratorie		
nalysis ID: Analyzed:	21-2236-10 02 Jul-20 1		Endpoint: Analysis:		I Dry Weig ametric-Tw				IS Versior ial Result	1.9.2				
Batch ID:	16-1531-775	0	Fest Type:	Lem	na Growth			Anal	yst: M.	. Brassil				
Start Date:	12 Jun-20 15		Protocol:		EPS 1/RM/			Dilue	-	PHA Media				
Ending Date:	19 Jun-20 15	5:22	Species:	Lem	na minor			Brin	e: No	ot Applicable				
Duration:	7d 0h		Source:	Can	adian Phyc	ological Cul	lture Centre	Age:						
Sample ID:	00-5473-346	8	Code:	C03	9804	·		Clier	nt: Ag	gnico Eagle N	/lines			
Sample Date:	: 06 Jun-20	I	Naterial:	Wate	er			Proje	ect: 2-	11-0691				
Receipt Date:	: 11 Jun-20 08	3:20	Source:	Agni	co Eagle N	lines								
Sample Age:	6d 15h	;	Station:	MEL	02-05									
Comments: Ref1 is Mel-03	3-02. Ref2 is N	/lel-04-05. F	ef3 is Mel-	-05-04										
Data Transfor	rm	Alt Hy	'n					Comparis	on Resul	t	r	PMSD		
Untransformed	b .	C <> 1	-					97% pass	ed total dr	y weight-mg		15.28%		
Equal Variand	ce t Two-Sam	ple Test												
Control	vs Conc-	-%	Test	Stat	Critical	MSD DF	P-Type	P-Value	Decisio	n(α:5%)				
Ref 3	97		0.442	29	2.447	1.298 6	CDF	0.6733		nificant Effec	t			
Auxiliary Test	ts													
Attribute	Test					Test Stat	Critical	P-Value	Decisio	n(α:5%)				
Extreme Value	Extreme Value Grubbs Extreme Value Test						2.127	0.9054	No Outliers Detected					
ANOVA Table	1													
Source	Sum S	quares	Mean	n Squa	are	DF	F Stat	P-Value	Decisio	n(α:5%)				
etween	0.1104	5	0.110	45		1	0.1962	0.6733	Non-Sig	nificant Effec	:t			
Error	3.3777	5	0.562	958		6	_							
Total	3.4882					7								
Distributional	Tests													
Attribute	Test					Test Stat	Critical	P-Value	Decisio					
Variances		ce Ratio F T				3.542	47.47	0.3266	Equal Va					
Distribution	Shapiro	o-Wilk W No	ormality Te	st		0.8901	0.6451	0.2344	Normal I	Distribution				
Total Dry Wei	ght-mg Sumr	mary												
Conc-%	Code	Count	Mean			95% UCL		Min	Мах	Std Err	CV%	%Effect		
0	R3	4	8.497		7.006	9.989	8.605	7.46	9.32	0.4685	11.03%	0.00%		
		4	8.733		7.94	9.525	8.53	8.4	9.47	0.2489	5.70%	-2.77%		
97														
	ght-mg Detai													
Total Dry Weig	ght-mg Detai Code	Rep 1	Rep 2	2	Rep 3	Rep 4								
97 Total Dry Weig Conc-% 0			Rep 2 7.46		Rep 3 9.26	Rep 4 9.32								



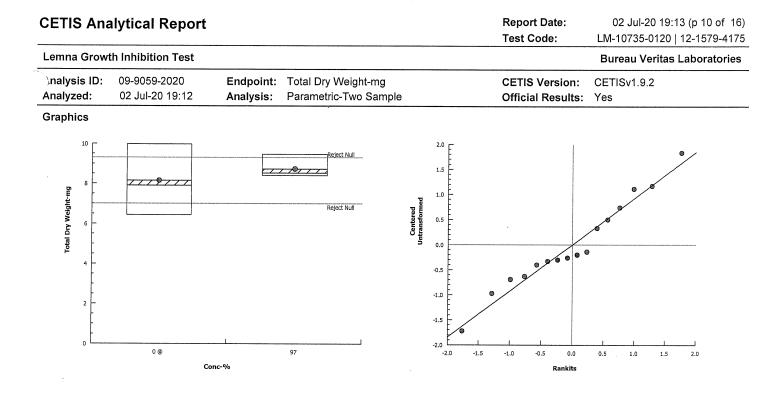


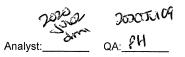


CETIS Analy					oort Date: st Code:		02 Jul-20 19:13 (p 9 of LM-10735-0120 12-1579-41				
Lemna Growth I	nhibition Test	t								·····	aboratories
•	9-9059-2020 2 Jul-20 19:12	Endpoi 2 Analysi		otal Dry Weig arametric-Tw	-			TIS Versio icial Resul		1.9,2	
Batch ID: 16	6-1531-7750	Test Ty	pe: L	emna Growth			Ana	alyst: N	I. Brassil		
Start Date: 12	2 Jun-20 15:01	Protoc	ol: E	C/EPS 1/RM/	37		Dilu	uent: A	PHA Media		
Ending Date: 19) Jun-20 15:22	Specie	s: Lo	emna minor			Bri	ne: N	ot Applicable		
Duration: 7d	l Oh	Source	: с	anadian Phyc	ological Cul	ture Centre	Age	; ;			
Sample ID: 00)-5473-3468	Code:	С	039804			Clie	ent: A	gnico Eagle I	<i>l</i> ines	
Sample Date: 06	3 Jun-20	Materia	I: V	/ater			Pro	ject: 2-	-11-0691		
Receipt Date: 11	Jun-20 08:20	Source	: A	gnico Eagle N	lines						
Sample Age: 6d	l 15h	Station	: M	IEL 02-05							
Comments: Ref1 is Mel-03-02	2. Ref2 is Mel-0	04-05. Ref3 is N	/lel-05-	-04.							
Data Transform		Alt Hyp					Compar	ison Resu	lt		PMSD
Untransformed								sed total d	ry weight-mg		14.13%
Equal Variance t	Two-Sample	Test				· · · · · · · · · · · · · · · · · · ·					
Conc-% vs	Conc-%		est Sta	t Critical	MSD DF	P-Type	P-Value	Decisio	on(α:5%)		
· pooled	97		08	2.145	1.152 14		0.2984		nificant Effect	:t	
Auxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decisio	on(α:5%)		
Extreme Value	Grubbs Ex	ktreme Value T	est		2.034	2.586	0.4800		iers Detected		
ANOVA Table											
Source	Sum Squa	res M	ean Sc	uare	DF	F Stat	P-Value	Decisio	n(α:5%)		
etween	1.0092		0092		1	1.166	0.2984		nificant Effect	t	
Error	12.1147	0.8	365336	6	14						
Total	13.1239				15	_					
Distributional Te	sts										
Attribute	Test				Test Stat	Critical	P-Value	Decisio	n(α:1%)		
Variances	Variance R	atio F Test		*****	4.17	43.52	0.2664	Equal V	ariances		
Distribution	Shapiro-Wi	lk W Normality	Test		0.9686	0.8408	0.8157	Normai	Distribution		
Total Dry Weight	-mg Summary	/									
Conc-%	Code	Count Me	ean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	@	12 8.1	152	7.507	8.798	7.9	6.43	9.98	0.2935	12.47%	0.00%
97		4 8.7	733	7.94	9.525	8.53	8.4	9.47	0.2489	5.70%	-7.11%
Total Dry Weight	-mg Detail										
Conc-%	Code	Rep 1 Re	p 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	@	7.95 7.4		9.26	9.32	7.85	7.18	8.65	9.98	8.48	7.75
		6.43 7.5	52								
97		8.47 9.4	17	8.4	8.59						



Analyst:__

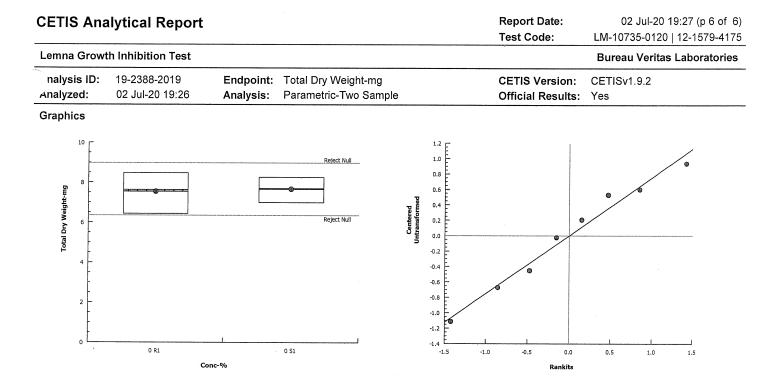




CETIS Analytical Report				-	ort Date: Code:		02 Jul-20 19:27 (p 5 of 6) LM-10735-0120 12-1579-4175				
Lemna Growth	Inhibition Te	est				- <u>y</u> eler= 11 14				·····	aboratories
•	19-2388-2019 02 Jul-20 19:2		ndpoint: nalysis:	Total Dry Weig Parametric-Tw				IS Versio cial Resul		1.9.2	
Batch ID: 1	6-1531-7750	Te	est Type:	Lemna Growth			Anal	yst: M	1. Brassil		
Start Date: 1	2 Jun-20 15:0		otocol:	EC/EPS 1/RM			Dilu	-	PHA Media		
Ending Date: 1	9 Jun-20 15:2	22 S I	pecies:	Lemna minor			Brin	e: N	lot Applicable		
Duration: 7	'd Oh	So	ource:	Canadian Phyo	cological Cu	lture Centre	Age:				
Sample ID: 0	0-5473-3468	Co	ode:	C039804			Clier	nt: A	gnico Eagle N	Vines	
Sample Date: 0	6 Jun-20	M	aterial:	Water			Proj	ect: 2-	-11-0691		
Receipt Date: 1	1 Jun-20 08:2	20 So	ource:	Agnico Eagle N	Vines						
Sample Age: 6	id 15h	St	ation:	MEL 02-05							
Comments: Ref1 is Mel-03-0	2 Ref2 is Mel	L04-05 Re	f3 is MeL(75.04							
Data Transform							Composio		14		DMCD
Untransformed		<u>Alt Hyp</u> C <> T					Comparis Ref 1 pass		It dry weight-mg	 1	PMSD 17.13%
Equal Variance	t Two-Sampl	le Test									
Control vs			Test S	Stat Critical	MSD DF	- P-Type	P-Value	Decisio	on(α:5%)		
Site Water Contr					1.312 6		0.8339		nificant Effect	······	
			0.219 [.]	2.447	1.312 0	CDF	0.0339	NUII-Sig	inincant Enec	Dt	
Auxiliary Tests			0.219		1.312 0		0.0339	N01-519	finicant Ellec	X	
Auxiliary Tests Attribute	Test		0.219		Test Stat		P-Value				
•	Test	Extreme Va		1 2.447				Decisio	nncant Erfected		
Attribute	Test	Extreme Va		1 2.447	Test Stat	Critical	P-Value	Decisio	on(α:5%)		
Attribute Extreme Value	Test		llue Test	Square	Test Stat	Critical	P-Value	Decisio No Outl	on(α:5%)		
Attribute Extreme Value ANOVA Table	Test Grubbs I	lares	llue Test	Square	Test Stat 1.588	Critical 2.127	P-Value 0.6914	Decisio No Outl Decisio	on(α:5%) iers Detected		
Attribute Extreme Value ANOVA Table Source	Test Grubbs I Sum Squ	lares	lue Test Mean	Square 5125	Test Stat 1.588 DF	Critical 2.127 F Stat	P-Value 0.6914 P-Value	Decisio No Outl Decisio	on(α:5%) iers Detected on(α:5%)		
Attribute Extreme Value ANOVA Table Source stween	Test Grubbs I Sum Squ 0.027612	lares	Ilue Test Mean 0.0276	Square 5125	Test Stat 1.588 DF 1	Critical 2.127 F Stat	P-Value 0.6914 P-Value	Decisio No Outl Decisio	on(α:5%) iers Detected on(α:5%)		
Attribute Extreme Value ANOVA Table Source Stween Error	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999	lares	Ilue Test Mean 0.0276	Square 5125	Test Stat 1.588 DF 1 6	Critical 2.127 F Stat	P-Value 0.6914 P-Value	Decisio No Outl Decisio	on(α:5%) iers Detected on(α:5%)		
Attribute Extreme Value ANOVA Table Source stween Error Total	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999	lares	Ilue Test Mean 0.0276	Square 5125	Test Stat 1.588 DF 1 6	Critical 2.127 F Stat 0.04799	P-Value 0.6914 P-Value	Decisio No Outl Decisio Non-Sig	on(α:5%) iers Detected on(α:5%)		
Attribute Extreme Value ANOVA Table Source 3tween Error Total Distributional Te	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999 ests Test	lares	Ilue Test Mean 0.0276 0.5753	Square 5125	Test Stat 1.588 DF 1 6 7	Critical 2.127 F Stat 0.04799	P-Value 0.6914 P-Value 0.8339	Decisio No Outl Decisio Non-Sig Decisio	on(α:5%) iers Detected on(α:5%) inificant Effec		
Attribute Extreme Value ANOVA Table Source stween Error Total Distributional Te Attribute	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999 ests Test Variance	Jares 5	Mean 0.0276 0.5753	Square 3125 396	Test Stat 1.588 DF 1 6 7 Test Stat	Critical 2.127 F Stat 0.04799 Critical	P-Value 0.6914 P-Value 0.8339 P-Value	Decisio No Outl Decisio Non-Sig Decisio Equal V	n(α:5%) iers Detected n(α:5%) nificant Effec n(α:1%)		
Attribute Extreme Value ANOVA Table Source stween Error Total Distributional Te Attribute Variances	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999 ests Test Variance Shapiro-V	Jares 5 Ratio F Tes Vilk W Norr	Mean 0.0276 0.5753	Square 3125 396	Test Stat 1.588 DF 1 6 7 Test Stat 1.672	Critical 2.127 F Stat 0.04799 Critical 47.47	P-Value 0.6914 P-Value 0.8339 P-Value 0.6833	Decisio No Outl Decisio Non-Sig Decisio Equal V	on(α:5%) iers Detected on(α:5%) unificant Effeco n(α:1%) ariances		
Attribute Extreme Value ANOVA Table Source 3tween Error Total Distributional Te Attribute Variances Distribution	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999 ests Test Variance Shapiro-V	Jares 5 Ratio F Tes Vilk W Norr	Mean 0.0276 0.5753	Square 3125 396	Test Stat 1.588 DF 1 6 7 Test Stat 1.672	Critical 2.127 F Stat 0.04799 Critical 47.47 0.6451	P-Value 0.6914 P-Value 0.8339 P-Value 0.6833	Decisio No Outl Decisio Non-Sig Decisio Equal V	on(α:5%) iers Detected on(α:5%) unificant Effeco n(α:1%) ariances		%Effect
Attribute Extreme Value ANOVA Table Source stween Error Total Distributional Te Attribute Variances Distribution Total Dry Weigh	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999 ests Test Variance Shapiro-V	Jares 5 Ratio F Tee Vilk W Norr	Mean 0.0276 0.5753	Square 3125 396	Test Stat 1.588 DF 1 6 7 Test Stat 1.672 0.9665	Critical 2.127 F Stat 0.04799 Critical 47.47 0.6451	P-Value 0.6914 P-Value 0.8339 P-Value 0.6833 0.8693	Decisio No Outl Decisio Non-Sig Decisio Equal V Normal	on(α:5%) iers Detected on(α:5%) unificant Effec n(α:1%) ariances Distribution	t	%Effect 0.00%
Attribute Extreme Value ANOVA Table Source stween Error Total Distributional Te Attribute Variances Distribution Total Dry Weigh Conc-%	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999 ests Test Variance Shapiro-V t-mg Summa Code	ares 5 Ratio F Tes Vilk W Norr Iry Count	Mean 0.0276 0.5753 st nality Tes Mean	Square 3125 396 .t .t	Test Stat 1.588 DF 1 6 7 Test Stat 1.672 0.9665 95% UCL	Critical 2.127 F Stat 0.04799 Critical 47.47 0.6451 Median	P-Value 0.6914 P-Value 0.8339 P-Value 0.6833 0.6833 0.8693 Min	Decisio No Outl Decisio Non-Sig Decisio Equal V Normal Max	on(α:5%) iers Detected on(α:5%) unificant Effect on(α:1%) ariances Distribution	t CV%	
Attribute Extreme Value ANOVA Table Source etween Error Total Distributional Te Attribute Variances Distribution Total Dry Weigh Conc-% 0	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999 ests Test Variance Shapiro-V t-mg Summa Code R1 S1	Ratio F Tes Vilk W Norr Count	Mean 0.0276 0.5753 st mality Tes <u>Mean</u> 7.545	Square 3125 396 .t .t 95% LCL 6.195	Test Stat 1.588 DF 1 6 7 Test Stat 1.672 0.9665 95% UCL 8.895	Critical 2.127 F Stat 0.04799 Critical 47.47 0.6451 Median 7.635	P-Value 0.6914 P-Value 0.8339 P-Value 0.6833 0.8693 Min 6.43	Decisio No Outl Decisio Non-Sig Decisio Equal V Normal Max 8.48	on(α:5%) iers Detected on(α:5%) unificant Effect on(α:1%) ariances Distribution Std Err 0.4243	t CV% 11.25%	0.00%
Attribute Extreme Value ANOVA Table Source stween Error Total Distributional Te Attribute Variances Distribution Total Dry Weigh Conc-% 0	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999 ests Test Variance Shapiro-V t-mg Summa Code R1 S1	Ratio F Tes Vilk W Norr Count	Mean 0.0276 0.5753 st mality Tes <u>Mean</u> 7.545	Square 3125 396 .t .t 95% LCL 6.195	Test Stat 1.588 DF 1 6 7 Test Stat 1.672 0.9665 95% UCL 8.895	Critical 2.127 F Stat 0.04799 Critical 47.47 0.6451 Median 7.635	P-Value 0.6914 P-Value 0.8339 P-Value 0.6833 0.8693 Min 6.43	Decisio No Outl Decisio Non-Sig Decisio Equal V Normal Max 8.48	on(α:5%) iers Detected on(α:5%) unificant Effect on(α:1%) ariances Distribution Std Err 0.4243	t CV% 11.25%	0.00%
Attribute Extreme Value ANOVA Table Source Stween Error Total Distributional Te Attribute Variances Distribution Total Dry Weigh Conc-% 0 0	Test Grubbs I Sum Squ 0.027612 3.45237 3.47999 ests Test Variance Shapiro-V t-mg Summa Code R1 S1 t-mg Detail	Iares 5 Ratio F Tee Vilk W Norr Iry Count 4 4	Mean 0.0276 0.5753 st nality Tes <u>Mean</u> 7.545 7.662	Square 3125 396 .t .t 95% LCL 6.195 6.618	Test Stat 1.588 DF 1 6 7 Test Stat 1.672 0.9665 95% UCL 8.895 8.707	Critical 2.127 F Stat 0.04799 Critical 47.47 0.6451 Median 7.635	P-Value 0.6914 P-Value 0.8339 P-Value 0.6833 0.8693 Min 6.43	Decisio No Outl Decisio Non-Sig Decisio Equal V Normal Max 8.48	on(α:5%) iers Detected on(α:5%) unificant Effect on(α:1%) ariances Distribution Std Err 0.4243	t CV% 11.25%	0.00%



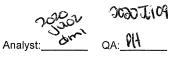


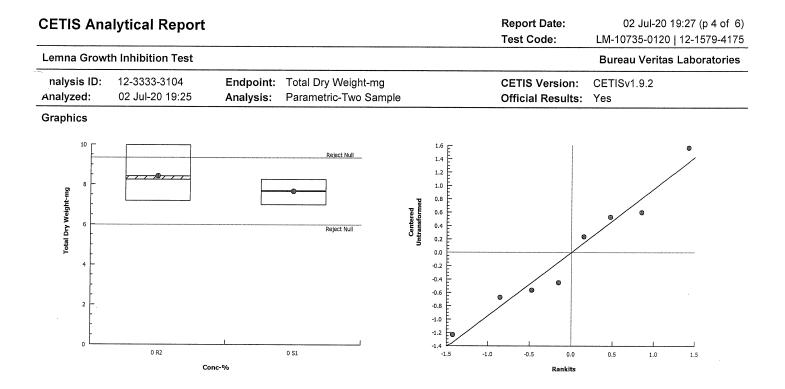


Analyst: _____ QA: [H

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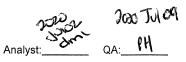
CETIS Analytical Report					ort Date: Code:		02 Jul-20 19:27 (p 3 of 6 LM-10735-0120 12-1579-4175					
Lemna Growth Ir	nhibition Tes	st									u Veritas L	
	2-3333-3104		ndpoint:		Dry Weig	-			IS Version		1.9.2	
Analyzed: 02	2 Jul-20 19:2	5 Ar	nalysis:	Paran	netric-Tw	o Sample		Offic	ial Result	s: Yes		
Batch ID: 16-	-1531-7750	Те	st Type:	Lemn	a Growth			Anal	yst: M.	Brassil		
Start Date: 12	Jun-20 15:01	l Pr	otocol:	EC/E	PS 1/RM/	/37		Dilue	ent: AP	PHA Media		
Ending Date: 19	Jun-20 15:22	2 Sp	ecies:	Lemn	a minor			Brine	e: No	t Applicable		
Duration: 7d	0h	Sc	ource:	Canad	dian Phyc	cological Cu	Iture Centre	Age:				
Sample ID: 00-	-5473-3468	Co	ode:	C0398	804			Clier	nt: Ag	nico Eagle N	lines	
Sample Date: 06	Jun-20	Ма	aterial:	Water	·			Proje	ect: 2-1	1-0691		
Receipt Date: 11	Jun-20 08:20) Sc	ource:	Agnic	o Eagle N	<i>l</i> ines						
Sample Age: 6d	15h	St	ation:	MELC	02-05							
Comments:												
Ref1 is Mel-03-02.	Ref2 is Mel-	04-05. Re	f3 is Mel-(05-04.								
Data Transform		Alt Hyp						Comparis	on Result			PMSD
Untransformed		C <> T						Ref 2 pass	sed total dr	y weight-mg		21.89%
Equal Variance t	Two-Sample	Test								······································		
Control vs	Control I	I	Test S	Stat C	Critical	MSD DF	P-Type	P-Value	Decisior	n(α:5%)		
Site Water Contr	Ref 2		1.098	2	447	1.678 6	CDF	0.3145	Non-Sigr	nificant Effec	t	
Auxiliary Tests						- /. 1						
Attribute	Test					Test Stat	Critical	D Value	Desisten	(F 0/)		
Extreme Value		xtreme Va	lue Test	manter, al		1.743	2.127	P-Value 0.4088	Decision No Outlie	ers Detected		
ANOVA Table												,
Source	Sum Squa	aree	Mean	Squar	0	DF	F Stat	P-Value	Desision	(~		
etween	1.13251		1.132			<u></u> 1	1.205	0.3145	Decision	ificant Effec	4	
Error	5.64117		0.940			6	1.205	0.3145	Non-Sign	inicant Enec	L	
Total	6.77369		0.040	100		7						
Distributional Tes	sts		M								······	
Attribute	Test					Test Stat	Critical	P-Value	Decision	(α:1%)		
Variances	Variance F	Ratio F Tes	st			3.365	47.47	0.3455	Equal Va			
Distribution	Shapiro-W	ilk W Norr	nality Tes	st		0.9591	0.6451	0.8013	•	istribution		
Total Dry Weight-	mg Summar	у										
Conc-%	Code	Count	Mean	9	5% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
)	R2	4	8.415	6.	.499	10.33	8.25	7.18	9.98	0.602	14.31%	0.00%
	S1	4	7.662	6.	.618	8.707	7.7	6.99	8.26	0.3282	8.57%	8.94%
)												
	mg Detail											
ներ Dry Weight-ւ	mg Detail Code	Rep 1	Rep 2	R	ер 3	Rep 4						
) Fotal Dry Weight-ı Conc-%	•	Rep 1 7.85	Rep 2 7.18		ep 3 65	Rep 4 9.98						

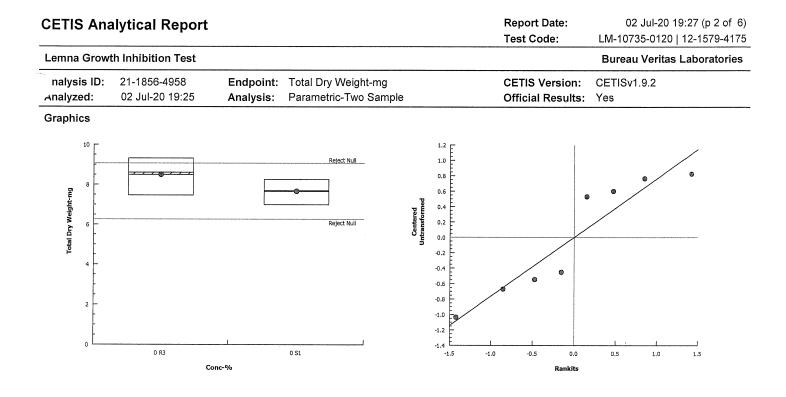




Analyst: _____ QA:__PH___

CETIS Analyt	ical Repo	ort					-	ort Date: Code:			27 (p 1 of 2-1579-417
Lemna Growth In	hibition Test	:							Bureau	ı Veritas L	aboratorie
	-1856-4958 2 Jul-20 19:25	Endpo Analys		tal Dry Weig rametric-Tw	-			IS Version		1.9.2	
Batch ID: 16-	1531-7750	Test T	/pe: Lei	nna Growth			Ana	yst: M.	Brassil		
Start Date: 12	Jun-20 15:01	Protoc	ol: EC	/EPS 1/RM/	37		Dilu	ent: AP	HA Media		
Ending Date: 19	Jun-20 15:22	Specie	s: Ler	mna minor			Brin	e: No	t Applicable		
Duration: 7d	0h	Source	e: Ca	nadian Phyc	ological Cul	ture Centre	Age	1			
Sample ID: 00-	5473-3468	Code:	CO	39804			Clie	nt: Ag	nico Eagle N	lines	
Sample Date: 06	Jun-20	Materia	al: Wa	ater			Proj	ect: 2-1	1-0691		
Receipt Date: 11	Jun-20 08:20	Source	e: Ag	nico Eagle N	lines		•				
Sample Age: 6d	15h	Statior	-	L 02-05							
Comments: Ref1 is Mel-03-02.	Ref2 is Mel-0	04-05. Ref3 is	Mel-05-0	4.							
Data Transform		Alt Hyp			1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -		Comparis	son Result			PMSD
Untransformed		C <> T					Ref 3 pas	sed total dr	y weight-mg		18.27%
Equal Variance t ⁻	Two-Sample	Test									
Control vs	Control II	т	est Stat	Critical	MSD DF	P-Type	P-Value	Decision	ı(α:5%)		
Site Water Contr	Ref 3	1	.46	2.447	1.4 6	CDF	0.1946		ificant Effec	t	
Auxiliary Tests											
Attribute	Test				Test Stat	Critical	P-Value	Decision	(a:5%)		
Extreme Value	Grubbs Ex	treme Value 1	fest		1.385	2.127	1.0000		rs Detected		
ANOVA Table	to alle to day contracts of the start of t					- Million A					
Source	Sum Squa	res M	lean Squ	iare	DF	F Stat	P-Value	Decision	(α:5%)		
etween	1.39445	1.	39445		1	2.131	0.1946	Non-Sign	ificant Effect	t	
Error	3.92635	0.	654392		6	_					
Total	5.3208				7	_					
Distributional Tes	ts										
Attribute	Test				Test Stat	Critical	P-Value	Decision	(α:1%)		
Variances	Variance Ra	atio F Test			2.038	47.47	0.5735	Equal Va	riances		
Distribution	Shapiro-Wil	lk W Normality	/ Test		0.8577	0.6451	0.1140	Normal D	istribution		
Total Dry Weight-ı	mg Summary	/									
Conc-%		· · · · · · · · · · · · · · · · · · ·	ean	95% LCL			Min	Max	Std Err	CV%	%Effect
0		4 8.	497	7.006	9.989	8.605	7.46	9.32	0.4685	11.03%	0.00%
0	S1	4 7.	662	6.618	8.707	7.7	6.99	8.26	0.3282	8.57%	9.83%
Γotal Dry Weight-r	ng Detail										
Conc-%	Code	Rep 1 R	ep 2	Rep 3	Rep 4						
)	R3	7.95 7.	46	9.26	9.32						
J	S1	1.00 1.		0.20	0.01						





Lemna minor Growth Inhibition Test Data

BUREAU VERITAS LABORATORIES BBY2FCD-00330/5 ata Tab: Weights, Page 1 of 1

Golder Associates Ltd. Client Name: (Agnico) Job# / Sample #: C039804 Sample ID: Various Oven Temp (°C): 60 Weighing Dates: 2020 Jun 17 2020 Jun 22 Drying Time (h): >24 Analyst(s): NS YS Balance ID: bby2-0260 Conc. & Final # Boat Wt. Boat & Frond Dry Weight Mean Dry Weight % Boat # SD Replicate of Fronds (g) Dry Weight (g) per Rep. (mg) per Conc (mg) Stimulation Control-A 432 67 0.78390 0.79073 6.83 6.95 0.19 ---433 В 73 0.80892 0.81579 6.87 434 С 66 0.80701 0.81387 6.86 435 D 0.80104 76 0.80827 7.23 436 78 Site Control-A 0.80316 0.81015 6.99 7.66 0.66 10.29 437 В 83 0.80249 0.81068 8.19 С 438 81 0.80605 0.81431 8.26 439 D 76 0.79264 0.79985 7.21 440 Soft Water Ctrl-A 73 0.81297 0.82065 7.68 7.92 0.97 13.93 441 В 69 0.81633 0.82319 6.86 442 С 88 0.81984 0.82777 7.93 443 D 95 0.81678 0.82597 9.19 444 MEL-02-05 97.0-A 103 0.80030 0.80877 8.47 8.73 0.50 25.69 445 В 96 0.80120 0.81067 9.47 446 С 80 0.80291 0.81131 8.40 447 D 89 0.80124 0.80983 8.59 448 MEL-03-02 97.0-A 90 0.78696 0.79544 8.48 7.55 0.85 8.60 449 В 76 0.77420 0.78195 7.75 450 С 68 0.78711 0.79354 6.43 451 D 81 0.82981 0.83733 7.52 452 MEL-04-05 97.0-A 0.80185 77 0.80970 7.85 8.42 1.20 21.12 453 В 71 0.81271 0.81989 7.18 454 С 94 0.79491 0.80356 8.65 455 D 95 0.79198 0.80196 9.98 456 MEL-05-04 97.0-A 76 0.77873 0.78668 7.95 8.50 0.94 22.31 457 В 73 0.77861 0.78607 7.46 458 С 87 0.76705 0.77631 9.26 459 D 88 0.80609 0.81541 9.32 460 QA/QC N/A 0.79519 0.79521 0.02 --461 QA/QC N/A 0.78767 0.78762 -0.05 --432 0-A 67 0.78388 0.79085 6.97 ---MB Analyst NS YS

N/S - No growth stimulation (dry weight) compared to the Control

Tab: Observations, Page 1 of 1

Lemna minor Growth InhibitionTest Data

	Cl	ent Name	Name: Golder Associates Ltd. (Agnice) Start Date: June							2020	
	5	Sample ID	: <u> </u>	ivous		,			June 19, 2		
	Sa	mple Date	:20	20 Sum	ob a		Job#	/ Sample #	COS	2804	
		Analyst(s)	N.She	rgill	inkra	551			Cpzr		
	pH of raw sample pH after addition of APHA stocks A, B, & C Pre-aeration time pH after addition of APHA 07.9 38.0 07.1 07.8 20min 07.8 38.0 07.1 07.8 20min 07.8 38.0 07.1 07.8 37.8 APHA Stocks Prep Date: 100 POT 100 POT 100 POT Thermometer ID: 0.942 - 0436 Plant Shelf #: 3 Test Volume (mL):							28,2 41,9			
	Thermo	ometer ID:	BBYZ	-0438	<u>S</u> Pla	ant Shelf #:	3	_ Test Vo	lume (mL):	15	$\overline{\mathcal{O}}$
				$c \neq cc$				_	. ,		<u> </u>
	Concentration	1			Temperati	ure Monitor	ina			pH Ma	n it e nin e
	(%)	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7		nitoring
	Control	24	27	<u>อนุว</u>	26	26	26	26	27	Day 0 8.3	Day 7 8 . 9
	Site Control	24	27	27	26	26	26	26	27	83	8.6
	Soft Water Control	24	27	21	27	26	D6	26	21	8.3	8.7
D	MEL-02-05 97.0		27	27	- 2n	26	26	26	27	7.9	8.9
Ö	MEL-03-02 97.0	0~	27	27	อา	26	26	26	75	8.2	9.2
Ĭ	MEL-04-05 97.0	00	21	_م 7	26	26	26	16	27	7.9	9.2
Ð	MEL-05-04 97.0	0	27	٦L	ən	26	26	26	27	7.9	9,1
	Analyst	uß	WB	NX.	PH	UB	uß	uß	NB	WB	uB
	Date	2020 JUNIZ	2020 Jurol	FILLED C	2010 Junels	Jarrell	June 17	Jose	2020 June19	2.020 Jure 12	2020
	Observations du	iring the ⁻									<u>. 210 1 69 U</u>
	2	Date:	June 12,	2020					Analyst:	usp	assil
	Day 0 (Test Initiation)	Plant Obs	t of Plants per Test Vessel: 2 Plant Observations: Dark open hat thy Test Seeded @: 15:01 Other comments: Ma								
-		Date:	June 13,	2020		No			Analyst:	1	Drakel/
	Day 1	Observat	ions:		Site Control	Soft Water Control DG , H	MEL-02-05 97.0%	MEL-03-02 97.0%	MEL-04-05 97.0%	MEL-05-04 97.0%	<u>nsr 4 JV (</u>
_	`	Other Cor	-	AUS	olins	appea	ur cla	er f	Culoda	(055	

ECOTOXICOLOGY

BUREAU VERITAS LABORATORIES

BBY2FCD-00330/5

Tab: Observations, Page 1 of 1

		Lemna n	ninor Gro	owth Inhi	bitionTes	t Data	6	pueroro wint
	4 SAMPL	ĒS			Job#	/ Sample #	t Ces C	2032804
	Date: June 14	, 2020		_			Analyst:	NShergell
Day 2	Observations:	Control	Site Control	Soft Water Control	MEL-02-05 97.0%	MEL-03-02 97.0%	MEL-04-05 97.0%	MEL-05-04 97.0%
Day 2	Other Comments	DGH	DGH	DGH	DGH	DGH	DG H	0GH
	Date: June 15	, 2020					Analyst:	P. Haves
Day 3	Observations:	Control	Site Control	- Soft Water Control	MEL-02-05 97.0%	MEL-03-02 97.0%	MEL-04-05 97.0%	MEL-05-04 97.0%
Day 5	Other Comments:	DGIH	ant	DEILT	DGilt	D6-, H	OGH	DEILT
	Date: June 16						Analist	
	Observations:	Control	Site Control	Soft Water Control	MEL-02-05 97.0%	MEL-03-02 97.0%	MEL-04-05 97.0%	MEL-05-04 97.0%
Day 4	Other Comments:	DK, H	DG, H	DG, H	DG, H	DG,H	D6, H	D6,H
	Date: <u>June 17,</u>	2020					Analyst:	Wordssil
Day 5	Observations:		Site Control	Control	97.0%	97.0%	97.0%	97.0%
	Other Comments:	- 10	Uns a	D		Oa, H er f	10(our	655.
	Date: June 18,	2020		•			Analyst:	whas
Day 6	Observations:		Site Control	Soft Water Control	97.0%	MEL-03-02 97.0%	MEL-04-05 97.0%	MEL-05-04 97.0%
	Other Comments:		DE H	DE,H	DG, H	DG, H	D&,H	DG, H
	Date: <u>June 19,</u> Test End Time:	2020 15:	7.1				Analyst:	ubrass
Day 7	Observations:	Control	Site Control	Soft Water Control	97.0%	MEL-03-02 97.0%	MEL-04-05 97.0%	MEL-05-04 97.0%
	Other Comments:	b(r,t) N(q)	<u> </u>	DG,H	D&, H	84,H	06, H	D&,f)
end:	DG = Dark Green	· · · · · · · · · · · · · · · · · · ·	C = Chloro	sis	A = Green	Algae	CD = Colon	y destroyed
	LG = Light Green H = Healthy, Norma		N = Necros G = Gibbos	sis	T = Transp S = small fr	arent	RD = Roots	
	Other :			Sity	u – small ff	onus		

ECOTOXICOLOGY

BUREAU VERITAS LABORATORIES BBY2FCD-00330/5 Tab: Frond Counts, Page 1 of 1

Lemna minor Growth InhibitionTest Data

Client Name: Golder Associates Ltd. (Agaico)

Sample ID: <u>voctoo5</u> Analyst(s): Nor OSAL Job# / Sample #: Cosaso4

Start Date: June 12, 2020

End Date: June 19, 2020

Conc. &	Initial Number	Final Number	Frond	Mean Increase in #	SD	%
Replicate	of Fronds	of Fronds	Increase	Fronds per Conc'n		Stimulation
Control-A	6	67				
В	6	73				
C	6	66.				
D	6	76				
Site Control-A	6	78				N/S
В	6	83				
С	6	8				
D	6	76				
Soft Water Ctrl-A	6	.73				N/S
В	6	69 88				
C	6	88				
D	6	95				
MEL-02-05 97.0-A	6	03				N/S
В	6	96				
С	6	80				
D	6	89				
MEL-03-02 97.0-A	6	90'				N/S
В	6	,76	·			
C	6	68		ne en al la capacita en apparation de la capacita de la précision de précision de la capacita de la capacita d		
D	6	8				
MEL-04-05 97.0-A	6	77				N/S
В	6	7.1				
С	6	94				
D	6	95				
MEL-05-04 97.0-A	6	76				N/S
В	6	73				
С	6	81				
D	6	88				
Analyst		UB				

N/S - No growth stimulation (frond increase) compared to the Control

Control Validity Criteria: Mean final # of fronds in Controls on day 7 must be ≥8 times initial # of fronds

Mean Final # of Fronds on Day 7	#DIV/0!
Control Frond Increase	#DIV/0!
Validity Criteria Met?	#DIV/0!

Randomization Chart

BUREAU VERITAS LABORATORIES BBY2FCD-00438/3 Tab: Lemna minor; Pg: 1 of 1

Client Name: G	older (Aci	(min		Test Date: <u>20</u>)20 Jun 12	_	
Sample Name:				Shelf #:	3	-	
Back Wall			Position Map				
5	10	15	20	25	30	35	40
4	9	14	19	24	29	34	39
3	8	13	18	23	28	33	38
2	7	12	17	22	27	32	37
1	6	11	16	21	26	31	36

Front of Counter

Position #	Treatment	Replicate	Colour		
1		А			
21		В			
31	Control	С	Red		
4		D			
17		Measure			
14		А			
24		В			
28	Site Control	С	White		
30		D			
35		Measure			
26		А			
8	0.6111	В			
32	Soft Water Control	С	Orange		
13	Control	D			
27		Measure			
12		А			
22		В			
34	MEL-02-05	С	Yellow		
3		D			
11		Measure			
9		A			
29		В			
6	MEL-03-02	С	FI. Green		
10		D			
7		Meas.			
25		А			
16		В			
23	MEL-04-05	С	Teal		
19		D			
15		Measure			
20		А			
5		В			
2	MEL-05-04	С	Blue		
33		D			
18		Measure			

Modified APHA Medium Preparation Sheet (Lemna minor)

APHA Medium is the test medium recommended for testing samples of effluent, leachate, or receiving water, using L. minor.

To prepare 1L of APHA test medium, the following are added to 970 mL of Type 1 deionized water. The medium is aerated vigorously for at least 2 hours. If larger volume (>4 L) of media is prepared, overnight aeration of the medium is recommended to stabilize the pH of the medium. Immediately before testing, the pH of the test medium is adjusted to 8.3+/-0.1 using 1N NaOH or 1N HCl).

Volume Prepared (L):	20 🤸	(2 carboys = 40L)
Date of Preparation:	2020Jon 10	<u>`</u>
Date of Use:	11 put and	(ADHA TENST) ES (TENST AHAA)
Analyst:	Neveroreo	

Stock Solution	Date of Preparation	Nominal Amount (mL)	Actual Amount (mL)	Pipette
Stock Solution A	202066024	200	200	$\widehat{\mathbb{A}}$
Stock Solution B	2020 Febrau	200	200 C	A
Stock Solution C	2020 8-024	200	200	Â

	Ð	Sed grad. G	flinder
Volume of media	Theoretical	Actual	
prepared	aeration time	aeration time	Υ. Υ
1-4 L	At least 2 hours	ALA	
>4 L	Overnight	\checkmark	

Initial pH	8.2
Final pH	nja

[8.3+/-0.1]

Normality of NaOH:		[0.5 N]
Volume of NaOH:	nig	
Normality of HCI:	2020	[0.5 N]
Volume of HCI:	June 1	

Modified APHA Medium Preparation Sheet (Lemna minor)

APHA Medium is the test medium recommended for testing samples of effluent, leachate, or receiving water, using *L. minor.*

To prepare 1L of APHA test medium, the following are added to 970 mL of Type 1 deionized water. The medium is aerated vigorously for at least 2 hours. If larger volume (>4 L) of media is prepared, overnight aeration of the medium is recommended to stabilize the pH of the medium. Immediately before testing, the pH of the test medium is adjusted to 8.3+/-0.1 using 1N NaOH or 1N HCl).

Volume Prepared (L):	20	0.1 *
Date of Preparation:	2020 Jun 1	vers うろうし
Date of Use:	2020 JUN 12	
Analyst:	NStorgoo	

Stock Solution	Date of Preparation	Nominal Amount (mL)	Actual Amount (mL)	Pipette
Stock Solution A	220 8634	200	200	A
Stock Solution B	2020 Robard	200	200	(\mathcal{A})
Stock Solution C	2020 8-6-02	200	200	$\tilde{\mathbb{A}}$

@we tot used grad. cyclinder. NS 2020 Junio

Volume of media	Theoretical	Actual
prepared	aeration time	aeration time
		na
1-4 L	At least 2 hours	
>4 L	Overnight	6

Initial pH	8.2
Final pH	n19

[8.3+/-0.1]

Normality of NaOH:		[0.5 N]
Volume of NaOH:	R19	
Normality of HCI:	2020	[0.5 N]
Volume of HCI:	K Jake //	

ECOTOXICOLOGY	<i>Lemna minor</i> Culturing Plant Subculture and Acclimation for Tests	BUREAU VERITAS LABORATORIES BBY2FCD-00331/4 Tab: Subculture, Page 1 of 1
and a second		and the second
Stock Culture Information Parent Culture ID: <u>CP 2005 2</u> (ິ ວິCulture flask #'s	s: <u>1-6</u>
Appearance of culture and media prior to		appear dark Instans clear
fectourtess.	ight brown	44
WF UB 2020 Jun	<u>ともん</u> Analys	t: UPrassil
Test Subculture and Health Monitoring (7 - 10	0 days prior to testing)	
Date of Transfer: 2020 JM		: CP 200602 SC
# of Flasks Prepared: $6 + 500$		$\sim 20 \text{ cml}$
# of Plants/Flask:	Shelf Location	t: Whassi
Hoagland's Batch: 2020 Mar		
Health Monitoring Cups	Eug 2020 June 02	ONHA DAMA DA
Date prepared: <u>2010</u>		APHA 2020 May 26
# replicates:	Shelf #	Denniel
# Fronds seeded/rep:	Analys	
Day 7 Counts Rep A Rep B	Rep C Mean Date	Analyst
38 38	39 38,3 2020	June 09 Usnergell:
(Health cup validity:	Mean of ≥24 fronds on day 7, wi	hen 3 fronds/rep are seeded on day 0)
APHA Acclimation (18-24 hrs prior to testing)	for (date): 2020 June 12	etup
Date & Time of Transfer: 2020 June 1	16:05 Subculture ID: CP	200602SC Shelf Location: 4
Appearance of plants and Hoagland's E+ media Plants appear do	prior to transfer to APHA media	
appears 'light bro	own & clear.	,
Number of crystallization dishes prepared		ture flasks ()
APHA Batch: 2020 Jau	LO Analys	t Utsnasal
APHA Acclimation (18-24 hrs prior to testing)) for (date): s	etup
Date & Time of Transfer:	Subculture ID:	Shelf Location:
Appearance of plants and Hoagland's E+ media		с
	<u> </u>	
	Sy	A OK
Number of crystallization dishes prepared		and the second se
APHA Batch:	Analys	

BUREAU VERITAS LABORATORIES BBY2FCD-00008/3

Page 1 of 1

ECOTOXICOLOGY LABORATORY LIGHT LEVELS

Light Meter ID:	<u> </u>
Light Fixture Correction Factor: Actual Levels X $1/2$ = Corrected Levels Mercury - (reading x 1.05) Fluorescent - (reading x 0.91) Daylight - (reading x 0.91)	ina x
-0.95)	
Test Method: Lewind Minor 7 Day Growth Inhibition To	30
Required Light Levels and Units: 64-90 Mol /m ² /sec	
Date: 2020 June 12 Analyst: Analyst:	
Site of Measurement Actual Levels Corrected Levels	
Shelf#1 left back 82	-
left front \$3	
mid, back 8	
Unid. front 84	
right back 77 / NIG	
rightivent \$1 we	
Shalf#3 left back 74 /2020	
left front \$4 (Sone)2	
mied back 88	
mid front 88	
right back \$	
wight front 77	
Shelf #6 left back 91	
left front 83	
mid. back 85 Mid front 80	
mid formt 80	
rightback 83	
kightfront 73	

BUREAU VERITAS LABORATORIES

ECOTOXICOLOGY

^{*} BBY2FCD-00069/3

Tab: CaSO4; Page 1 of 1

FATHEAD MINNOW WATER HARDNESS ADJUSTMENT

BATCH ID :

JUN (Date Hardened)

(For water hardness 100-140 mg/L)

		Enter Numbers Here	
Volume o	fWater (L)	200	
Desired H	lardness (mg/L)	130	

Keep this set to a desired hardness of 130, so water will always be on the harder side, as fathead minnows are cultured in water at a hardness of **103-142** mg/L CaCO₃

Chemical Weights	MgSO₄ (g)	CaSO₄ (g)	NaHCO₃ (g)	KCl (g)
Brand	Fisher	Alfa Aesar	Fisher	Fisher
Lot #	183674	Q09E068	189522	195613
Calculated	19.5000	15.3400	31.2000	1.3000
Actual	19.4994	15.3401	31.1999	1.3003
Balance: BB12-021	20			
Analyst: M. Thom				
Date: 2020 JU	1			
Water Quality:				
Temp (°C): <u>24, 2</u> pH:	8.1	Hardn	ess (mg/L CaCO ₃):	136
DO (mg/L): 7.4				
Conductivity (µS/cm):	56	Instrument ID:	BB42-0366	
Analyst: MHamau		Date:	2020Jun10	
Comments: MA				
		×		
Note: Hardness = Ca and Mg as		· · · · · · · · · · · · · · · · · · ·		
The Hardness = Ca and Mg as	sing/L CaCO3			

tor lemma softwater ctrl diluted ISL FHM water with DI water to a total of 5L. Hardness NYOng/L. Spiked 5L softwater ctrl with som of each APHAStock A BIGHT

	Moderately hard water	6	60	60	7	0	0				•
A.	Amount of salt (mg) in 1L of water	26	0	1	2	8	23	12	CITTRA CITTRA	Difference from target	
Molar Mass Sa		NaHCO3	CaSO4*2H2O	MgSO4	KCI	CaCO3	CaCI*2H2O	NaCl	1	(max)	
60.01		18.54802663	C.				UCLZCKCZC O		18.54802663	-19 Ab	
35.45			0		2.377598927		7.307968092	7.26558497	16.95115199	-1.8	- 1 - 1
- 24.30				1.413260219					0 1.413260219	0.0 -0.3	
39.10		7 139800385			2:622401073			4 73441503	2.622401073 11 87421532	<u>1.5</u> 2 3	
90.96		007000/01/1	0	5.586739781					5.586739781	0.6	
18.02			0				60/060777		69/ 565677.1	#VALUE!	
1.01		0.312173086							0.312173086	#VALUE!	
Fr cu)	Total check (mg/L) 26 g/200L Actual wtcg) 5.2004	26 5.2 5.2004	0.0	7 1.4 1.4004	4 1.0 1.4004 1.0004	0.0	23 4.6 4.6	2.4 2.4 2.4003			 1
- CA CA	Balance : BBY2-0760	0900-6	-						Ç		#t*
Å	Ho prile							·			
	ANNAU	1	* Spiked	iked	Lemna	~	NaH CO3	S	Ĩ	Fisher	189531
0	Date: 2000 June	Imen	Forth	hoth	sunthatic water	l	. N	\cap	L	Fisher	183674
						Ľ	5000	5	.	(
j	۰ . ۰ . ۰ . ۰ . ۰ .		HIM	NH V	WITH APAH SPOC	J J J	C K			Fisher	110,025
un	JUNTHETIC WRITER (WG)	(M(G))	AR	ARC. /	/ 150ml of	J.		معر			
Conduction	Conductivity= 126.0 ws/cm	/cm	and a	1 MAC	add into 15L of	4 J		Carling Hal		Fisher	171430
FI'T Tempor			SVN	thetic	svatuetic water)		
				Ĩ		ר •				FUSher	1929 N
Do C	DO C 1/02/01 - 010								(
Hardn	Hardness: 32 mill Laws	Ĵ. G.	ADHA Shorks	Forly	A - Rep 2010 Feb y) DOTO FC	heg	า 1	he day	heomoene day	
• k **						DODOFER	and her	when we accouncil	Nonuco		

3-11-30003 Synthetic Water FHM + Lemna

بالم مسلم الم



golder.com