# Appendix A

# Till Release Incident Report – April 2013

# Mount Polley Mining Corporation

## Environmental Incident Report

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| **Date of Incident:** Night of April 6, 2013 | **Incident Reported:** ~14:00 April 7, 2013 |
| **Incident:** Release of till into and adjacent to Mine Drainage Creek (DIGR# 130090) | |
| **Department:** Environmental | **Supervisor:** Art Frye |

| **DESCRIPTION OF INCIDENT:** | |
|---|---|
| **Sunday April 7, 2013** | |
| **04:45** | At the Mount Polley Mining Corporation (MPMC) mine site, due to heavy rain over the previous 48 hour, waste rock was being placed along the Waste Haul Road (WHR) berm to soak up accumulated water under the direction of was cleaning the toe of the Waste Haul Road berm with the 6712 bulldozer, preparing material to the loaded out when the outside of the berm sloughed off, releasing water and mud. The mud and water combined with till that had previously been spread on the outer slope of the WHR. The material accumulated at the toe of the WHR and traveled down an old forestry road approximately 200 m towards Mine Drainage Creek.<br><br>The berm was inspected and rebuilt. completed an incident report. |
| **12:30** | A haul truck driver noticed a hole in the WHR berm and notified the day . Upon inspection of the berm discovered that there was a hole in the berm, where the slough occurred the previous evening was not aware of the incident). He noted that the material had reached and entered the creek previously, but that till was no longer entering the creek.<br><br>*Note: Mine Drainage Creek is unclassified (i.e. it is unknown if it is a fish-bearing stream); however, fish have never been noted in the stream by MPMC staff to date.* |
| **12:45** | organized equipment to fill the hole in the berm and the eroded path down the side of the road with waste rock. |
| **13:00** | notified the MPMC Environmental Department, and Environmental Technologist completed an initial inspection of the incident. Refer to Figures 1 for an overview map and Figures 2 – 4. Turbidity above typical freshet levels was not observed. |
| **13:42** | emailed to request more information on the incident. |
| **14:00** | notified Mine Operations Manager and Environmental Technologis The incident was reported to the BC Provincial Emergency Program. drafted a brief incident report/notification to send to the Ministry of Environment (MOE). |
| **14:30 – 16:45** | and Environmental Technician installed sediment fence adjacent to the creek to prevent more till from flowing in and spread straw on exposed mud areas beside the creek to help filter water and minimize surface erosion of the till surface. |

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| **17:00** | obtained access to the fax machine, but due to technical difficulties was unable to fax the notification to MOE. |
| **18:41** | emailed to request additional inspections of the incident site throughout the night. |
| **19:00 – 06:30 (Apr. 8)** | inspected the incident site a couple of times during the night and noted no additional mud entering the creek. Weather cooled to -5 °C keeping conditions stable. |
| **Monday April 8, 2013** | |
| **06:45** | faxed notification to MOE. |
| **07:45** | inspected the site with Mining Engineer to consider options for ensuring long-term protection of the creek and riparian area. A loading of approximately three cubic metres of till were estimated to have entered Mine Drainage Creek. |
| **08:01** | notified of a phone message from Ministry of Energy, Mines and Natural Gas (MEMNG) |
| **08:45** | listened to a phone message from Dale Bull, MOE Environmental Emergency Response Officer. returned his call and left a message. |
| **08:50** | called and provided additional information on the incident. emailed photos of the incident to |
| **09:48** | received an email from Jennifer McConnachie (JM), MMENG Inspector of Mines (Reclamation) requesting a complete incident report (to MOE, MEMNG, and Environment Canada (EC)), including a plan to prevent this incident from happening in the future. A copy of the site Emergency Response Plan was also requested. |
| **13:00** | and walked to the mouth of Mine Drainage Creek at Bootjack Lake. There was evidence of minor deposition, although it is unknown how much sediment was built up in depositional locations of the creek prior to the incident (Figures 5 and 6). It was observed that water overflowed bank full levels at one location (Figure 7). No major morphological changes to the creek were noted. |
| **13:20** | and took samples at W3a (Mine Drainage Creek before it enters Bootjack Lake). The full suite of parameters will be analyzed. Turbidity above typical freshet levels was not observed. |
| **13:45** | and installed additional sediment fence at the mud/creek interface and laid more straw on exposed till surfaces. and created water diversions causing water previously running down the mud flow path to be diverted into the environment so it is filtered prior to entering the creek or infiltrating into the ground. Refer to Figures 8 and 9. |
| **Tuesday April 9, 2013** | |
| **PLANNED** | and Environmental Technician to improve water diversion structures, and install check dams in the old forestry road ditch to slow water flowing into the creek and promote settling of any suspended solids.<br><br>and to sample water flowing into creek (in road ditch and over flow path) and till to characterize all materials involved in the incident. |

| **SUMMARY OF INCIDENT:** |
|---|
| A mud and till slough down the side of the Waste Haul Road flowed down an old forestry road and into Mine Drainage Creek (a tributary to Bootjack Lake), releasing approximately three cubic meters of till into the creek.<br><br>This incident is classified as a “deposit out of the normal course of events” under the Environment Canada Metal Mining Effluent Regulations, as well as the BC Environmental Management Act Spill Reporting Regulation (Item 24). |

| **ROOT CAUSES OF INCIDENT:** |
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| A large accumulation of water and mud on the WHR due to a lack of road gradient. |
| Inadequate systems for removing water and mud from the WHR. |
| The berm of the WHR has become incompetent from road mud and crush being pushed into and over the berm. |
| Till was applied on the steep slope over the side of the WHR. |

| **INTERM MEASURES:** | |
|---|---|
| **Measure** | **Timeline** |
| Sediment Fence | Complete (install additional fence as necessary) |
| Straw | Complete (spread additional straw as necessary) |
| Water diversions | To complete April 9, 2013 (maintain existing diversions and create new diversions as necessary) |
| Check dams | To complete April 9, 2013 (maintain existing dams and create new dams as necessary) |
| Regular inspections | Ongoing (the incident site will be inspected daily during the 2013 runoff season until conditions are stable) |

| **LONG-TERM MITIGATION MEASURES:** | |
|---|---|
| **Measure** | **Timeline** |
| Order and install signage on the WHR berm above the Mine Drainage Creek catchment area to ensure operators are aware of the watercourse and use appropriate procedures when working in the area. | To complete by May 2013 |
| Do not apply any more till over the edge of the WHR above the Mine Drainage Creek catchment area. | N/A |
| Create a rock berm on the SE side of Mine Drainage Creek to protect it from any future till flows (an access road provides a barrier on the NW side of the creek) | To complete by November 2013 |

| | |
|---|---|
| *Note: this cannot be done until conditions are dry and safe access for equipment can be created.* | |
| Re-vegetate the till flow path and till areas on the WHR slope with a native grass/forbes seed mix to prevent erosion. | To complete by July 2013 |
| Plant willows, shrubs, or other vegetation with deeper rooting depths on the till flow path (and on the WHR slopes as accessible). | To start in 2013 |
| Create small rock filled sumps along the WHR berm with adjacent rock drains down the side of the road (away from the Mine Drainage Creek catchment area) to promote percolation of water into the road surface and facilitate controlled water release. | To complete by May 2013 |
| Develop a plan to create a permanent water management system for the WHR. This may include raising the road surface to create a grade so that water may flow into exfiltration sumps. | Plan to be developed in 2013 (with actions completed as possible) |
| Complete regular inspections of the site:<br>• Daily to weekly during freshet (depending on runoff conditions).<br>• During heavy precipitation or runoff events.<br>• In fall prior to freezing conditions and snow cover. | Ongoing |

**Signature of Area Supervisor:** _____

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**Copies:**
Stephanie Huska, Environmental Protection Officer, MOE
Doug Hill, Environmental Protection Section Head, MOE
Dale Bull, Environmental Emergency Response Officer, MOE
Jennifer McConnachie, Inspector of Mines (Reclamation), MEMNG
Cheryl Pocklington, Inspector of Mine Ergonomics, MEMNG
Janice Boyd, Program Scientist, Compliance Promotion and Environmental Effects Monitoring, EC
Art Frye, Mine Operations Manager and Acting Environmental Superintendent, MPMC
Tim Fisch, General Manager, MPMC

## FIGURES

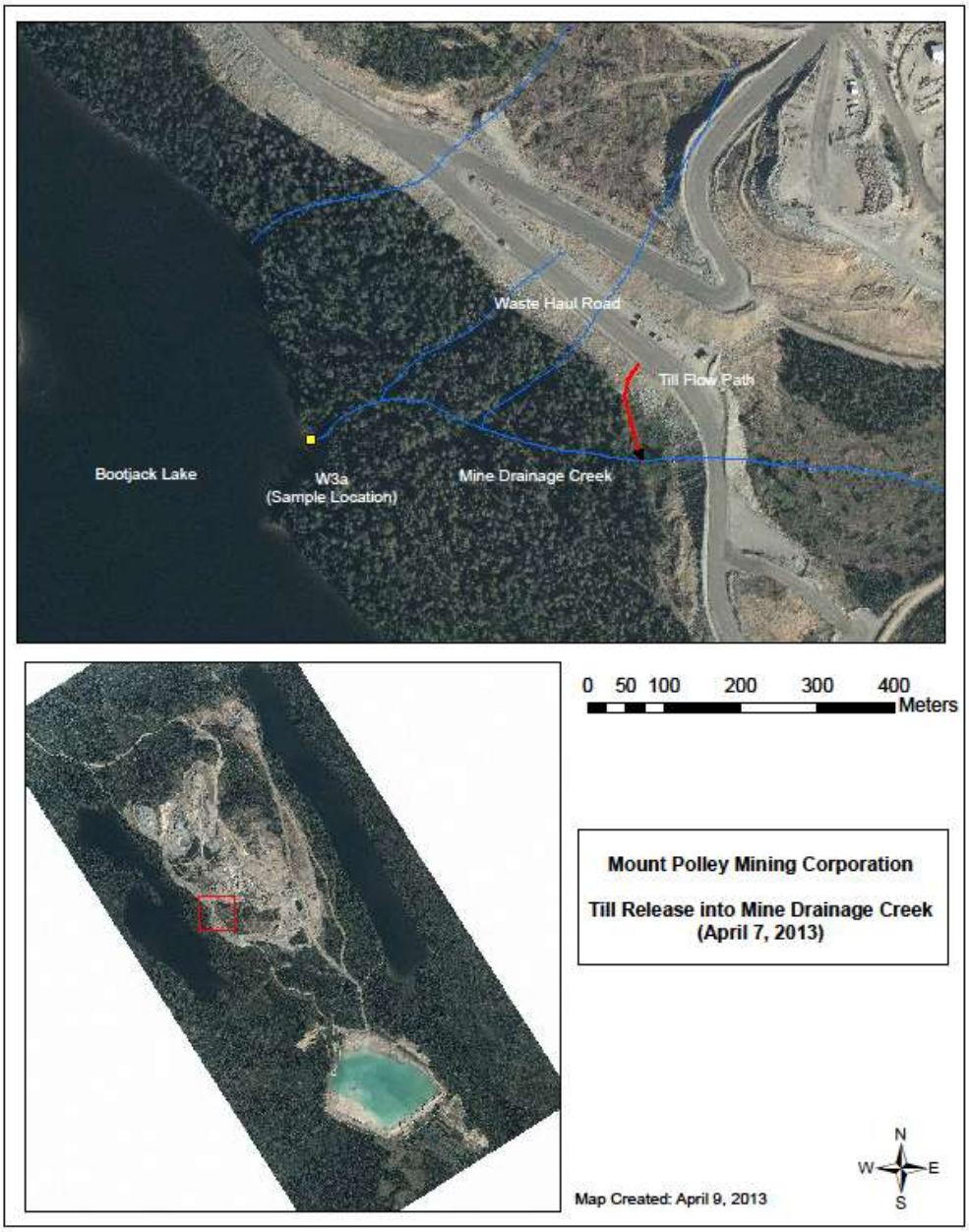


**Figure 1 Location of the till release on the Mount Polley Mine site**

**Figure 2 Till release view from Waste Haul Road (Mine Drainage Creek at drainage low point)**

**Figure 3 Till release into Mine Drainage Creek (lower side of old forestry road crossing)**

**Figure 4 Till release (upper side of forestry road crossing – in old road ditch)**

**Figure 5 Mouth of Mine Drainage Creek into Bootjack Lake**

**Figure 6 Depositional area of Mine Drainage Creek (near mouth)**

**Figure 7 Mine Drainage Creek overflow of bankfull levels (near mouth)**

**Figure 8 Sediment control adjacent to Mine Drainage Creek.**

**Figure 9 Sediment control along the old road ditch which flows into Mine Drainage Creek**

# Appendix B

# Quality Assurance / Quality Control 2013

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

# NATIONAL QUALITY MANUAL SUMMARY

ALS management is committed to good professional practice, and to providing a superior level of service and quality in its testing activities that exceeds the industry norm. The ALS management system is designed to comply with the requirements of ISO/IEC 17025:2005, the program requirements of all applicable accrediting bodies, ALS corporate goals, and to satisfy the needs of clients, regulatory authorities, and organizations providing recognition. All staff are required to be familiar with ALS quality system documentation and to implement its policies and procedures in their work. ALS management is committed to complying with these policies and to continually improving the effectiveness of the management system.

**ALS Policies and Objectives:**

ALS protects its customers' confidential information and proprietary rights. We require all employees to review and sign a Code of Conduct policy that communicates the ALS confidentiality policy. It is ALS practice to never disclose information about a client's analysis to a third party without prior consent of the client, or unless compelled to by law. If we are obligated by law to disclose such information, we will inform the client prior to doing so.

ALS employees avoid involvement in activities that would diminish confidence in their competence, impartiality, judgment or integrity by complying with the ALS Code of Conduct and Data Integrity Policy.

All new employees receive an orientation to ALS safety, quality system and technical policies as well as job-specific training. Training needs are reviewed to ensure appropriate training is provided. The effectiveness of training actions is evaluated where appropriate.

Appropriate personnel are involved with the provision of quotations and contracts to the degree necessary to understand our clients' needs, to determine if a location can manage projected workloads, to identify the correct test methods to be used, and to maintain appropriate communications with the client during testing. Records of client communications are maintained and all changes to work plans are communicated to those involved.

Suppliers of goods and services are pre-approved using national protocols where they could have an affect on the quality of tests. The national purchasing system ensures control over selection and purchasing, while systems for reception, storage and handling of supplies ensure we receive what was ordered, that appropriate storage is provided, and that records of verification are maintained where needed.

All complaints, whether received by direct communication or during survey activities, are managed and resolved. Records are maintained of the complaint, discussions with the client about the complaint, and its resolution.

When any of our services fail to conform to ALS policies or procedures or to the requirements of our customer, a nonconformance is recorded. A national procedure defines the responsibilities and authorities for handling non-conformances, including documentation, work stoppage, work resumption, and for evaluating the significance of the non-conformance. Correction, evaluation and customer notification are initiated where applicable.

When nonconforming work is identified, root cause analysis and selection and implementation of corrective action that will prevent recurrence are initiated, and are documented in the LIMS CAR System. Monitoring is performed both locally and nationally, and additional audits are performed as needed.

Internal audits are performed at each facility following pre-determined schedules and procedures to ensure operations comply with the requirements of the management system, the program requirements of all applicable

accrediting and recognition bodies, and ISO/IEC 17025:2005. Audits are managed by Quality representatives for each location, and are performed by individuals who are trained in internal auditing techniques and who are independent of the activity being audited.

All ALS locations have appropriate facilities to securely maintain sample integrity, both before testing and where archiving for future testing is required. Traceability and monitoring of critical temperatures is maintained.

Customers rely on ALS to select test methods that are appropriate to meet their needs. Wherever possible, ALS uses the latest versions of published standard methods developed by organizations such as American Public Health Association, United States Environmental Protection Agency, NIOSH, Environment Canada, and other international, regional or regulatory organizations, or equipment manufacturers. Test method and support procedure instructions are kept current and accessible. Deviations from test methods occur only if the deviation has been documented, technically justified, authorized, and accepted by the customer where applicable.

Method validations are conducted to confirm that our test methods are fit for their intended use. The validations are as extensive as necessary to meet the needs of the given application. The extent depends on the source of the method. Test methods are revalidated periodically to ensure continued suitability and fitness for purpose.

ALS Limits of Reporting (LORs) are established using rigorous experimental and statistical procedures that begin with the determination of the Method Detection Limit (MDL) at 99% confidence. The MDL takes into account several factors, like long term Method Blanks, low level Sample Duplicates, and low level Spiked Samples. But the MDL is based on “typical” sample types in the absence of sample-specific problems, and it doesn’t apply in all circumstances.

ALS takes a conservative approach to detection limits. Our goal is to minimize false positives, because we recognize that any false positive results can be damaging for our clients. Where possible, we establish LORs at levels well-above the statistical MDL. This improves the accuracy and precision of results near the detection limit, and reduces the chance of false positives due to sample-specific issues.

ALS procedures for calculating measurement uncertainty are based on accepted practices of identifying components contributing to uncertainty, compiling data that represents or includes these components, evaluating the data using appropriate statistical calculations, and reporting in a manner that prevents misunderstanding of the result. In those cases where the nature of the test precludes calculation of uncertainty, ALS will at minimum identify the components of uncertainty and make a reasonable estimation where needed. This estimation will be based on available validation data and other sources of information about the test method’s performance.

Measuring and testing equipment used by ALS laboratories that can have a significant effect on the accuracy or validity of test results is calibrated using established procedures. The procedures ensure traceability through an unbroken chain of calibrations or comparisons to national measurement standards. Where traceability of measurements to SI units is not possible and/or not relevant, traceability is provided by the use of certified reference materials and/or consensus standards.

ALS has established quality control (QC) procedures for monitoring the validity of tests performed by its laboratories. Individual test methods specify quality control requirements, frequency of use and data quality objectives (DQOs).

The type of quality control elements used for process monitoring is dependant on the test performed, but typically includes (as appropriate): Calibration Verification Standards, Continuing Calibration Verifications, Instrument and Method Blanks, Laboratory Control Samples, Reference Materials, Matrix Spikes, Surrogate Spikes and Internal Standards.

DQOs are set for each QC sample, based on a combination of reference method objectives, customer requirements and historical test method performance. Where applicable, prescriptive elements of reference methods take precedence over internal DQOs.

Control charts are used to provide a graphical representation of QC results and test method performance over time. Control charts graphically display the mean, together with “Warning Limits” and “Control Limits”, plotted at ± 2 and 3 standard deviations (“sigma”) around the mean, calculated from recent historical QC results. ALS applies advanced trend monitoring algorithms to identify outliers and non-random data distributions (trends) that may indicate undesirable changes in test method performance. The trend monitoring process has been automated within our LIMS. Upon data entry, each QC result is checked against programmed limits and trends. If a trend is identified, a notification is e-mailed to the analyst and their supervisor, so that it can be investigated and corrected.

ALS analytical data proceeds through several reviews prior to the release of final reports. The ALS data validation process includes test result validation, inter-parameter validation and report validation. Test result validation involves an independent peer review of raw and calculated test results. Inter-parameter validation occurs when all department specific parameters for a sample are completed, and involves an overall review of test results within each sample for consistency among any related test parameters. Report validation occurs when all the requested test results for a work order are completed, and involves a review of the final report before it is sent to the customer.

ALS provides test reports that are designed to include all information necessary for the interpretation of test results. Formats are customized to meet our clients’ needs and include customized electronic reports.

Protection of electronic information is managed by the ALS North America IT Group. Security for the computer systems and electronic database is achieved through a combination of passwords, permissions, firewalls and Virtual Private Network (VPN) systems.

Management’s commitment to continuously improving the effectiveness of the management system is demonstrated by the use of various management system tools to identify areas of needed improvement. Regular evaluations of the following contribute to the ALS continuous improvement process: internal and external audits, corrective and preventive action reports, management reviews, various management reports and meetings, client feedback, proficiency test results, test method performance and data quality objective reviews, client surveys, and input from personnel.

Management conducts a review at least annually to ensure the management system is effective, and continues to be suitable for its operations, and to identify necessary changes or improvements. Senior management is included in the review process for all locations.

# ALS CANADA - DATA QUALITY OBJECTIVES
## WATER SAMPLES

| INORGANICS | ACCURACY [1] DQO | MATRIX SPIKE [2] DQO | PRECISION [3] DQO |
|---|---|---|---|
| Acidity | 85-115% | n/a | 20% |
| Alkalinity | 85-115% | n/a | 20% |
| Ammonia | 85-115% | 75-125% | 20% |
| Biochemical Oxygen Demand<br>- BOD, Soluble BOD, CBOD<br>- Chemical Oxygen Demand (COD) | <br>85-115%<br>85-115% | <br>n/a<br>75-125% | <br>20%<br>20% |
| Carbons (TOC/TIC/DIC/DOC) | 80-120% | 70-130% | 20% |
| Chlorine (Free & Total) | 75-125% | n/a | 15% |
| Chrome VI | 80-120% | 75-125% | 15% |
| Colour | 85-115% | n/a | 20% |
| Common Anions (Cl, Br, F, NO2, NO3, SO4) | 85-115% | 75-125% | 20% |
| Conductivity | 90-110% | n/a | 10% |
| Cyanate | 85-115% | 75-125% | 20% |
| Cyanides (Total and WAD) | 80-120% | 70-130% | 20% |
| Dissolved Oxygen | 85-115% | n/a | 20% |
| Hardness (as CaCO3) | 75-125% | 65-135% | 25% |
| Metals | 80-120% | 70-130% | 20% |
| Oxidation - Reduction Potential | 80-120% | n/a | 15% |
| Oxyhalides (Chlorate, Chlorite, Bromate) | 85-115% | 75-125% | 20% |
| pH | ± 0.10 pH units | n/a | ± 0.20 pH units |
| Phenols, Total (4AAP) | 85-115% | 75-125% | 15% |
| Phosphates - all forms | 80-120% | 70-130% | 20% |
| Salinity | 85-115% | n/a | 20% |
| Solids (TDS / TSS) | 85-115% | n/a | 20% |
| Sulfide | 75-125% | 65-135% | 20% |
| Tannins & Lignins | 85-115% | n/a | 20% |
| Thiocyanate | 85-115% | 75-125% | 20% |
| Total Kjedahl Nitrogen / Total Nitrogen | 75-125% | 70-130% | 20% |
| Turbidity | 85-115% | n/a | 15% |
| **ORGANICS - HYDROCARBONS** | **ACCURACY [1] DQO** | **MATRIX SPIKE [2] DQO** | **PRECISION [3] DQO** |
| Extractable Hydrocarbons<br>- CWS F2-F4, EPH/LEPH/HEPH, RBCA, SK | <br>65-135% | <br>50-150% | <br>n/a [4] |
| Oil & Grease / Mineral Oil & Grease | 70-130% | 50-150% | n/a [4] |
| Volatile Hydrocarbons (F1, VH/VPH) | 70-130% | 50-150% | 30% |
| **ORGANICS - SEMI-VOLATILES** | **ACCURACY [1] DQO** | **MATRIX SPIKE [2] DQO** | **PRECISION [3] DQO** |
| Acid Extractable Herbicides, except listed<br>- Dinoseb, Clopyralid<br>- Picloram | 65-135%<br>30-150%<br>25-150% | 50-150%<br>30-150%<br>25-150% | n/a [4]<br>n/a [4]<br>n/a [4] |
| Chlorinated Hydrocarbons | 40-130% | 40-150% | n/a [4] |
| Chlorophenols, except listed<br>- 5,6- Dichlorovanillin, Tetrachlorocatechol<br>- Tetrachloroveratrole<br>- 2,6-Dichlorosyringaldehyde | 65-130%<br>40-130%<br>40-130%<br>20-130% | n/a [4]<br>n/a [4]<br>n/a [4]<br>n/a [4] | n/a [4]<br>n/a [4]<br>n/a [4]<br>n/a [4] |
| Formaldehyde | 70-130% | 50-150% | 30% |
| Glycols | 70-130% | 50-150% | 30% |

# ALS CANADA - DATA QUALITY OBJECTIVES
## WATER SAMPLES

| ORGANICS – SEMI-VOLATILES – Cont'd | ACCURACY [1] DQO | MATRIX SPIKE [2] DQO | PRECISION [3] DQO |
|---|---|---|---|
| Haloacetic Acids | 50-130% | 50-150% | 40% |
| Naphthenic Acids | 70-130% | 50-150% | n/a [4] |
| Nitrogen Heterocyclics (e.g. Acridine, Quinoline) | 60-130% | 50-150% | n/a [4] |
| Pesticides, Organochlorine | 50-150% | 50-150% | n/a [4] |
| Pesticides, Organophosphate, except listed<br>- Acephate, Dimethoate, Phorate | 60-130%<br>30-140% | 50-150%<br>30-150% | n/a [4]<br>n/a [4] |
| Pesticides, Carbamate | 50-140% | 50-150% | n/a [4] |
| Phenolics, Chlorinated<br>- Mono, Di, and Trichlorophenols<br>- Tetra and Pentachlorophenols | <br>50-130%<br>60-130% | <br>50-150%<br>50-150% | <br>50%<br>50% |
| Phenolics, Non-chlorinated, except listed<br>- Dimethylphenol, Phenol, Phenol-d5<br>- Nitrophenols<br>- 2-Fluorophenol (surrogate) | 50-130%<br>30-130%<br>40-140%<br>20-130% | 50-150%<br>30-150%<br>40-150%<br>n/a | 50%<br>50%<br>50%<br>n/a |
| Polychlorinated Biphenyls (Aroclors) | 65-130% | 50-150% | n/a [4] |
| Polycyclic Aromatic Hydrocarbons, except listed<br>- Naphthalene, 3-Methylcholanthrene<br>- 7,12-Dimethylbenz(a)anthracene<br>- Misc surrogates: 2-Fluorobiphenyl, 2,4,6-Tribromophenol, Nitrobenzene-d5 | 60-130%<br>50-130%<br>40-130%<br>40-130% | 50-150%<br>50-150%<br>40-150%<br>n/a | n/a [4]<br>n/a [4]<br>n/a [4]<br>n/a |
| Resin and Fatty Acids, except listed<br>- Abietic and Palustric Acids<br>- Levopimaric and Neoabietic Acids | 60-140%<br>40-130%<br>15-130% | 50-150%<br>40-150%<br>15-150% | 50%<br>50%<br>50% |
| **ORGANICS – VOLATILES** | **ACCURACY [1] DQO** | **MATRIX SPIKE [2] DQO** | **PRECISION [3] DQO** |
| VOCs, Non-Gaseous | 70-130% | n/a | 30% |
| VOCs, Gaseous (e.g. Vinyl Chloride, Chloromethane) | 60-140% | n/a | 50% |
| Volatile Fatty Acids | 70-130% | 70-130% | 30% |
| **MICROBIOLOGICAL TESTS** | **ACCURACY [1] DQO** | **MATRIX SPIKE [2] DQO** | **PRECISION [3] DQO** |
| Coliform - Total & Fecal, by MF or Colilert | n/a [5] | n/a [5] | 50% [5] |
| Coliform - Total and Fecal, by MPN | n/a [5] | n/a [5] | 100% [5] |
| Heterotrophic Plate Count | n/a [5] | n/a [5] | 50% [5] |

**METHOD BLANK DQO (All Tests):** < Limit of Reporting (LOR)

**Footnotes and Explanations:**

1) Accuracy is measured as Percent Difference from True Value or Certified Target for Reference Materials and/or Method Analyte Spikes and Surrogates where applicable. For Matrix Spikes, accuracy is measured as the measured amount minus the sample background amount divided by the spiked amount.

   For low level results the accuracy objective is for the measured result to lie within +/- 1 times the LOR from the target.

2) Matrix Spike (MS) recovery, expressed as a percentage is defined as:
   100 * {[(Measured Concentration) - (Background Analyte Concentration in Sample)] ÷ (Spike Concentration)}

   High analyte background may prevent accurate determination of MS recovery. MS recoveries are not calculated or evaluated when the spiked amount is less than the background analyte concentration in the sample.

3) Precision is measured as the absolute value of Relative Percent Difference (RPD) for Laboratory Duplicate Samples. RPD = |(Result2 - Result1) / Mean| * 100. For low level results, the precision objective is for the difference of the two results to be less than 2 times the LOR.

4) Precision DQO is not applicable where whole samples are analyzed (lab duplicates not possible).

5) Spikes or Reference Materials unavailable for Microbiological tests. Duplicates are only possible when sufficient sample has been submitted to allow multiple tests.

**DQOs are in the process of being standardized at the ALS Environmental locations in Canada. ALS DQOs represent the minimum criteria for acceptance of QC data without qualification. Where DQOs are not met, analysis will be repeated or affected result(s) will be qualified. DQOs are subject to periodic change. Please contact your Account Manager for current DQOs, or to receive an update.**

# ALS CANADA - DATA QUALITY OBJECTIVES
## SEDIMENT / SOIL SAMPLES

| INORGANICS | ACCURACY [1] DQO | MATRIX SPIKE [2] DQO | PRECISION [3] DQO |
|---|---|---|---|
| Acid Volatile Sulfide | 70-130% | n/a | 45% |
| Ammonia | 80-120% | 70-130% | 20% |
| Anions, extractable (Cl, Br, F, NO2, NO3, SO4) | 70-130% | 60-140% | 30% |
| Barium, Total, by Fusion | 70-130% | 60-140% | 30% |
| Carbons (TOC) | 80-120% | 70-130% | 30% |
| Conductivity | 80-120% | 70-130% | 20% |
| Cyanide (Total and WAD) | 80-120% | 70-130% | 20% |
| Hexavalent Chromium | 80-120% | 70-130% | 20% |
| Metals, Extractable | | | |
| - Hot Water Soluble Boron | 70-130% [4] | 70-130% | 30% |
| - Major Cations (Sat Paste, Fixed Ratio Extracts) | 70-130% [4] | 70-130% | 30% |
| - Soluble Barium ($CaCl_2$ extractable) | 70-130% [4] | 70-130% | 30% |
| Metals, Strong Acid Digested, except listed | 70-130% [4] | n/a | 30% |
| - Ag,Al,Ba,Hg,K,Mo,Na,Pb,Sn,Sr,Ti | 70-130% [4] | n/a | 40% |
| Methyl Mercury | 70-130% | 60-140% | 40% |
| Phenols, Total | 80-120% | 70-130% | 30% |
| Phosphates - all forms | 80-120% | 70-130% | 30% |
| Total Kjeldahl Nitrogen | 80-120% | 70-130% | 20% |
| Total Solids | 80-120% | n/a | 20% |
| **ORGANICS - HYDROCARBONS** | **ACCURACY [1] DQO** | **MATRIX SPIKE [2] DQO** | **PRECISION [3] DQO** |
| Oil and Grease / Mineral Oil and Grease (Gravimetric) | 70-130% | 60-140% | 40% |
| Oil and Grease (IR) | 60-140% | 50-150% | 40% |
| Extractable Hydrocarbons | | | |
| - CCME / CWS Parameters (F2-F4G) | 80-120% | 60-140% | 40% |
| - surrogates and soil RMs | 70-130% | n/a | n/a |
| - BC, RBCA, SK Parameters (EPH/LEPH/HEPH, SK TPH) | 70-130% | 50-150% | 40% |
| - BC EPH Method Performance Check Spike | | | |
| - nC10, nC12, naphthalene | 65-120% | n/a | n/a |
| - all other compounds | 80-120% | n/a | n/a |
| Volatile Hydrocarbons | | | |
| - CCME / CWS Parameters (F1, F1-BTEX) | 80-120% | 50-150% | 40% |
| - BC & RBCA Parameters (VH, VPH) | 70-130% | 50-150% | 40% |
| **ORGANICS – SEMI-VOLATILES** | **ACCURACY [1] DQO** | **MATRIX SPIKE [2] DQO** | **PRECISION [3] DQO** |
| Acid Extractable Herbicides, except listed | 60-140% | 50-150% | 50% |
| - Clopyralid, Dinoseb, Picloram | 30-150% | 30-150% | 50% |
| Chlorinated Hydrocarbons | 40-130% | 40-150% | 50% |
| Glycols | 70-130% | 60-140% | 40% |
| Nitrogen Heterocyclics (e.g. Acridine, Quinoline) | 50-140% | 50-150% | 50% |
| Pesticides, Carbamate | 50-140% | 50-150% | 50% |
| Pesticides, Organochlorine, except listed | 50-140% | 50-150% | 50% |
| - Endosulfan I / II, Endosulfan Sulfate | 40-140% | 40-150% | 50% |
| Pesticides, Organophosphate, except listed | 60-140% | 50-150% | 50% |
| - Acephate, Dimethoate, Phorate | 30-140% | 30-150% | 50% |
| Phenolics, Chlorinated | | | |
| - Mono & Dichlorophenols | 60-130% | 50-150% | 50% |
| - Tri, Tetra, and Pentachlorophenols | 60-130% | 50-150% | 50% |

# ALS CANADA - DATA QUALITY OBJECTIVES
## SEDIMENT / SOIL SAMPLES

| ORGANICS – SEMI-VOLATILES – Cont'd | ACCURACY [1] DQO | MATRIX SPIKE [2] DQO | PRECISION [3] DQO |
|---|---|---|---|
| Phenolics, Non-chlorinated, except listed | 50-130% | 50-150% | 50% |
| - Dimethylphenol | 30-130% | 30-150% | 50% |
| - Nitrophenols | 40-130% | 40-150% | 50% |
| - 2-Fluorophenol (Surrogate) | 20-130% | n/a | n/a |
| Phthalate Esters | 50-150% | 50-150% | 50% |
| Polychlorinated Biphenyls (Aroclors) | 65-130% | 50-150% | 50% |
| Polycyclic Aromatic Hydrocarbons, except listed | 60-130% | 50-150% | 50% |
| - Naphthalene, 3-Methylcholanthrene | 50-130% | 50-150% | 50% |
| - 7,12-Dimethylbenz(a)anthracene | 40-130% | 40-150% | 50% |
| Misc surrogates: | | | |
| - 2-Fluorobiphenyl, 2,4,6-Tribromophenol, Nitrobenzene-d5 | 50-130% | n/a | n/a |
| Resin Acids and Fatty Acids, except listed | 50-130% | 50-150% | 50% |
| - Levopimaric acid, Neoabietic acid | 40-130% | 50-150% | 50% |
| **ORGANICS – VOLATILES** | **ACCURACY [1] DQO** | **MATRIX SPIKE [2] DQO** | **PRECISION [3] DQO** |
| Volatile Organic Compounds, except listed | 70-130% | 60-140% | 50% |
| - Gaseous VOCs (e.g. Vinyl Chloride) | 60-140% | 50-150% | 50% |
| - Dichloromethane | 60-140% | 50-150% | 50% |
| Volatile Fatty Acids | 70-130% | 70-130% | 30% |
| **PHYSICAL TESTS** | **ACCURACY [1] DQO** | **MATRIX SPIKE [2] DQO** | **PRECISION [3] DQO** |
| Moisture | 90-110% | n/a | 20% |
| % Saturation | 80-120% | n/a | 20% |
| Particle Size Analysis (Hydrometer) | LTM +/- 5% [5,6] | n/a | Diff < 5%[6] |
| pH | +/- 0.3 pH units | n/a | +/- 0.3 pH units |
| Loss on ignition | n/a | n/a | 20% |
| **WASTE CHARACTERIZATION** | **ACCURACY [1] DQO** | **MATRIX SPIKE [2] DQO** | **PRECISION [3] DQO** |
| Flashpoint | +/- 5°C | n/a | +/- 5°C |
| Microtox (Drilling Waste) | as certified | n/a | 20% |

**METHOD BLANK DQO (All Tests):** < Limit of Reporting (LOR)

**Footnotes and Explanations:**

1) Accuracy is measured as Percent Difference from True Value or Certified Target for Reference Materials and/or Method Analyte Spikes and Surrogates where applicable. For Matrix Spikes, accuracy is measured as the measured amount minus the sample background amount divided by the spiked amount.

   For low level results, the accuracy objective is for the measured result to lie within +/- 1 times the LOR from the target.

2) Matrix Spike (MS) recovery, expressed as a percentage is defined as:
   100 * {[(Measured Concentration) - (Background Analyte Concentration in Sample)] ÷ (Spike Concentration)}

   High analyte background may prevent accurate determination of MS recovery. MS recoveries are not calculated or evaluated when the spiked amount is less than the background analyte concentration in the sample.

3) Precision is measured as the absolute value of Relative Percent Difference (RPD) for Laboratory Duplicate Samples. RPD = |(Result2 - Result1) / Mean| * 100.

   For low level results, the precision objective is for the difference of the two results to be less than 2 times the LOR.

4) Accuracy targets for metals in soils are expressed relative to the ALS long term mean for each method where certified method-specific reference material targets are unavailable. Full recovery of matrix-bound elements is not expected or intended for environmental acid digestion methods.

5) Long Term Mean +/- 5% sand, silt, clay.

6) The recovery is calculated from the absolute difference

**DQOs are in the process of being standardized at the ALS Environmental locations in Canada. ALS DQOs represent the minimum criteria for acceptance of QC data without qualification. Where DQOs are not met, analysis will be repeated or affected result(s) will be qualified. DQOs are subject to periodic change. Please contact your Account Manager for current DQOs, or to receive an update.**

# MPMC Annual Report 2013
# Table B.1
# QA/QC Field Replicate Comparison

## TOTAL METALS

**Al-T**
DL = 0.001

| Date | Site | Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|---|---|
| 3-Jan-13 | W7 | 0.0419 | 0.0414 | 1.2% | FALSE |
| 6-Feb-13 | E4 | 0.0692 | 0.0633 | 8.9% | FALSE |
| 4-Apr-13 | E5 | 0.599 | 0.550 | 8.5% | FALSE |
| 1-May-13 | W8z | 0.221 | 0.222 | -0.5% | FALSE |
| 6-Jun-13 | E13 | 0.168 | 0.112 | 40.0% | TRUE |
| 12-Jun-13 | GW96-1a | 0.0233 | 0.0236 | -1.3% | FALSE |
| 8-Aug-13 | W4 | 0.0446 | 0.0399 | 11.1% | FALSE |
| 21-Aug-13 | B2-S | 0.0106 | 0.0216 | -68.3% | TRUE |
| Oct-13 | JCP | <0.0060 | <0.0060 | n/a | n/a |
| 5-Nov-13 | STD | 0.0042 | 0.0047 | -11.2% | FALSE |

**As-T**
DL = 0.0001

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| 0.00060 | 0.00064 | -6.5% | FALSE |
| 0.00184 | 0.00182 | 1.1% | FALSE |
| 0.00210 | 0.00199 | 5.4% | FALSE |
| 0.00032 | 0.00031 | 3.2% | FALSE |
| 0.00083 | 0.00078 | 6.2% | FALSE |
| 0.00594 | 0.00585 | 1.5% | FALSE |
| 0.00037 | 0.00032 | 14.5% | FALSE |
| 0.00034 | 0.00036 | -5.7% | FALSE |
| 0.00161 | 0.00160 | 0.6% | FALSE |
| 0.00205 | 0.00209 | -1.9% | FALSE |

**Cr-T**
DL = 0.0005

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| <0.00050 | <0.00050 | n/a | n/a |
| <0.00050 | <0.00050 | n/a | n/a |
| 0.00125 | 0.00117 | 6.6% | FALSE |
| 0.00109 | 0.00111 | -1.8% | FALSE |
| <0.00050 | <0.00050 | n/a | n/a |
| <0.00050 | <0.00050 | n/a | n/a |
| <0.00050 | <0.00050 | n/a | n/a |
| <0.00050 | <0.00050 | n/a | n/a |
| <0.00050 | <0.00050 | n/a | n/a |
| <0.00050 | <0.00050 | n/a | n/a |

**Cd-T**
DL = 0.000017

| Date | | Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|---|---|
| 3-Jan-13 | W7 | <0.000010 | <0.000010 | n/a | n/a |
| 6-Feb-13 | E4 | <0.000050 | <0.00010 | n/a | n/a |
| 4-Apr-13 | E5 | <0.00010 | <0.00010 | n/a | n/a |
| 1-May-13 | W8z | <0.000010 | 0.000011 | n/a | n/a |
| 6-Jun-13 | E13 | 0.000064 | 0.000059 | 8.1% | FALSE |
| 12-Jun-13 | GW96-1a | <0.000010 | <0.000010 | n/a | n/a |
| 8-Aug-13 | W4 | 0.000012 | 0.000012 | 0.0% | FALSE |
| 21-Aug-13 | B2-S | <0.000010 | <0.000010 | n/a | n/a |
| Oct-13 | JCP | <0.000070 | <0.000070 | n/a | n/a |
| 5-Nov-13 | STD | <0.00025 | <0.00025 | n/a | n/a |

**Cu-T**
DL = 0.0001

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| 0.00224 | 0.00210 | 6.45% | FALSE |
| 0.00418 | 0.00421 | -0.72% | FALSE |
| 0.00694 | 0.00786 | -12.43% | FALSE |
| 0.00336 | 0.00334 | 0.60% | FALSE |
| 0.0215 | 0.0199 | 7.7% | FALSE |
| <0.00050 | <0.00050 | n/a | n/a |
| 0.00399 | 0.00399 | 0 | FALSE |
| 0.00239 | 0.00274 | -0.13645 | FALSE |
| 0.0101 | 0.0101 | 0 | FALSE |
| 0.0101 | 0.0101 | 0 | FALSE |

**Fe-T**
DL = 0.03

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| 0.067 | 0.069 | -2.9% | FALSE |
| 0.084 | 0.069 | 19.6% | FALSE |
| 0.718 | 0.743 | -3.4% | FALSE |
| 0.205 | 0.207 | -1.0% | FALSE |
| 0.517 | 0.432 | 17.9% | FALSE |
| 8.20 | 8.18 | 0.2% | FALSE |
| 0.049 | 0.049 | 0.0% | FALSE |
| <0.030 | <0.030 | n/a | n/a |
| <0.030 | <0.030 | n/a | n/a |
| <0.030 | <0.030 | n/a | n/a |

**Mn-T**
DL = 0.00005

| Date | | Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|---|---|
| 3-Jan-13 | W7 | 0.0133 | 0.0138 | -3.7% | FALSE |
| 6-Feb-13 | E4 | 0.155 | 0.153 | 1.3% | FALSE |
| 4-Apr-13 | E5 | 0.285 | 0.300 | -5.1% | FALSE |
| 1-May-13 | W8z | 0.00182 | 0.00195 | -6.9% | FALSE |
| 6-Jun-13 | E13 | 0.865 | 0.797 | 8.2% | FALSE |
| 12-Jun-13 | GW96-1a | 0.00294 | 0.00306 | -4.0% | FALSE |
| 8-Aug-13 | W4 | 0.0243 | 0.0236 | 2.9% | FALSE |
| 21-Aug-13 | B2-S | 0.00948 | 0.0111 | -15.7% | FALSE |
| Oct-13 | JCP | 0.0292 | 0.0297 | -1.7% | FALSE |
| 5-Nov-13 | STD | 0.164 | 0.168 | -2.4% | FALSE |

**Se-T**
DL = 0.0005

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| 0.00057 | 0.00057 | 0.0% | FALSE |
| 0.0183 | 0.0184 | -0.5% | FALSE |
| 0.0128 | 0.0125 | 2.4% | FALSE |
| <0.00050 | <0.00050 | n/a | n/a |
| 0.0728 | 0.0710 | 2.5% | FALSE |
| <0.00050 | <0.00050 | n/a | n/a |
| 0.00086 | 0.00079 | 8.5% | FALSE |
| <0.00050 | <0.00050 | n/a | n/a |
| 0.0613 | 0.0600 | 2.1% | FALSE |
| 0.0229 | 0.0228 | 0.4% | FALSE |

**Mo-T**
DL = 0.001

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| 0.00207 | 0.00215 | -3.8% | FALSE |
| 0.197 | 0.189 | 4.1% | FALSE |
| 0.159 | 0.150 | 5.8% | FALSE |
| 0.000092 | 0.000098 | -6.3% | FALSE |
| 0.0253 | 0.0251 | 0.8% | FALSE |
| 0.0319 | 0.0317 | 0.6% | FALSE |
| 0.00820 | 0.00768 | 6.5% | FALSE |
| 0.00118 | 0.00121 | -2.5% | FALSE |
| 0.0695 | 0.0713 | -2.6% | FALSE |
| 0.221 | 0.224 | -1.3% | FALSE |

**Zn-T**
DL = 0.001

| Date | | Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|---|---|
| 3-Jan-13 | W7 | <0.0030 | <0.0030 | n/a | n/a |
| 6-Feb-13 | E4 | <0.0030 | 0.0039 | n/a | n/a |
| 4-Apr-13 | E5 | 0.0038 | 0.0045 | -16.9% | FALSE |
| 1-May-13 | W8z | <0.0030 | <0.0030 | n/a | n/a |
| 6-Jun-13 | E13 | 0.0060 | 0.0060 | 0.0% | FALSE |
| 12-Jun-13 | GW96-1a | <0.0030 | <0.0030 | n/a | n/a |
| 8-Aug-13 | W4 | <0.0030 | <0.0030 | n/a | n/a |
| 21-Aug-13 | B2-S | 0.0035 | <0.0030 | n/a | n/a |
| Oct-13 | JCP | <0.0060 | 0.0085 | n/a | n/a |
| 5-Nov-13 | STD | <0.0030 | <0.0030 | n/a | n/a |

**Pb-T**
DL = 0.00005

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| <0.000050 | <0.000050 | n/a | n/a |
| <0.000050 | <0.000050 | n/a | n/a |
| 0.000176 | 0.000195 | -10.2% | FALSE |
| <0.000050 | <0.000050 | n/a | n/a |
| 0.000094 | 0.000064 | 38.0% | n/a |
| <0.000010 | <0.000010 | n/a | n/a |
| <0.000050 | 0.000052 | n/a | n/a |
| <0.000050 | <0.000050 | n/a | n/a |
| <0.00010 | 0.00013 | n/a | n/a |
| <0.000050 | <0.000050 | n/a | n/a |

# MPMC Annual Report 2013
# Table B.2
# QA/QC Field Replicate Comparison

## DISSOLVED METALS

**Al-D**
DL = 0.001

| Date | Site | Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|---|---|
| 3-Jan-13 | W7 | 0.0043 | 0.0042 | 2.4% | FALSE |
| 6-Feb-13 | E4 | - | - | n/a | n/a |
| 4-Apr-13 | E5 | - | - | n/a | n/a |
| 1-May-13 | W8z | - | - | n/a | n/a |
| 6-Jun-13 | E13 | 0.0053 | 0.0066 | -21.8% | TRUE |
| 12-Jun-13 | GW96-1a | 0.0233 | 0.0236 | -1.3% | FALSE |
| 8-Aug-13 | W4 | - | - | n/a | n/a |
| 21-Aug-13 | B2-S | - | - | n/a | n/a |
| Oct-13 | JCP | 0.0030 | - | n/a | n/a |
| 5-Nov-13 | STD | - | - | n/a | n/a |

**As-D**
DL = 0.0001

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| 0.00063 | 0.00060 | 4.9% | FALSE |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| 0.00052 | 0.00052 | 0.0% | FALSE |
| 0.00594 | 0.00585 | 1.5% | FALSE |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| 0.00153 | - | n/a | n/a |
| - | - | n/a | n/a |

**Cr-D**
DL = 0.0005

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| <0.00050 | <0.00050 | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| <0.00050 | <0.00050 | n/a | n/a |
| <0.00050 | <0.00050 | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| <0.00050 | - | n/a | n/a |
| - | - | n/a | n/a |

**Cd-D**
DL = 0.00016 to 0.00001

| Date | Site | Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|---|---|
| 3-Jan-13 | W7 | 0 | <0.000010 | n/a | n/a |
| 6-Feb-13 | E4 | - | - | n/a | n/a |
| 4-Apr-13 | E5 | - | - | n/a | n/a |
| 1-May-13 | W8z | - | - | n/a | n/a |
| 6-Jun-13 | E13 | 0.000049 | 0.000052 | -5.9% | FALSE |
| 12-Jun-13 | GW96-1a | 0 | <0.000010 | n/a | n/a |
| 8-Aug-13 | W4 | - | - | n/a | n/a |
| 21-Aug-13 | B2-S | - | - | n/a | n/a |
| Oct-13 | JCP | 0 | - | n/a | n/a |
| 5-Nov-13 | STD | - | - | n/a | n/a |

**Cu-D**
DL = 0.0001

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| 0.00124 | 0.00109 | 12.9% | FALSE |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| 0.0119 | 0.0126 | -5.7% | FALSE |
| <0.00050 | <0.00050 | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| 0.0142 | - | n/a | n/a |
| - | - | n/a | n/a |

**Fe-D**
DL = 0.03

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| <0.030 | <0.030 | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| <0.030 | <0.030 | n/a | n/a |
| <0.030 | <0.030 | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| <0.030 | - | n/a | n/a |
| - | - | n/a | n/a |

**Mn-D**
DL = 0.00005

| Date | Site | Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|---|---|
| 3-Jan-13 | W7 | 0.00456 | 0.00447 | 2.0% | FALSE |
| 6-Feb-13 | E4 | - | - | n/a | n/a |
| 4-Apr-13 | E5 | - | - | n/a | n/a |
| 1-May-13 | W8z | - | - | n/a | n/a |
| 6-Jun-13 | E13 | 0.837 | 0.819 | 2.2% | FALSE |
| 12-Jun-13 | GW96-1a | 0.00294 | 0.00306 | -4.0% | FALSE |
| 8-Aug-13 | W4 | - | - | n/a | n/a |
| 21-Aug-13 | B2-S | - | - | n/a | n/a |
| Oct-13 | JCP | 0.0278 | - | n/a | n/a |
| 5-Nov-13 | STD | - | - | n/a | n/a |

**Se-D**
DL = 0.0005

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| 0.00054 | 0.00057 | -5.4% | FALSE |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| 0.0723 | 0.0766 | -5.8% | FALSE |
| <0.00050 | <0.00050 | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| 0.0593 | - | n/a | n/a |
| - | - | n/a | n/a |

**Mo-D**
DL = 0.00005

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| 0.00209 | 0.00210 | -0.5% | FALSE |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| 0.0252 | 0.0248 | 1.6% | FALSE |
| 0.0319 | 0.0317 | 0.6% | FALSE |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| 0.0690 | - | n/a | n/a |
| - | - | n/a | n/a |

**Zn-D**
DL = 0.001

| Date | Site | Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|---|---|
| 3-Jan-13 | W7 | <0.0030 | <0.0030 | n/a | n/a |
| 6-Feb-13 | E4 | - | - | n/a | n/a |
| 4-Apr-13 | E5 | - | - | n/a | n/a |
| 1-May-13 | W8z | - | - | n/a | n/a |
| 6-Jun-13 | E13 | <0.0030 | 0.0049 | n/a | n/a |
| 12-Jun-13 | GW96-1a | <0.0030 | <0.0030 | n/a | n/a |
| 8-Aug-13 | W4 | - | - | n/a | n/a |
| 21-Aug-13 | B2-S | - | - | n/a | n/a |
| Oct-13 | JCP | 0.0043 | - | n/a | n/a |
| 5-Nov-13 | STD | - | - | n/a | n/a |

**Pb-D**
DL = 0.00005

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| <0.000050 | <0.000050 | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| <0.000050 | <0.000050 | n/a | n/a |
| 0.000265 | 0.00025 | 7.4% | FALSE |
| - | - | n/a | n/a |
| - | - | n/a | n/a |
| <0.00010 | - | n/a | n/a |
| - | - | n/a | n/a |

# MPMC Annual Report 2013
# Table B.3
# QA/QC Field Replicate Comparison

## GENERAL PARAMETERS

**Amm**
DL = 0.020

| Date | Site | Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|---|---|
| 3-Jan-13 | W7 | 0.0134 | 0.0117 | 13.5% | FALSE |
| 6-Feb-13 | E4 | 0.144 | 0.147 | -2.1% | FALSE |
| 4-Apr-13 | E5 | 0.0469 | 0.0488 | -4.0% | FALSE |
| 1-May-13 | W8z | <0.0050 | <0.0050 | n/a | n/a |
| 6-Jun-13 | E13 | 0.0393 | 0.0226 | 54.0% | TRUE |
| 12-Jun-13 | GW96-1a | 0.125 | 0.121 | 3.3% | FALSE |
| 8-Aug-13 | W4 | <0.0050 | <0.0050 | n/a | n/a |
| 21-Aug-13 | B2-S | <0.0050 | <0.0050 | n/a | n/a |
| Oct-13 | JCP | <0.0050 | <0.0050 | n/a | n/a |
| 5-Nov-13 | STD | 0.103 | 0.104 | -1.0% | FALSE |

**Nitrate**
DL = 0.005

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| 0.154 | 0.155 | -0.6% | FALSE |
| 5.09 | 5.11 | -0.4% | FALSE |
| 3.03 | 2.97 | 2.0% | FALSE |
| 0.0249 | 0.0256 | -2.8% | FALSE |
| 19.3 | 19.3 | 0.0% | FALSE |
| 0.0124 | 0.0125 | -0.8% | FALSE |
| 0.0830 | 0.0783 | 5.8% | FALSE |
| <0.0050 | <0.0050 | n/a | n/a |
| 55.5 | 55.9 | -0.7% | FALSE |
| 5.73 | 5.85 | -2.1% | FALSE |

**Nitrite**
DL = 0.0010

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| <0.0010 | 0.0011 | n/a | n/a |
| 0.093 | 0.089 | 4.4% | FALSE |
| 0.070 | 0.055 | 24.0% | TRUE |
| 0.0012 | <0.0010 | n/a | n/a |
| 0.317 | 0.314 | 1.0% | FALSE |
| 0.0089 | 0.0098 | -9.6% | FALSE |
| <0.0010 | <0.0010 | n/a | n/a |
| <0.0010 | <0.0010 | n/a | n/a |
| <0.020 | <0.020 | n/a | n/a |
| 0.257 | 0.272 | -5.7% | FALSE |

**Sulphate**
DL = 0.5

| Date | Site | Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|---|---|
| 3-Jan-13 | W7 | 27.8 | 27.7 | 0.4% | FALSE |
| 6-Feb-13 | E4 | 544 | 547 | -0.5% | FALSE |
| 4-Apr-13 | E5 | 428 | 421 | 1.6% | FALSE |
| 1-May-13 | W8z | <0.50 | <0.50 | n/a | n/a |
| 6-Jun-13 | E13 | 335 | 335 | 0.0% | FALSE |
| 12-Jun-13 | GW96-1a | 44.0 | 44.1 | -0.2% | FALSE |
| 8-Aug-13 | W4 | 35.3 | 35.3 | 0.0% | FALSE |
| 21-Aug-13 | B2-S | 5.93 | 5.96 | -0.5% | FALSE |
| Oct-13 | JCP | 902 | 911 | -1.0% | FALSE |
| 5-Nov-13 | STD | 564 | 575 | -1.9% | FALSE |

**TSS**
DL = 3

| Sample | Duplicate Sample | RPD | Criteria Exceeded |
|---|---|---|---|
| <3.0 | <3.0 | n/a | n/a |
| <3.0 | <3.0 | n/a | n/a |
| 15.0 | 15.6 | -3.9% | FALSE |
| <3.0 | <3.0 | n/a | n/a |
| 5.7 | 7.8 | -31.1% | TRUE |
| - | - | n/a | n/a |
| <3.0 | <3.0 | n/a | n/a |
| <3.0 | <3.0 | n/a | n/a |
| <3.0 | <3.0 | n/a | n/a |
| <3.0 | <3.0 | n/a | n/a |

# Appendix C

# Annual Monitoring Plan 2013

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

# Annual Monitoring Plan - 2013
# PE-11678

Submitted by: Colleen Hughes, EP
March 11, 2013

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Appendix 1 2013 Monitoring Plan Table

Appendix 2 List of Parameters and Detection Limits

# 1. Introduction

In November 2012, effluent permit PE-11678 was amended to include discharge of dam filtered water to Hazeltine Creek. This Plan satisfies the requirement of Section 3.1 of the amended permit, to submit a Surface and Groundwater Monitoring Plan annually for approval by the Director.

This 2013 Monitoring Plan was developed by Mount Polley environmental staff and reviewed by Colleen Hughes, EP as the Qualified Professional (QP). In addition, the Monitoring Plan table provided in Appendix 1 was reviewed by third party QP's (Section 4). This Monitoring Plan is a dynamic plan and may change as monitoring progresses. Appendix 2 includes a comprehensive list of parameters to be analyzed, and the detection limits to be achieved by the analytical laboratory. Any changes to this plan will be submitted to the Director for approval.

# 2. Objective

The objective of this Monitoring Plan is to provide a comprehensive plan for Mount Polley Mine (MPMC) that is effective for monitoring the quality and quantity of effluent sources, discharges, surface water, and groundwater associated with mining activities.

# 3. Scope

To monitor the quality and quantity of effluent sources and discharges, and the quality and quantity of surface and groundwater associated with the receiving environment. The area for monitoring will include the mine site and areas that may be impacted by mine discharges and mine activities.

# 4. Surface and Groundwater Monitoring Plan

## 4.1 Continuous Monitoring of the discharge

A plan is currently being developed to design and install a system to discharge dam filtered water to Hazeltine Creek. PE-11678 requires continuous flow monitoring and water quality (conductivity and temperature) at Hazeltine Creek (W7) and at the discharge outlet to Hazeltine (HD-1). MPMC is working with a local contractor to design the pipe and tank system and with our Electrical Department to design a monitoring system.

Details of this system will be forwarded to the Ministry of Environment (MOE) upon completion of the design as part of the Annual Discharge Plan.

#### 4.1.1 W7 – Hazeltine Creek

MPMC has maintained a pressure transducer at W7 since 2008, resulting in the development of a strong gauging correlation. This pressure transducer will remain in place and will be connected by radio transmitter to the main control system located beside the discharge tank.

Continuous monitoring of conductivity and temperature will be accomplished with the installation of an YSI conductivity/temperature sensor that will also communicate to the main control system.

#### 4.1.2 HD-1 – Hazeltine Discharge

As discussed, MPMC is presently designing this system and will submit a detailed description of the system in the Discharge Plan that is required 60 days prior to discharge. A real-time monitoring system will include flow rate, conductivity, and temperature of the discharge water. A SCADA (supervisory control and data acquisition) will be used to control the flow rate based on feedback from W7 water quality and a formula determining the flow rate and water quality of the discharge.

The Monitoring Plan for HD-1 also includes weekly monitoring at HD-1us located approximately 20 meters upstream of the discharge location.

### 4.2 Surface Water Quality Monitoring

The comprehensive Monitoring Plan table provided in Appendix1 outlines all surface water quality monitoring requirements by monitoring site, frequency, and parameter. This table has been reviewed by a third party QP, Pierre Stecko, M.Sc., EP, RPBio, Senior Aquatic Scientist, Minnow Environmental.

This Surface Water Monitoring Plan is designed to monitor through various seasonal changes to identify changes and trends in the water quality.

In 2013 there were several changes made to the Monitoring Plan in the previous version of PE-11678. Changes include:

- Additions
  - Hazeltine Discharge Site (HD-1)
  - Upstream of HD-1 (HD-1us)
- Changes
  - Increased frequency of monitoring at Bootjack Creek (W5) to monthly
  - Increased frequency of monitoring at Mine Drainage Creek (W3a) to monthly
  - Weekly TSS and Turbidity Monitoring during freshet at W4, W5, W7, and W8 to replace weekly full suite monitoring.
  - Decreased frequency at Edney Creek tributary (W8z) to quarterly (no changes have been observed at this site since monitoring began)
  - Decreased frequency at Tailings supernatant (E1) to quarterly (WQ changes not observed at this site and are not expected)
  - Removal of Cariboo Pit Supernatant (E8) (water is no longer to be stored here)
  - Removal of Site W13 (site no longer exists)

- Analysis for only Total metals at most surface sites (except at discharge). When the water quality guideline is in the Dissolved form, the Total metals value will be compared to the Dissolved Water Quality Guidelines.

## 4.3 Toxicity Testing at HD-1

Table 2 in Section 1.2 of PE-11678 requires that toxicity testing to be completed at HD-1. Acute bioassay and chronic bioassay testing will be completed following the Environmental Effects Monitoring (EEM) Guidance outlined by Environment Canada.

## 4.4 Groundwater Quality Monitoring

The comprehensive Monitoring Plan table provided in Appendix 1 outlines all groundwater monitoring requirements by groundwater well, frequency, and parameter. This Monitoring Plan table was reviewed by Dan Emerson, P. Geo, Senior Associate Hydrogeologist, AMEC.

There are currently 15 nested groundwater wells (one deep and one shallow), and three single wells surrounding the mine site. Five of the nested wells were installed in 2012 and have not been sampled as yet. Generally the wells are sampled twice per year; once in the spring and once in the fall. The exceptions to this sampling frequency are wells that have not shown any change in monitoring results in the past 7 years (these will be monitored annually).

In 2013 there were several changes made to the Monitoring Plan in the previous version of PE-11678. Changes include

- Additions
  - 2 new wells added in 2011
  - 5 new wells added in 2012
- Changes
  - Reduce frequency of monitoring at GW96-1a/b, GW96-3a, and GW96-4a/b to once annually as no changes have been observed since these wells were established
  - Remove GW96-8a/b as wells were buried in 2011
  - Remove 95R-4 as well no longer provides adequate data

## 4.5 Quality Assurance and Quality Control Manual

A complete and updated Quality Assurance, Quality Control (QA/QC) Manual has been compiled and will be issued to the Director with this monitoring plan. This manual provides detailed descriptions of the QA/QC requirements for environmental monitoring at Mount Polley Mining Corporation.

## 5. Summary

A review of this implementation of this Monitoring Plan will be provided in the 2013 Annual Environmental and Reclamation Report. An updated Monitoring Plan will be provided to the Director for review by January 31st 2014.

Every five years MPMC will provide MOE with a Hydrogeological Assessment provided by a third party QP. This assessment will review the complete groundwater monitoring program and identify any changes observed in the groundwater.

# Appendix 1

| Site Name | BC EMS Code | *Full Sample Suite Frequency | Change from previous permit | Spring Weekly TSS and NTU Only | Flow Monitoring | Total and Dissolved Metals | 96 hour LC50 rainbow trout toxicity (acute) | 48 hour LC50 Daphnia Magna toxicity (acute) | EC25 RBT embryo/alvin toxicity (chronic) | 7 day *Ceriodaphnia dubia* toxicity (chronic) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E1 | E225309 | Quarterly | yes | | | Total | | | | | |
| E4 | E224221 | Monthly | | | | Total | | | | | remove toxicity requirement, no discharge from this site |
| E5 | E232862 | Monthly | | | | Total | | | | | |
| E7 | E724730 | Quarterly | yes | | | Total | | | | | |
| E13 | E291229 | Monthly | yes | | | Total | | | | | |
| W1 | E225084 | Quarterly | | | | Total | | | | | |
| W1b | E291449 | | yes | | yes | | | | | | Flow monitoring only |
| W3a | E216893 | Monthly | yes | | | Total | | | | | |
| W4 | E225124 | Monthly | | yes | yes | Total | | | | | |
| W5 | E208039 | Monthly | yes | yes | yes | Total | | | | | |
| W7 | E208038 | Monthly (weekly**) | yes | yes | Continuous | Total & Dissolved | | | | | continuous conductivity and temperature data collected |
| W8 | E216743 | Monthly | yes | yes | | Total | | | | | |
| W8Z | E223292 | Quarterly | yes | | | Total | | | | | no changes observed at this site |
| W10 | E291209 | Bi-Annually | yes | | yes | Total & Dissolved | | | | | |
| W11 | E224223 | Bi-Annually | | | | Total & Dissolved | | | | | |
| W12 | E216744 | Quarterly | | | yes | Total | | | | | |
| GW96-1a | E229679 | Annually | yes | | | Dissolved | | | | | |
| GW96-1b | E229680 | Annually | yes | | | Dissolved | | | | | |
| GW96-2a | E229681 | Bi-Annually | | | | Dissolved | | | | | |
| GW96-2b | E229682 | Bi-Annually | | | | Dissolved | | | | | |
| GW96-3a | E229683 | Annually | yes | | | Dissolved | | | | | |
| GW96-3b | E229684 | Bi-Annually | | | | Dissolved | | | | | |
| GW96-4a | E229685 | Annually | yes | | | Dissolved | | | | | |
| GW96-4b | E229686 | Annually | yes | | | Dissolved | | | | | |
| GW96-5a | E229687 | Bi-Annually | | | | Dissolved | | | | | |
| GW96-7 | E229690 | Bi-Annually | | | | Dissolved | | | | | |
| GW00-1a | E242385 | Bi-Annually | | | | Dissolved | | | | | |
| GW00-1b | E242384 | Bi-Annually | | | | Dissolved | | | | | |
| GW00-2a | E242387 | Bi-Annually | | | | Dissolved | | | | | |
| GW00-2b | E242386 | Annually | yes | | | Dissolved | | | | | |
| GW00-3a | E242389 | Bi-Annually | | | | Dissolved | | | | | |
| GW00-3b | E242388 | Annually | yes | | | Dissolved | | | | | |
| 95-R-5 | E229695 | Bi-Annually | | | | Dissolved | | | | | |
| GW05-01 | E258923 | Bi-Annually | | | | Dissolved | | | | | |
| GW11-1a | E291210 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW11-1b | E291211 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW11-2a | E291212 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW11-2b | E291213 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW12-1a | E291969 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW12-1b | E291970 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW12-2a | E291971 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW12-2b | E291972 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW12-3a | E291973 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW12-3b | E291974 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW12-4a | E291976 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW12-4b | E291977 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW12-5a | E291978 | Bi-Annually | yes | | | Dissolved | | | | | |
| GW12-5b | E291979 | Bi-Annually | yes | | | Dissolved | | | | | |
| HD-1 | E289717 | Weekly** | yes | yes | continuous | Total & Dissolved | Monthly** | Monthly** | twice annually** | twice annually** | Flow measurement will be at top end of pipe. Continuous conductivity and temperature data also collected. |
| HD-1 US | E291249 | Weekly** | yes | | | Total & Dissolved | | | | | |

Quarterly
Groundwater Well Site
Effluent Monitoring Site
Surface Water Monitoring Site
* Full sample suite includes nutrients, anions, physical,metals, dissolved organic carbon, and in situ pH, conductivity, and temperature.
**when discharging

# Appendix 2

| | | Detection Limits | Units |
|---|---|---|---|
| **Field Parameters** | | | |
| pH | all sites | | pH |
| Conductivity | all sites | | uS/cm |
| Temperature | all sites | | celcius |
| NTU | W7, W5, W4, W8 | | NTU |
| **Physical Tests** | | | |
| Conductivity | all sites | 2.0 | uS/cm |
| Hardness (as CaCO3) | all sites | 0.50 | mg/L |
| pH | all sites | 0.10 | pH |
| Total Suspended Solids | all surface sites | 3.0 | mg/L |
| Total Dissolved Solids | all sites | 10 | mg/L |
| Turbidity | all surface sites | 0.10 | NTU |
| **Anions and Nutrients** | | | |
| Alkalinity, Total (as CaCO3) | all sites | 1.0 | mg/L |
| Ammonia, Total (as N) | all sites | 0.0050 | mg/L |
| Chloride (Cl) | all sites | 0.50 | mg/L |
| Fluoride (F) | HD-1 and W7 - only | 0.020 | mg/L |
| Nitrate and Nitrite (as N) | all sites | 0.0051 | mg/L |
| Nitrate (as N) | all sites | 0.0050 | mg/L |
| Nitrite (as N) | all sites | 0.0010 | mg/L |
| Total Nitrogen | all sites | 0.050 | mg/L |
| Orthophosphate-Dissolved (as P) | all surface sites | 0.0010 | mg/L |
| Phosphorus (P)-Total Dissolved | all surface sites | 0.0020 | mg/L |
| Phosphorus (P)-Total | all surface sites | 0.0020 | mg/L |
| Sulfate (SO4) | all sites | 0.50 | mg/L |
| **Organic / Inorganic Carbon** | | | |
| Dissolved Organic Carbon | all surface sites | 0.50 | mg/L |
| **Total and Dissolved Metals** | | | |
| Aluminum (Al)-Total | | 0.0030 | mg/L |
| Antimony (Sb)-Total | | 0.00010 | mg/L |
| Arsenic (As)-Total | | 0.00010 | mg/L |
| Barium (Ba)-Total | | 0.000050 | mg/L |
| Beryllium (Be)-Total | | 0.00010 | mg/L |
| Bismuth (Bi)-Total | | 0.00050 | mg/L |
| Boron (B)-Total | | 0.010 | mg/L |
| Cadmium (Cd)-Total | | 0.000010 | mg/L |
| Calcium (Ca)-Total | | 0.050 | mg/L |
| Chromium (Cr)-Total | | 0.00050 | mg/L |
| Cobalt (Co)-Total | | 0.00010 | mg/L |
| Copper (Cu)-Total | | 0.00050 | mg/L |
| Iron (Fe)-Total | | 0.030 | mg/L |
| Lead (Pb)-Total | | 0.000050 | mg/L |
| Lithium (Li)-Total | | 0.00050 | mg/L |
| Magnesium (Mg)-Total | | 0.10 | mg/L |
| Manganese (Mn)-Total | | 0.000050 | mg/L |
| Molybdenum (Mo)-Total | | 0.000050 | mg/L |
| Nickel (Ni)-Total | | 0.00050 | mg/L |
| Potassium (K)-Total | | 0.050 | mg/L |
| Selenium (Se)-Total | | 0.00050 | mg/L |
| Silicon (Si)-Total | | 0.050 | mg/L |
| Silver (Ag)-Total | | 0.000010 | mg/L |
| Sodium (Na)-Total | | 0.050 | mg/L |
| Strontium (Sr)-Total | | 0.00020 | mg/L |
| Thallium (Tl)-Total | | 0.000010 | mg/L |
| Tin (Sn)-Total | | 0.00010 | mg/L |
| Titanium (Ti)-Total | | 0.010 | mg/L |
| Uranium (U)-Total | | 0.000010 | mg/L |
| Vanadium (V)-Total | | 0.0010 | mg/L |
| Zinc (Zn)-Total | | 0.0030 | mg/L |

# Appendix D

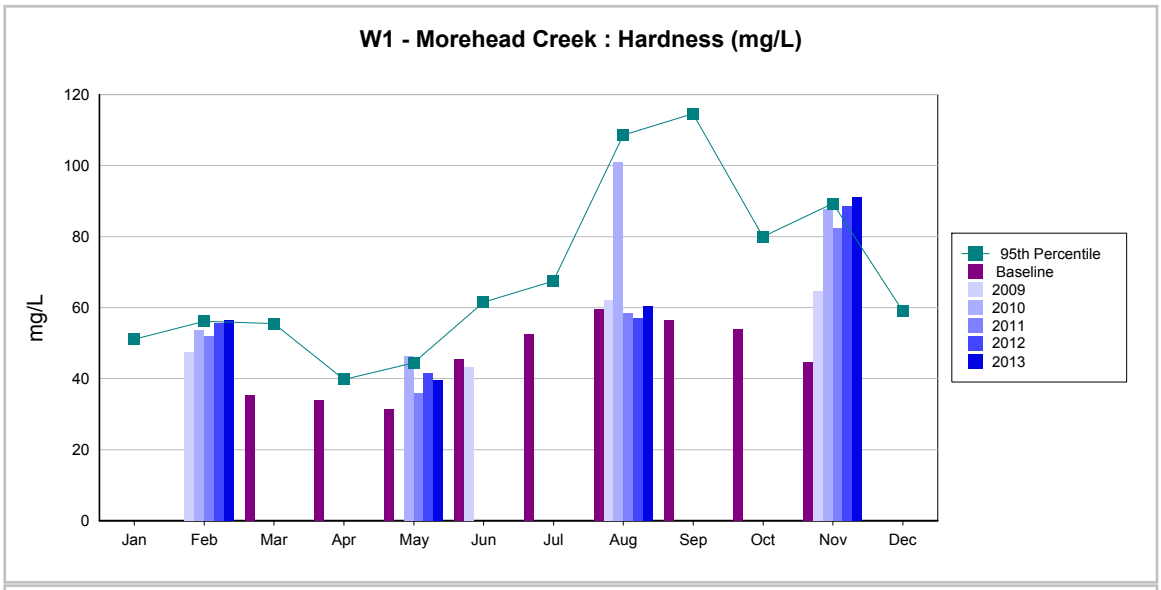
# Surface Water Quality Results 2013

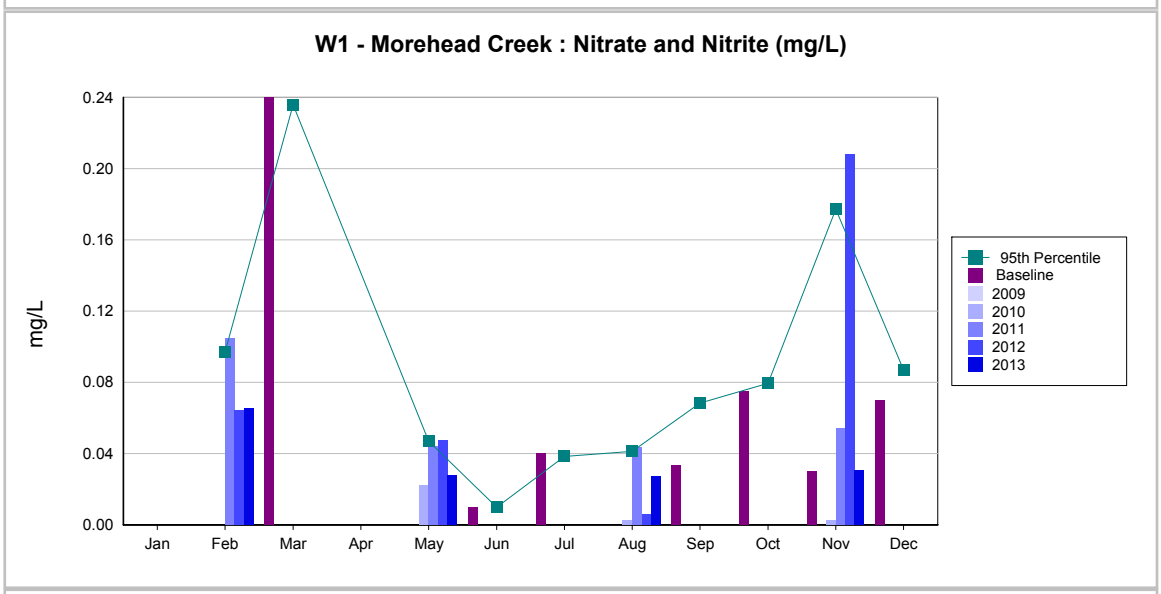
*Tables in digital format on accompanying CD*

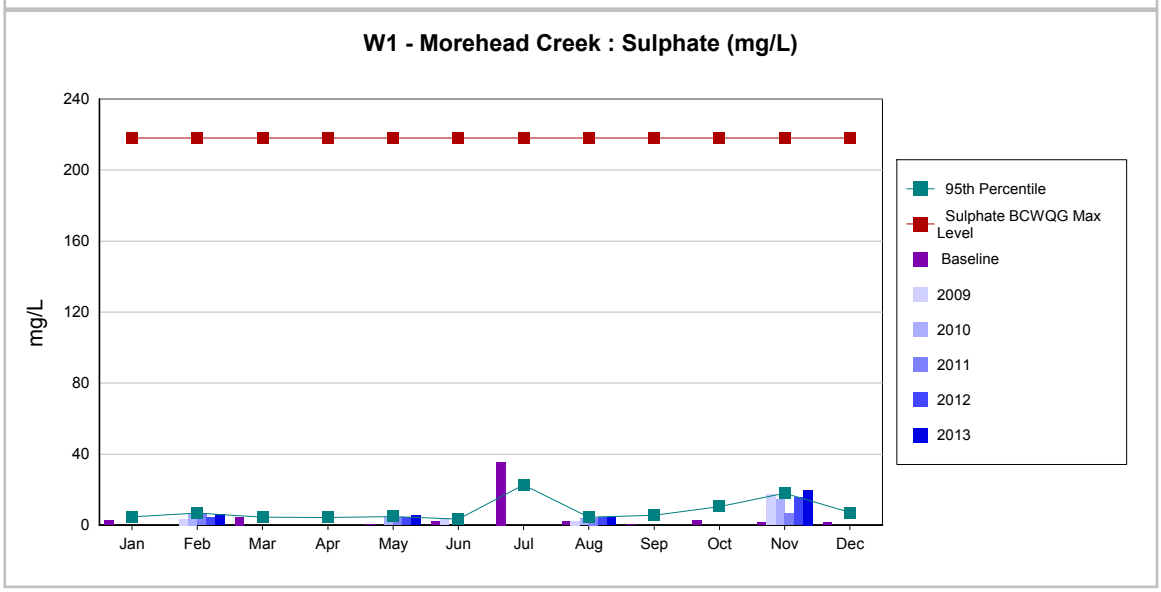
# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION



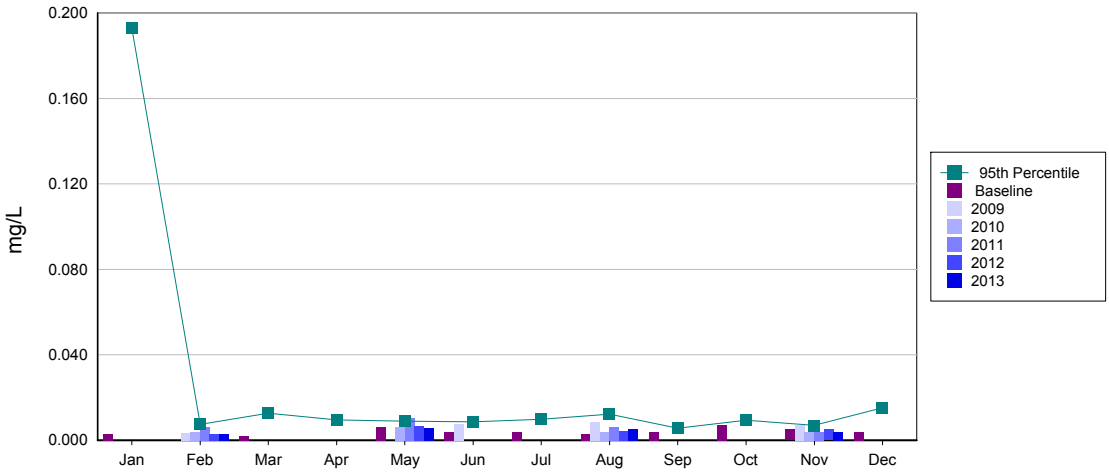



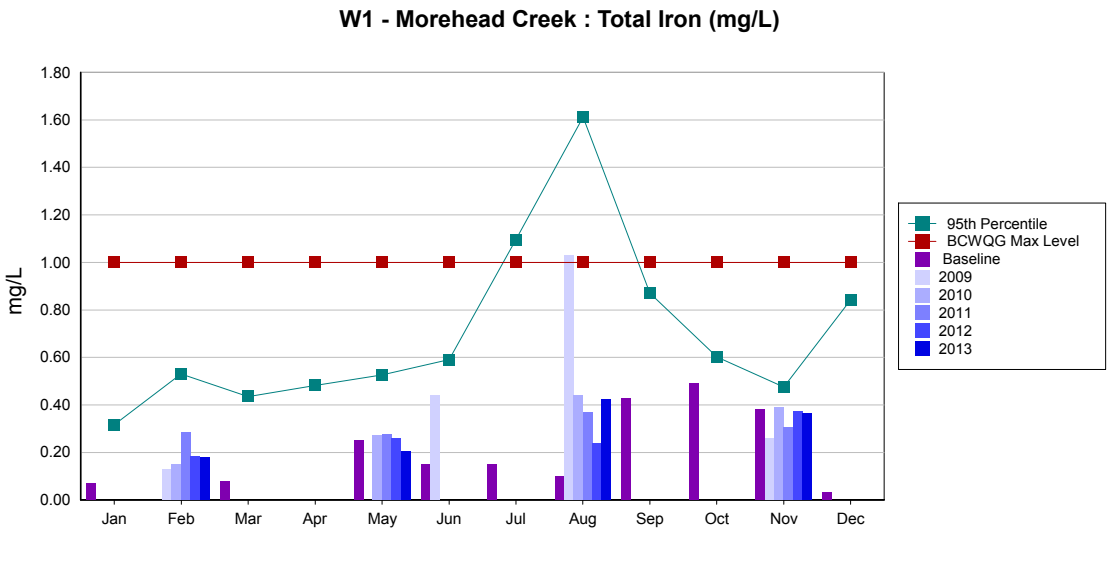



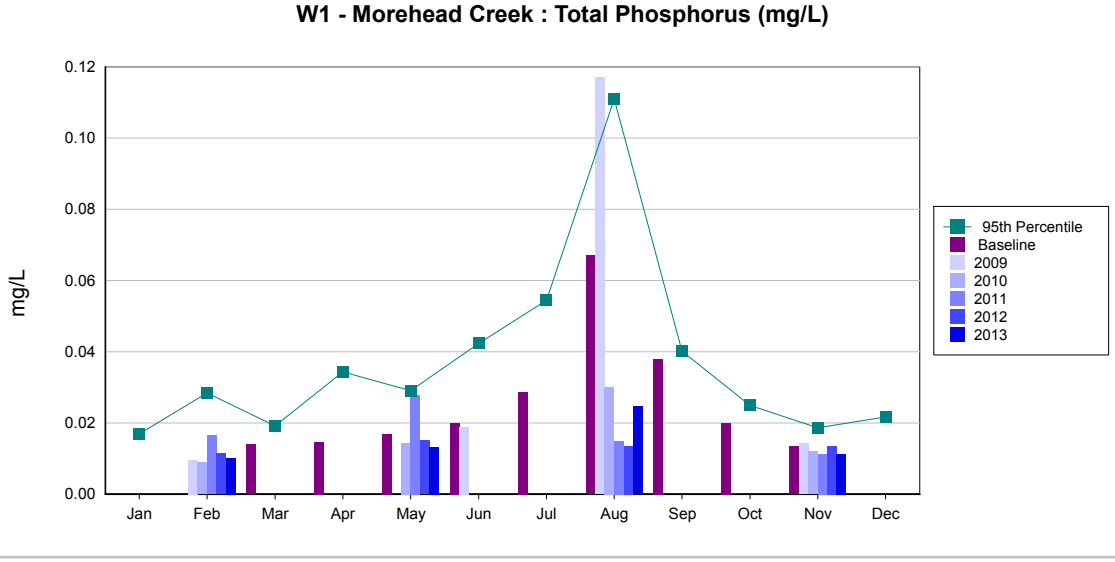
# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION



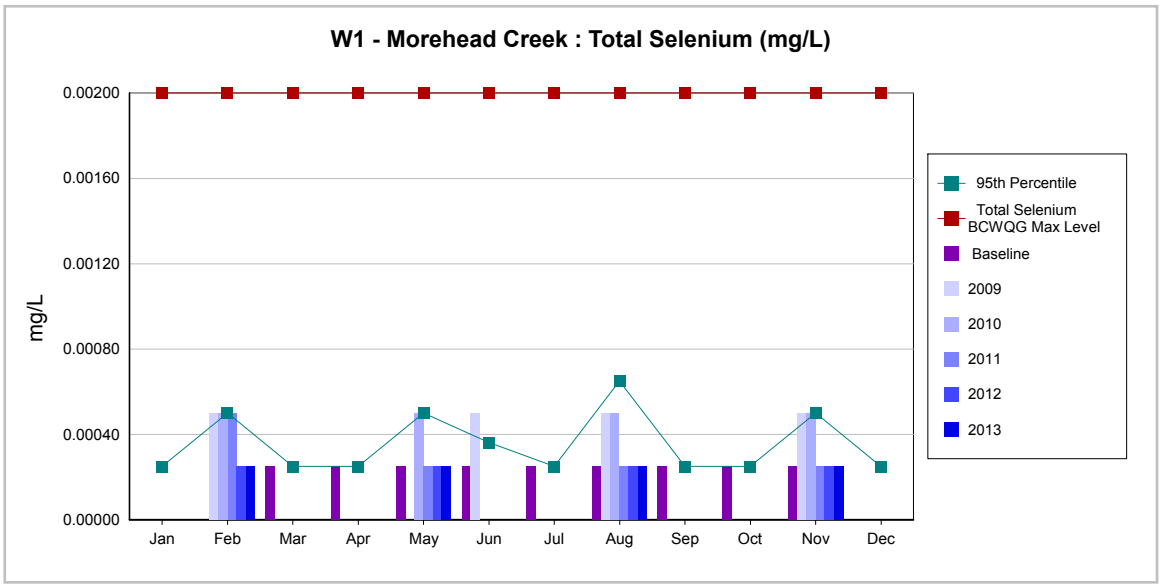



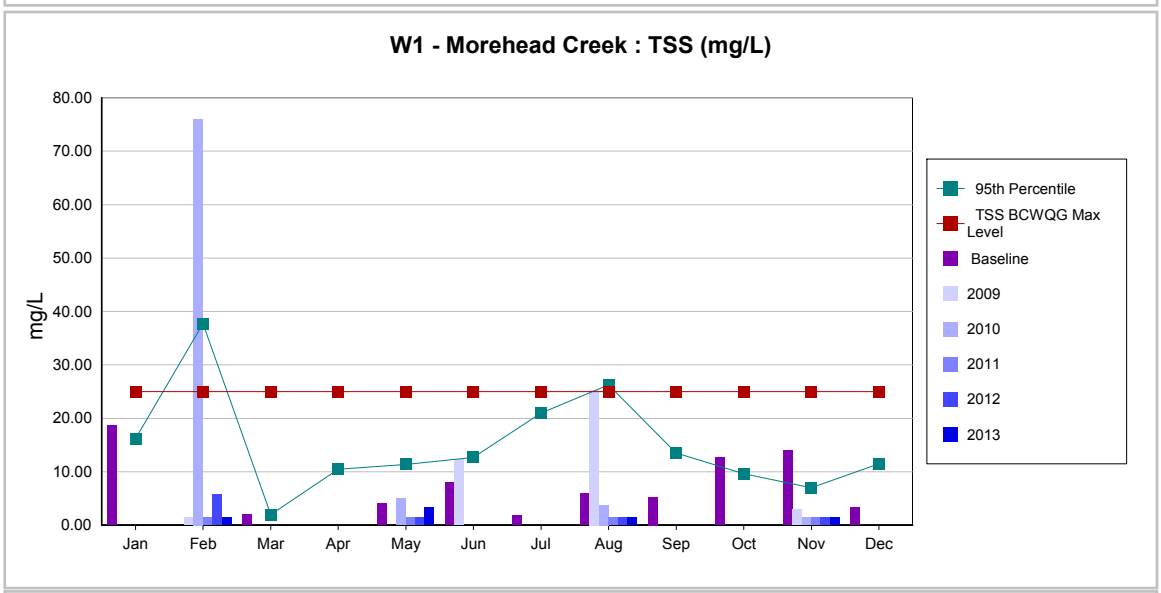



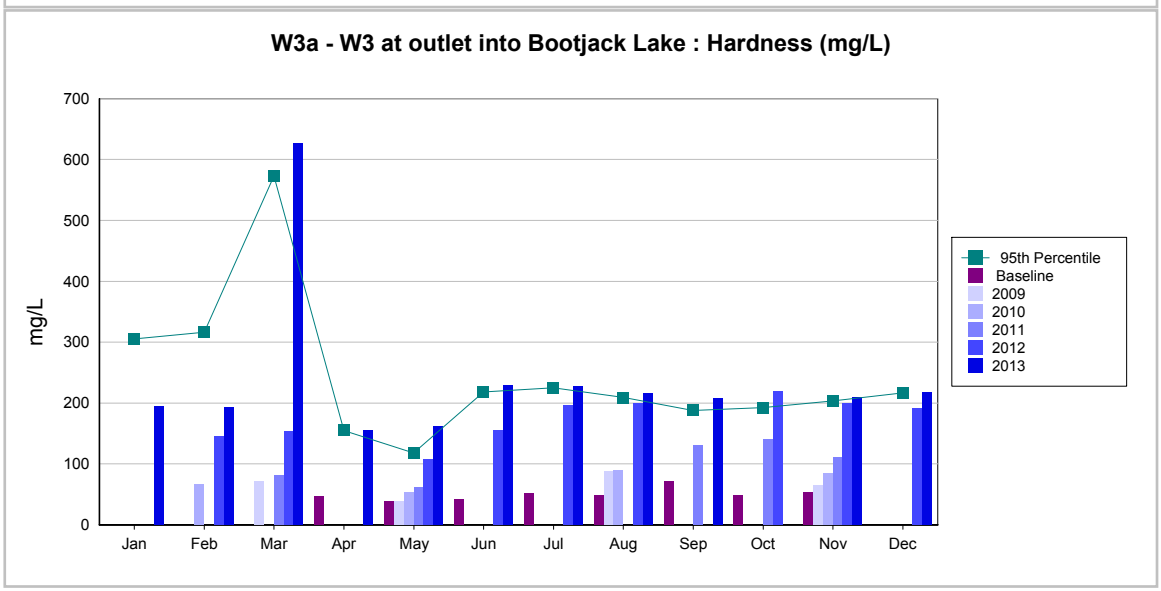
# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION



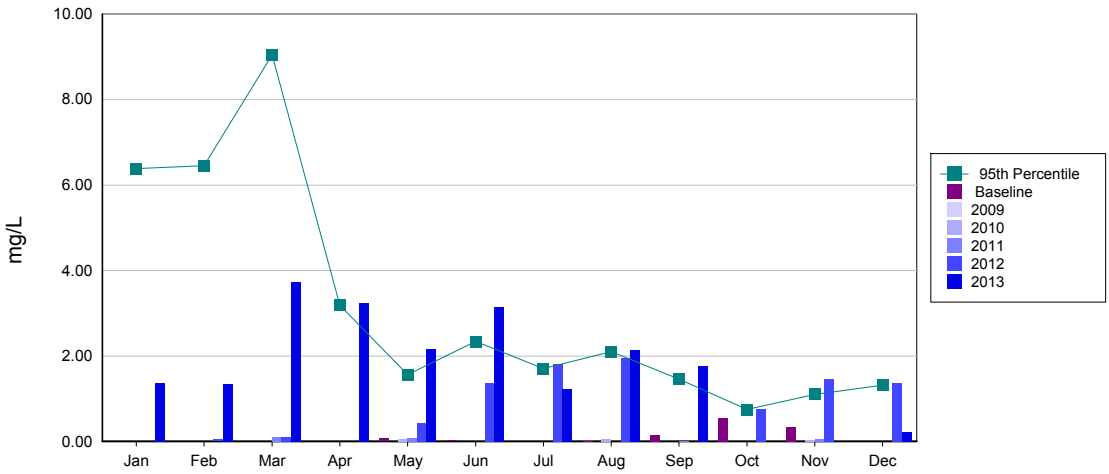



# Water Quality Report

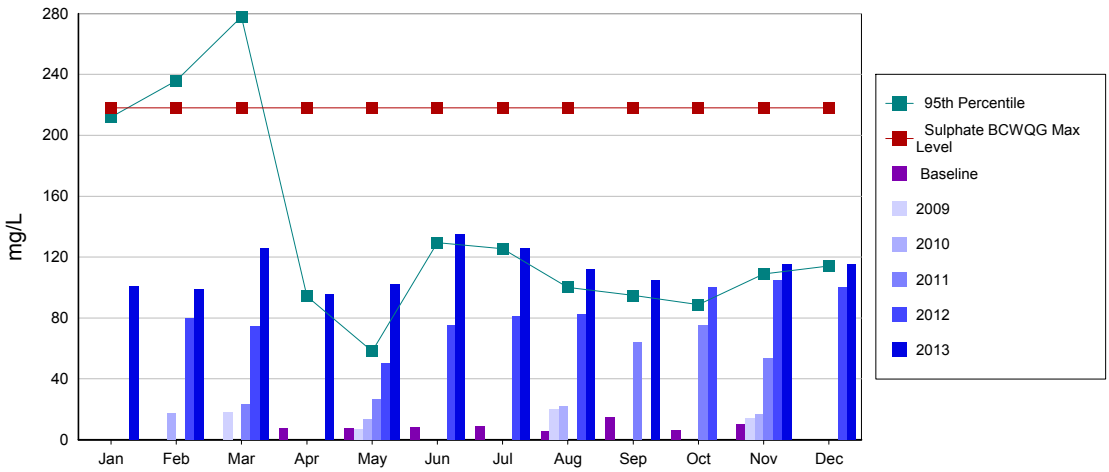
## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

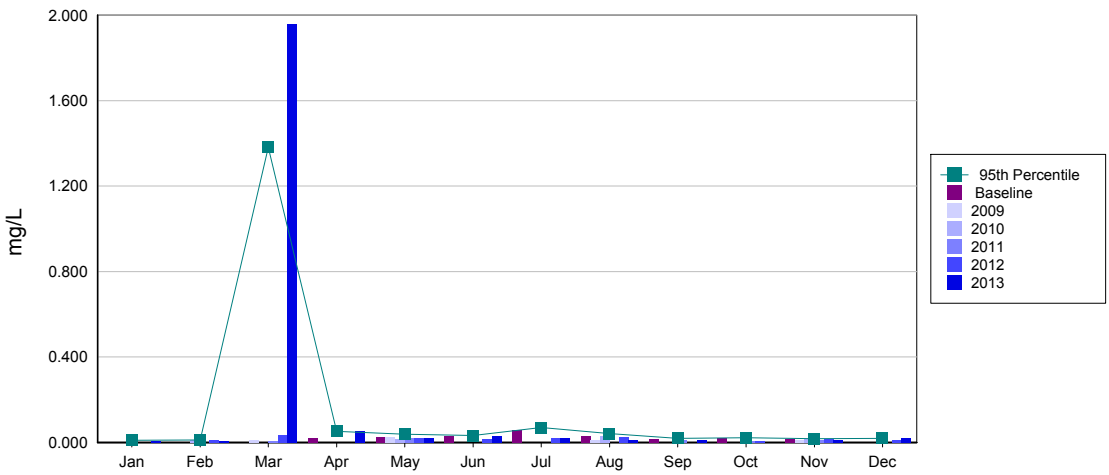
### W3a - W3 at outlet into Bootjack Lake : Nitrate and Nitrite (mg/L)




### W3a - W3 at outlet into Bootjack Lake : Sulphate (mg/L)




### W3a - W3 at outlet into Bootjack Lake : Total Copper (mg/L)

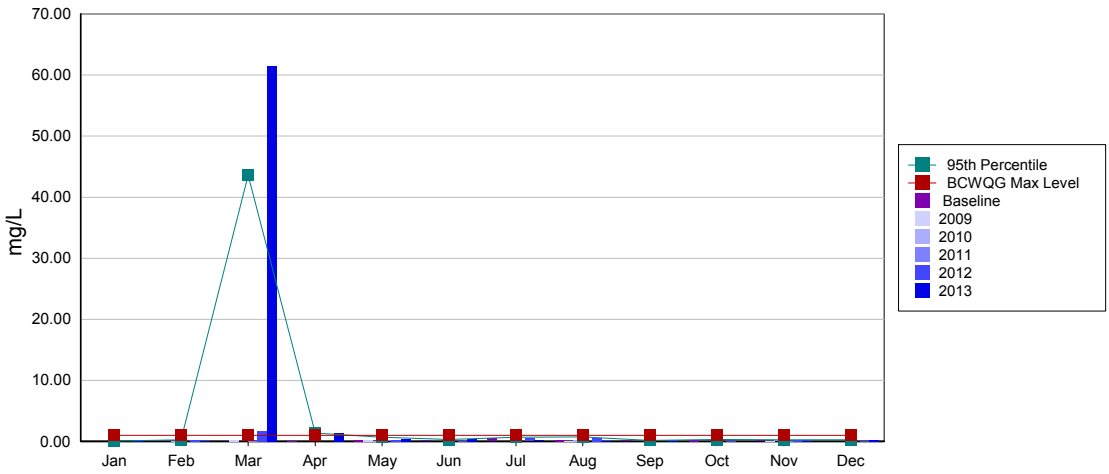


# Water Quality Report

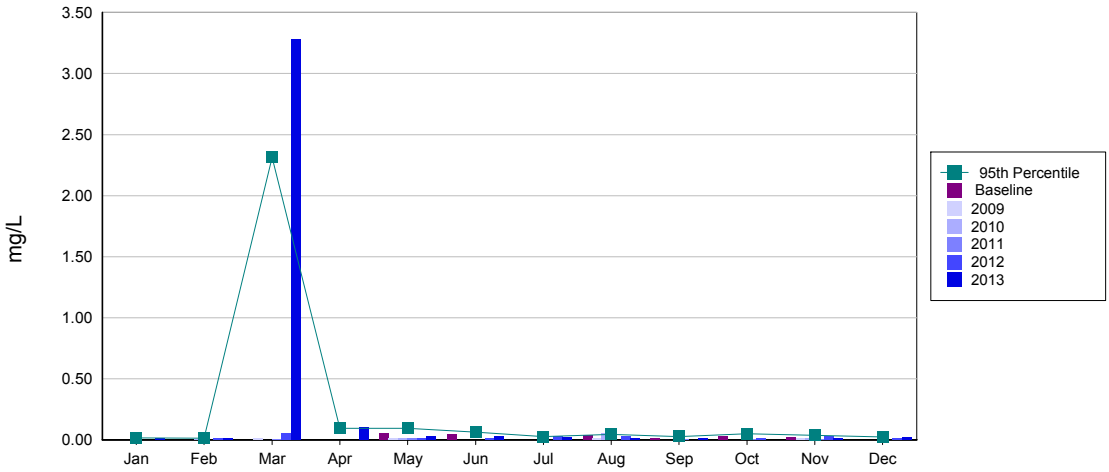
## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

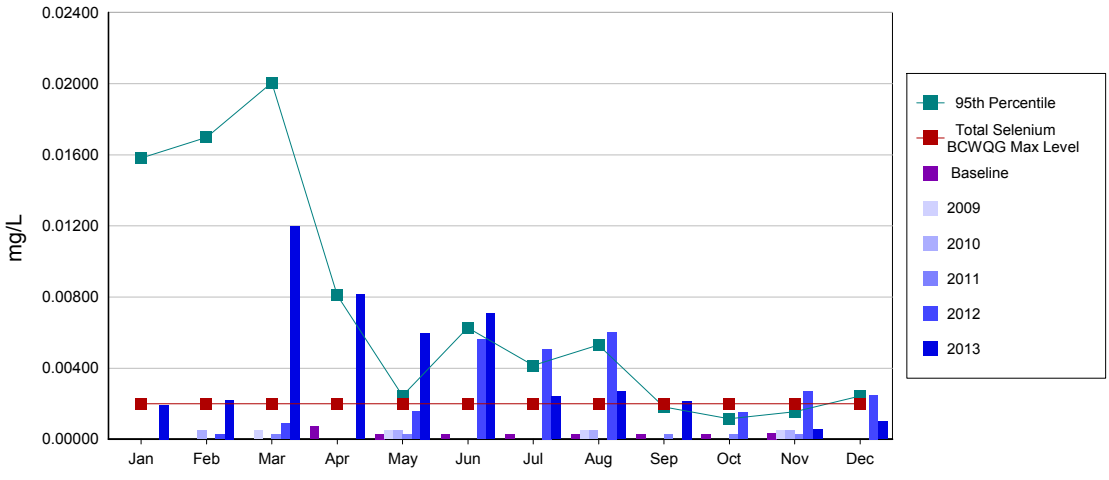
### W3a - W3 at outlet into Bootjack Lake : Total Iron (mg/L)




### W3a - W3 at outlet into Bootjack Lake : Total Phosphorus (mg/L)




### W3a - W3 at outlet into Bootjack Lake : Total Selenium (mg/L)

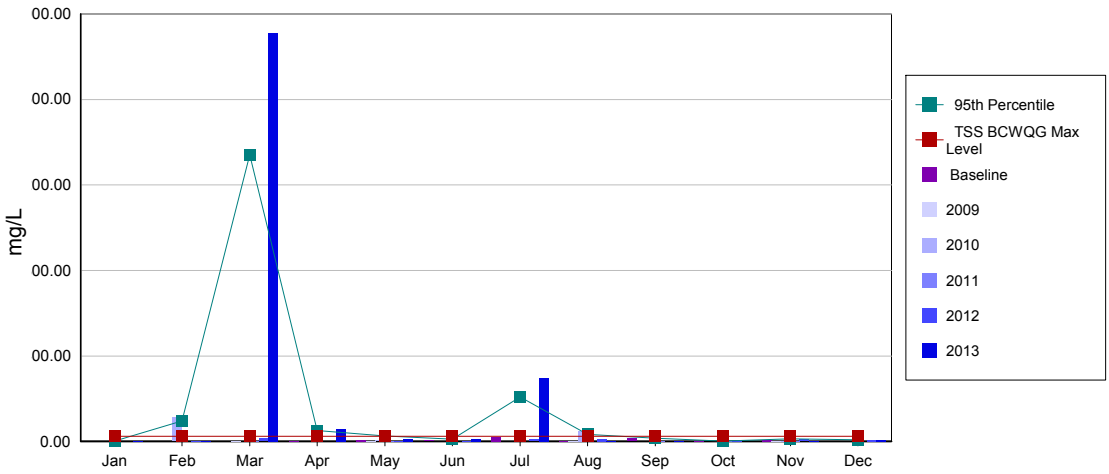


# Water Quality Report

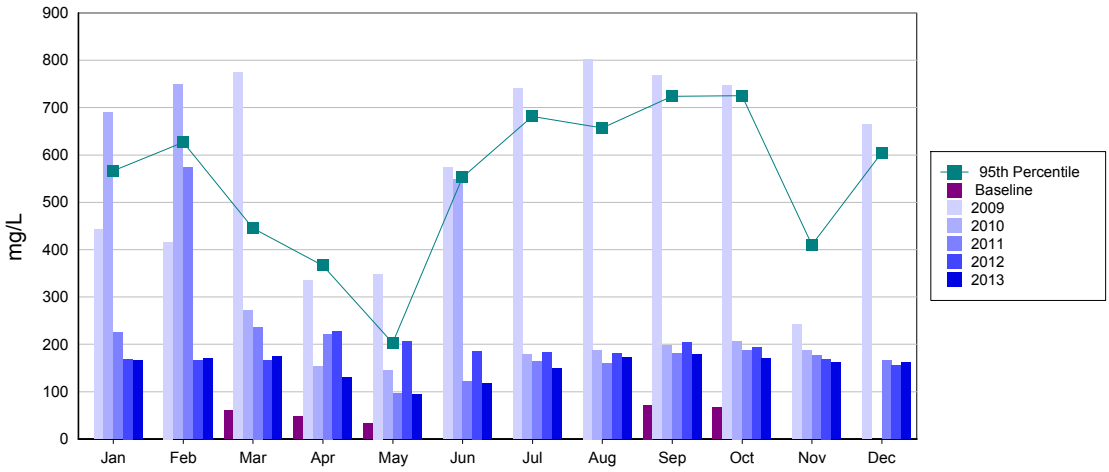
## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

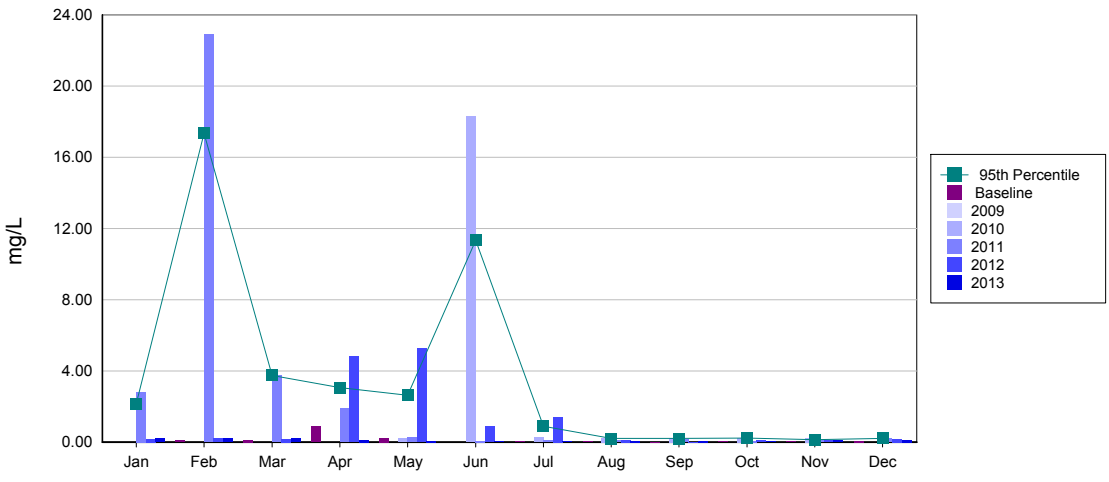
### W3a - W3 at outlet into Bootjack Lake : TSS (mg/L)




### W4 - North Dump Creek at road : Hardness (mg/L)




### W4 - North Dump Creek at road : Nitrate and Nitrite (mg/L)



# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
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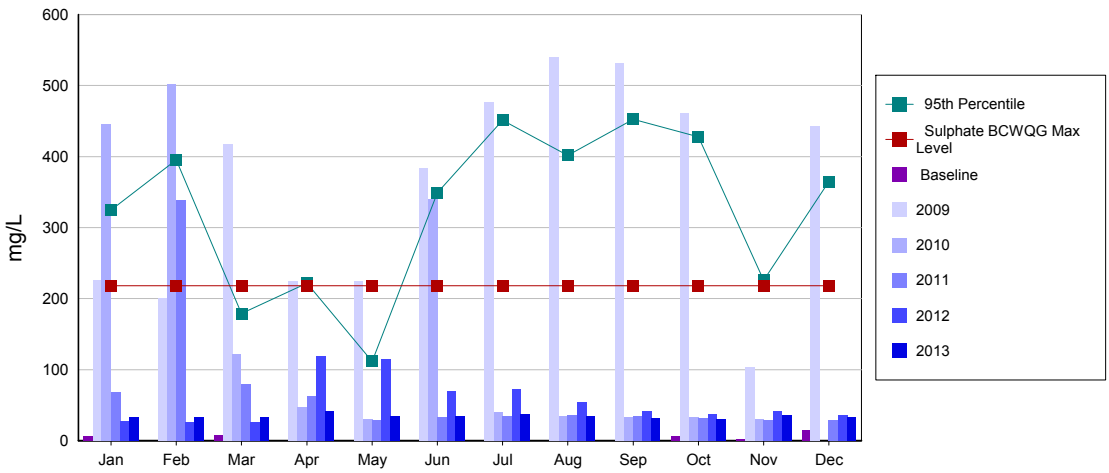
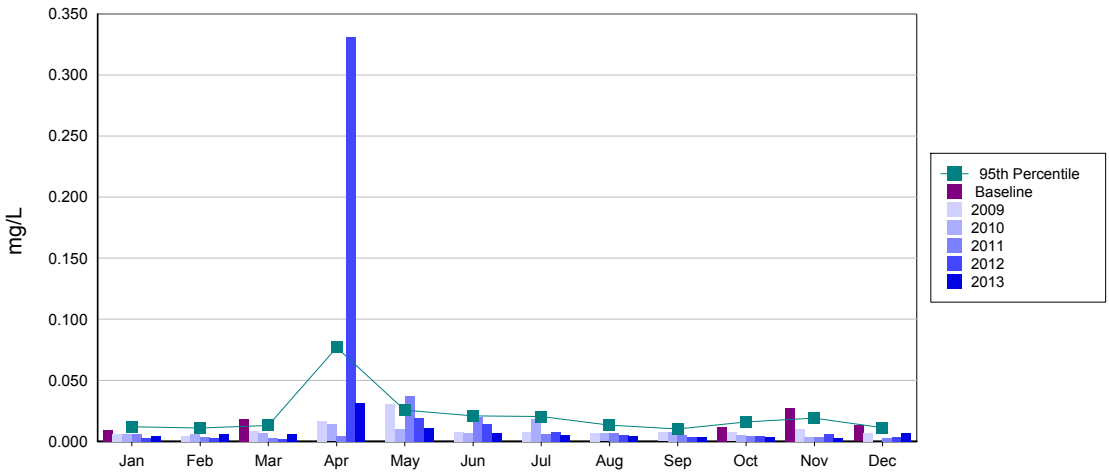
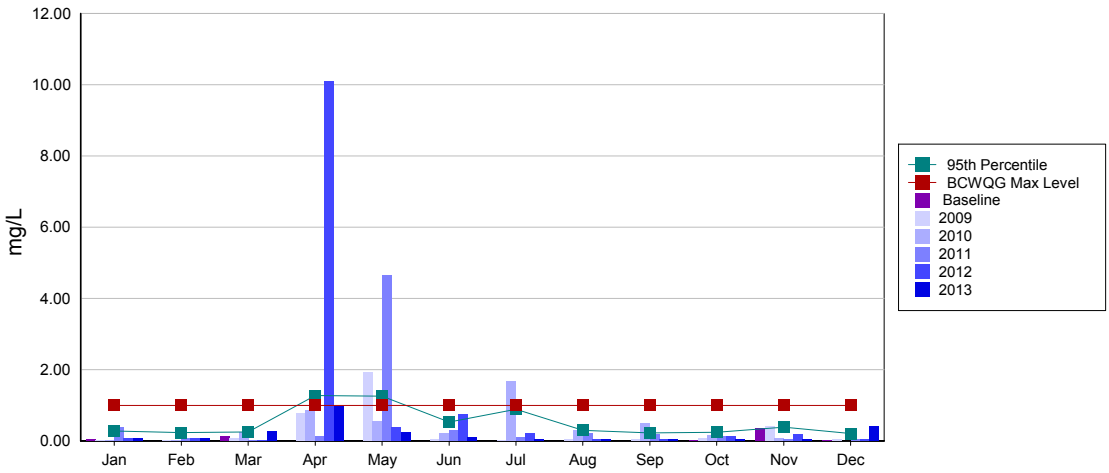
### W4 - North Dump Creek at road : Sulphate (mg/L)




### W4 - North Dump Creek at road : Total Copper (mg/L)




### W4 - North Dump Creek at road : Total Iron (mg/L)



# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
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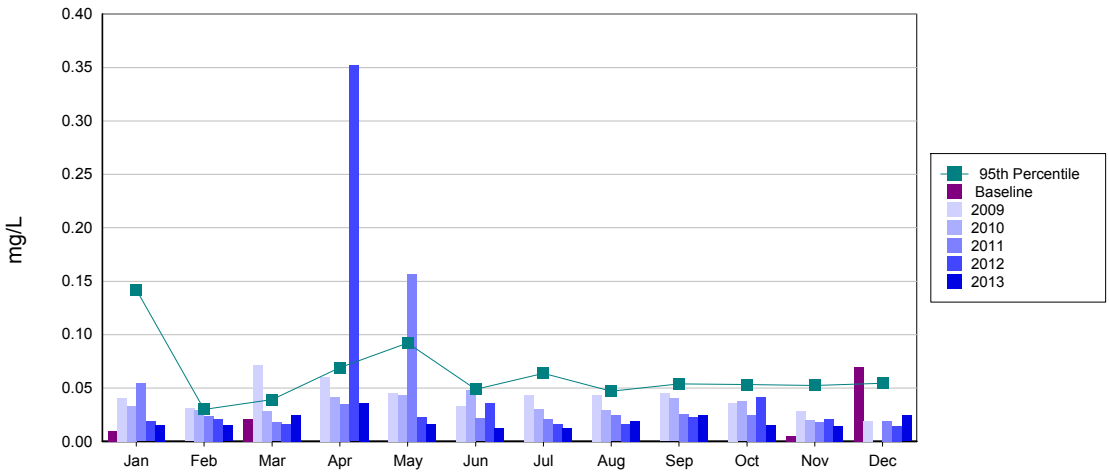
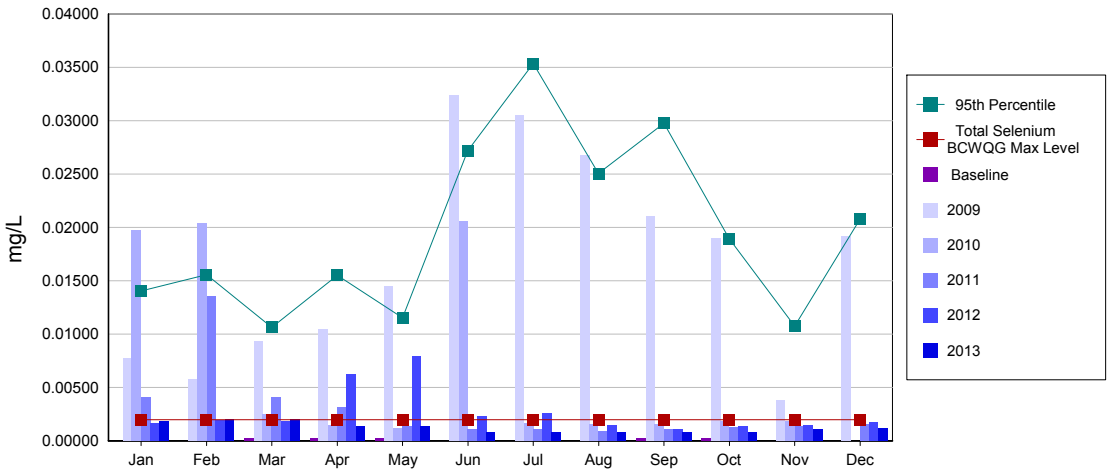
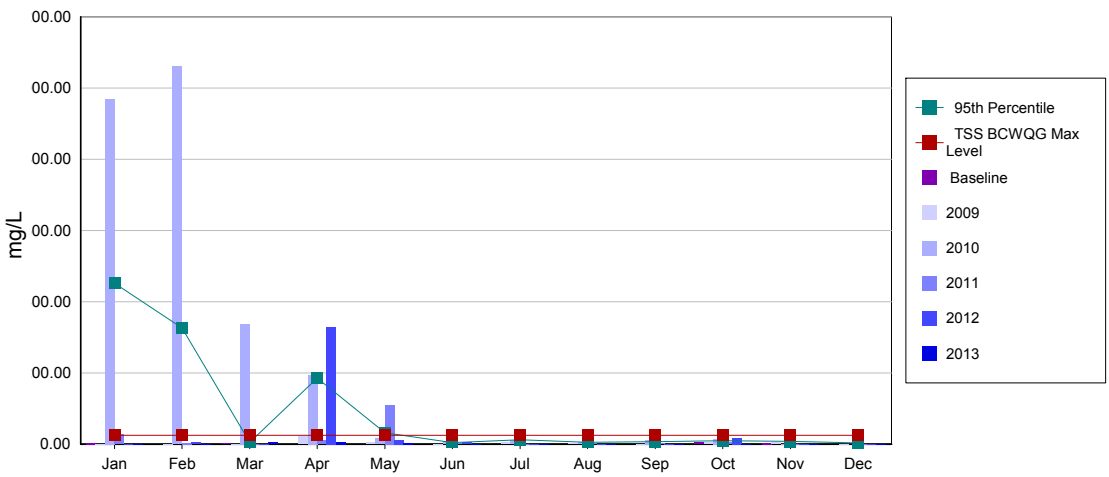
### W4 - North Dump Creek at road : Total Phosphorus (mg/L)




### W4 - North Dump Creek at road : Total Selenium (mg/L)




### W4 - North Dump Creek at road : TSS (mg/L)



# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
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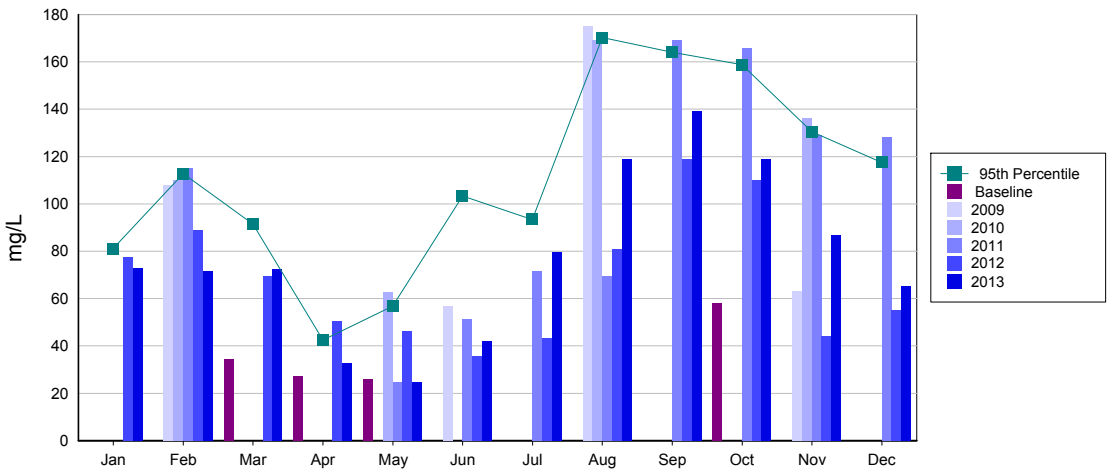
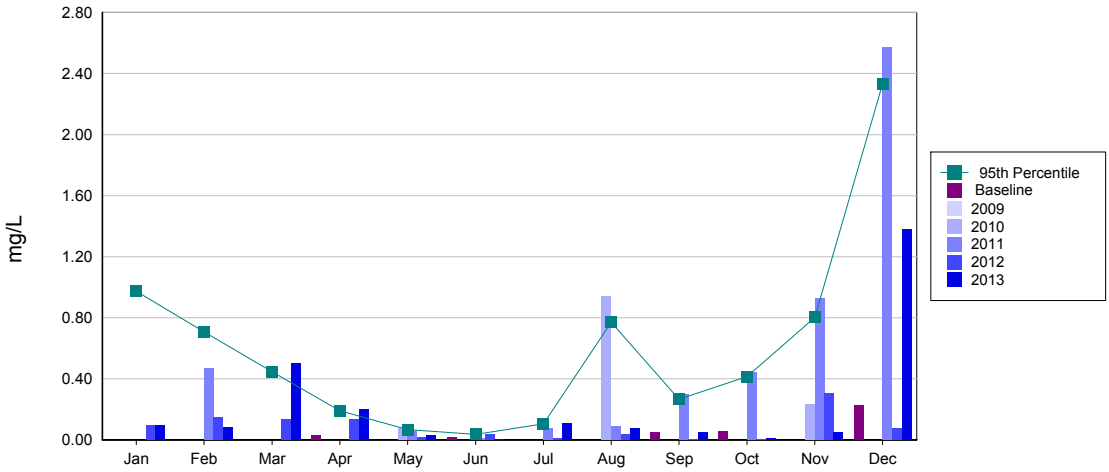
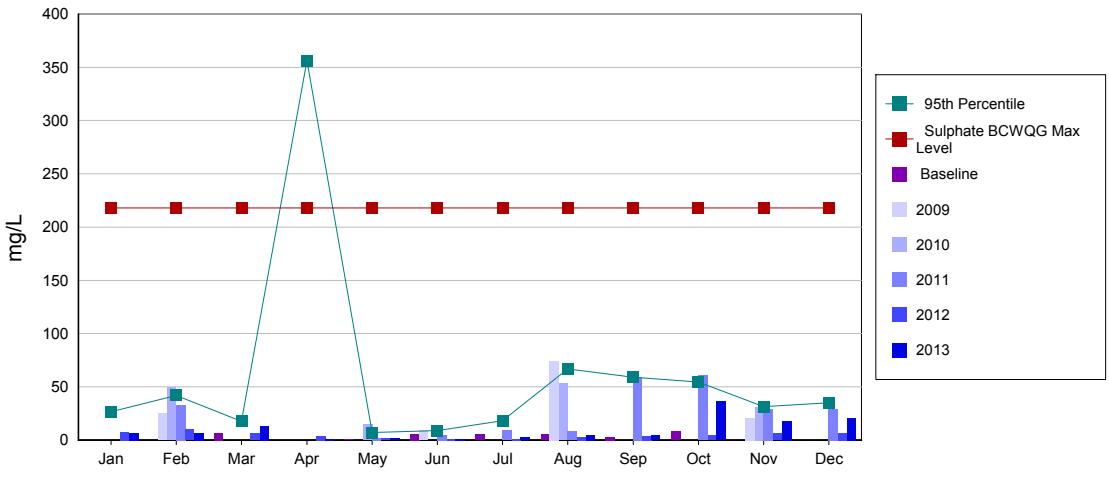
### W5 - Bootjack Creek above Hazeltine Creek : Hardness (mg/L)




### W5 - Bootjack Creek above Hazeltine Creek : Nitrate and Nitrite (mg/L)




### W5 - Bootjack Creek above Hazeltine Creek : Sulphate (mg/L)



# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley

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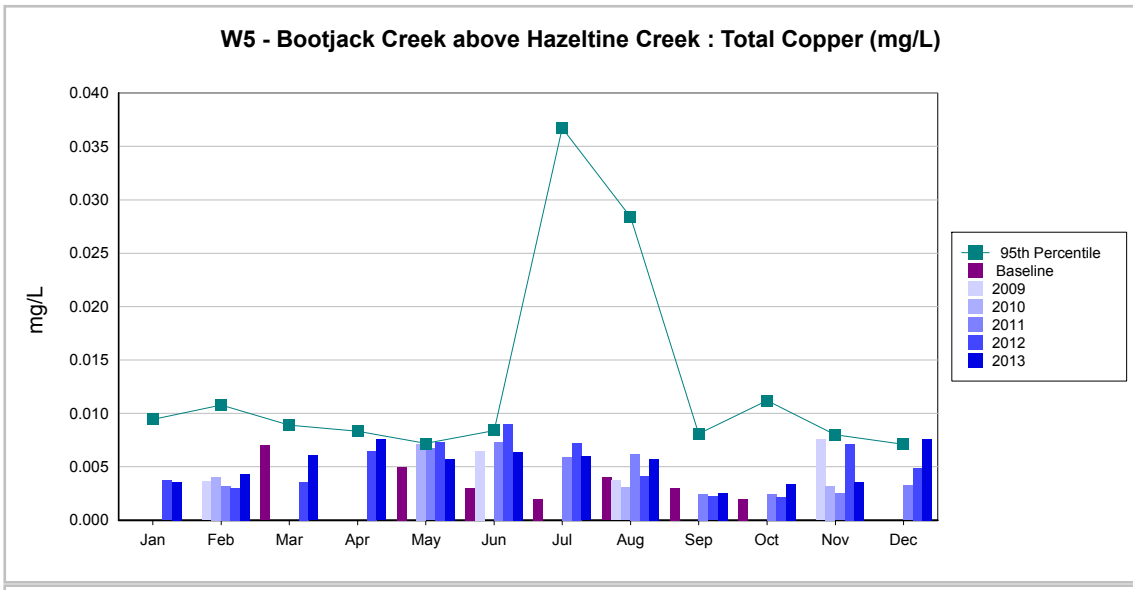


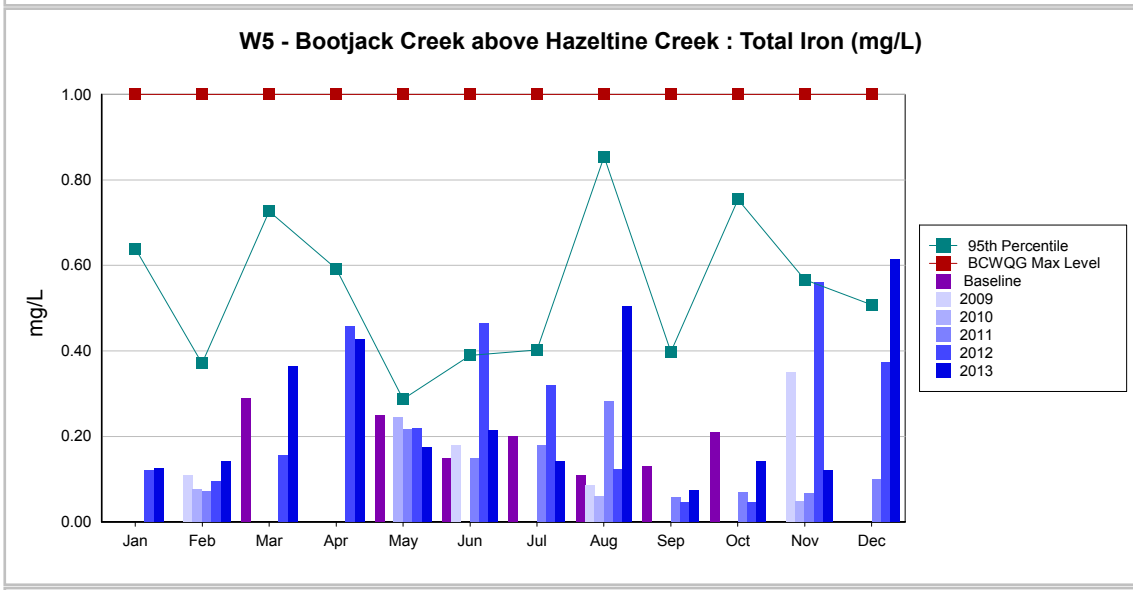


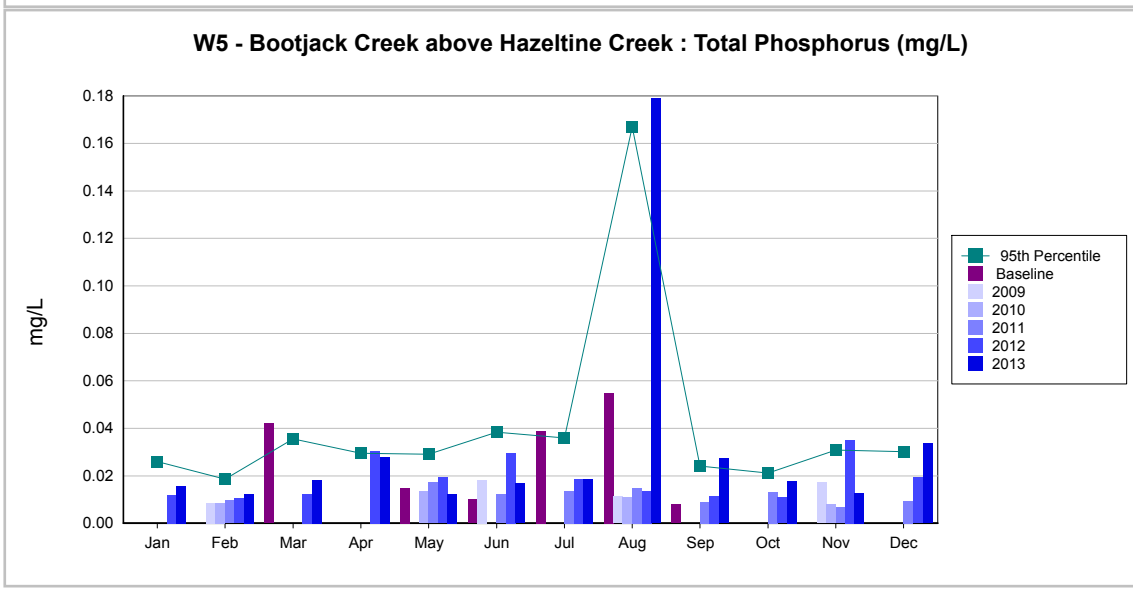

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**Mount Polley**

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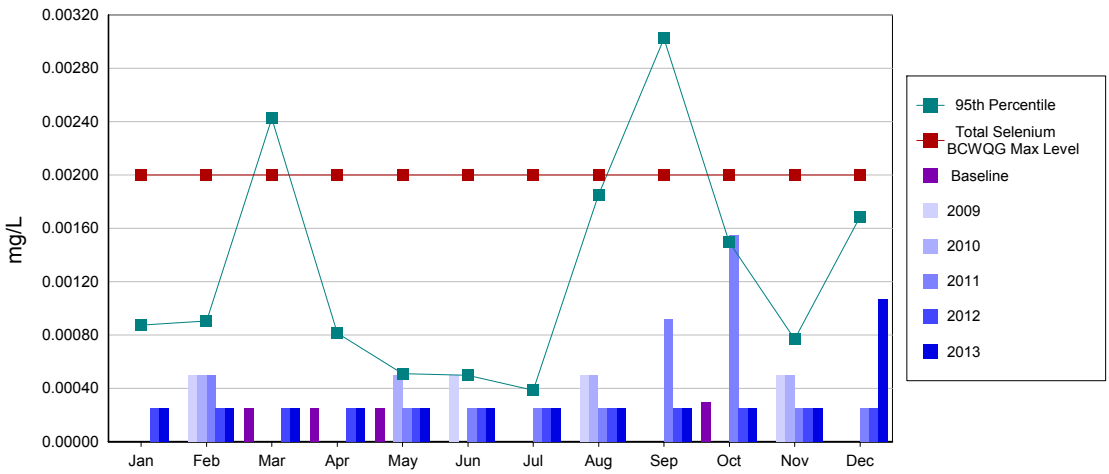
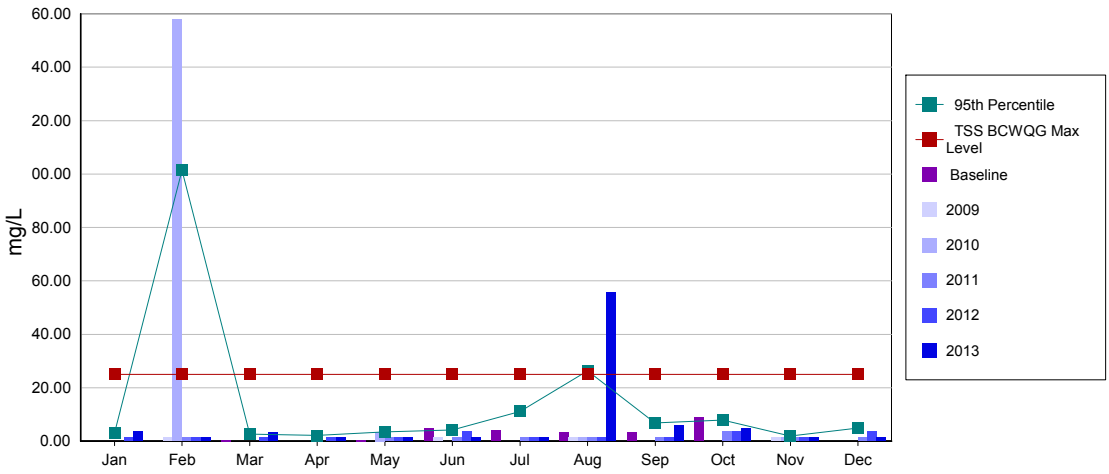
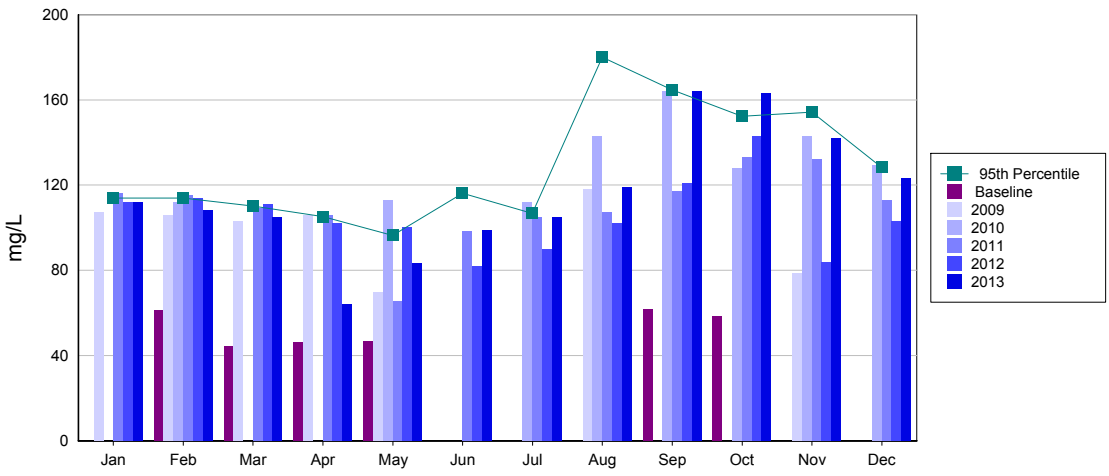
### W5 - Bootjack Creek above Hazeltine Creek : Total Selenium (mg/L)




### W5 - Bootjack Creek above Hazeltine Creek : TSS (mg/L)




### W7 - Hazeltine Creek : Hardness (mg/L)



# Water Quality Report

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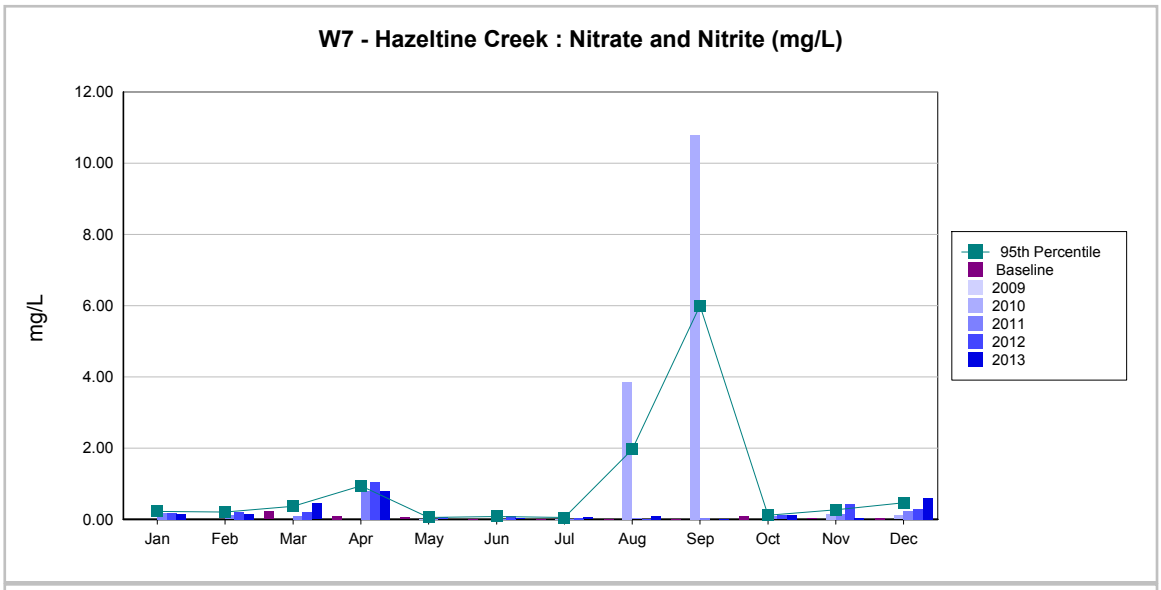


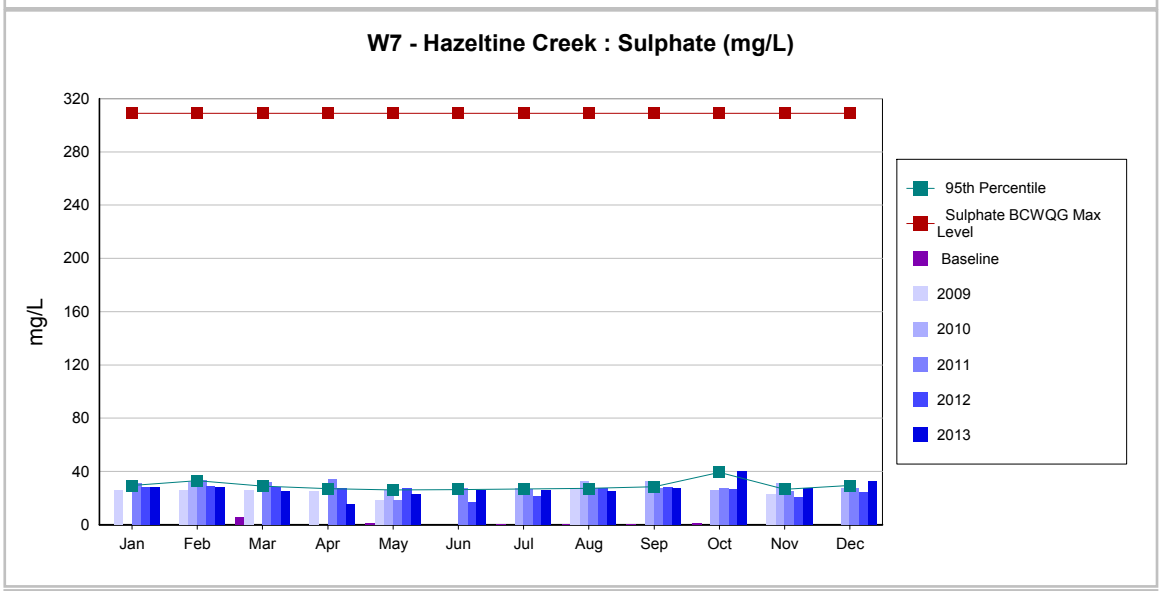


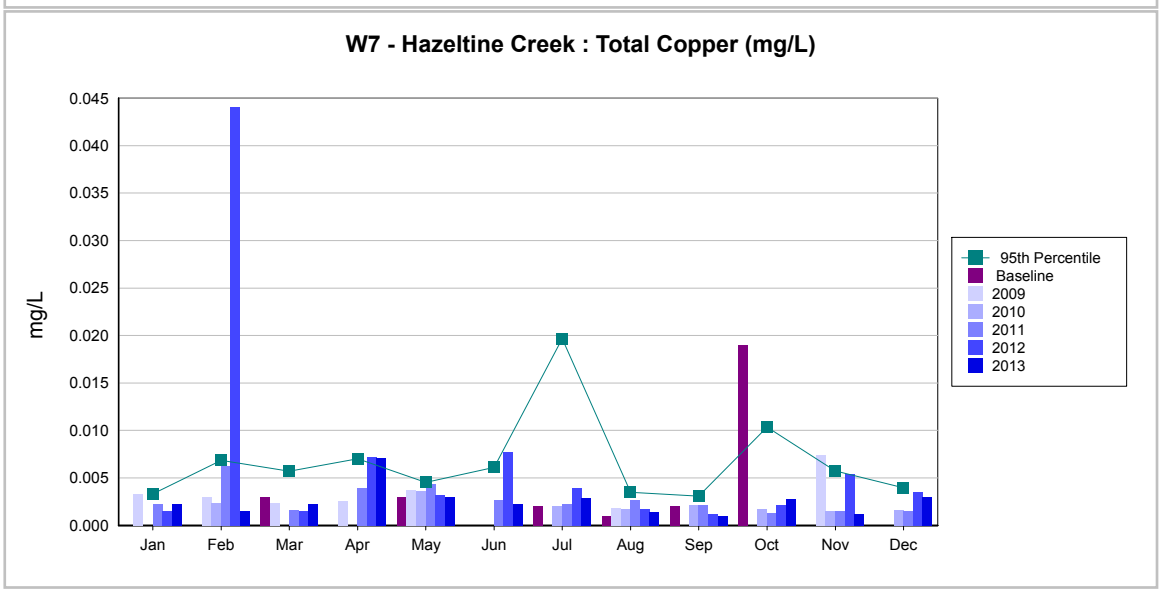

# Water Quality Report

## 2013 Surface Water Quality Graphs

**Mount Polley**

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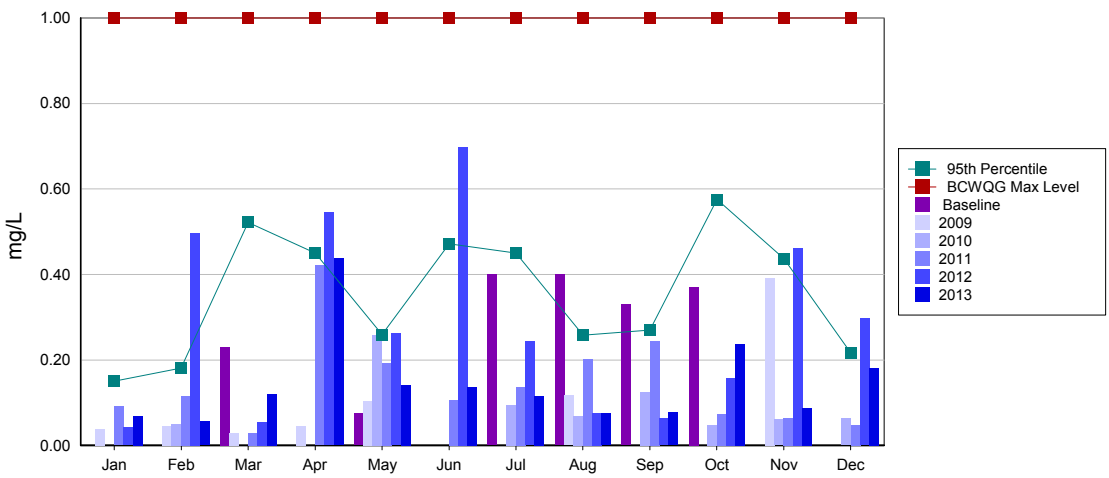
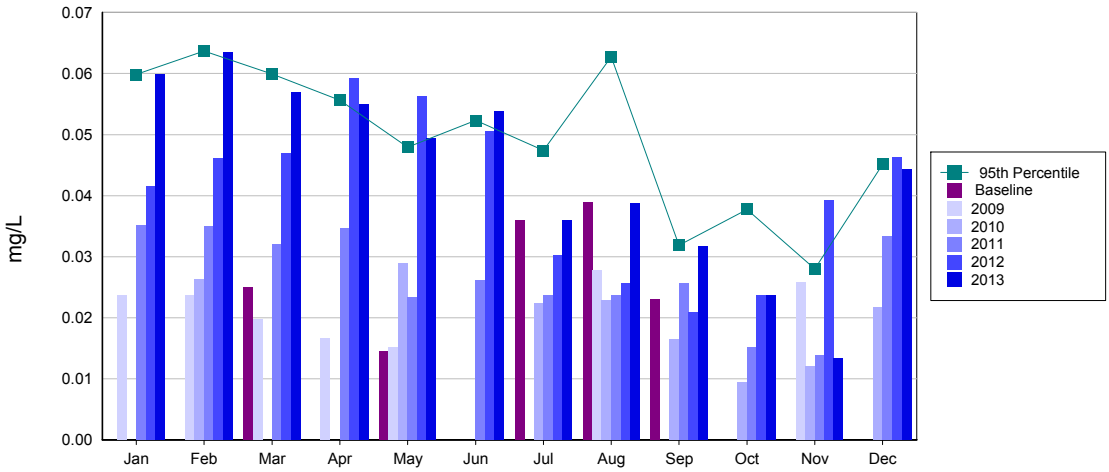
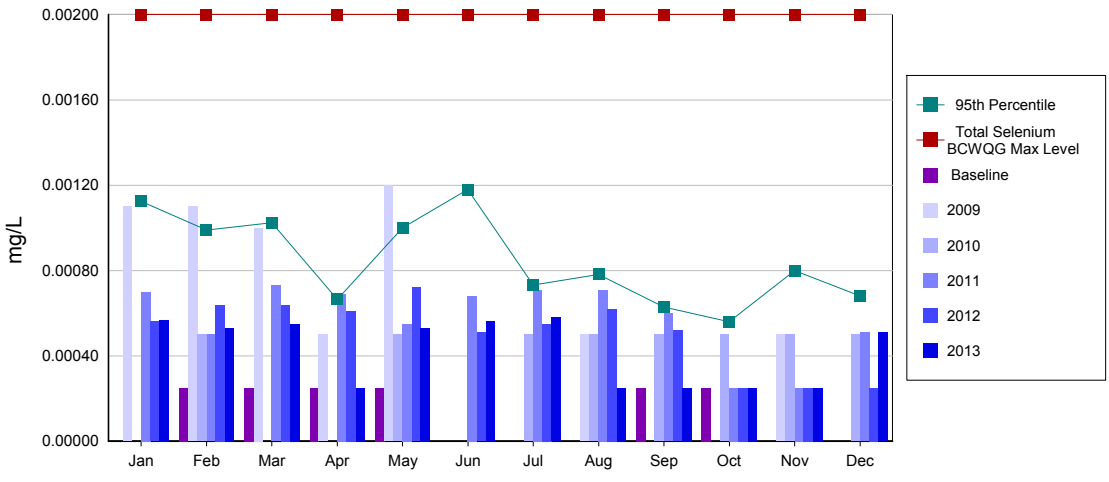
### W7 - Hazeltine Creek : Total Iron (mg/L)




### W7 - Hazeltine Creek : Total Phosphorus (mg/L)




### W7 - Hazeltine Creek : Total Selenium (mg/L)



# Water Quality Report

## 2013 Surface Water Quality Graphs

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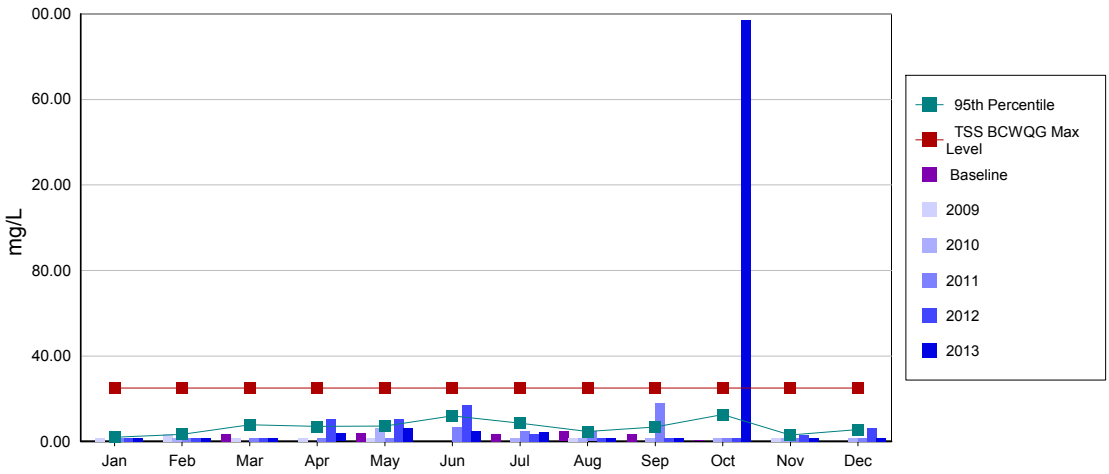
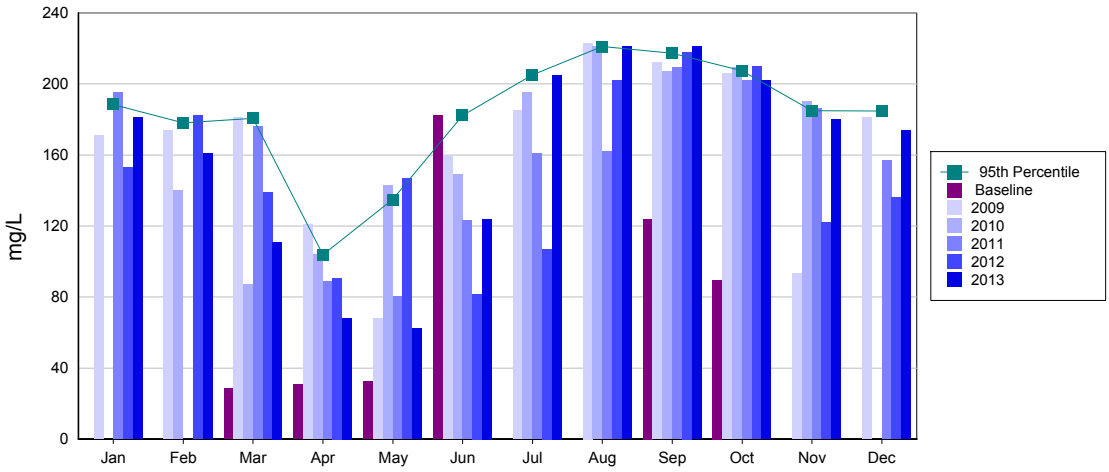
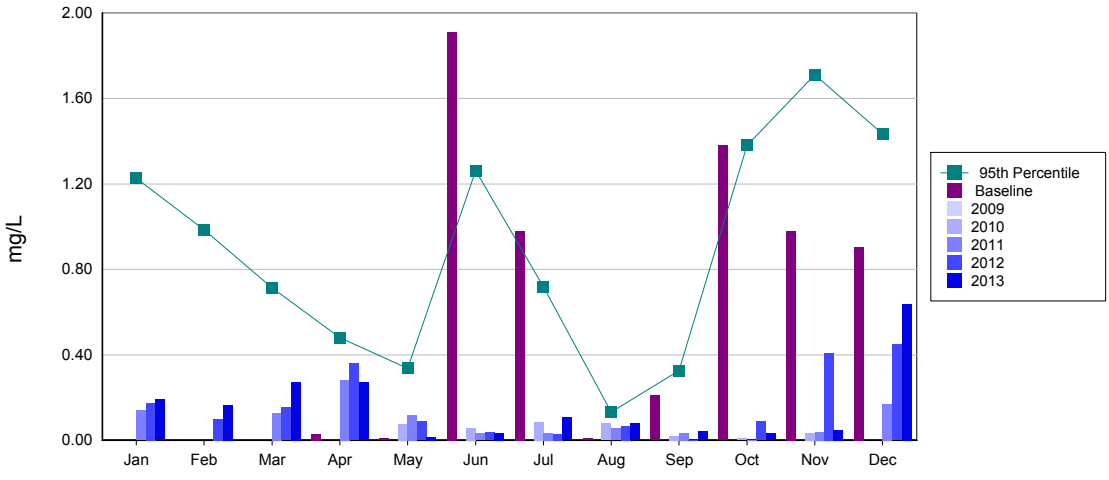
### W7 - Hazeltine Creek : TSS (mg/L)




### W8 - Edney Creek north-east tributary : Hardness (mg/L)




### W8 - Edney Creek north-east tributary : Nitrate and Nitrite (mg/L)



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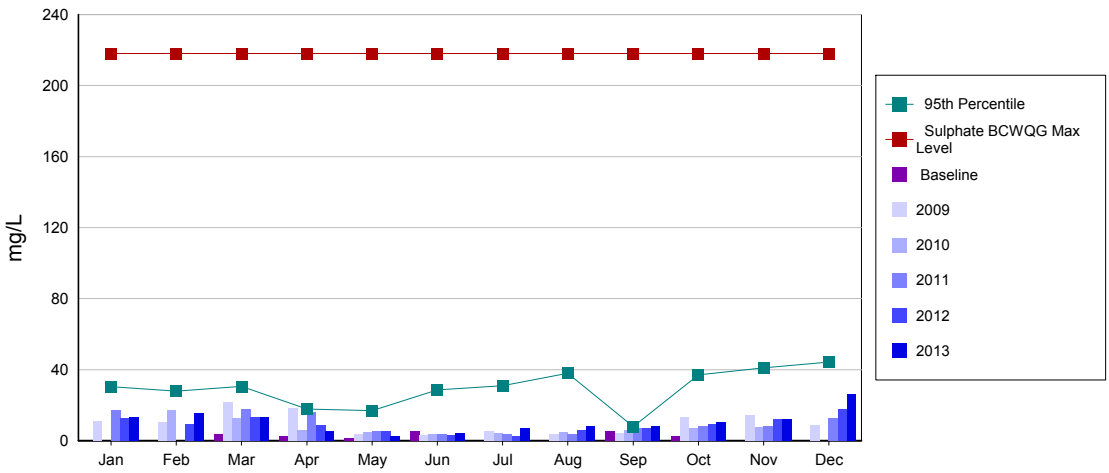
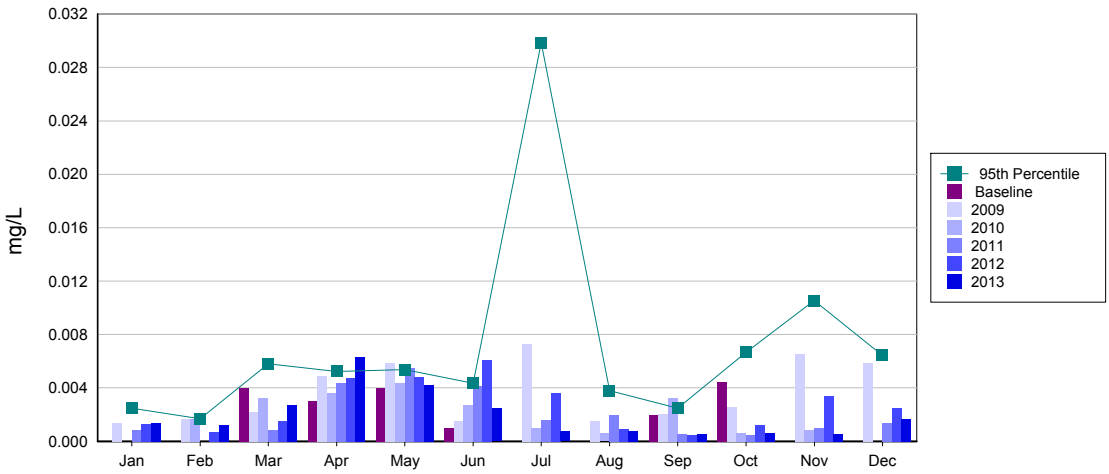
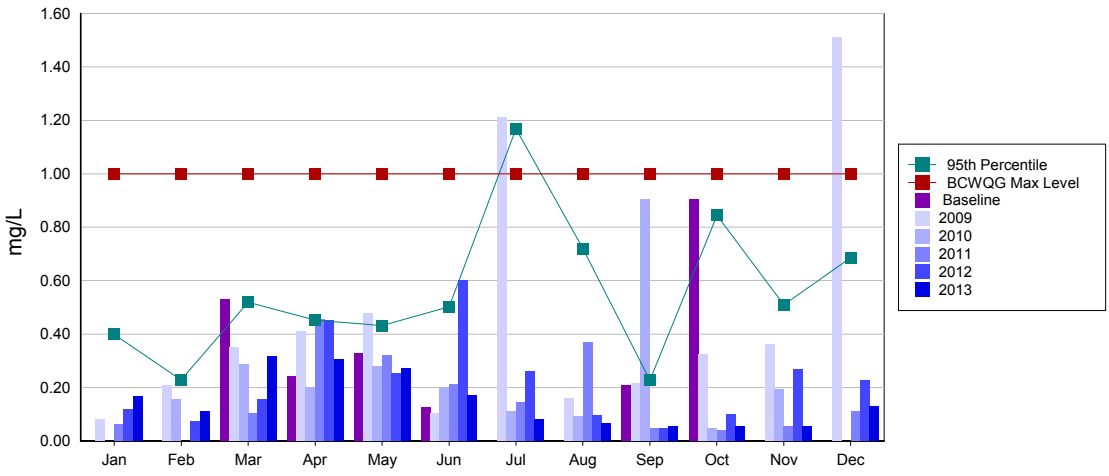
### W8 - Edney Creek north-east tributary : Sulphate (mg/L)




### W8 - Edney Creek north-east tributary : Total Copper (mg/L)




### W8 - Edney Creek north-east tributary : Total Iron (mg/L)



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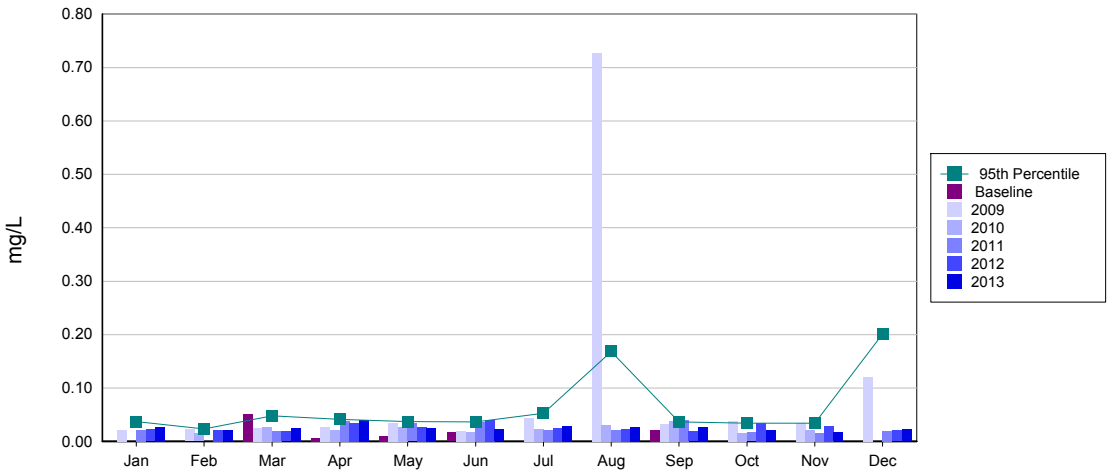
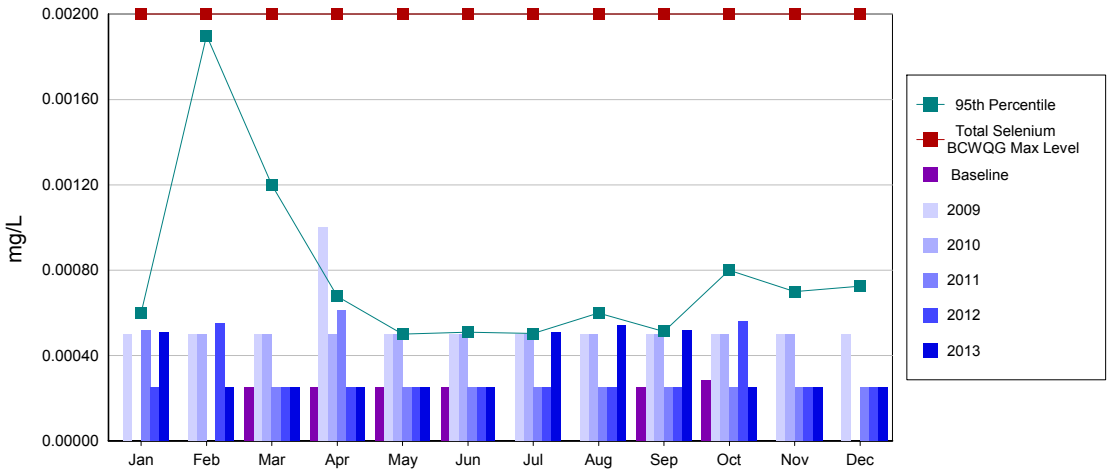
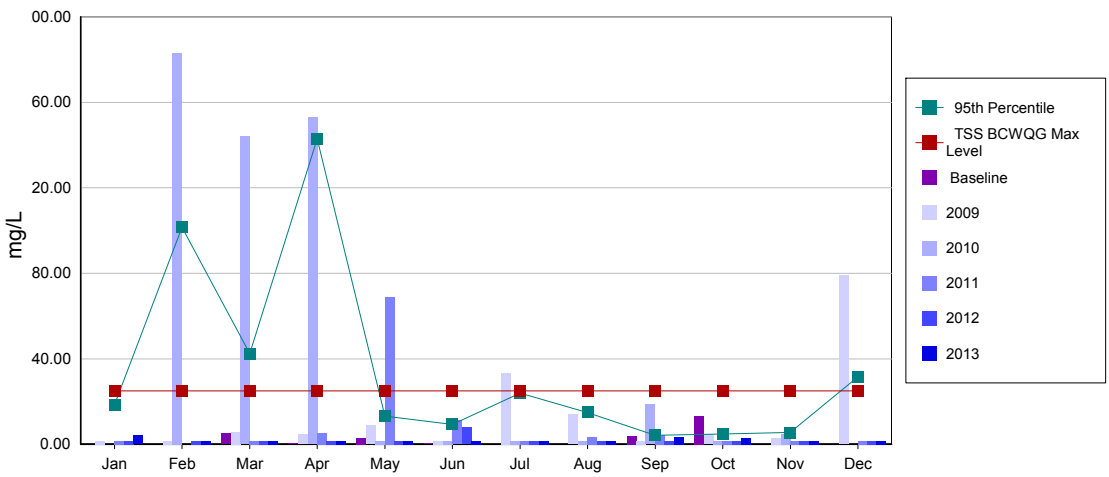
### W8 - Edney Creek north-east tributary : Total Phosphorus (mg/L)




### W8 - Edney Creek north-east tributary : Total Selenium (mg/L)




### W8 - Edney Creek north-east tributary : TSS (mg/L)



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## 2013 Surface Water Quality Graphs

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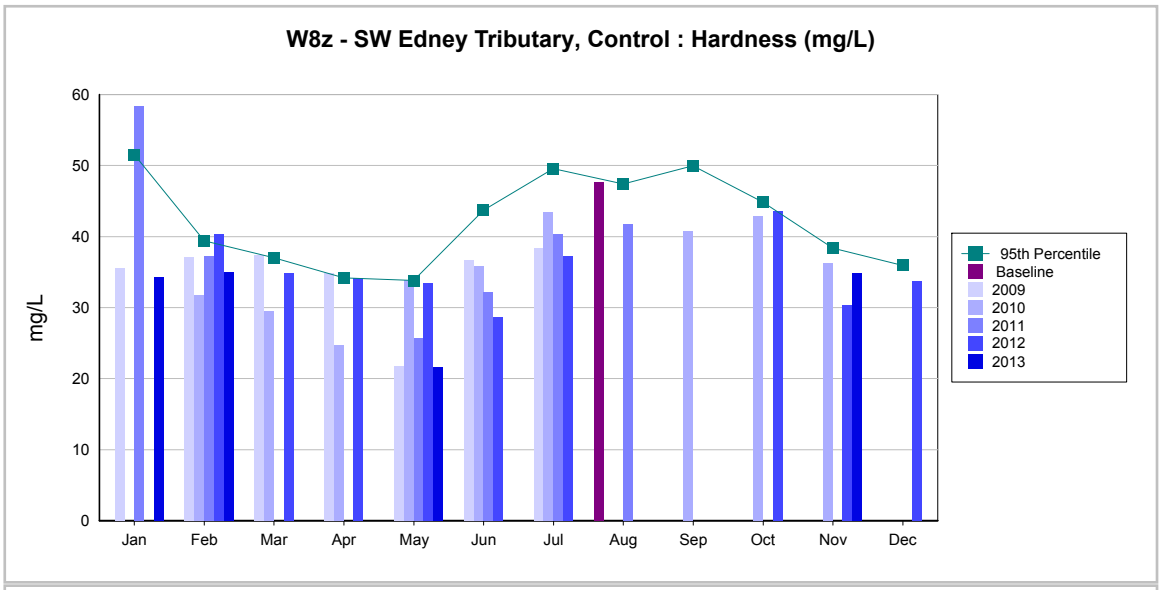


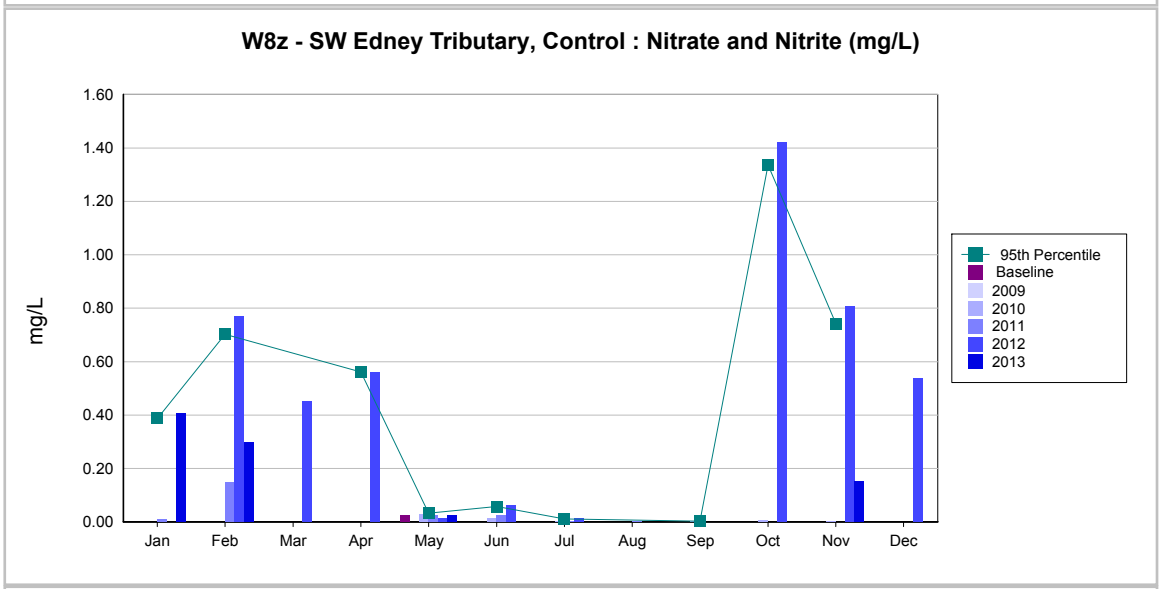


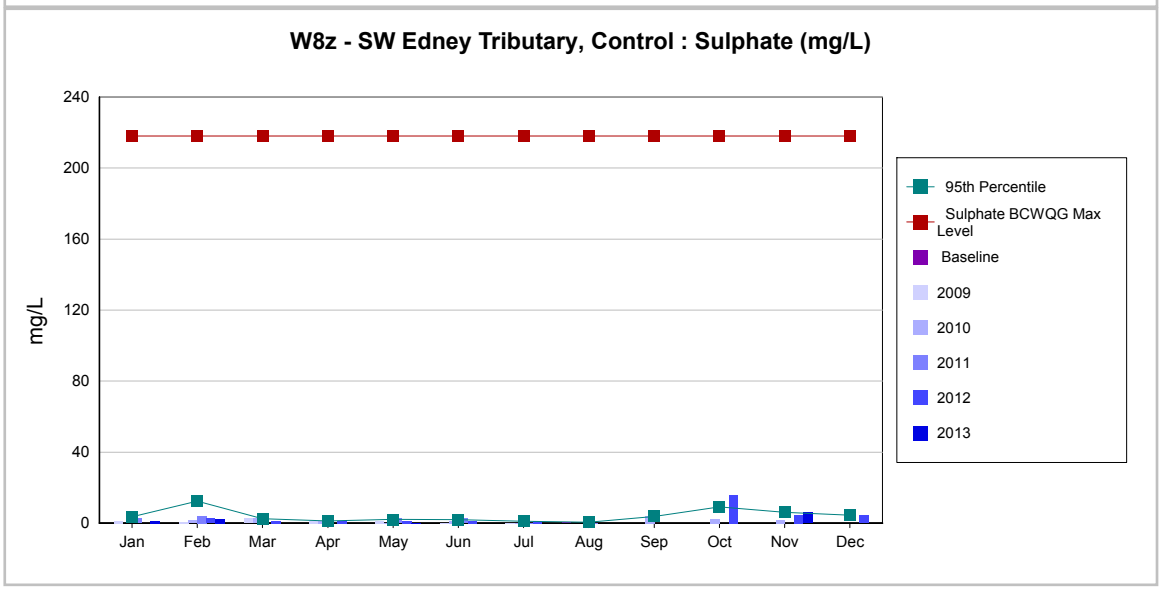

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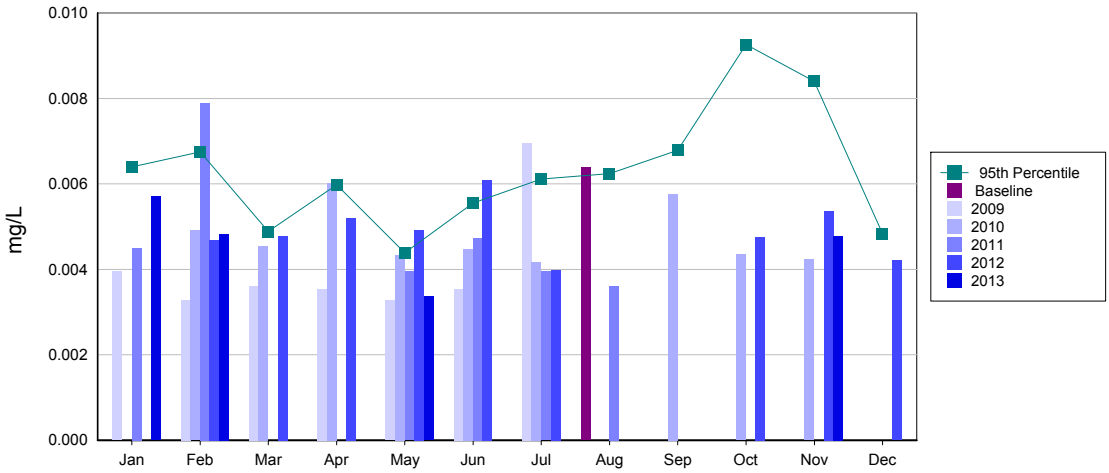


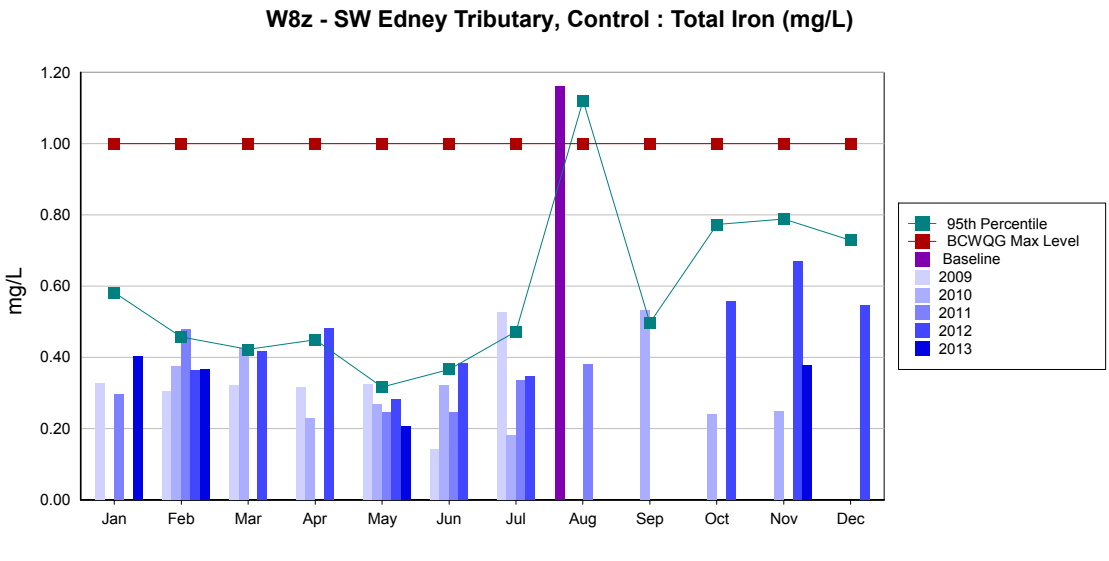


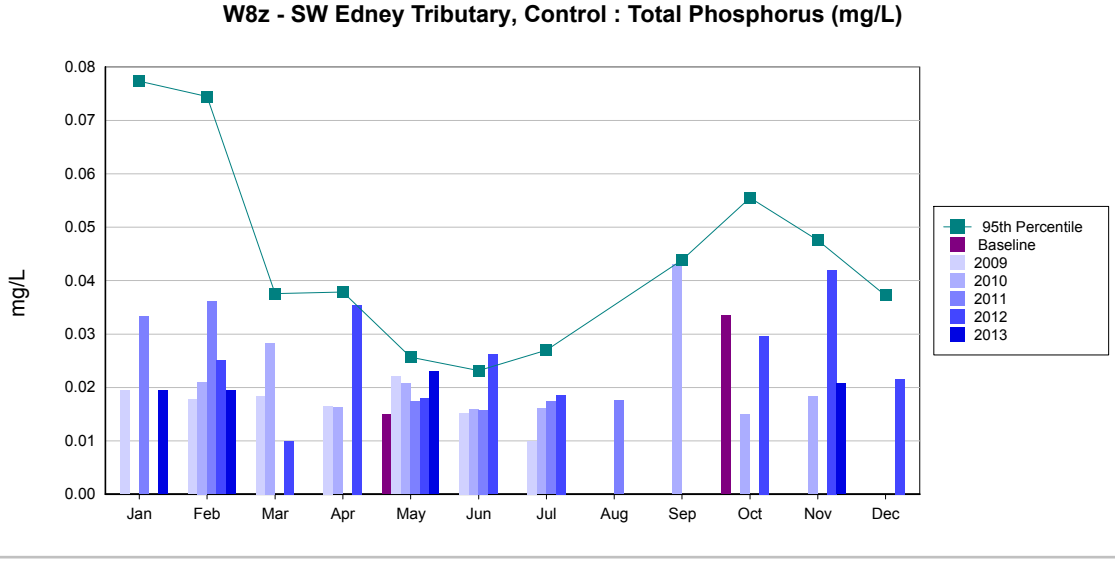

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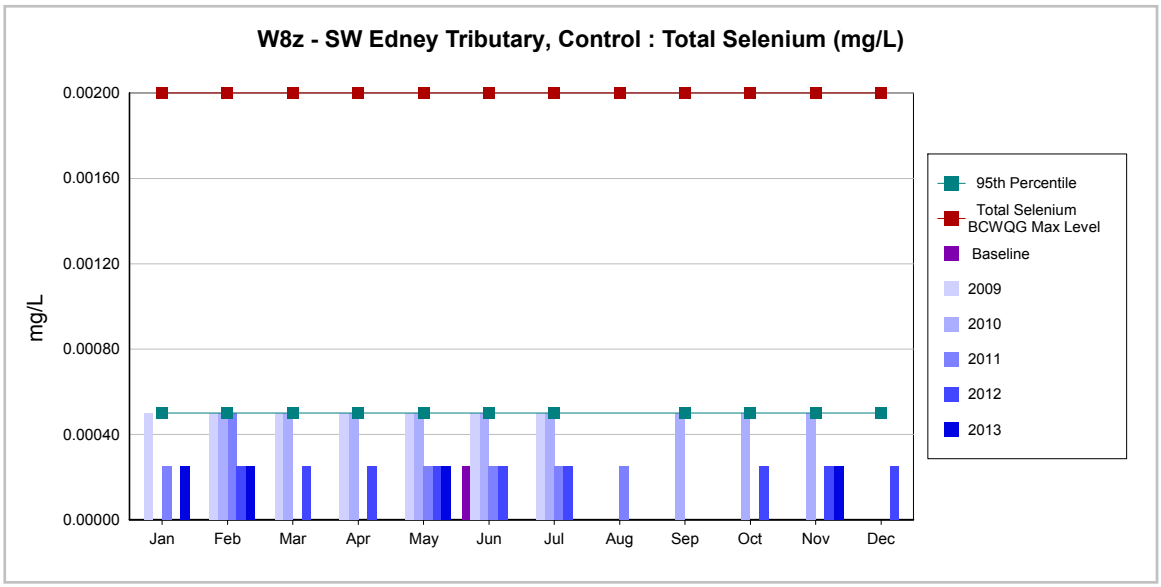


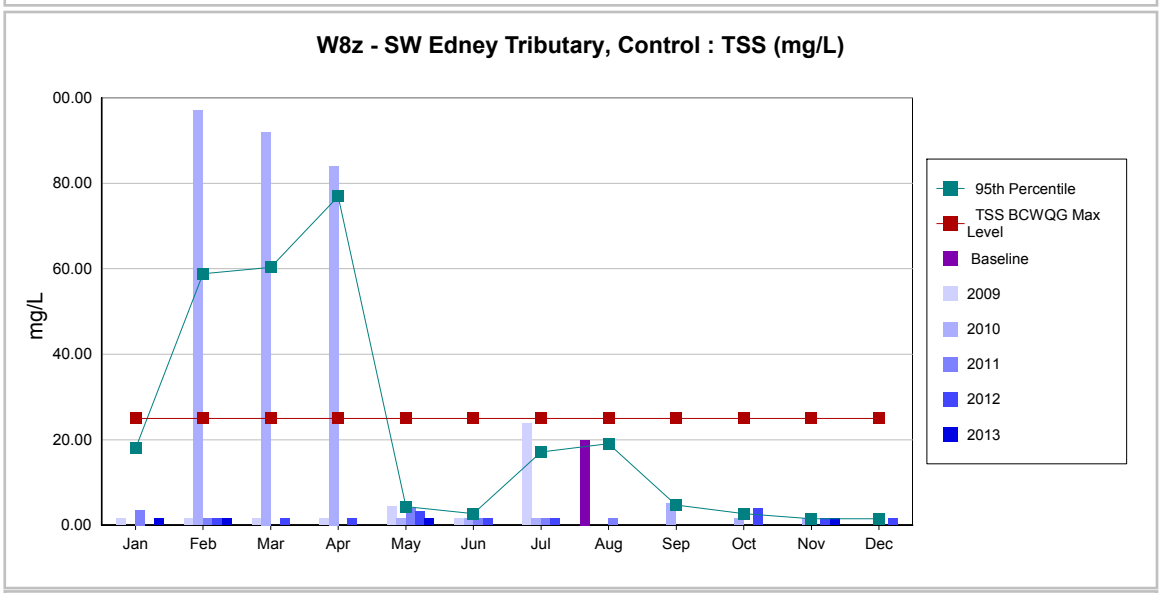


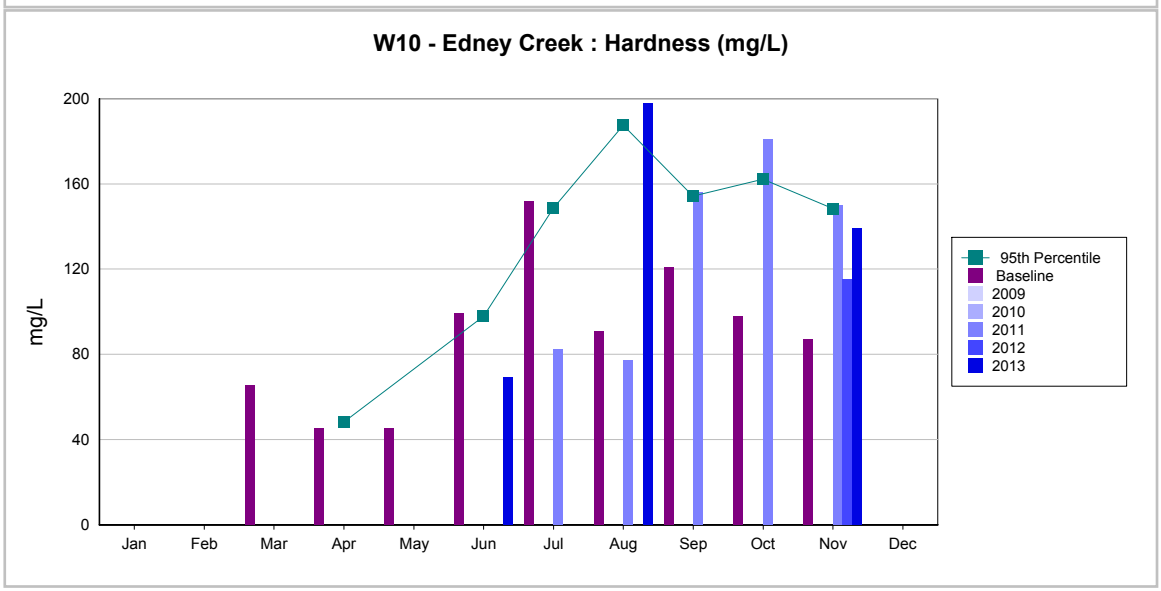

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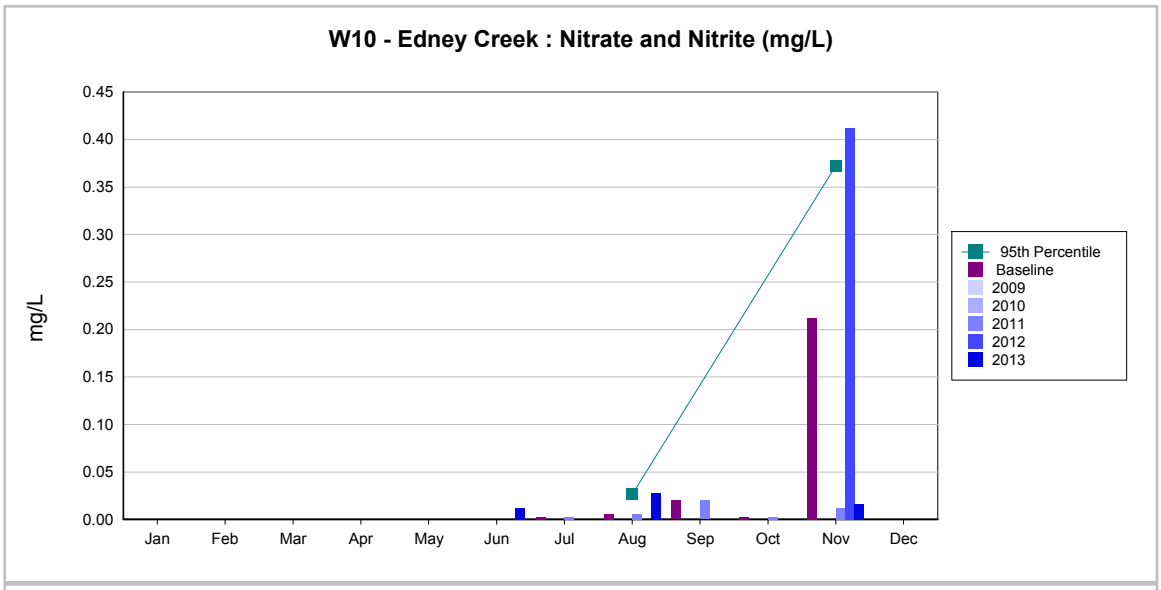


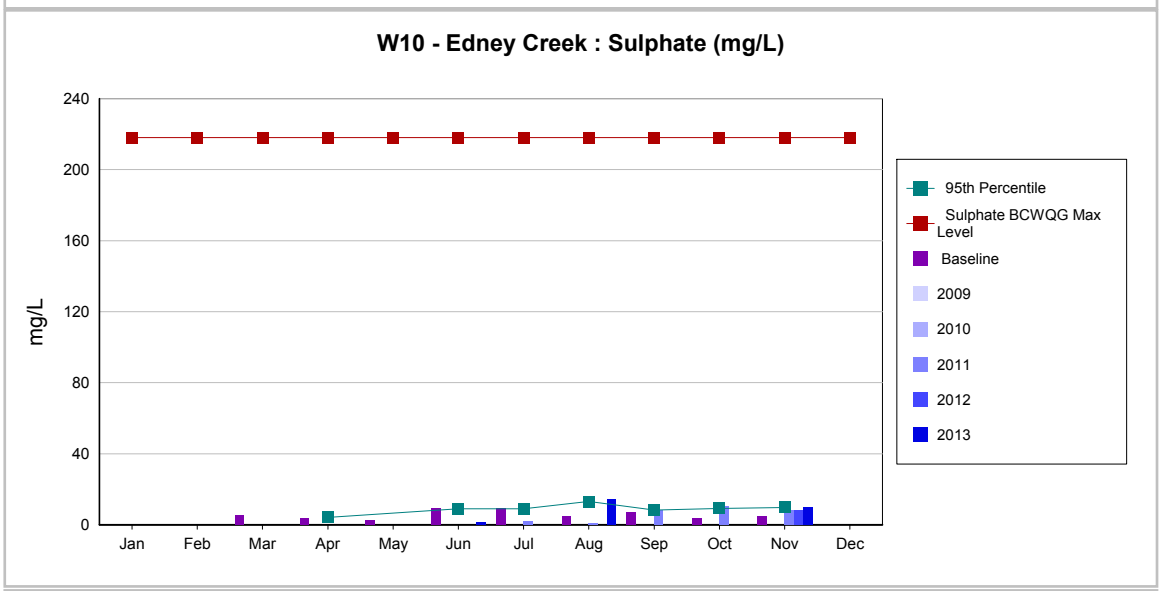


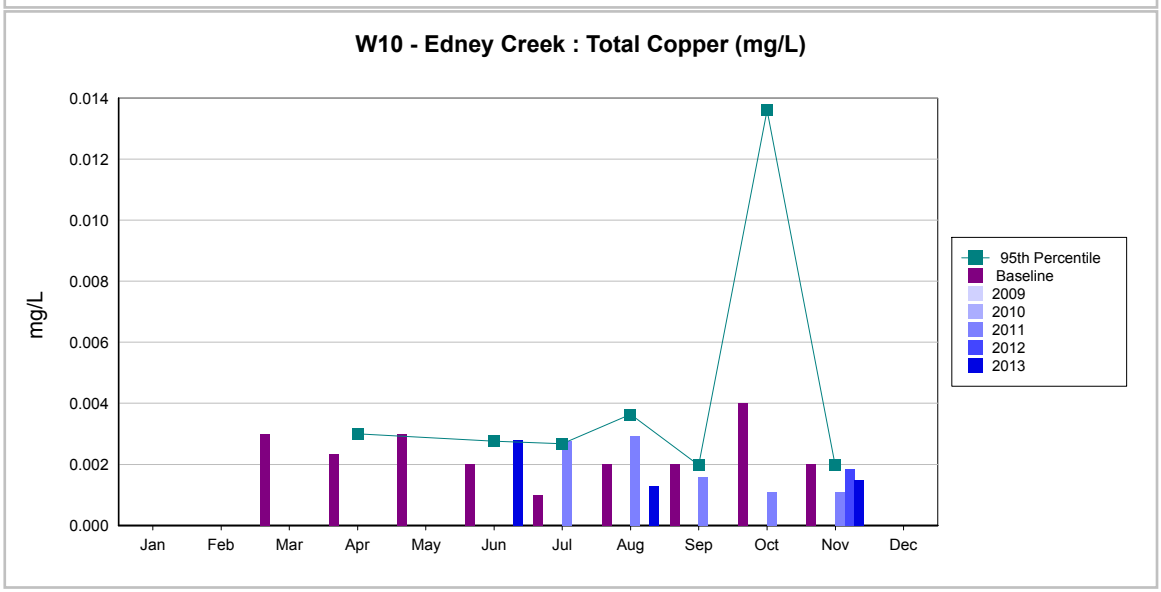

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## 2013 Surface Water Quality Graphs

**Mount Polley**

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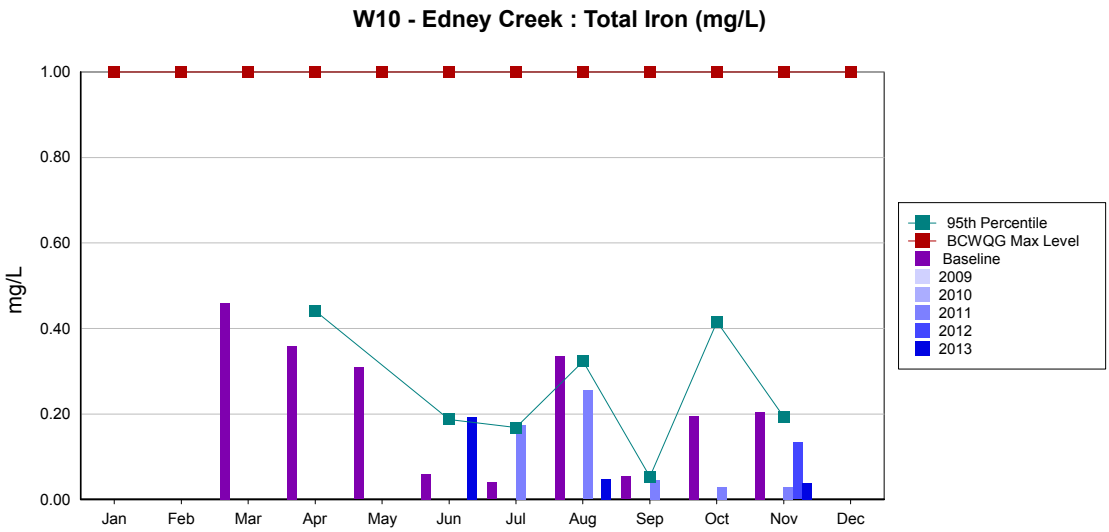


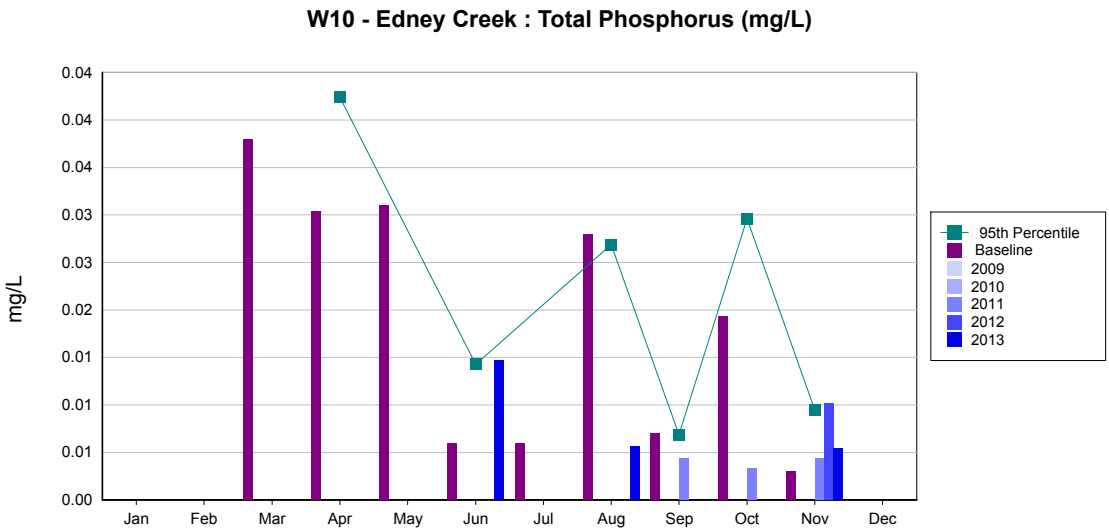


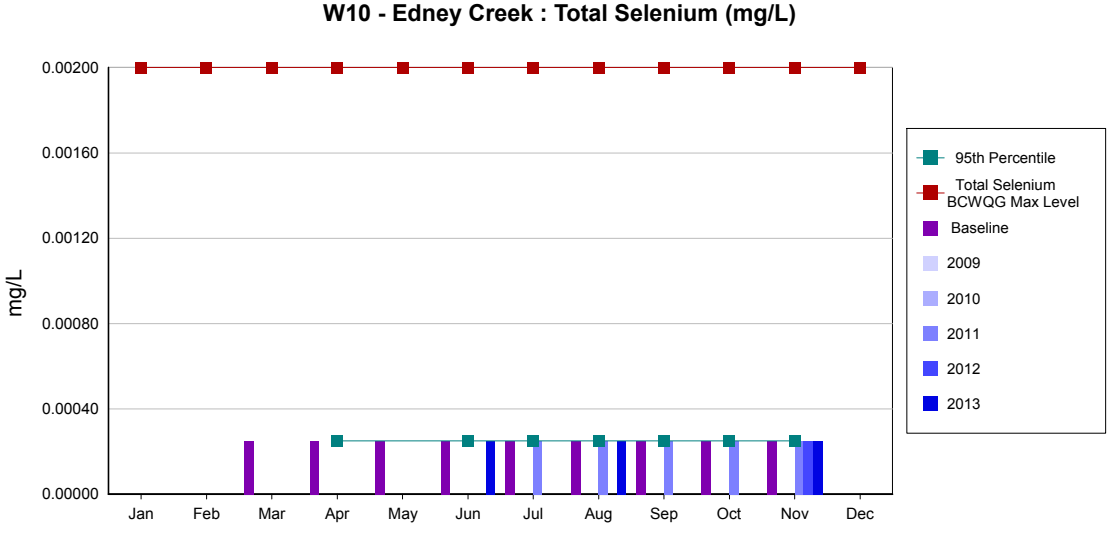

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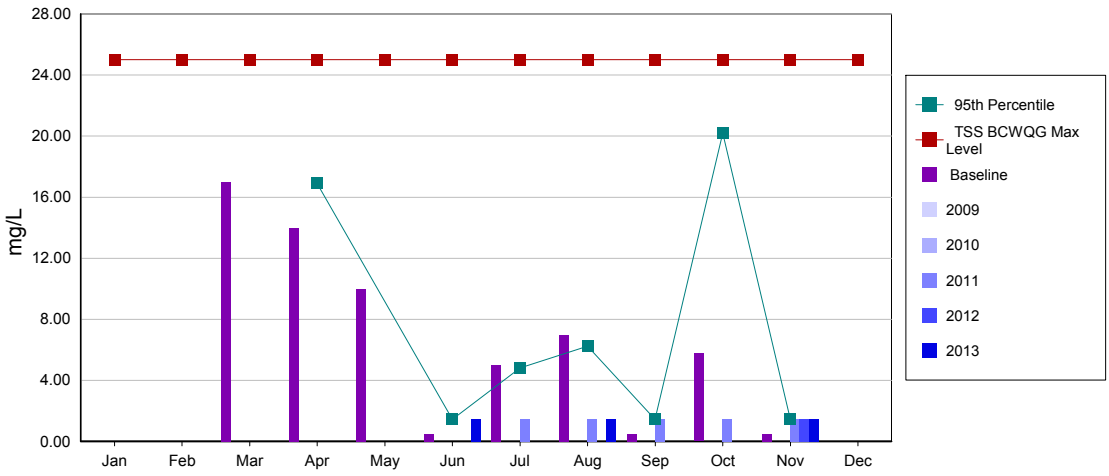
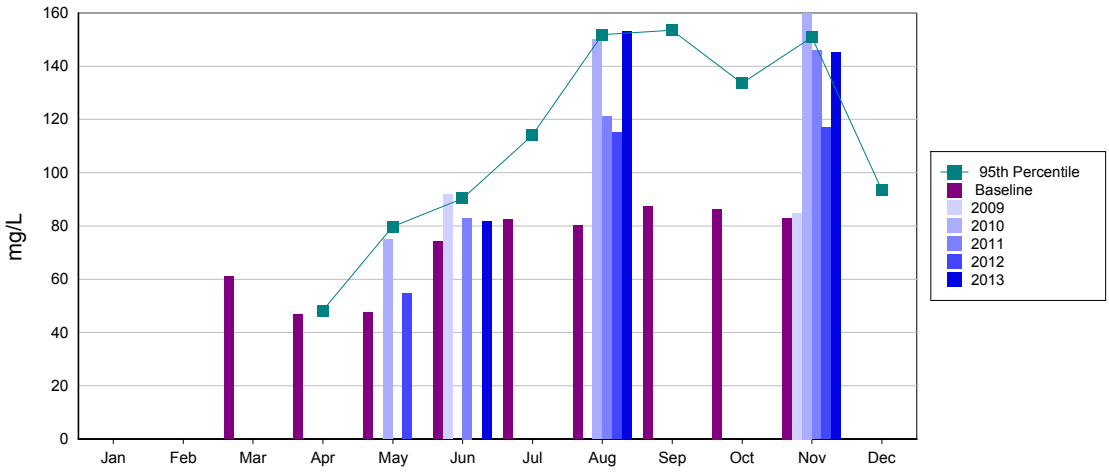
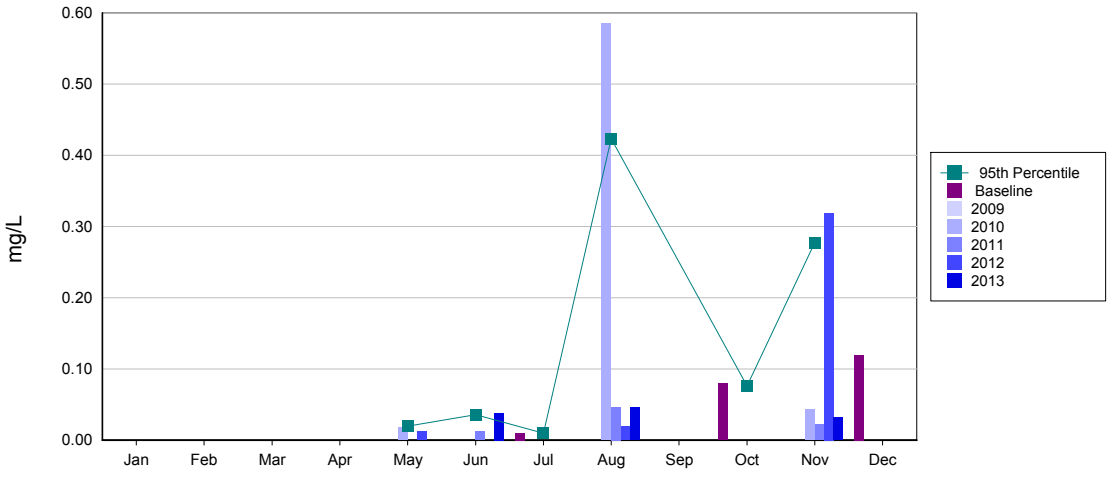
### W10 - Edney Creek : TSS (mg/L)




### W11 - Lower Edney Creek upstream of Quesnel Lake : Hardness (mg/L)



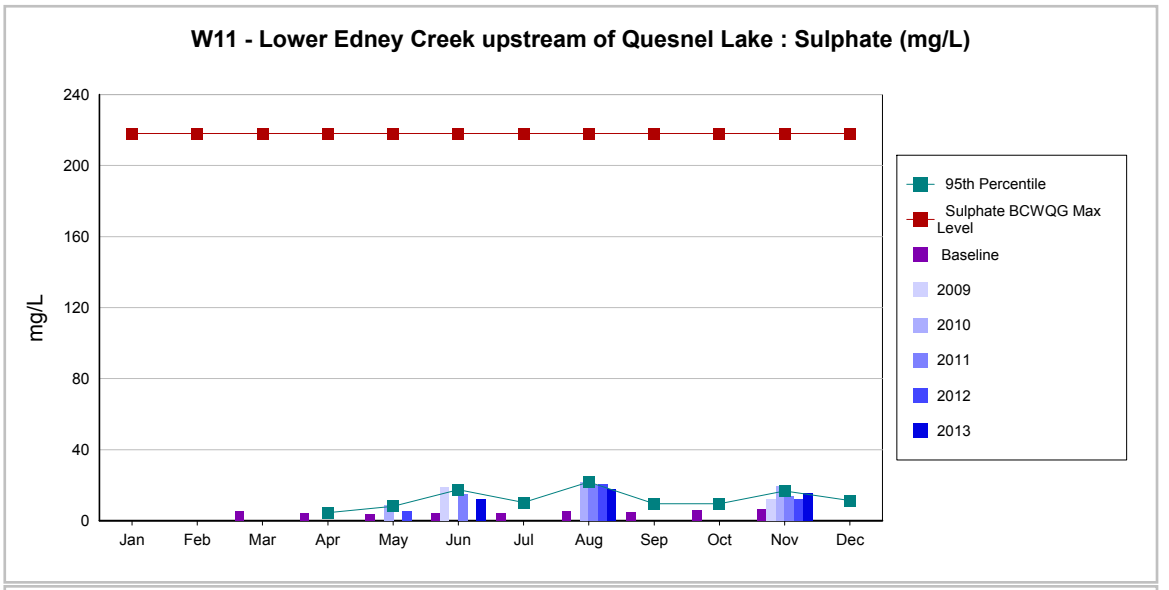

### W11 - Lower Edney Creek upstream of Quesnel Lake : Nitrate and Nitrite (mg/L)

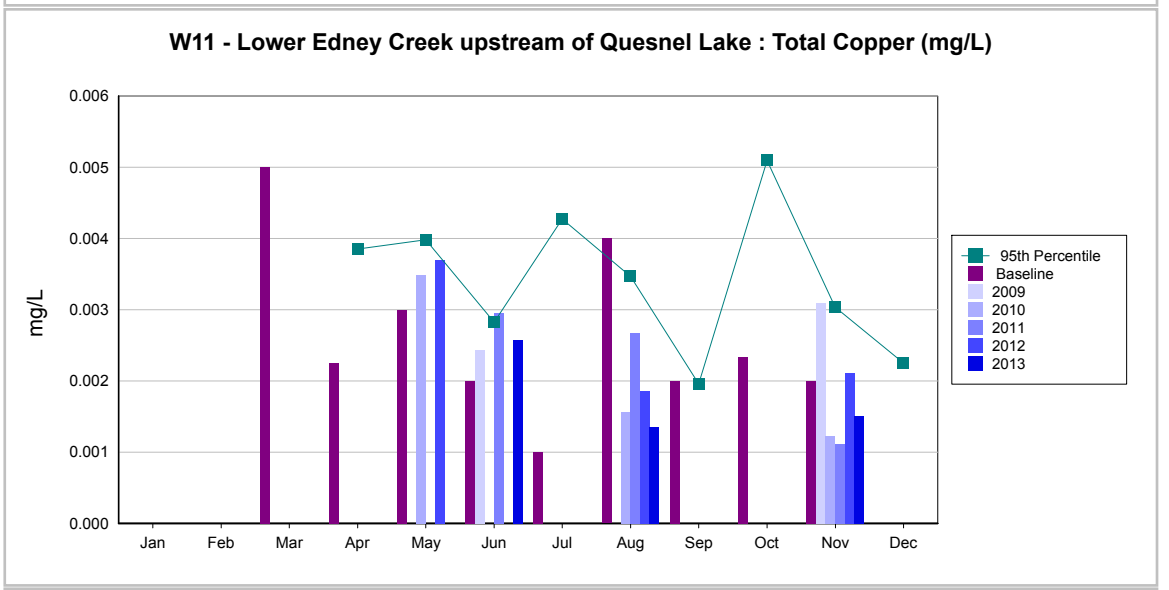


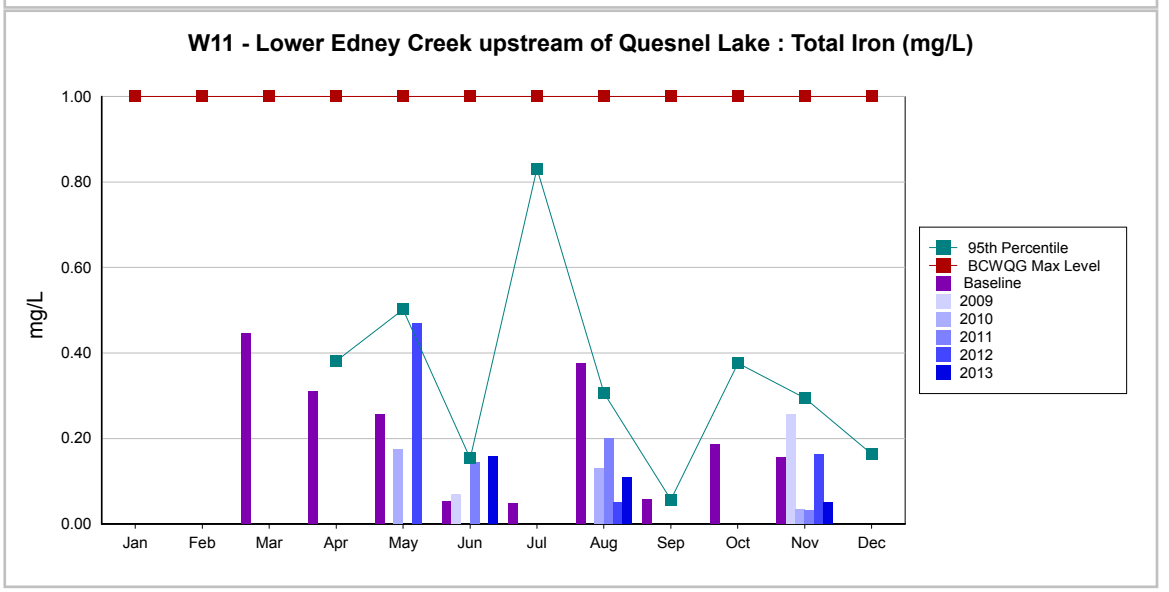
# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION



# Water Quality Report

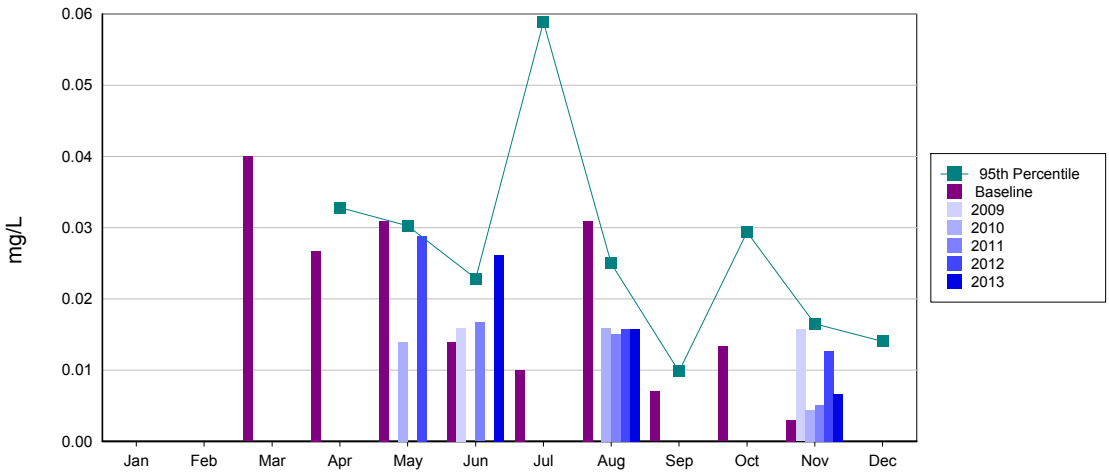
## 2013 Surface Water Quality Graphs

**Mount Polley**

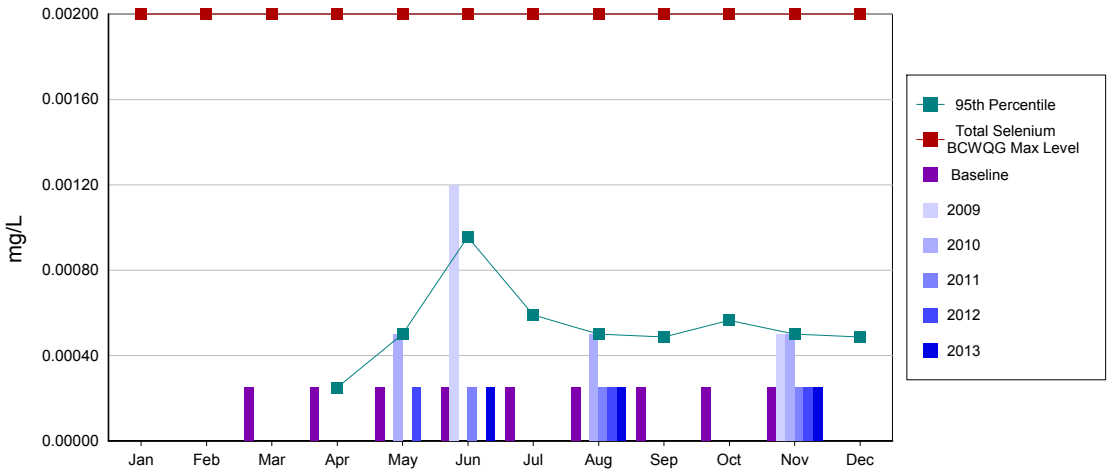
**Mining Corporation**

IMPERIAL METALS CORPORATION

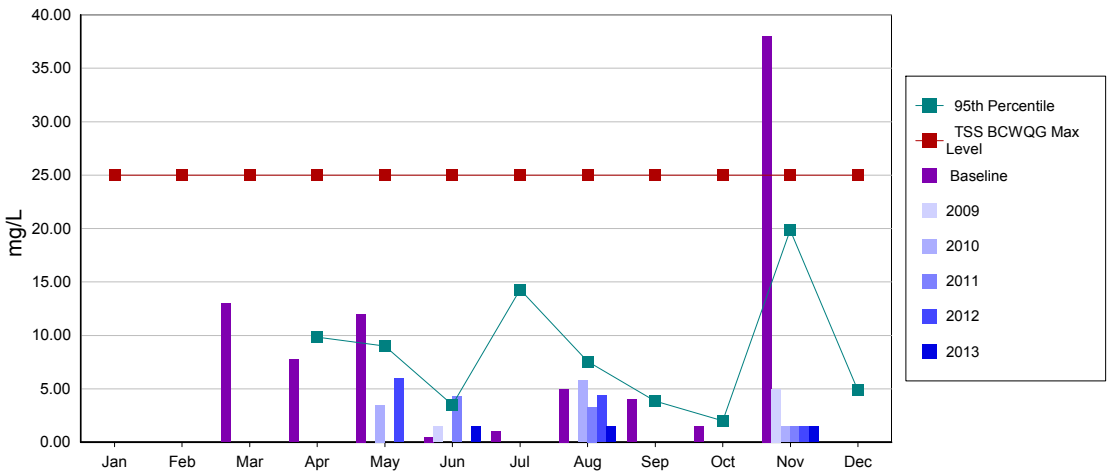
### W11 - Lower Edney Creek upstream of Quesnel Lake : Total Phosphorus (mg/L)




### W11 - Lower Edney Creek upstream of Quesnel Lake : Total Selenium (mg/L)




### W11 - Lower Edney Creek upstream of Quesnel Lake : TSS (mg/L)



# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
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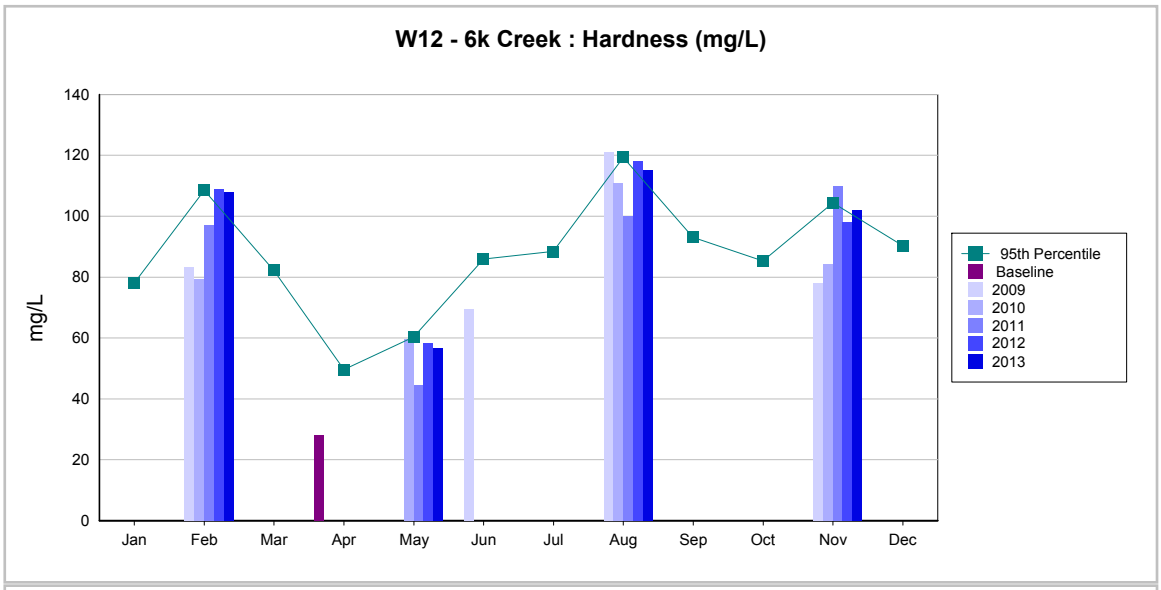


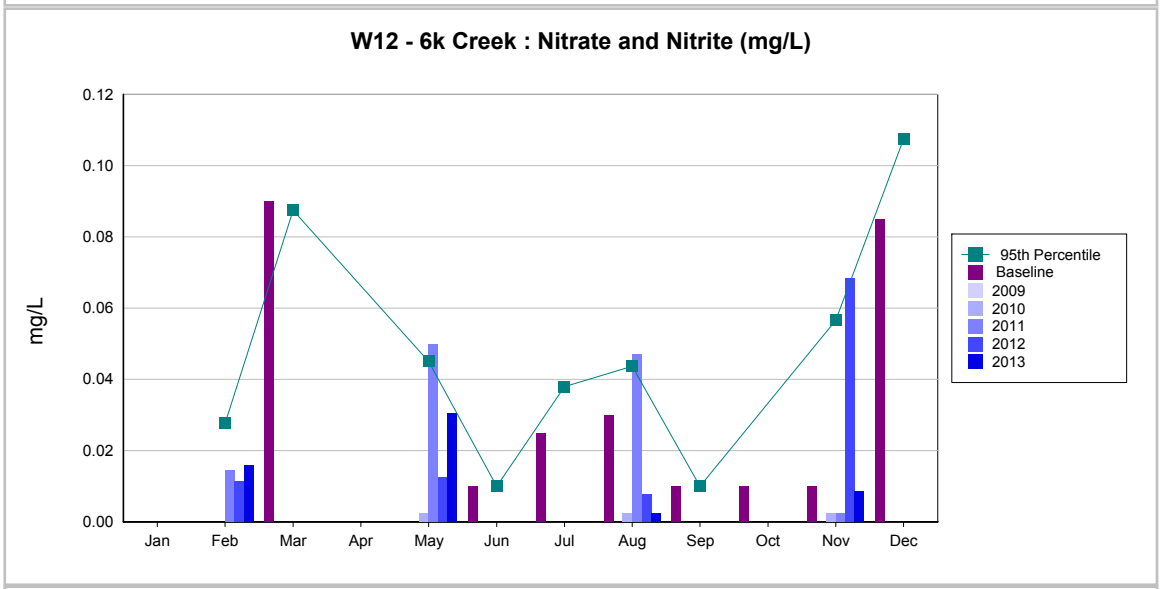


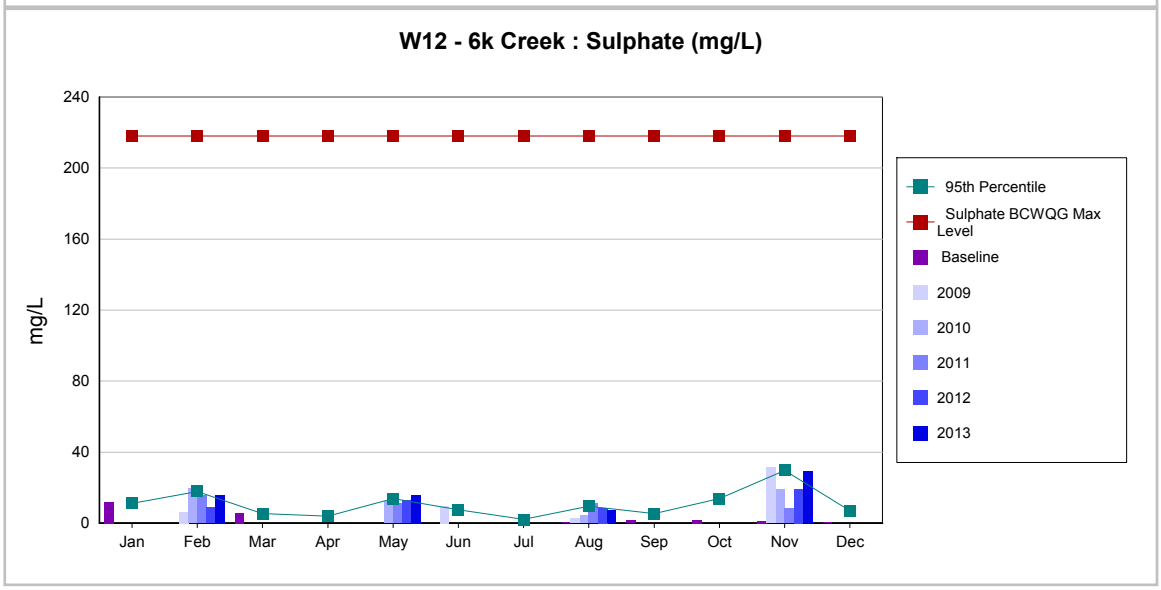

# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
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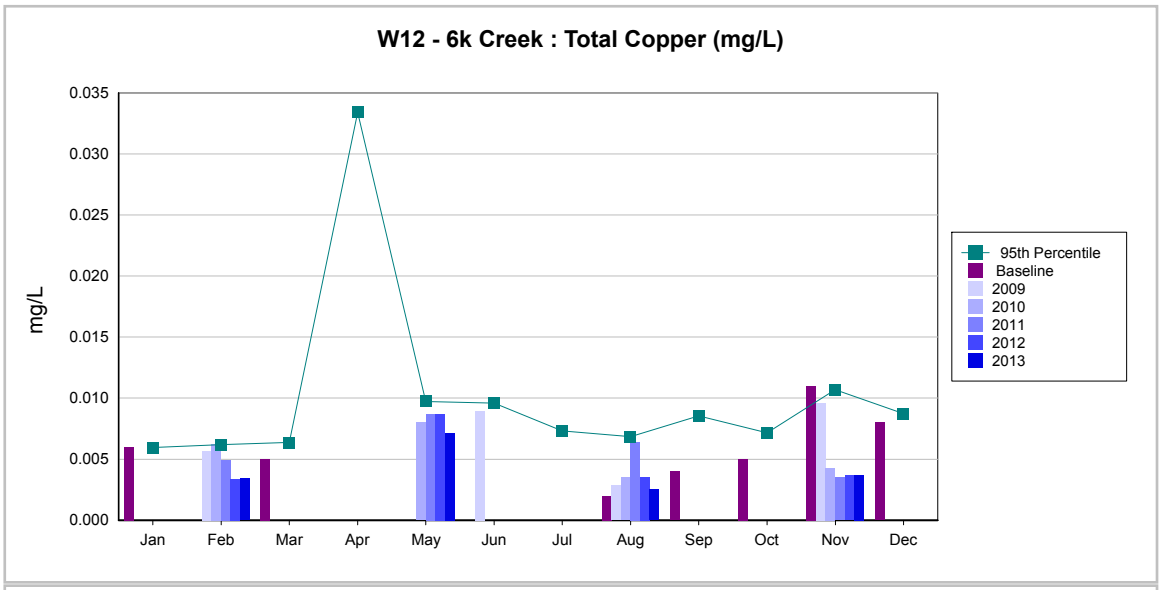


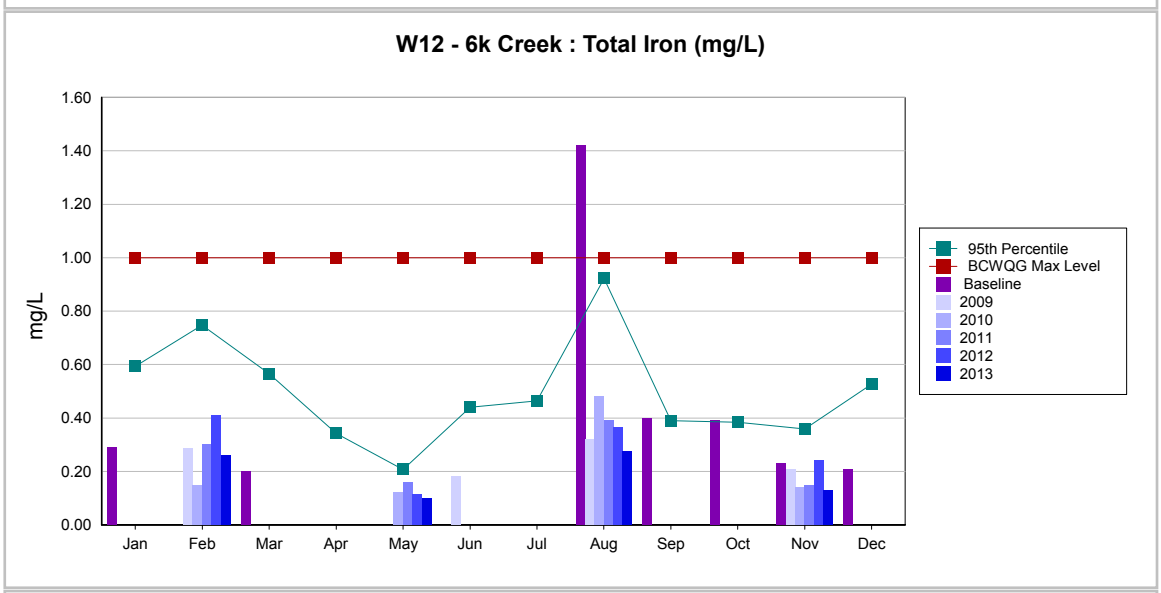


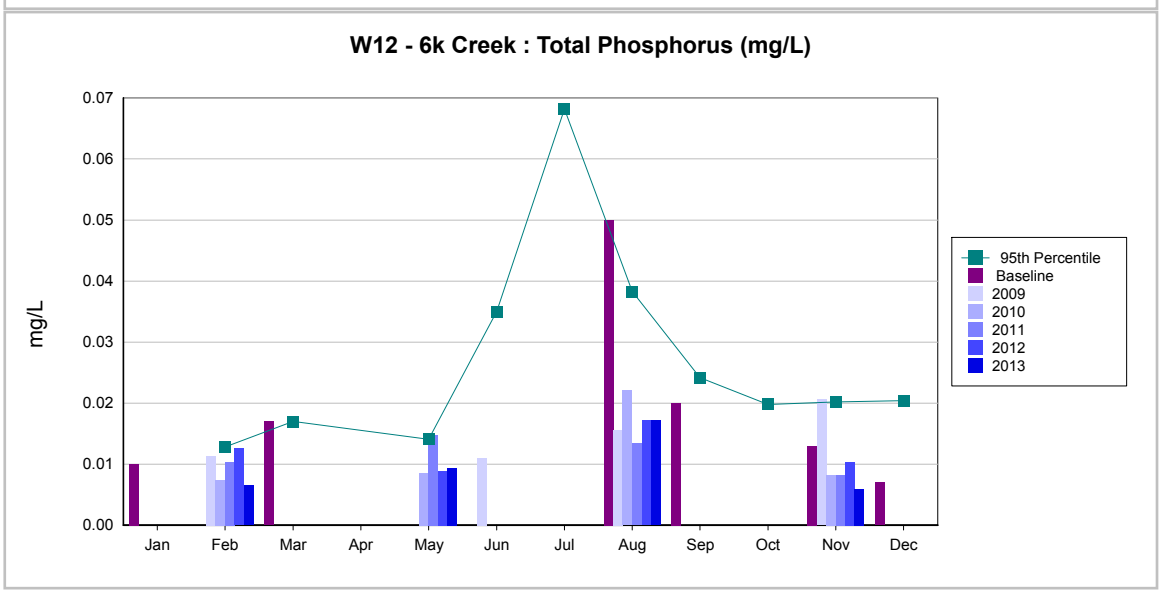

# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
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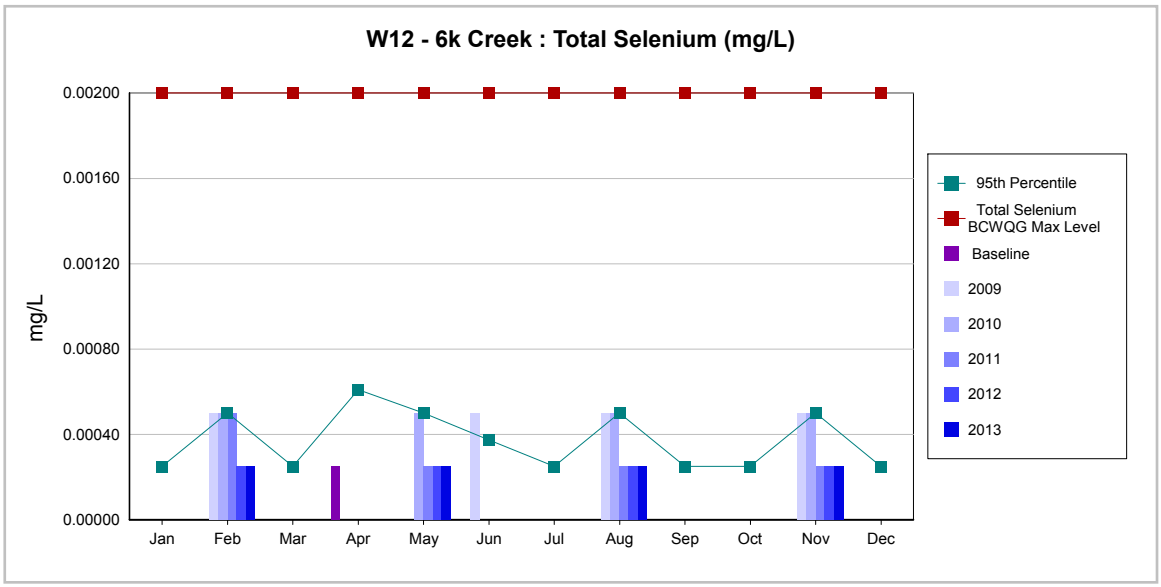
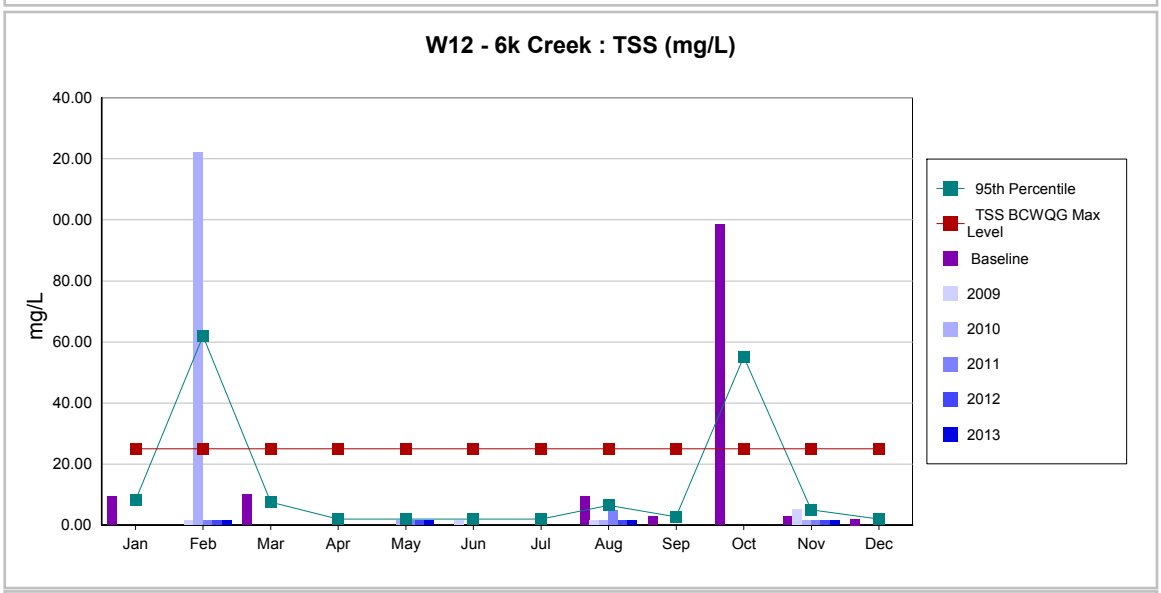
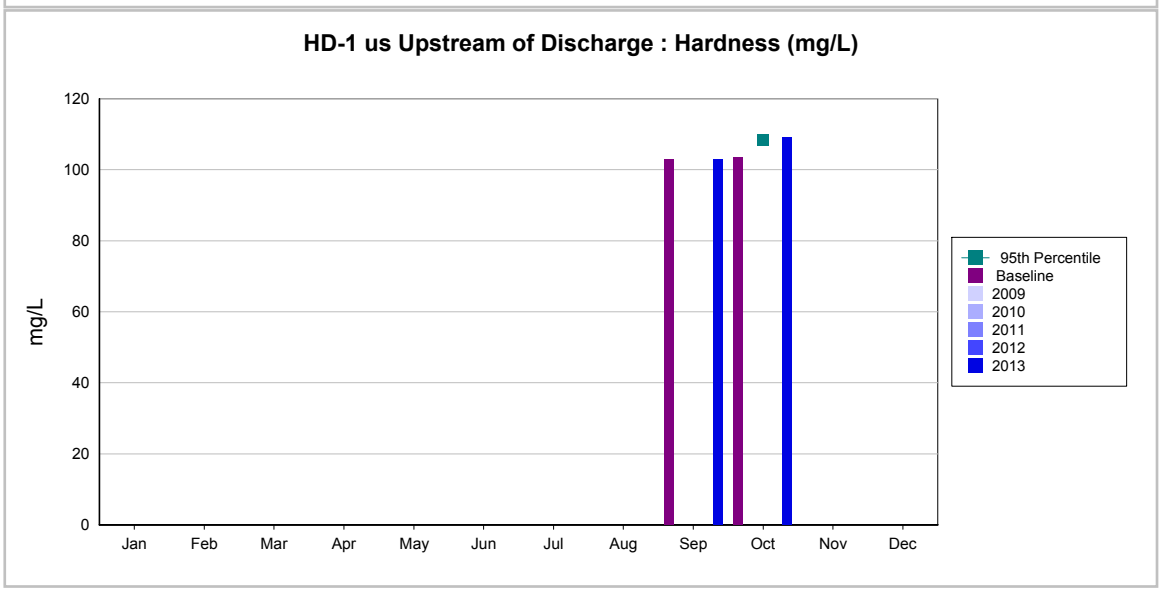


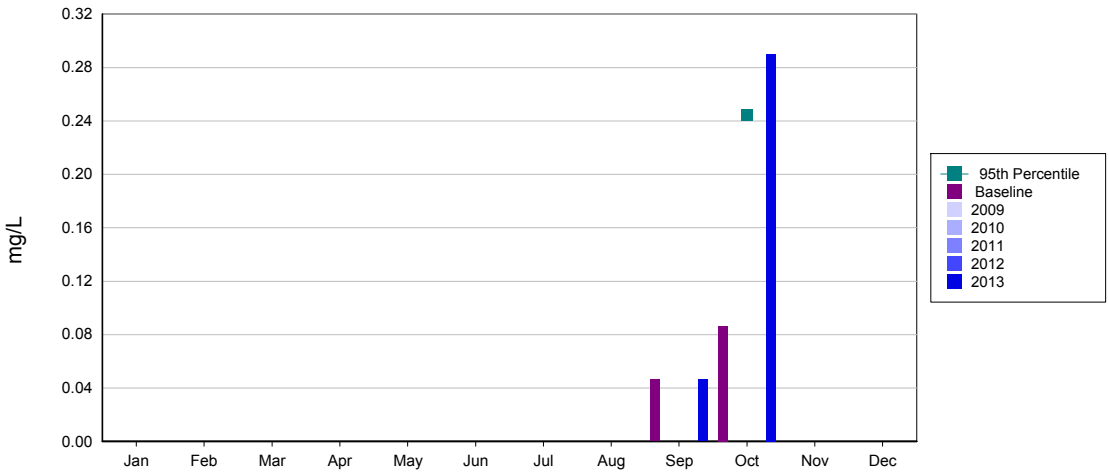



# Water Quality Report

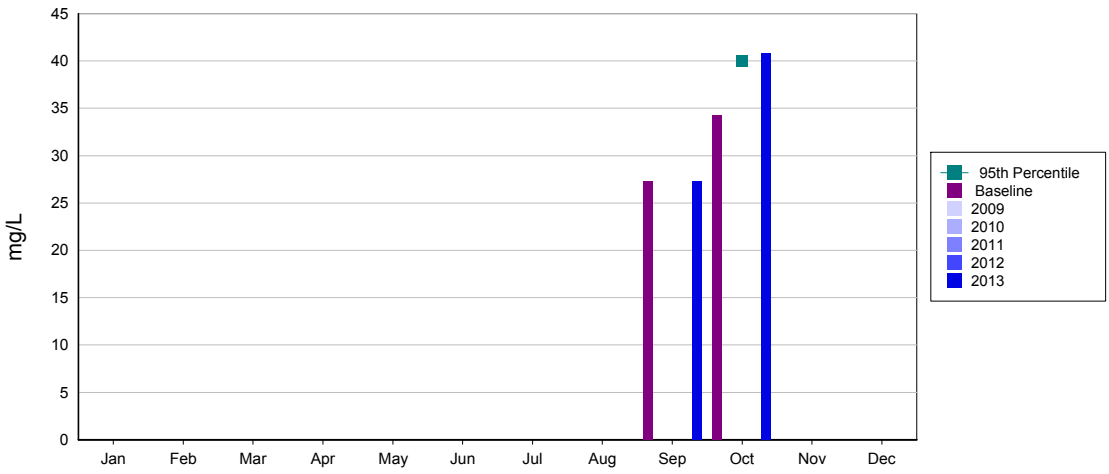
## 2013 Surface Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

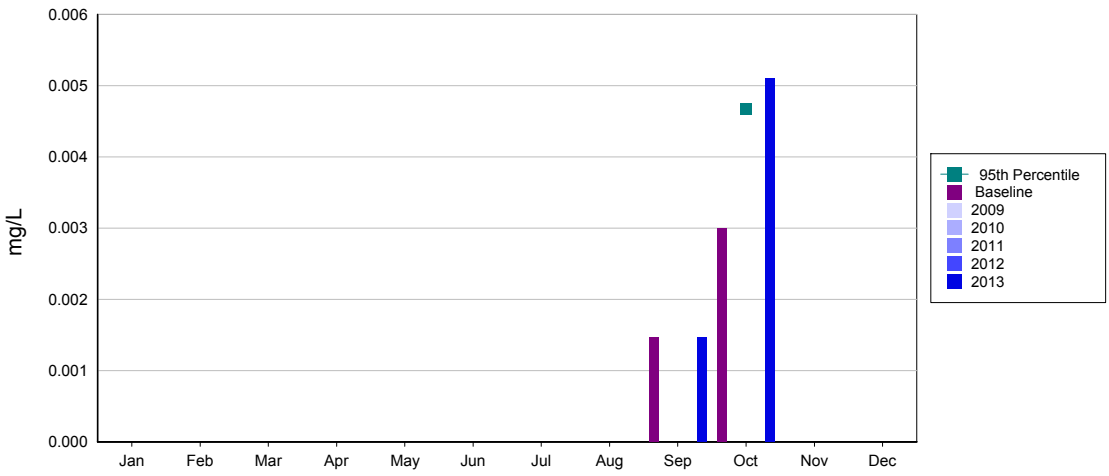
### HD-1 us Upstream of Discharge : Nitrate and Nitrite (mg/L)




### HD-1 us Upstream of Discharge : Sulphate (mg/L)




### HD-1 us Upstream of Discharge : Total Copper (mg/L)



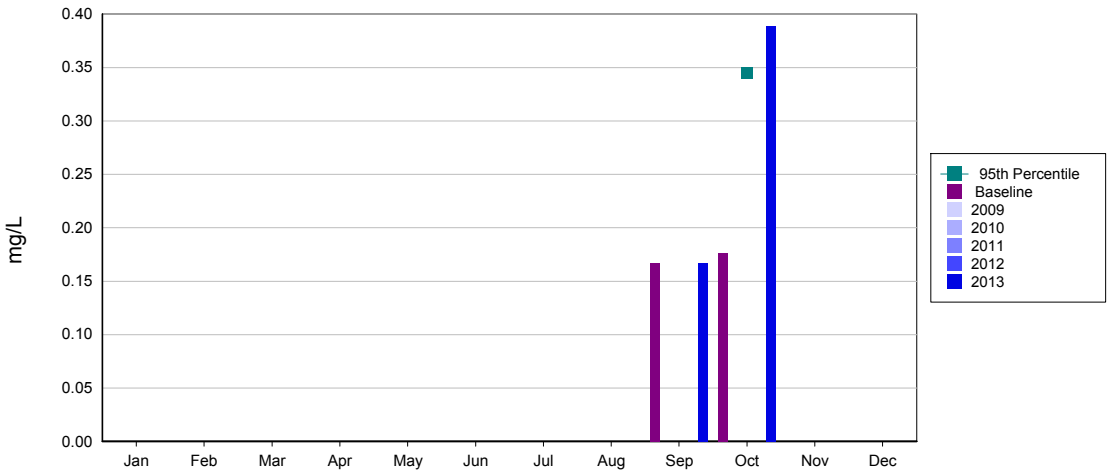
# Water Quality Report

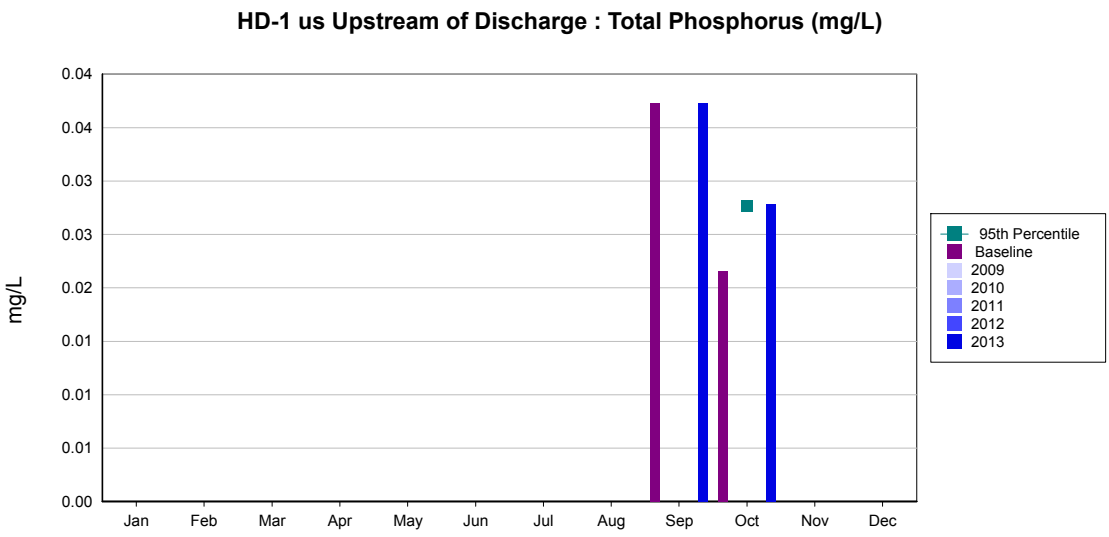
## 2013 Surface Water Quality Graphs

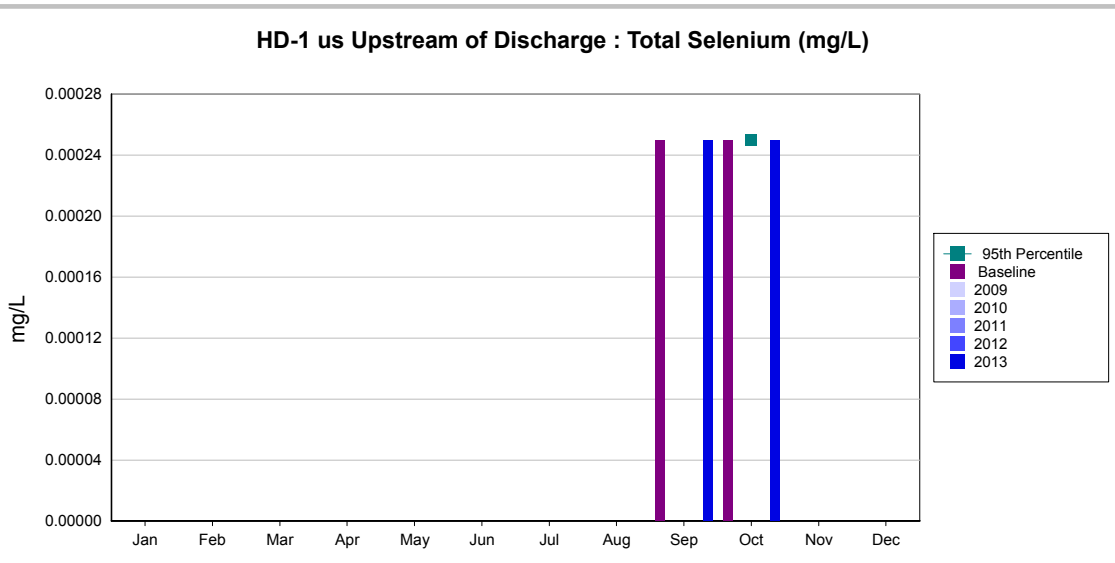
**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION



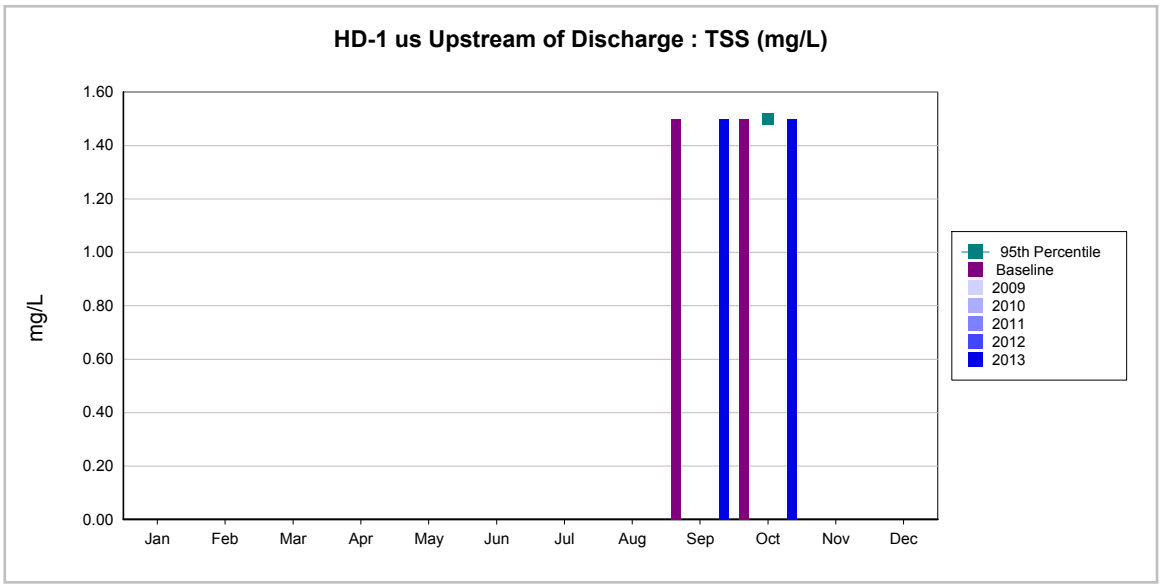
# Water Quality Report

## 2013 Surface Water Quality Graphs

Mount Polley

Mining Corporation

IMPERIAL METALS CORPORATION



# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291249 : HD-1 us Upstream of Discharge | | | | | |
|---|---|---|---|---|---|---|
| | 24-Sep-13 | 1-Oct-13 | 10-Oct-13 | 17-Oct-13 | 22-Oct-13 | 29-Oct-13 |
| **Anions and Nutrients** | | | | | | |
| Ammonia (as N) (mg/L | 0.011 | 0.0066 | 0.0077 | 0.0070 | 0.0091 | 0.0064 |
| Chloride (mg/L) | <0.50 | 0.50 | 0.71 | 2.53 | <0.50 | <0.50 |
| Diss-Orthophosphate (mg/L) | 0.0138 | 0.0095 | 0.0058 | 0.0058 | 0.0051 | 0.0045 |
| Diss-Phosphorus (mg/L) | 0.0209 | 0.0177 | 0.0167 | 0.0140 | 0.0126 | 0.0123 |
| Nitrate (N) (mg/L) | 0.0453 | 0.0337 | 0.288 | 0.0081 | 0.0381 | 0.0592 |
| Nitrate and Nitrite (mg/L) | 0.0465 | 0.0349 | 0.290 | 0.0081 | 0.0395 | 0.0606 |
| Nitrite (N) (mg/L) | 0.0012 | 0.0013 | 0.0024 | <0.0010 | 0.0014 | 0.0014 |
| Sulphate (mg/L) | 27.3 | 40.8 | 31.4 | 36.7 | 30.0 | 32.6 |
| Total Nitrogen (mg/L) | 0.381 | 0.392 | 0.757 | 0.409 | 0.393 | 0.403 |
| **Dissolved Metals** | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0035 | 0.0123 | 0.140 | 0.0206 | 0.0074 | 0.0128 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00051 | 0.00041 | 0.00048 | 0.00047 | 0.00041 | 0.00044 |
| Diss-Barium (Ba) (mg/L) | 0.00634 | 0.00759 | 0.0105 | 0.00792 | 0.00761 | 0.00809 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.019 | 0.024 | 0.021 | 0.023 | 0.023 | 0.022 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 33 | 31.8 | 30.6 | 34.0 | 32.6 | 121 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00102 | 0.00233 | 0.00376 | 0.00203 | 0.00151 | 0.00191 |
| Diss-Iron (Fe) (mg/L) | 0.048 | 0.078 | 0.229 | 0.066 | 0.032 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 4.98 | 5.41 | 5.28 | 5.21 | 5.03 | 5.31 |
| Diss-Manganese (Mn) (mg/L) | 0.0119 | 0.0163 | 0.0149 | 0.00933 | 0.000464 | 0.00369 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00191 | 0.00153 | 0.00181 | 0.00202 | 0.00200 | 0.00202 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | 0.00062 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.429 | 0.714 | 0.593 | 0.448 | 0.445 | 0.464 |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 2.77 | 3.35 | 4.17 | 3.12 | 2.51 | 3.34 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 4.35 | 3.97 | 3.83 | 4.07 | 4.41 | 4.25 |
| Diss-Strontium (Sr) (mg/L) | 0.209 | 0.221 | 0.206 | 0.218 | 0.231 | 0.235 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

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**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291249 : HD-1 us Upstream of Discharge | | | | | |
|---|---|---|---|---|---|---|
| | **24-Sep-13** | **1-Oct-13** | **10-Oct-13** | **17-Oct-13** | **22-Oct-13** | **29-Oct-13** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 141 | 149 | 156 | 140 | 145 | 148 |
| **Physical Test** | | | | | | |
| Alkalinity (CaCO3) ( | 83.9 | 67.8 | 63.1 | 77.5 | 78.3 | 75.4 |
| Hardness (mg/L) | 103 | 102 | 98.1 | 106 | 102 | 109 |
| NTU (ntu) | 2.6 | 1.78 | 4.33 | 2.13 | 1.45 | 1.46 |
| TDS (mg/L) | 141 | 149 | 156 | 140 | 145 | 148 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | 0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00058 | 0.00042 | 0.00051 | 0.00057 | 0.00052 | 0.00051 |
| Barium (Ba)-Total | 0.0075 | 0.00783 | 0.0120 | 0.00842 | 0.00891 | 0.00836 |
| Boron (B)-Total (mg/L) | 0.02 | 0.024 | 0.022 | 0.024 | 0.027 | 0.025 |
| Calcium (Ca)-Total ( | 32.7 | 31.6 | 30.6 | 34.0 | 33.8 | 36.3 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | 0.00078 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 | 0.00017 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 5.08 | 5.34 | 5.42 | 5.26 | 5.22 | 5.64 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | 0.00086 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 2.97 | 3.39 | 4.66 | 3.25 | 2.79 | 3.62 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.52 | 3.84 | 3.94 | 4.16 | 4.64 | 4.39 |
| Strontium (Sr)-Total (mg/L) | 0.217 | 0.218 | 0.206 | 0.230 | 0.235 | 0.243 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0713 | 0.0670 | 0.319 | 0.0706 | 0.0864 | 0.0475 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00147 | 0.00295 | 0.00511 | 0.00248 | 0.00209 | 0.00232 |
| Total Iron (mg/L) | 0.167 | 0.167 | 0.389 | 0.141 | 0.157 | <0.030 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | 0.000086 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0308 | 0.0232 | 0.0191 | 0.0139 | 0.0252 | 0.0124 |
| Total Molybdenum (mg/L) | 0.00206 | 0.00171 | 0.00206 | 0.00233 | 0.00206 | 0.00214 |
| Total Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

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**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291249 : HD-1 us Upstream of Discharge | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 6 | 6 | 0.00640 | 0.01100 | 0.00797 | | 0.00178 |
| Chloride (mg/L) | 6 | 3 | 0.25000 | 2.53000 | 0.74833 | | 0.89247 |
| Diss-Orthophosphate (mg/L) | 6 | 6 | 0.00450 | 0.01380 | 0.00742 | | 0.00358 |
| Diss-Phosphorus (mg/L) | 6 | 6 | 0.01230 | 0.02090 | 0.01570 | | 0.00335 |
| Nitrate (N) (mg/L) | 6 | 6 | 0.00810 | 0.28800 | 0.07873 | | 0.10388 |
| Nitrate and Nitrite (mg/L) | 6 | 6 | 0.00810 | 0.29000 | 0.07993 | | 0.10435 |
| Nitrite (N) (mg/L) | 6 | 5 | 0.00050 | 0.00240 | 0.00137 | | 0.00061 |
| Sulphate (mg/L) | 6 | 6 | 27.30000 | 40.80000 | 33.13333 | | 4.87100 |
| Total Nitrogen (mg/L) | 6 | 6 | 0.38100 | 0.75700 | 0.45583 | | 0.14786 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 6 | 6 | 0.00350 | 0.14000 | 0.03277 | | 0.05285 |
| Diss-Antimony (Sb) (mg/L) | 6 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Arsenic (As) (mg/L) | 6 | 6 | 0.00041 | 0.00051 | 0.00045 | | 0.00004 |
| Diss-Barium (Ba) (mg/L) | 6 | 6 | 0.00634 | 0.01050 | 0.00801 | | 0.00137 |
| Diss-Beryllium (Be) (mg/L) | 6 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Boron (B) (mg/L) | 6 | 6 | 0.01900 | 0.02400 | 0.02200 | | 0.00179 |
| Diss-Cadmium (Cd) (mg/L) | 6 | 0 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Diss-Calcium (Ca) (mg/L) | 6 | 6 | 30.60000 | 121.00000 | 47.16667 | | 36.18893 |
| Diss-Chromium (Cr) (mg/L) | 6 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Cobalt (Co) (mg/L) | 6 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Copper (Cu) (mg/L) | 6 | 6 | 0.00102 | 0.00376 | 0.00209 | | 0.00093 |
| Diss-Iron (Fe) (mg/L) | 6 | 5 | 0.01500 | 0.22900 | 0.07800 | | 0.07737 |
| Diss-Lead (Pb) (mg/L) | 6 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 6 | 6 | 4.98000 | 5.41000 | 5.20333 | | 0.16729 |
| Diss-Manganese (Mn) (mg/L) | 6 | 6 | 0.00046 | 0.01630 | 0.00943 | | 0.00627 |
| Diss-Molybdenum (Mo) (mg/L) | 6 | 6 | 0.00153 | 0.00202 | 0.00188 | | 0.00019 |
| Diss-Nickel (Ni) (mg/L) | 6 | 1 | 0.00025 | 0.00062 | 0.00031 | | 0.00015 |
| Diss-Potassium (K) (mg/L) | 6 | 6 | 0.42900 | 0.71400 | 0.51550 | | 0.11408 |
| Diss-Selenium (mg/L) | 6 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Silicon (Si) (mg/L) | 6 | 6 | 2.51000 | 4.17000 | 3.21000 | | 0.57442 |
| Diss-Silver (Ag) (mg/L) | 6 | 0 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Diss-Sodium (Na) (mg/L) | 6 | 6 | 3.83000 | 4.41000 | 4.14667 | | 0.22748 |
| Diss-Strontium (Sr) (mg/L) | 6 | 6 | 0.20600 | 0.23500 | 0.22000 | | 0.01156 |

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IMPERIAL METALS CORPORATION

| | E291249 : HD-1 us Upstream of Discharge | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 6 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Zinc (Zn) (mg/L) | 6 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| TDS (mg/L) | 6 | 6 | 140.00000 | 156.00000 | 146.50000 | | 5.89067 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 6 | 6 | 63.10000 | 83.90000 | 74.33333 | | 7.58015 |
| Hardness (mg/L) | 6 | 6 | 98.10000 | 109.00000 | 103.35000 | | 3.74900 |
| NTU (ntu) | 6 | 6 | 1.45000 | 4.33000 | 2.29167 | | 1.08976 |
| TDS (mg/L) | 6 | 6 | 140.00000 | 156.00000 | 146.50000 | | 5.89067 |
| TSS (mg/L) | 6 | 0 | 1.50000 | 1.50000 | 1.50000 | | 0.00000 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 6 | 1 | 0.00005 | 0.00010 | 0.00006 | | 0.00002 |
| Arsenic (As)-Total ( | 6 | 6 | 0.00042 | 0.00058 | 0.00052 | | 0.00006 |
| Barium (Ba)-Total | 6 | 6 | 0.00750 | 0.01200 | 0.00884 | | 0.00163 |
| Boron (B)-Total (mg/L) | 6 | 6 | 0.02000 | 0.02700 | 0.02367 | | 0.00242 |
| Calcium (Ca)-Total ( | 6 | 6 | 30.60000 | 36.30000 | 33.16667 | | 2.00865 |
| Chromium (Cr)-Total (mg/L) | 6 | 1 | 0.00025 | 0.00078 | 0.00034 | | 0.00022 |
| Cobalt (Co)-Total (m | 6 | 1 | 0.00010 | 0.00017 | 0.00011 | | 0.00003 |
| Magnesium (Mg)-Total (mg/L) | 6 | 6 | 5.08000 | 5.64000 | 5.32667 | | 0.19169 |
| Nickel (Ni)-Total (mg/L) | 6 | 1 | 0.00025 | 0.00086 | 0.00035 | | 0.00025 |
| Silicon (Si)-Total (mg/L) | 6 | 6 | 2.79000 | 4.66000 | 3.44667 | | 0.66371 |
| Silver (Ag)-Total (mg/L) | 6 | 0 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Sodium (Na)-Total (mg/L) | 6 | 6 | 3.84000 | 4.64000 | 4.24833 | | 0.32152 |
| Strontium (Sr)-Total (mg/L) | 6 | 6 | 0.20600 | 0.24300 | 0.22483 | | 0.01359 |
| Tin (Sn)-Total (mg/L) | 6 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Total Aluminum (mg/L) | 6 | 6 | 0.04750 | 0.31900 | 0.11030 | | 0.10300 |
| Total Cadmium (mg/L) | 6 | 0 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Total Copper (mg/L) | 6 | 6 | 0.00147 | 0.00511 | 0.00274 | | 0.00126 |
| Total Iron (mg/L) | 6 | 5 | 0.03000 | 0.38900 | 0.17517 | | 0.11699 |
| Total Lead (mg/L) | 6 | 1 | 0.00005 | 0.00009 | 0.00006 | | 0.00001 |
| Total Manganese (mg/L) | 6 | 6 | 0.01240 | 0.03080 | 0.02077 | | 0.00702 |
| Total Molybdenum (mg/L) | 6 | 6 | 0.00171 | 0.00233 | 0.00206 | | 0.00020 |
| Total Selenium (mg/L) | 6 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Zinc (Zn)-Total (mg/L) | 6 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225084 : W1 - Morehead Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9-Feb-09 | 2-Jun-09 | 12-Aug-09 | 10-Nov-09 | 11-Feb-10 | 11-May-10 | 4-Aug-10 | 3-Nov-10 | 1-Feb-11 | 12-May-11 | 4-Aug-11 | 1-Nov-11 | 1-Feb-12 | 3-May-12 | 1-Aug-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0055 | <0.005 | <0.005 | 0.0069 | 0.0085 | 0.007 | 0.0071 | 0.0066 | 0.009 | <0.005 | 0.0132 | 0.0117 | 0.0155 | 0.0079 | 0.0096 |
| Chloride (mg/L) | | 0.76 | 1.51 | 5.36 | 1.61 | 1.15 | 3.35 | 5.45 | 2.68 | 5.7 | 2.81 | 4.38 | 1.82 | 1.22 | 1.99 |
| Diss-Orthophosphate (mg/L) | 0.0024 | 0.0021 | 0.005 | <0.001 | 0.0024 | 0.0014 | 0.0031 | 0.0047 | 0.0021 | 0.0049 | 0.002 | 0.0024 | 0.0024 | 0.0015 | 0.0036 |
| Diss-Phosphorus (mg/L) | 0.007 | 0.0079 | 0.0097 | 0.0068 | 0.0063 | 0.0071 | 0.01 | 0.008 | 0.0092 | 0.0142 | 0.0076 | 0.0071 | 0.0071 | 0.0082 | 0.0083 |
| Nitrate (N) (mg/L) | 0.0298 | 0.0133 | <0.005 | 0.105 | 0.0438 | 0.0222 | <0.005 | <0.005 | 0.104 | 0.044 | 0.0439 | 0.0544 | 0.0626 | 0.0478 | 0.0058 |
| Nitrate and Nitrite (mg/L) | | | | | | 0.0222 | <0.005 | <0.0051 | 0.105 | 0.044 | 0.0439 | 0.0544 | 0.0644 | 0.0478 | 0.0058 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0013 | <0.005 | <0.001 | <0.0010 | 0.0018 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 3.48 | 3.54 | 2.25 | 17.2 | 6.78 | 4.56 | 3.58 | 14.4 | 6.62 | 4.5 | 4.13 | 6.65 | 4.5 | 4.44 | 4.38 |
| Total Nitrogen (mg/L) | 0.16 | 0.365 | 0.55 | 0.32 | 0.29 | 0.26 | 0.38 | 0.26 | 0.37 | 0.41 | 0.45 | 0.35 | 0.27 | 0.38 | 0.34 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.031 | 0.0357 | 0.0092 | 0.0412 | 0.0121 | 0.0397 | 0.0013 | 0.0138 | 0.0658 | 0.114 | 0.0342 | 0.0126 | 0.0092 | 0.0949 | 0.0154 |
| Diss-Antimony (Sb) (mg/L) | 0.00011 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00025 | 0.00033 | 0.00059 | 0.00026 | 0.00029 | 0.00029 | 0.00064 | 0.00033 | 0.00026 | 0.0003 | 0.00039 | 0.0003 | 0.00026 | 0.00029 | 0.00044 |
| Diss-Barium (Ba) (mg/L) | 0.0132 | 0.0123 | 0.0158 | 0.0121 | 0.0142 | 0.0108 | 0.0191 | 0.0127 | 0.0128 | 0.00975 | 0.0146 | 0.0132 | 0.0145 | 0.0104 | 0.0149 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.047 | 0.036 | 0.067 | 0.067 | 0.06 | 0.043 | 0.122 | 0.1 | 0.059 | 0.027 | 0.044 | 0.073 | 0.052 | 0.028 | 0.056 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 14.4 | 12.8 | 18.9 | 19.3 | 16.2 | 13.9 | 30.9 | 26.3 | 15.1 | 10.3 | 17.3 | 25 | 17 | 12.3 | 17.6 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.0027 | 0.00438 | 0.00332 | 0.00582 | 0.00336 | 0.00487 | 0.00275 | 0.00356 | 0.00533 | 0.00786 | 0.00453 | 0.00278 | 0.00257 | 0.00574 | 0.00311 |
| Diss-Iron (Fe) (mg/L) | 0.083 | 0.09 | 0.204 | 0.158 | 0.093 | 0.12 | 0.054 | 0.268 | 0.17 | 0.136 | 0.195 | 0.173 | 0.091 | 0.15 | 0.108 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 2.79 | 2.74 | 3.6 | 3.99 | 3.24 | 2.8 | 5.82 | 5.3 | 3.5 | 2.42 | 3.65 | 4.88 | 3.25 | 2.61 | 3.18 |
| Diss-Manganese (Mn) (mg/L) | 0.0124 | 0.0105 | 0.00122 | 0.0137 | 0.0124 | 0.00485 | 0.0022 | 0.0527 | 0.0256 | 0.00522 | 0.0232 | 0.0358 | 0.0132 | 0.00306 | 0.0137 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00075 | 0.000662 | 0.00101 | 0.000657 | 0.000852 | 0.000533 | 0.00131 | 0.000508 | 0.00057 | 0.000357 | 0.00069 | 0.00064 | 0.000852 | 0.000481 | 0.000975 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00055 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.447 | 0.451 | 0.64 | 0.494 | 0.458 | 0.376 | 0.614 | 0.477 | 0.529 | 0.674 | 0.418 | 0.555 | 0.486 | 0.421 | 0.445 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 2.52 | 2.92 | 2.02 | 4.32 | 3.14 | 3.67 | 2.32 | 6.01 | 3.11 | 4.02 | 3.95 | 4.67 | 2.04 | 3.63 | 1.97 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 2.79 | 2.26 | 3.26 | 3.11 | 3.13 | 2.44 | 5.67 | 5.22 | 3.17 | 1.97 | 2.62 | 4.3 | 3.12 | 2.06 | 2.82 |
| Diss-Strontium (Sr) (mg/L) | 0.128 | 0.0901 | 0.159 | 0.118 | 0.128 | 0.0942 | 0.201 | 0.165 | 0.116 | 0.0651 | 0.135 | 0.152 | 0.126 | 0.0866 | 0.122 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E225084 : W1 - Morehead Creek | | | | |
|---|---|---|---|---|---|
| | 5-Nov-12 | 7-Feb-13 | 2-May-13 | 8-Aug-13 | 7-Nov-13 |
| **Anions and Nutrients** | | | | | |
| Ammonia (as N) (mg/L | 0.0072 | 0.0091 | <0.0050 | 0.0136 | 0.0105 |
| Chloride (mg/L) | 10.3 | 2.21 | 1.27 | 2.21 | 6.30 |
| Diss-Orthophosphate (mg/L) | 0.0022 | 0.0036 | <0.0010 | 0.0054 | 0.0035 |
| Diss-Phosphorus (mg/L) | 0.0075 | 0.0065 | 0.0056 | 0.0147 | 0.0075 |
| Nitrate (N) (mg/L) | 0.207 | 0.0657 | 0.0277 | 0.0257 | 0.0306 |
| Nitrate and Nitrite (mg/L) | 0.208 | 0.0657 | 0.0277 | 0.0272 | 0.0306 |
| Nitrite (N) (mg/L) | 0.0016 | <0.0010 | <0.0010 | 0.0015 | <0.0010 |
| Sulphate (mg/L) | 15.5 | 5.96 | 5.58 | 4.39 | 19.7 |
| Total Nitrogen (mg/L) | 0.55 | 0.321 | 0.369 | 0.407 | 0.322 |
| **Dissolved Metals** | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.031 | | | | |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | | | | |
| Diss-Arsenic (As) (mg/L) | 0.00027 | | | | |
| Diss-Barium (Ba) (mg/L) | 0.0137 | | | | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | | | | |
| Diss-Boron (B) (mg/L) | 0.067 | | | | |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | | | | |
| Diss-Calcium (Ca) (mg/L) | 26.4 | | | | |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | | | | |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | | | | |
| Diss-Copper (Cu) (mg/L) | 0.00346 | | | | |
| Diss-Iron (Fe) (mg/L) | 0.226 | | | | |
| Diss-Lead (Pb) (mg/L) | <0.000050 | | | | |
| Diss-Magnesium (Mg) (mg/L) | 5.45 | | | | |
| Diss-Manganese (Mn) (mg/L) | 0.0628 | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.00045 | | | | |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | | | | |
| Diss-Potassium (K) (mg/L) | 0.593 | | | | |
| Diss-Selenium (mg/L) | <0.00050 | | | | |
| Diss-Silicon (Si) (mg/L) | 5.84 | | | | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | | | | |
| Diss-Sodium (Na) (mg/L) | 4.1 | | | | |
| Diss-Strontium (Sr) (mg/L) | 0.161 | | | | |
| Diss-Tin (Sn) (mg/L) | <0.00010 | | | | |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225084 : W1 - Morehead Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9-Feb-09 | 2-Jun-09 | 12-Aug-09 | 10-Nov-09 | 11-Feb-10 | 11-May-10 | 4-Aug-10 | 3-Nov-10 | 1-Feb-11 | 12-May-11 | 4-Aug-11 | 1-Nov-11 | 1-Feb-12 | 3-May-12 | 1-Aug-12 |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | <0.001 | <0.002 | <0.001 | <0.001 | <0.001 | <0.003 | <0.003 | 0.0038 | 0.0146 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 73 | 72 | 88 | 108 | <3 | 70 | 134 | 122 | 88 | 85 | 100 | 114 | 77 | 82 | 87 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 47.7 | 42.8 | 74.7 | 47.1 | 54.2 | 40.7 | 101 | 72.2 | 45.5 | 26.1 | 53.2 | 74.9 | 52.4 | 35.8 | 50.4 |
| Hardness (mg/L) | 47.4 | 43.2 | 62 | 64.7 | 53.7 | 46.2 | 101 | 87.6 | 52 | 35.8 | 58.3 | 82.4 | 55.7 | 41.6 | 57 |
| NTU (ntu) | 0.91 | 4.66 | 10.2 | 1.75 | 0.7 | 1.96 | 2.04 | 1.44 | 2.53 | 3.27 | 2.04 | 2.16 | 1.61 | 1.75 | 1.46 |
| TDS (mg/L) | 73 | 72 | 88 | 108 | <3 | 70 | 134 | 122 | 88 | 85 | 100 | 114 | 77 | 82 | 87 |
| TSS (mg/L) | <3 | 12.3 | 25.3 | 3 | 76 | 5 | 3.8 | <3 | <3 | <3 | <3 | <3.0 | 5.7 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00026 | 0.00044 | 0.00105 | 0.00029 | 0.00031 | 0.00034 | 0.00092 | 0.00036 | 0.00028 | 0.00037 | 0.0005 | 0.00034 | 0.00029 | 0.00032 | 0.00051 |
| Barium (Ba)-Total | 0.0136 | 0.0168 | 0.0237 | 0.013 | 0.0152 | 0.0127 | 0.0233 | 0.0132 | 0.0141 | 0.0116 | 0.0166 | 0.0156 | 0.0157 | 0.0112 | 0.0166 |
| Boron (B)-Total (mg/L) | 0.048 | 0.037 | 0.068 | 0.067 | 0.064 | 0.045 | 0.137 | 0.104 | 0.061 | 0.031 | 0.047 | 0.077 | 0.055 | 0.032 | 0.075 |
| Calcium (Ca)-Total ( | 15.1 | 12.5 | 19.1 | 18.5 | 15.6 | 13.1 | 31.3 | 26.6 | 15.4 | 10.7 | 18 | 25.7 | 17.2 | 12.3 | 18.2 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | 0.00084 | 0.00097 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00094 | 0.00057 | <0.00050 | <0.00050 | 0.00064 | <0.00050 |
| Cobalt (Co)-Total (m | <0.0001 | 0.00022 | 0.00036 | <0.0001 | <0.0001 | 0.00012 | 0.00011 | <0.0001 | <0.0001 | 0.00014 | 0.00012 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 2.85 | 2.78 | 3.69 | 3.82 | 3.23 | 2.7 | 5.9 | 5.37 | 3.59 | 2.52 | 3.82 | 5.04 | 3.4 | 2.6 | 3.29 |
| Nickel (Ni)-Total (mg/L) | <0.0005 | 0.00066 | 0.00064 | 0.00078 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 2.65 | 3.41 | 2.69 | 4.27 | 3.11 | 3.73 | 2.41 | 6.15 | 3.34 | 4.37 | 4.35 | 4.92 | 2.18 | 3.75 | 2.17 |
| Silver (Ag)-Total (mg/L) | <0.00001 | 0.000011 | <0.00001 | <0.00001 | <0.00001 | 0.000013 | <0.00001 | <0.00001 | 0.000014 | 0.000013 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 2.9 | 2.34 | 3.38 | 3.1 | 3.38 | 2.48 | 6.38 | 5.21 | 3.27 | 2.03 | 2.82 | 4.35 | 3.21 | 2.13 | 2.96 |
| Strontium (Sr)-Total (mg/L) | 0.131 | 0.0965 | 0.175 | 0.123 | 0.135 | 0.0977 | 0.219 | 0.169 | 0.116 | 0.0733 | 0.141 | 0.158 | 0.133 | 0.0867 | 0.138 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0378 | 0.377 | 0.381 | 0.108 | 0.0372 | 0.154 | 0.0326 | 0.0373 | 0.15 | 0.269 | 0.155 | 0.0791 | 0.0537 | 0.231 | 0.0947 |
| Total Cadmium (mg/L) | <0.000017 | 0.000028 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | 0.000012 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00323 | 0.00764 | 0.0086 | 0.00692 | 0.00375 | 0.00606 | 0.0038 | 0.00405 | 0.00614 | 0.0102 | 0.0062 | <0.0040 | 0.00313 | 0.00674 | 0.00432 |
| Total Iron (mg/L) | 0.131 | 0.439 | 1.03 | 0.259 | 0.151 | 0.274 | 0.439 | 0.389 | 0.286 | 0.278 | 0.37 | 0.307 | 0.185 | 0.262 | 0.238 |
| Total Lead (mg/L) | <0.00005 | 0.000138 | 0.000131 | 0.000056 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.000127 | 0.000065 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.015 | 0.0333 | 0.317 | 0.0221 | 0.0195 | 0.024 | 0.234 | 0.0578 | 0.0326 | 0.014 | 0.0405 | 0.0434 | 0.0193 | 0.00852 | 0.0302 |
| Total Molybdenum (mg/L) | 0.000809 | 0.000717 | 0.00111 | 0.000757 | 0.000922 | 0.000552 | 0.00142 | 0.000521 | 0.00059 | 0.000411 | 0.000678 | 0.000681 | 0.000934 | 0.000472 | 0.00119 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.004 | 0.0021 | 0.0136 | 0.0017 | <0.001 | <0.001 | <0.001 | <0.003 | <0.003 | 0.0037 | 0.0102 | <0.0030 | <0.0030 | 0.0036 | <0.0030 |

| | E225084 : W1 - Morehead Creek | | | | |
|---|---|---|---|---|---|
| | **5-Nov-12** | **7-Feb-13** | **2-May-13** | **8-Aug-13** | **7-Nov-13** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | | | | |
| TDS (mg/L) | 135 | 84 | 75 | 112 | 144 |
| **Physical Test** | | | | | |
| Alkalinity (CaCO3) ( | 62.4 | 52 | 36.3 | 58.7 | 75.8 |
| Hardness (mg/L) | 88.5 | 56.5 | 39.5 | 60.5 | 91.1 |
| NTU (ntu) | 2.99 | 1.08 | 1.94 | 2.02 | 1.81 |
| TDS (mg/L) | 135 | 84 | 75 | 112 | 144 |
| TSS (mg/L) | <3.0 | <3.0 | 3.3 | <3.0 | <3.0 |
| **Total Metals** | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00031 | 0.00024 | 0.00028 | 0.00071 | 0.00037 |
| Barium (Ba)-Total | 0.0141 | 0.0103 | 0.0112 | 0.0185 | 0.0137 |
| Boron (B)-Total (mg/L) | 0.066 | 0.052 | 0.03 | 0.06 | 0.083 |
| Calcium (Ca)-Total ( | 26.2 | 16.8 | 11.8 | 18.3 | 27.7 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | 0.00053 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00012 | <0.00010 | 0.0001 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 5.44 | 3.51 | 2.42 | 3.61 | 5.33 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 5.88 | 2.74 | 3.32 | 2.68 | 5.65 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | 0.000013 | 0.000012 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.09 | 2.45 | 1.98 | 3.16 | 4.47 |
| Strontium (Sr)-Total (mg/L) | 0.162 | 0.13 | 0.0812 | 0.16 | 0.157 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.103 | 0.0447 | 0.175 | 0.127 | 0.0577 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00508 | 0.00289 | 0.00582 | 0.00517 | 0.00387 |
| Total Iron (mg/L) | 0.374 | 0.178 | 0.205 | 0.424 | 0.366 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | 0.000079 | 0.000052 | <0.000050 |
| Total Manganese (mg/L) | 0.0646 | 0.0205 | 0.00932 | 0.0413 | 0.0607 |
| Total Molybdenum (mg/L) | 0.00048 | 0.000844 | 0.000537 | 0.00156 | 0.000579 |
| Total Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | 0.0045 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225084 : W1 - Morehead Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 126 | 67 | 0.00060 | 0.03800 | 0.01001 | 0.02800 | 0.00782 |
| Chloride (mg/L) | 44 | 39 | 0.03100 | 10.30000 | 1.87593 | 1.40000 | 2.03501 |
| Diss-Orthophosphate (mg/L) | 134 | 99 | 0.00050 | 0.25000 | 0.00760 | 0.02120 | 0.02366 |
| Diss-Phosphorus (mg/L) | 68 | 63 | 0.00240 | 0.03700 | 0.01103 | 0.03455 | 0.00730 |
| Nitrate (N) (mg/L) | 63 | 55 | 0.00000 | 0.29500 | 0.04006 | 0.11845 | 0.05060 |
| Nitrate and Nitrite (mg/L) | 35 | 27 | 0.00250 | 0.24000 | 0.05422 | 0.16400 | 0.05393 |
| Nitrite (N) (mg/L) | 107 | 63 | 0.00050 | 0.01900 | 0.00222 | 0.00775 | 0.00255 |
| Sulphate (mg/L) | 134 | 130 | 0.00500 | 35.70000 | 4.06914 | 7.24000 | 4.20781 |
| Total Nitrogen (mg/L) | 40 | 40 | 0.11000 | 0.72000 | 0.39517 | 0.67500 | 0.13315 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 111 | 111 | 0.00130 | 0.14000 | 0.03690 | 0.09860 | 0.03151 |
| Diss-Antimony (Sb) (mg/L) | 104 | 55 | 0.00003 | 0.00027 | 0.00007 | 0.00017 | 0.00004 |
| Diss-Arsenic (As) (mg/L) | 113 | 101 | 0.00005 | 0.00103 | 0.00036 | 0.00070 | 0.00019 |
| Diss-Barium (Ba) (mg/L) | 104 | 97 | 0.00500 | 0.02640 | 0.01194 | 0.01834 | 0.00333 |
| Diss-Beryllium (Be) (mg/L) | 104 | 1 | 0.00003 | 0.00250 | 0.00043 | 0.00250 | 0.00086 |
| Diss-Boron (B) (mg/L) | 48 | 33 | 0.02500 | 0.12200 | 0.05583 | 0.09900 | 0.02060 |
| Diss-Cadmium (Cd) (mg/L) | 104 | 24 | 0.00001 | 0.00010 | 0.00003 | 0.00010 | 0.00003 |
| Diss-Calcium (Ca) (mg/L) | 104 | 104 | 9.27000 | 42.80000 | 16.80635 | 29.03000 | 5.96171 |
| Diss-Chromium (Cr) (mg/L) | 104 | 26 | 0.00010 | 0.00270 | 0.00039 | 0.00129 | 0.00042 |
| Diss-Cobalt (Co) (mg/L) | 104 | 48 | 0.00001 | 0.00050 | 0.00012 | 0.00050 | 0.00017 |
| Diss-Copper (Cu) (mg/L) | 146 | 144 | 0.00050 | 7.70000 | 0.05705 | 0.00706 | 0.63690 |
| Diss-Iron (Fe) (mg/L) | 114 | 111 | 0.01500 | 0.62200 | 0.18509 | 0.37620 | 0.10264 |
| Diss-Lead (Pb) (mg/L) | 114 | 53 | 0.00001 | 0.00100 | 0.00016 | 0.00050 | 0.00022 |
| Diss-Magnesium (Mg) (mg/L) | 104 | 104 | 1.99000 | 7.75000 | 3.39981 | 5.78900 | 1.12924 |
| Diss-Manganese (Mn) (mg/L) | 104 | 103 | 0.00060 | 0.31200 | 0.03153 | 0.13950 | 0.04343 |
| Diss-Molybdenum (Mo) (mg/L) | 135 | 122 | 0.00032 | 0.00137 | 0.00070 | 0.00109 | 0.00023 |
| Diss-Nickel (Ni) (mg/L) | 104 | 12 | 0.00025 | 0.00100 | 0.00031 | 0.00050 | 0.00015 |
| Diss-Potassium (K) (mg/L) | 104 | 104 | 0.19000 | 1.06000 | 0.53159 | 0.81400 | 0.13193 |
| Diss-Selenium (mg/L) | 104 | 3 | 0.00005 | 0.00180 | 0.00031 | 0.00050 | 0.00020 |
| Diss-Silicon (Si) (mg/L) | 100 | 100 | 1.43000 | 7.82000 | 3.36820 | 4.91600 | 1.10526 |
| Diss-Silver (Ag) (mg/L) | 104 | 9 | 0.00001 | 0.00005 | 0.00001 | 0.00005 | 0.00002 |
| Diss-Sodium (Na) (mg/L) | 103 | 103 | 1.79000 | 6.06000 | 3.19117 | 5.19750 | 0.94552 |
| Diss-Strontium (Sr) (mg/L) | 104 | 104 | 0.06510 | 0.29100 | 0.11742 | 0.19480 | 0.03598 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225084 : W1 - Morehead Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 81 | 31 | 0.00003 | 0.00091 | 0.00009 | 0.00020 | 0.00012 |
| Diss-Zinc (Zn) (mg/L) | 114 | 66 | 0.00025 | 0.01460 | 0.00189 | 0.00364 | 0.00182 |
| TDS (mg/L) | 80 | 65 | 1.50000 | 150.00000 | 67.51875 | 124.40000 | 41.05626 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 133 | 126 | 0.50000 | 510.00000 | 51.04962 | 85.67000 | 44.47057 |
| Hardness (mg/L) | 127 | 127 | 30.30000 | 139.00000 | 54.05591 | 85.25000 | 18.30980 |
| NTU (ntu) | 135 | 134 | 0.32000 | 75.40000 | 2.98407 | 7.10600 | 6.54205 |
| TDS (mg/L) | 80 | 65 | 1.50000 | 150.00000 | 67.51875 | 124.40000 | 41.05626 |
| TSS (mg/L) | 117 | 54 | 0.50000 | 76.00000 | 5.33803 | 18.77500 | 8.64897 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 124 | 76 | 0.00003 | 0.00037 | 0.00008 | 0.00021 | 0.00006 |
| Arsenic (As)-Total ( | 151 | 144 | 0.00010 | 0.00250 | 0.00049 | 0.00100 | 0.00034 |
| Barium (Ba)-Total | 124 | 117 | 0.00790 | 0.03260 | 0.01423 | 0.02346 | 0.00453 |
| Boron (B)-Total (mg/L) | 52 | 37 | 0.02400 | 0.13700 | 0.05821 | 0.10250 | 0.02252 |
| Calcium (Ca)-Total ( | 140 | 140 | 8.96000 | 41.30000 | 16.22164 | 26.54000 | 5.59438 |
| Chromium (Cr)-Total (mg/L) | 124 | 53 | 0.00001 | 0.00200 | 0.00046 | 0.00138 | 0.00038 |
| Cobalt (Co)-Total (m | 124 | 84 | 0.00002 | 0.00100 | 0.00026 | 0.00100 | 0.00031 |
| Magnesium (Mg)-Total (mg/L) | 141 | 141 | 1.71000 | 7.70000 | 3.26879 | 5.16400 | 1.07203 |
| Nickel (Ni)-Total (mg/L) | 141 | 56 | 0.00003 | 0.00160 | 0.00035 | 0.00070 | 0.00020 |
| Silicon (Si)-Total (mg/L) | 141 | 141 | 1.25000 | 10.50000 | 3.33436 | 4.86350 | 1.26943 |
| Silver (Ag)-Total (mg/L) | 124 | 33 | 0.00001 | 0.00007 | 0.00001 | 0.00005 | 0.00002 |
| Sodium (Na)-Total (mg/L) | 126 | 126 | 1.73000 | 6.38000 | 3.10103 | 5.38000 | 1.00628 |
| Strontium (Sr)-Total (mg/L) | 144 | 144 | 0.00020 | 0.30600 | 0.11785 | 0.19870 | 0.03884 |
| Tin (Sn)-Total (mg/L) | 84 | 34 | 0.00003 | 0.01300 | 0.00026 | 0.00050 | 0.00141 |
| Total Aluminum (mg/L) | 148 | 148 | 0.02010 | 1.16000 | 0.14783 | 0.44820 | 0.16641 |
| Total Cadmium (mg/L) | 124 | 32 | 0.00001 | 0.00020 | 0.00004 | 0.00020 | 0.00006 |
| Total Copper (mg/L) | 151 | 149 | 0.00100 | 0.26900 | 0.00762 | 0.01164 | 0.02159 |
| Total Iron (mg/L) | 151 | 150 | 0.03000 | 1.84000 | 0.41875 | 0.93925 | 0.27979 |
| Total Lead (mg/L) | 151 | 99 | 0.00002 | 0.00239 | 0.00029 | 0.00100 | 0.00041 |
| Total Manganese (mg/L) | 141 | 141 | 0.00580 | 0.58400 | 0.05924 | 0.18720 | 0.08683 |
| Total Molybdenum (mg/L) | 141 | 126 | 0.00001 | 0.00500 | 0.00073 | 0.00108 | 0.00045 |
| Total Selenium (mg/L) | 139 | 3 | 0.00001 | 0.00150 | 0.00024 | 0.05350 | 0.00018 |
| Zinc (Zn)-Total (mg/L) | 151 | 106 | 0.00025 | 0.01650 | 0.00265 | 0.00596 | 0.00242 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291209 : W10 - Edney Creek | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 14-Jul-11 | 4-Aug-11 | 8-Sep-11 | 6-Oct-11 | 3-Nov-11 | 5-Nov-12 | 6-Jun-13 | 14-Aug-13 | 12-Nov-13 |
| **Anions and Nutrients** | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0095 | 0.0113 | <0.0050 | <0.0050 | <0.0050 | 0.0087 | 0.0112 | <0.0050 | <0.0050 |
| Chloride (mg/L) | <0.5 | <0.5 | 0.56 | 0.98 | 0.74 | 0.72 | <0.50 | 0.94 | 0.93 |
| Diss-Orthophosphate (mg/L) | <0.001 | <0.001 | 0.0011 | 0.0011 | 0.0017 | 0.0011 | 0.0013 | 0.0023 | 0.0011 |
| Diss-Phosphorus (mg/L) | | | | 0.0024 | 0.0044 | 0.0064 | 0.0114 | 0.0046 | 0.0061 |
| Nitrate (N) (mg/L) | <0.005 | 0.0058 | 0.02 | <0.0050 | 0.0124 | 0.411 | 0.0121 | 0.0261 | 0.0163 |
| Nitrate and Nitrite (mg/L) | <0.0051 | 0.0058 | 0.02 | <0.0051 | 0.0124 | 0.412 | 0.0121 | 0.0274 | 0.0163 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.0010 | <0.0010 | <0.0010 | 0.0013 | <0.0010 | 0.0012 | <0.0010 |
| Sulphate (mg/L) | 1.72 | 1.01 | 8.35 | 10.7 | 7.97 | 7.95 | 1.49 | 14.5 | 10.1 |
| Total Nitrogen (mg/L) | 0.59 | 0.72 | 0.29 | 0.23 | 0.23 | 0.78 | 0.565 | 0.221 | 0.264 |
| **Dissolved Metals** | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0292 | 0.0394 | 0.0061 | 0.0042 | 0.0042 | 0.0169 | | 0.0046 | 0.0048 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00081 | 0.00077 | 0.00146 | 0.00188 | 0.00181 | 0.00117 | | 0.00180 | 0.00183 |
| Diss-Barium (Ba) (mg/L) | 0.0128 | 0.0125 | 0.025 | 0.026 | 0.0206 | 0.0136 | | 0.0363 | 0.0176 |
| Diss-Beryllium (Be) (mg/L) | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.012 | 0.01 | 0.021 | 0.023 | 0.021 | 0.015 | | 0.030 | 0.023 |
| Diss-Cadmium (Cd) (mg/L) | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 22.5 | 20.9 | 40.1 | 45.7 | 38.3 | 29.7 | | 51.9 | 35.5 |
| Diss-Chromium (Cr) (mg/L) | 0.00059 | 0.00074 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00259 | 0.00269 | 0.00128 | 0.001 | 0.00101 | 0.00159 | | 0.00108 | 0.00116 |
| Diss-Iron (Fe) (mg/L) | 0.119 | 0.182 | <0.030 | <0.030 | <0.030 | 0.094 | | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 6.42 | 6.07 | 13.5 | 16.3 | 13.2 | 9.78 | | 16.7 | 12.2 |
| Diss-Manganese (Mn) (mg/L) | 0.00309 | 0.00386 | 0.000117 | 0.00064 | 0.000954 | 0.00239 | | 0.00276 | 0.000507 |
| Diss-Molybdenum (Mo) (mg/L) | 0.000606 | 0.000519 | 0.0015 | 0.00174 | 0.00135 | 0.000875 | | 0.00198 | 0.00125 |
| Diss-Nickel (Ni) (mg/L) | 0.00124 | 0.00143 | 0.0007 | 0.0006 | 0.00062 | 0.0007 | | 0.00071 | 0.00058 |
| Diss-Potassium (K) (mg/L) | 0.633 | 0.53 | 1.08 | 1.2 | 0.985 | 0.85 | | 1.50 | 0.918 |
| Diss-Selenium (mg/L) | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 4.09 | 4.24 | 4.31 | 5.26 | 4.82 | 4.25 | | 4.40 | 4.55 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 3.18 | 2.7 | 8.53 | 10.6 | 8.12 | 4.99 | | 12.9 | 7.85 |
| Diss-Strontium (Sr) (mg/L) | 0.135 | 0.131 | 0.261 | 0.296 | 0.258 | 0.194 | | 0.335 | 0.237 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | <0.00010 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291209 : W10 - Edney Creek | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **14-Jul-11** | **4-Aug-11** | **8-Sep-11** | **6-Oct-11** | **3-Nov-11** | **5-Nov-12** | **6-Jun-13** | **14-Aug-13** | **12-Nov-13** |
| Diss-Zinc (Zn) (mg/L) | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | <0.0030 | <0.0030 |
| TDS (mg/L) | 121 | 126 | 189 | 216 | 184 | 146 | 104 | 231 | 161 |
| **Physical Test** | | | | | | | | | |
| Alkalinity (CaCO3) ( | 80.7 | 74.2 | 160 | 181 | 155 | 104 | 66.6 | 198 | 138 |
| Hardness (mg/L) | 82.5 | 77.1 | 156 | 181 | 150 | 115 | 69.1 | 198 | 139 |
| NTU (ntu) | 1.31 | 1.08 | 0.35 | 0.33 | 1.36 | 2.02 | 1.54 | 0.28 | 0.90 |
| TDS (mg/L) | 121 | 126 | 189 | 216 | 184 | 146 | 104 | 231 | 161 |
| TSS (mg/L) | <3 | <3 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.0008 | 0.00076 | 0.00131 | 0.00192 | 0.00174 | 0.00117 | 0.00063 | 0.00179 | 0.00198 |
| Barium (Ba)-Total | 0.0133 | 0.0133 | 0.0268 | 0.0275 | 0.0208 | 0.0139 | 0.0116 | 0.0358 | 0.0182 |
| Boron (B)-Total (mg/L) | 0.016 | 0.013 | 0.024 | 0.027 | 0.02 | 0.016 | 0.011 | 0.032 | 0.024 |
| Calcium (Ca)-Total ( | 22.9 | 21.4 | 41 | 45.6 | 38.9 | 29.3 | 18.7 | 51.0 | 35.9 |
| Chromium (Cr)-Total (mg/L) | 0.0009 | 0.00093 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00076 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 6.54 | 6.24 | 13.8 | 16.2 | 13.4 | 9.63 | 5.43 | 16.9 | 12.5 |
| Nickel (Ni)-Total (mg/L) | 0.00127 | 0.00149 | 0.00078 | 0.00061 | 0.00064 | 0.00074 | 0.00121 | 0.00070 | 0.00072 |
| Silicon (Si)-Total (mg/L) | 4.22 | 4.41 | 4.42 | 5.24 | 4.89 | 4.2 | 3.95 | 4.44 | 4.68 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 3.24 | 2.78 | 8.79 | 11 | 8.41 | 5.05 | 2.59 | 12.8 | 7.83 |
| Strontium (Sr)-Total (mg/L) | 0.137 | 0.136 | 0.262 | 0.328 | 0.232 | 0.191 | 0.116 | 0.337 | 0.242 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0661 | 0.0846 | 0.0298 | 0.0132 | 0.0075 | 0.0431 | 0.0968 | 0.0249 | 0.0104 |
| Total Cadmium (mg/L) | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00276 | 0.00292 | 0.00158 | 0.0011 | 0.0011 | 0.00184 | 0.0028 | 0.00129 | <0.0015 |
| Total Iron (mg/L) | 0.175 | 0.255 | 0.046 | <0.030 | <0.030 | 0.133 | 0.194 | 0.049 | 0.038 |
| Total Lead (mg/L) | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0068 | 0.00897 | 0.00447 | 0.00187 | 0.00197 | 0.00383 | 0.00668 | 0.0105 | 0.00217 |
| Total Molybdenum (mg/L) | 0.000597 | 0.000537 | 0.0015 | 0.00196 | 0.00122 | 0.000884 | 0.00049 | 0.00201 | 0.00124 |
| Total Selenium (mg/L) | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | 0.0031 | 0.0033 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291209 : W10 - Edney Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 28 | 9 | 0.00500 | 0.45000 | 0.02238 | 0.06480 | 0.08388 |
| Chloride (mg/L) | 27 | 18 | 0.02500 | 4.40000 | 0.73981 | 1.68000 | 0.80950 |
| Diss-Orthophosphate (mg/L) | 28 | 25 | 0.00050 | 0.01100 | 0.00308 | 0.00830 | 0.00247 |
| Diss-Phosphorus (mg/L) | 21 | 21 | 0.00200 | 0.02000 | 0.00849 | 0.01790 | 0.00506 |
| Nitrate (N) (mg/L) | 24 | 15 | 0.00250 | 0.41100 | 0.03709 | 0.10670 | 0.09358 |
| Nitrate and Nitrite (mg/L) | 9 | 7 | 0.00255 | 0.41200 | 0.05679 | | 0.13346 |
| Nitrite (N) (mg/L) | 27 | 18 | 0.00050 | 0.10300 | 0.00581 | 0.02140 | 0.01951 |
| Sulphate (mg/L) | 28 | 28 | 1.01000 | 14.50000 | 5.33179 | 9.40000 | 3.43437 |
| Total Nitrogen (mg/L) | 9 | 9 | 0.22100 | 0.78000 | 0.43222 | | 0.22946 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 26 | 21 | 0.00250 | 0.18300 | 0.03773 | 0.12945 | 0.04359 |
| Diss-Antimony (Sb) (mg/L) | 26 | 1 | 0.00005 | 0.00010 | 0.00005 | 0.00006 | 0.00001 |
| Diss-Arsenic (As) (mg/L) | 26 | 26 | 0.00010 | 0.00188 | 0.00087 | 0.00123 | 0.00060 |
| Diss-Barium (Ba) (mg/L) | 26 | 21 | 0.00500 | 0.03630 | 0.01455 | 0.02060 | 0.00765 |
| Diss-Beryllium (Be) (mg/L) | 26 | 0 | 0.00005 | 0.00250 | 0.00175 | 0.00250 | 0.00115 |
| Diss-Boron (B) (mg/L) | 26 | 8 | 0.01000 | 0.05000 | 0.04058 | 0.05000 | 0.01483 |
| Diss-Cadmium (Cd) (mg/L) | 26 | 0 | 0.00001 | 0.00010 | 0.00007 | 0.00010 | 0.00004 |
| Diss-Calcium (Ca) (mg/L) | 26 | 26 | 11.40000 | 51.90000 | 27.28462 | 36.14500 | 10.35759 |
| Diss-Chromium (Cr) (mg/L) | 26 | 2 | 0.00025 | 0.00074 | 0.00046 | 0.00050 | 0.00012 |
| Diss-Cobalt (Co) (mg/L) | 26 | 0 | 0.00005 | 0.00050 | 0.00036 | 0.00050 | 0.00021 |
| Diss-Copper (Cu) (mg/L) | 27 | 24 | 0.00050 | 0.00700 | 0.00196 | 0.00430 | 0.00128 |
| Diss-Iron (Fe) (mg/L) | 26 | 19 | 0.01500 | 0.36000 | 0.11819 | 0.31920 | 0.09694 |
| Diss-Lead (Pb) (mg/L) | 26 | 0 | 0.00003 | 0.00050 | 0.00035 | 0.00050 | 0.00022 |
| Diss-Magnesium (Mg) (mg/L) | 26 | 26 | 3.17000 | 16.70000 | 8.39038 | 11.37000 | 3.81693 |
| Diss-Manganese (Mn) (mg/L) | 26 | 14 | 0.00012 | 0.01000 | 0.00344 | 0.00915 | 0.00253 |
| Diss-Molybdenum (Mo) (mg/L) | 27 | 9 | 0.00050 | 0.00198 | 0.00074 | 0.00057 | 0.00044 |
| Diss-Nickel (Ni) (mg/L) | 26 | 12 | 0.00050 | 0.00143 | 0.00068 | 0.00100 | 0.00027 |
| Diss-Potassium (K) (mg/L) | 26 | 26 | 0.53000 | 1.62000 | 0.92485 | 1.42450 | 0.27102 |
| Diss-Selenium (mg/L) | 26 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Diss-Silicon (Si) (mg/L) | 26 | 26 | 3.03000 | 5.26000 | 3.95808 | 4.26600 | 0.50222 |
| Diss-Silver (Ag) (mg/L) | 26 | 0 | 0.00001 | 0.00005 | 0.00004 | 0.00005 | 0.00002 |
| Diss-Sodium (Na) (mg/L) | 26 | 26 | 1.87000 | 12.90000 | 5.21423 | 7.41600 | 2.88134 |
| Diss-Strontium (Sr) (mg/L) | 26 | 26 | 0.07100 | 0.33500 | 0.17838 | 0.24485 | 0.07123 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291209 : W10 - Edney Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 8 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Zinc (Zn) (mg/L) | 26 | 0 | 0.00150 | 0.00250 | 0.00219 | 0.00250 | 0.00047 |
| TDS (mg/L) | 27 | 27 | 67.00000 | 231.00000 | 133.92593 | 179.15000 | 45.84835 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 28 | 28 | 39.60000 | 198.00000 | 103.65714 | 141.10000 | 43.62200 |
| Hardness (mg/L) | 28 | 28 | 41.50000 | 198.00000 | 102.74286 | 135.80000 | 40.69923 |
| NTU (ntu) | 28 | 28 | 0.28000 | 32.00000 | 3.38893 | 11.77700 | 6.04581 |
| TDS (mg/L) | 27 | 27 | 67.00000 | 231.00000 | 133.92593 | 179.15000 | 45.84835 |
| TSS (mg/L) | 28 | 11 | 0.50000 | 21.00000 | 5.14286 | 19.20000 | 6.62327 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 27 | 0 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00000 |
| Arsenic (As)-Total ( | 28 | 28 | 0.00020 | 0.00198 | 0.00095 | 0.00141 | 0.00055 |
| Barium (Ba)-Total | 27 | 23 | 0.01000 | 0.03580 | 0.01634 | 0.02430 | 0.00677 |
| Boron (B)-Total (mg/L) | 27 | 9 | 0.01100 | 0.05000 | 0.04011 | 0.05000 | 0.01476 |
| Calcium (Ca)-Total ( | 28 | 28 | 0.01300 | 51.00000 | 26.86832 | 38.80000 | 11.60387 |
| Chromium (Cr)-Total (mg/L) | 27 | 7 | 0.00025 | 0.00100 | 0.00056 | 0.00100 | 0.00026 |
| Cobalt (Co)-Total (m | 27 | 1 | 0.00010 | 0.00200 | 0.00074 | 0.00115 | 0.00050 |
| Magnesium (Mg)-Total (mg/L) | 28 | 28 | 3.17000 | 16.90000 | 8.63321 | 12.18000 | 3.79551 |
| Nickel (Ni)-Total (mg/L) | 28 | 18 | 0.00050 | 0.00800 | 0.00111 | 0.00260 | 0.00142 |
| Silicon (Si)-Total (mg/L) | 28 | 28 | 2.27300 | 5.24000 | 4.01904 | 4.37600 | 0.56129 |
| Silver (Ag)-Total (mg/L) | 27 | 0 | 0.00001 | 0.00050 | 0.00005 | 0.00012 | 0.00009 |
| Sodium (Na)-Total (mg/L) | 10 | 10 | 2.59000 | 12.80000 | 6.87700 | | 3.51323 |
| Strontium (Sr)-Total (mg/L) | 28 | 28 | 0.07100 | 0.33700 | 0.18086 | 0.26090 | 0.07216 |
| Tin (Sn)-Total (mg/L) | 9 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Total Aluminum (mg/L) | 28 | 28 | 0.00750 | 0.52100 | 0.12270 | 0.44810 | 0.13598 |
| Total Cadmium (mg/L) | 27 | 0 | 0.00001 | 0.00020 | 0.00014 | 0.00020 | 0.00009 |
| Total Copper (mg/L) | 28 | 26 | 0.00100 | 0.02000 | 0.00267 | 0.00560 | 0.00351 |
| Total Iron (mg/L) | 28 | 26 | 0.03000 | 0.52400 | 0.18571 | 0.46550 | 0.14052 |
| Total Lead (mg/L) | 28 | 1 | 0.00005 | 0.00218 | 0.00074 | 0.00112 | 0.00053 |
| Total Manganese (mg/L) | 28 | 23 | 0.00187 | 0.06700 | 0.01053 | 0.02740 | 0.01280 |
| Total Molybdenum (mg/L) | 28 | 11 | 0.00049 | 0.00201 | 0.00079 | 0.00137 | 0.00051 |
| Total Selenium (mg/L) | 27 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Zinc (Zn)-Total (mg/L) | 28 | 3 | 0.00150 | 0.00980 | 0.00256 | 0.00323 | 0.00151 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E224223 : W11 - Lower Edney Creek upstream of Quesnel Lake | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10-Jun-09 | 16-Nov-09 | 11-May-10 | 5-Aug-10 | 23-Aug-10 | 3-Nov-10 | 15-Jun-11 | 4-Aug-11 | 25-Aug-11 | 3-Nov-11 | 3-May-12 | 2-Aug-12 | 5-Nov-12 | 6-Jun-13 | 14-Aug-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.02 | <0.005 | <0.005 | <0.005 | 0.01 | 0.0096 | 0.0104 | 0.0068 | <0.0050 | 0.0094 | 0.005 | 0.006 | 0.0105 | 0.0052 |
| Chloride (mg/L) | <0.5 | 0.86 | <0.5 | 0.52 | 0.63 | 0.9 | <2.5 | <0.5 | <0.50 | 0.8 | <2.5 | <0.50 | 0.83 | <0.50 | 0.68 |
| Diss-Orthophosphate (mg/L) | 0.0052 | 0.0019 | 0.0017 | 0.0064 | 0.0024 | 0.0025 | 0.0045 | 0.0035 | 0.0064 | 0.0023 | 0.0031 | 0.0078 | 0.0028 | 0.0089 | 0.0087 |
| Diss-Phosphorus (mg/L) | | | 0.0086 | 0.008 | 0.0052 | 0.0045 | 0.0099 | 0.0092 | | 0.0047 | 0.0145 | 0.0108 | 0.0084 | 0.0184 | 0.0117 |
| Nitrate (N) (mg/L) | 0.023 | 0.107 | 0.0181 | 0.0154 | 0.583 | 0.0433 | <0.025 | 0.0341 | 0.0469 | 0.0226 | <0.025 | 0.0196 | 0.318 | 0.0386 | 0.0447 |
| Nitrate and Nitrite (mg/L) | | | 0.0181 | 0.0154 | 0.585 | 0.0433 | <0.025 | 0.0341 | 0.0469 | 0.0226 | <0.025 | 0.0196 | 0.319 | 0.0386 | 0.0463 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | 0.0026 | <0.001 | <0.005 | <0.001 | <0.0010 | <0.0010 | <0.0050 | <0.0010 | 0.0013 | <0.0010 | 0.0016 |
| Sulphate (mg/L) | 18.9 | 12.1 | 8.95 | 21.8 | 21.8 | 19.2 | 14.7 | 9.7 | 19.7 | 13.9 | 5.2 | 20.6 | 12.2 | 11.8 | 17.8 |
| Total Nitrogen (mg/L) | 0.43 | 0.57 | 0.33 | 0.17 | 0.86 | 0.19 | 0.41 | 0.56 | 0.28 | 0.16 | 0.5 | 6.44 | 0.67 | 0.482 | 0.248 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0171 | 0.0492 | 0.046 | 0.0032 | 0.0034 | 0.0031 | 0.029 | 0.0305 | 0.0074 | 0.0041 | 0.121 | 0.0078 | 0.0199 | | 0.0046 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00058 | 0.00072 | 0.00051 | 0.00067 | 0.00068 | 0.00095 | 0.00054 | 0.00069 | 0.0007 | 0.00089 | 0.00039 | 0.00076 | 0.00083 | | 0.00081 |
| Diss-Barium (Ba) (mg/L) | 0.0117 | 0.0117 | 0.0102 | 0.0198 | 0.0212 | 0.0225 | 0.0106 | 0.0126 | 0.016 | 0.019 | 0.00839 | 0.0145 | 0.0137 | | 0.0212 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.018 | 0.013 | 0.017 | 0.026 | 0.025 | 0.026 | 0.019 | 0.015 | 0.022 | 0.022 | 0.011 | 0.022 | 0.017 | | 0.025 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 28.1 | 23.2 | 21.8 | 40.2 | 42.5 | 43.8 | 25 | 25.4 | 36.2 | 40.2 | 15.8 | 34 | 32.3 | | 43.8 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | 0.00055 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | 0.00064 | <0.00050 | <0.00050 | | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00012 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00201 | 0.00269 | 0.00278 | 0.00112 | 0.00096 | 0.0011 | 0.00254 | 0.00246 | 0.00139 | 0.00099 | 0.00327 | 0.00133 | 0.00185 | | 0.00107 |
| Diss-Iron (Fe) (mg/L) | <0.03 | 0.154 | 0.094 | <0.03 | <0.03 | <0.03 | 0.064 | 0.122 | <0.030 | <0.030 | 0.155 | <0.030 | 0.088 | | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | 0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 5.31 | 6.53 | 4.98 | 8.8 | 10.6 | 12.2 | 5.01 | 5.97 | 7.35 | 11 | 3.72 | 7.32 | 8.81 | | 9.31 |
| Diss-Manganese (Mn) (mg/L) | 0.00534 | 0.00923 | 0.00357 | 0.00624 | 0.0179 | 0.0253 | 0.00534 | 0.00877 | 0.0163 | 0.0205 | 0.00276 | 0.02 | 0.0142 | | 0.0206 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0017 | 0.000765 | 0.000937 | 0.0017 | 0.00171 | 0.00153 | 0.00132 | 0.001 | 0.0017 | 0.00132 | 0.000621 | 0.0018 | 0.00103 | | 0.00191 |
| Diss-Nickel (Ni) (mg/L) | 0.0007 | 0.00081 | 0.0007 | <0.0005 | <0.0005 | <0.0005 | 0.00074 | 0.00106 | <0.00050 | 0.00053 | 0.00108 | <0.00050 | 0.0006 | | 0.00055 |
| Diss-Potassium (K) (mg/L) | 0.603 | 0.768 | 0.579 | 0.828 | 0.86 | 0.903 | 0.526 | 0.506 | 0.628 | 0.81 | 0.562 | 0.614 | 0.755 | | 0.862 |
| Diss-Selenium (mg/L) | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.00051 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 3.71 | 4.34 | 3.81 | 3.54 | 3.98 | 5.13 | 3.78 | 4.18 | 4.1 | 4.65 | 3.75 | 3.48 | 4.4 | | 4.15 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 4.22 | 4.08 | 3.28 | 6.7 | 7.42 | 8.88 | 3.58 | 3.37 | 5.81 | 7.44 | 2.23 | 5.52 | 5.33 | | 7.29 |
| Diss-Strontium (Sr) (mg/L) | 0.191 | 0.14 | 0.136 | 0.252 | 0.282 | 0.294 | 0.166 | 0.165 | 0.254 | 0.257 | 0.098 | 0.229 | 0.199 | | 0.285 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 |

| | E224223 : W11 - | |
|---|---|---|
| | 26-Aug-13 | 12-Nov-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | 0.0078 | <0.0050 |
| Chloride (mg/L) | 0.8 | 1.14 |
| Diss-Orthophosphate (mg/L) | 0.0053 | 0.0022 |
| Diss-Phosphorus (mg/L) | 0.0083 | 0.0076 |
| Nitrate (N) (mg/L) | 0.0325 | 0.0326 |
| Nitrate and Nitrite (mg/L) | 0.0325 | 0.0326 |
| Nitrite (N) (mg/L) | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 15.8 | 15.3 |
| Total Nitrogen (mg/L) | 0.202 | 0.220 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | 0.0039 | 0.0039 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00074 | 0.00102 |
| Diss-Barium (Ba) (mg/L) | 0.0219 | 0.0189 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.024 | 0.023 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 44.6 | 40.0 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00098 | 0.00114 |
| Diss-Iron (Fe) (mg/L) | 0.031 | 0.033 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 10.2 | 11.0 |
| Diss-Manganese (Mn) (mg/L) | 0.0286 | 0.0300 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00175 | 0.00137 |
| Diss-Nickel (Ni) (mg/L) | 0.00059 | 0.00076 |
| Diss-Potassium (K) (mg/L) | 0.947 | 0.813 |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 4.33 | 4.58 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 8.33 | 7.78 |
| Diss-Strontium (Sr) (mg/L) | 0.268 | 0.255 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E224223 : W11 - Lower Edney Creek upstream of Quesnel Lake | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **10-Jun-09** | **16-Nov-09** | **11-May-10** | **5-Aug-10** | **23-Aug-10** | **3-Nov-10** | **15-Jun-11** | **4-Aug-11** | **25-Aug-11** | **3-Nov-11** | **3-May-12** | **2-Aug-12** | **5-Nov-12** | **6-Jun-13** | **14-Aug-13** |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | <0.0030 |
| TDS (mg/L) | 125 | 126 | 109 | 166 | 179 | 194 | 130 | 129 | 154 | 166 | 111 | 148 | 145 | 114 | 180 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 81.5 | 89.8 | 65.3 | 123 | 137 | 150 | 71.9 | 78.3 | 105 | 142 | 46.8 | 109 | 105 | 73.5 | 135 |
| Hardness (mg/L) | 91.9 | 84.9 | 75.1 | 137 | 150 | 160 | 83 | 88.1 | 121 | 146 | 54.8 | 115 | 117 | 81.5 | 148 |
| NTU (ntu) | 0.81 | 2.27 | 1.5 | 1.78 | 0.31 | 0.28 | 1.36 | 1.24 | 0.45 | 0.57 | 3.66 | 0.5 | 1.85 | 1.33 | 0.51 |
| TDS (mg/L) | 125 | 126 | 109 | 166 | 179 | 194 | 130 | 129 | 154 | 166 | 111 | 148 | 145 | 114 | 180 |
| TSS (mg/L) | <3 | 5 | 3.5 | 5.8 | <3 | <3 | 4.3 | <3 | 3.3 | <3.0 | 6 | 4.4 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00061 | 0.00073 | 0.00054 | 0.00074 | 0.00074 | 0.00101 | 0.00053 | 0.00067 | 0.00073 | 0.00088 | 0.0005 | 0.00082 | 0.00089 | 0.00069 | 0.00091 |
| Barium (Ba)-Total | 0.0123 | 0.0125 | 0.0107 | 0.0214 | 0.0225 | 0.0235 | 0.0115 | 0.0132 | 0.0166 | 0.0192 | 0.00982 | 0.0156 | 0.0144 | 0.0112 | 0.0218 |
| Boron (B)-Total (mg/L) | 0.021 | 0.014 | 0.016 | 0.029 | 0.026 | 0.029 | 0.02 | 0.016 | 0.023 | 0.024 | <0.010 | 0.022 | 0.017 | 0.015 | 0.027 |
| Calcium (Ca)-Total ( | 26.9 | 23.4 | 19.6 | 38.7 | 42.4 | 44.6 | 25.5 | 25.4 | 37 | 39.7 | 15.8 | 34.7 | 31 | 23.9 | 45.1 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | 0.0006 | 0.00065 | <0.0005 | <0.0005 | <0.0005 | 0.00059 | 0.00064 | <0.00050 | <0.00050 | 0.00108 | <0.00050 | <0.00050 | 0.00059 | <0.00050 |
| Cobalt (Co)-Total (m | <0.0001 | 0.0001 | <0.0001 | 0.0001 | 0.00018 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | 0.0002 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 5.15 | 6.58 | 4.85 | 8.5 | 10.5 | 12.5 | 5.14 | 6.02 | 7.68 | 11 | 3.81 | 7.29 | 8.63 | 5.31 | 9.80 |
| Nickel (Ni)-Total (mg/L) | 0.00089 | 0.00092 | 0.00082 | 0.00053 | 0.00054 | <0.0006 | 0.00076 | 0.00105 | 0.00051 | <0.00050 | 0.00141 | <0.00050 | 0.00071 | 0.00083 | 0.00064 |
| Silicon (Si)-Total (mg/L) | 3.63 | 4.48 | 3.77 | 3.53 | 3.98 | 5.24 | 3.98 | 4.3 | 4.29 | 4.65 | 4.04 | 3.53 | 4.32 | 3.89 | 4.48 |
| Silver (Ag)-Total (mg/L) | <0.00001 | 0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.43 | 4.06 | 3.28 | 7.11 | 7.51 | 9.22 | 3.62 | 3.32 | 6.11 | 7.61 | 2.21 | 5.67 | 4.87 | 3.17 | 7.94 |
| Strontium (Sr)-Total (mg/L) | 0.207 | 0.145 | 0.136 | 0.264 | 0.288 | 0.309 | 0.174 | 0.168 | 0.268 | 0.266 | 0.0954 | 0.234 | 0.205 | 0.157 | 0.302 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0523 | 0.111 | 0.108 | 0.063 | 0.0431 | 0.0059 | 0.0924 | 0.0762 | 0.0224 | 0.008 | 0.3 | 0.0198 | 0.0556 | 0.0969 | 0.0413 |
| Total Cadmium (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | 0.000013 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00243 | 0.0031 | 0.00349 | 0.00156 | 0.00133 | 0.00123 | 0.00296 | 0.00267 | 0.00165 | 0.00111 | 0.0037 | 0.00186 | 0.00211 | 0.00257 | 0.00135 |
| Total Iron (mg/L) | 0.07 | 0.256 | 0.175 | 0.131 | 0.107 | 0.034 | 0.145 | 0.2 | 0.056 | 0.032 | 0.47 | 0.05 | 0.163 | 0.158 | 0.110 |
| Total Lead (mg/L) | <0.00005 | 0.000053 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | 0.000131 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0127 | 0.0154 | 0.0113 | 0.0671 | 0.0511 | 0.0302 | 0.015 | 0.0177 | 0.0265 | 0.0265 | 0.0132 | 0.0257 | 0.027 | 0.0154 | 0.0594 |
| Total Molybdenum (mg/L) | 0.00198 | 0.000813 | 0.000963 | 0.00171 | 0.00174 | 0.00164 | 0.00139 | 0.00109 | 0.00177 | 0.00138 | 0.000604 | 0.00185 | 0.00111 | 0.00115 | 0.00197 |
| Total Selenium (mg/L) | 0.0012 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.003 | <0.001 | <0.001 | 0.022 | <0.001 | <0.003 | <0.003 | 0.0039 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

| | E224223 : W11 - | |
|---|---|---|
| | **26-Aug-13** | **12-Nov-13** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 |
| TDS (mg/L) | 193 | 176 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 157 | 137 |
| Hardness (mg/L) | 153 | 145 |
| NTU (ntu) | 0.47 | 1.06 |
| TDS (mg/L) | 193 | 176 |
| TSS (mg/L) | <3.0 | <3.0 |
| **Total Metals** | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00085 | 0.00115 |
| Barium (Ba)-Total | 0.0233 | 0.0191 |
| Boron (B)-Total (mg/L) | 0.025 | 0.024 |
| Calcium (Ca)-Total ( | 43.8 | 41.5 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 10.2 | 11.5 |
| Nickel (Ni)-Total (mg/L) | 0.00064 | 0.00063 |
| Silicon (Si)-Total (mg/L) | 4.36 | 4.81 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 8.41 | 8.18 |
| Strontium (Sr)-Total (mg/L) | 0.281 | 0.261 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0143 | 0.0090 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00112 | <0.0015 |
| Total Iron (mg/L) | 0.066 | 0.051 |
| Total Lead (mg/L) | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0387 | 0.0331 |
| Total Molybdenum (mg/L) | 0.00183 | 0.00143 |
| Total Selenium (mg/L) | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E224223 : W11 - Lower Edney Creek upstream of Quesnel Lake | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 72 | 29 | 0.00070 | 0.12500 | 0.01145 | 0.05120 | 0.01938 |
| Chloride (mg/L) | 31 | 21 | 0.25000 | 1.25000 | 0.70194 | 1.03500 | 0.32704 |
| Diss-Orthophosphate (mg/L) | 71 | 65 | 0.00050 | 0.03500 | 0.00543 | 0.01410 | 0.00536 |
| Diss-Phosphorus (mg/L) | 28 | 28 | 0.00200 | 0.01840 | 0.00949 | 0.01570 | 0.00408 |
| Nitrate (N) (mg/L) | 48 | 44 | 0.00250 | 0.58300 | 0.06705 | 0.26600 | 0.11357 |
| Nitrate and Nitrite (mg/L) | 23 | 17 | 0.01000 | 0.58500 | 0.06739 | 0.10600 | 0.13039 |
| Nitrite (N) (mg/L) | 63 | 33 | 0.00050 | 0.08310 | 0.00317 | 0.00500 | 0.01034 |
| Sulphate (mg/L) | 72 | 69 | 0.50000 | 21.80000 | 8.04111 | 11.86000 | 5.55591 |
| Total Nitrogen (mg/L) | 31 | 31 | 0.16000 | 6.44000 | 0.60523 | 0.82400 | 1.10118 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 64 | 59 | 0.00230 | 0.41200 | 0.03402 | 0.08492 | 0.05548 |
| Diss-Antimony (Sb) (mg/L) | 64 | 9 | 0.00003 | 0.00020 | 0.00005 | 0.00009 | 0.00003 |
| Diss-Arsenic (As) (mg/L) | 64 | 63 | 0.00005 | 0.00110 | 0.00058 | 0.00095 | 0.00024 |
| Diss-Barium (Ba) (mg/L) | 64 | 56 | 0.00500 | 0.02350 | 0.01235 | 0.02050 | 0.00503 |
| Diss-Beryllium (Be) (mg/L) | 64 | 0 | 0.00003 | 0.00250 | 0.00064 | 0.00250 | 0.00100 |
| Diss-Boron (B) (mg/L) | 45 | 28 | 0.00400 | 0.05000 | 0.02680 | 0.05000 | 0.01660 |
| Diss-Cadmium (Cd) (mg/L) | 64 | 8 | 0.00001 | 0.00010 | 0.00003 | 0.00010 | 0.00004 |
| Diss-Calcium (Ca) (mg/L) | 64 | 64 | 12.10000 | 44.60000 | 26.36875 | 38.97000 | 8.71169 |
| Diss-Chromium (Cr) (mg/L) | 64 | 12 | 0.00010 | 0.00310 | 0.00041 | 0.00115 | 0.00043 |
| Diss-Cobalt (Co) (mg/L) | 64 | 16 | 0.00001 | 0.00050 | 0.00015 | 0.00050 | 0.00019 |
| Diss-Copper (Cu) (mg/L) | 69 | 66 | 0.00050 | 0.00500 | 0.00219 | 0.00442 | 0.00100 |
| Diss-Iron (Fe) (mg/L) | 64 | 51 | 0.01500 | 0.27200 | 0.09577 | 0.23905 | 0.07675 |
| Diss-Lead (Pb) (mg/L) | 64 | 23 | 0.00001 | 0.00050 | 0.00015 | 0.00050 | 0.00019 |
| Diss-Magnesium (Mg) (mg/L) | 65 | 65 | 2.86000 | 12.20000 | 6.24754 | 10.21600 | 2.43087 |
| Diss-Manganese (Mn) (mg/L) | 64 | 61 | 0.00160 | 0.08110 | 0.01492 | 0.06123 | 0.01623 |
| Diss-Molybdenum (Mo) (mg/L) | 69 | 55 | 0.00031 | 0.00232 | 0.00090 | 0.00146 | 0.00047 |
| Diss-Nickel (Ni) (mg/L) | 64 | 35 | 0.00025 | 0.00110 | 0.00058 | 0.00100 | 0.00027 |
| Diss-Potassium (K) (mg/L) | 64 | 64 | 0.47000 | 1.05000 | 0.68530 | 0.94250 | 0.14703 |
| Diss-Selenium (mg/L) | 64 | 3 | 0.00010 | 0.00100 | 0.00034 | 0.00050 | 0.00015 |
| Diss-Silicon (Si) (mg/L) | 65 | 65 | 2.18000 | 5.13000 | 3.86431 | 4.48600 | 0.56306 |
| Diss-Silver (Ag) (mg/L) | 64 | 3 | 0.00001 | 0.00011 | 0.00002 | 0.00005 | 0.00002 |
| Diss-Sodium (Na) (mg/L) | 65 | 65 | 1.81000 | 9.72000 | 4.55954 | 8.27800 | 2.00016 |
| Diss-Strontium (Sr) (mg/L) | 64 | 64 | 0.07500 | 0.29400 | 0.15568 | 0.20265 | 0.05976 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E224223 : W11 - Lower Edney Creek upstream of Quesnel Lake | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 48 | 13 | 0.00003 | 0.00038 | 0.00007 | 0.00027 | 0.00007 |
| Diss-Zinc (Zn) (mg/L) | 64 | 21 | 0.00025 | 0.00500 | 0.00148 | 0.00328 | 0.00099 |
| TDS (mg/L) | 60 | 56 | 2.00000 | 194.00000 | 113.38333 | 174.00000 | 49.60764 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 74 | 73 | 1.00000 | 162.00000 | 86.30946 | 144.20000 | 33.47358 |
| Hardness (mg/L) | 72 | 72 | 44.50000 | 160.00000 | 90.76250 | 133.60000 | 30.47554 |
| NTU (ntu) | 72 | 72 | 0.28000 | 7.25000 | 1.77306 | 4.90900 | 1.46860 |
| TDS (mg/L) | 60 | 56 | 2.00000 | 194.00000 | 113.38333 | 174.00000 | 49.60764 |
| TSS (mg/L) | 68 | 33 | 0.50000 | 38.00000 | 4.03676 | 12.50000 | 5.27452 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 70 | 13 | 0.00003 | 0.00024 | 0.00005 | 0.00007 | 0.00003 |
| Arsenic (As)-Total ( | 73 | 72 | 0.00010 | 0.00170 | 0.00063 | 0.00123 | 0.00029 |
| Barium (Ba)-Total | 70 | 64 | 0.00746 | 0.02500 | 0.01365 | 0.02174 | 0.00454 |
| Boron (B)-Total (mg/L) | 46 | 29 | 0.00500 | 0.05000 | 0.02707 | 0.05000 | 0.01634 |
| Calcium (Ca)-Total ( | 73 | 73 | 12.80000 | 45.10000 | 26.01507 | 38.30000 | 8.49032 |
| Chromium (Cr)-Total (mg/L) | 70 | 27 | 0.00006 | 0.00400 | 0.00054 | 0.00124 | 0.00060 |
| Cobalt (Co)-Total (m | 70 | 30 | 0.00002 | 0.00100 | 0.00031 | 0.00100 | 0.00036 |
| Magnesium (Mg)-Total (mg/L) | 73 | 73 | 3.06000 | 21.30000 | 6.43014 | 11.32500 | 2.99513 |
| Nickel (Ni)-Total (mg/L) | 73 | 53 | 0.00025 | 0.00200 | 0.00074 | 0.00143 | 0.00038 |
| Silicon (Si)-Total (mg/L) | 73 | 73 | 1.50000 | 6.40000 | 3.96507 | 4.80500 | 0.71520 |
| Silver (Ag)-Total (mg/L) | 70 | 8 | 0.00001 | 0.00010 | 0.00002 | 0.00005 | 0.00002 |
| Sodium (Na)-Total (mg/L) | 59 | 59 | 0.00070 | 9.49000 | 4.61103 | 8.76650 | 2.21292 |
| Strontium (Sr)-Total (mg/L) | 73 | 73 | 0.07500 | 0.30900 | 0.15668 | 0.22000 | 0.06161 |
| Tin (Sn)-Total (mg/L) | 50 | 11 | 0.00003 | 0.00076 | 0.00010 | 0.00034 | 0.00013 |
| Total Aluminum (mg/L) | 73 | 73 | 0.00590 | 0.61100 | 0.10674 | 0.33475 | 0.11402 |
| Total Cadmium (mg/L) | 70 | 10 | 0.00001 | 0.00020 | 0.00005 | 0.00020 | 0.00007 |
| Total Copper (mg/L) | 73 | 70 | 0.00096 | 0.00580 | 0.00248 | 0.00420 | 0.00107 |
| Total Iron (mg/L) | 73 | 73 | 0.03000 | 0.88100 | 0.20022 | 0.49450 | 0.17097 |
| Total Lead (mg/L) | 73 | 30 | 0.00002 | 0.00100 | 0.00027 | 0.00100 | 0.00037 |
| Total Manganese (mg/L) | 73 | 73 | 0.00502 | 0.16700 | 0.02810 | 0.08265 | 0.02794 |
| Total Molybdenum (mg/L) | 73 | 58 | 0.00003 | 0.00200 | 0.00090 | 0.00159 | 0.00051 |
| Total Selenium (mg/L) | 73 | 3 | 0.00005 | 0.00120 | 0.00031 | 0.00050 | 0.00018 |
| Zinc (Zn)-Total (mg/L) | 73 | 31 | 0.00003 | 0.09360 | 0.00355 | 0.00728 | 0.01107 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216744 : W12 - 6k Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9-Feb-09 | 2-Jun-09 | 12-Aug-09 | 10-Nov-09 | 11-Feb-10 | 11-May-10 | 4-Aug-10 | 3-Nov-10 | 1-Feb-11 | 12-May-11 | 4-Aug-11 | 1-Nov-11 | 1-Feb-12 | 3-May-12 | 1-Aug-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | 0.0134 | 0.0065 | 0.0068 | <0.005 | <0.005 | <0.005 | 0.0059 | <0.005 | 0.0073 | 0.005 | 0.0094 | 0.0091 | 0.0098 |
| Chloride (mg/L) | | <0.5 | <0.5 | 4.23 | 1.22 | 0.61 | 0.78 | 2.49 | 2.65 | <2.5 | 4.95 | 3.03 | 3.64 | <2.5 | 2.84 |
| Diss-Orthophosphate (mg/L) | 0.0016 | <0.001 | <0.001 | 0.0028 | 0.0015 | <0.001 | 0.0016 | 0.0013 | 0.0017 | <0.001 | 0.002 | <0.0010 | 0.0016 | <0.0010 | 0.003 |
| Diss-Phosphorus (mg/L) | 0.0075 | 0.0068 | 0.0056 | 0.0094 | 0.0058 | 0.0061 | 0.0084 | 0.0051 | 0.0075 | 0.0083 | 0.0066 | 0.0051 | 0.0061 | 0.0071 | 0.0087 |
| Nitrate (N) (mg/L) | 0.0125 | <0.005 | 0.0099 | 0.0256 | 0.0219 | <0.005 | <0.005 | <0.005 | 0.0145 | 0.05 | 0.0078 | <0.0050 | 0.0115 | <0.025 | 0.0077 |
| Nitrate and Nitrite (mg/L) | | | | | | <0.005 | <0.005 | <0.0051 | 0.0145 | 0.05 | 0.0471 | <0.0051 | 0.0115 | <0.025 | 0.0077 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | 0.0393 | <0.0010 | <0.0010 | <0.0050 | <0.0010 |
| Sulphate (mg/L) | 6.36 | 9.68 | 2.52 | 31.4 | 19.6 | 12 | 4.52 | 18.9 | 15.4 | 10.9 | 11.1 | 8.19 | 8.89 | 12.8 | 8.6 |
| Total Nitrogen (mg/L) | 0.23 | 0.38 | 0.45 | 0.28 | 0.32 | 0.24 | 0.35 | 0.318 | 0.25 | 0.34 | 0.49 | 0.37 | 0.25 | 0.34 | 0.47 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0194 | 0.0273 | <0.001 | 0.0377 | 0.0178 | 0.0276 | 0.0018 | 0.0116 | 0.0141 | 0.0589 | 0.0211 | 0.0075 | 0.0116 | 0.0479 | 0.0089 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00026 | 0.00034 | 0.00042 | 0.00026 | 0.00027 | 0.00028 | 0.00047 | 0.00026 | 0.00025 | 0.00022 | 0.00045 | 0.0003 | 0.00028 | 0.00026 | 0.00051 |
| Diss-Barium (Ba) (mg/L) | 0.00907 | 0.00875 | 0.0133 | 0.0106 | 0.00979 | 0.00758 | 0.0142 | 0.00921 | 0.0119 | 0.0075 | 0.0127 | 0.0108 | 0.0105 | 0.00806 | 0.0123 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.057 | 0.042 | 0.173 | 0.082 | 0.085 | 0.05 | 0.189 | 0.102 | 0.096 | 0.027 | 0.054 | 0.082 | 0.078 | 0.029 | 0.082 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 25.6 | 21.3 | 37.5 | 23.9 | 24.1 | 18.6 | 34.3 | 26.1 | 29.7 | 13.6 | 31.4 | 34 | 33.6 | 18.1 | 37.4 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | 0.00011 |
| Diss-Copper (Cu) (mg/L) | 0.00436 | 0.00747 | 0.00169 | 0.00834 | 0.00544 | 0.00731 | 0.0023 | 0.00405 | 0.00445 | 0.00748 | 0.00514 | 0.00259 | 0.00288 | 0.00876 | 0.00288 |
| Diss-Iron (Fe) (mg/L) | 0.189 | 0.115 | 0.056 | 0.109 | 0.101 | 0.075 | 0.063 | 0.074 | 0.195 | 0.084 | 0.195 | 0.083 | 0.218 | 0.086 | 0.195 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 4.68 | 3.97 | 6.51 | 4.46 | 4.68 | 3.18 | 6.24 | 4.67 | 5.56 | 2.62 | 5.21 | 6.03 | 5.98 | 3.21 | 5.88 |
| Diss-Manganese (Mn) (mg/L) | 0.0514 | 0.0208 | 0.0127 | 0.0138 | 0.0248 | 0.00248 | 0.0951 | 0.0265 | 0.0618 | 0.00377 | 0.0543 | 0.0341 | 0.0726 | 0.00307 | 0.151 |
| Diss-Molybdenum (Mo) (mg/L) | 0.000434 | 0.000747 | 0.00102 | 0.000674 | 0.000543 | 0.000617 | 0.00117 | 0.000544 | 0.000613 | 0.000438 | 0.000813 | 0.000493 | 0.000362 | 0.00062 | 0.000822 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.267 | 0.313 | 0.28 | 0.461 | 0.253 | 0.184 | 0.369 | 0.286 | 0.46 | 0.412 | 0.184 | 0.582 | 0.29 | 0.314 | 0.183 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 7.05 | 4.46 | 5.45 | 6.03 | 6.75 | 4.89 | 4.6 | 6.49 | 7.33 | 4.8 | 6.12 | 7.06 | 7.62 | 5.04 | 6.5 |
| Diss-Silver (Ag) (mg/L) | 0.000044 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 4.18 | 2.95 | 6.39 | 3.32 | 3.95 | 2.91 | 6.62 | 4.7 | 4.94 | 2.13 | 3.45 | 5.12 | 5.22 | 2.48 | 4.03 |
| Diss-Strontium (Sr) (mg/L) | 0.128 | 0.0907 | 0.172 | 0.107 | 0.106 | 0.0803 | 0.167 | 0.124 | 0.132 | 0.0628 | 0.151 | 0.158 | 0.147 | 0.0849 | 0.189 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E216744 : W12 - 6k Creek | | | | |
|---|---|---|---|---|---|
| | 5-Nov-12 | 7-Feb-13 | 2-May-13 | 8-Aug-13 | 7-Nov-13 |
| **Anions and Nutrients** | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | 0.0073 | <0.0050 | <0.0050 | 0.0061 |
| Chloride (mg/L) | 5.88 | 4.73 | 1.13 | 1.1 | 4.28 |
| Diss-Orthophosphate (mg/L) | 0.0012 | 0.0026 | <0.0010 | <0.0010 | <0.0010 |
| Diss-Phosphorus (mg/L) | 0.0057 | 0.0045 | 0.0058 | 0.008 | 0.0036 |
| Nitrate (N) (mg/L) | 0.0667 | 0.0158 | 0.0304 | <0.0050 | 0.0087 |
| Nitrate and Nitrite (mg/L) | 0.0683 | 0.0158 | 0.0304 | <0.0051 | 0.0087 |
| Nitrite (N) (mg/L) | 0.0016 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 19.3 | 15.8 | 15.8 | 6.95 | 29.2 |
| Total Nitrogen (mg/L) | 0.41 | 0.308 | 0.353 | 0.415 | 0.304 |
| **Dissolved Metals** | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0118 | | | | |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | | | | |
| Diss-Arsenic (As) (mg/L) | 0.00027 | | | | |
| Diss-Barium (Ba) (mg/L) | 0.0102 | | | | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | | | | |
| Diss-Boron (B) (mg/L) | 0.062 | | | | |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | | | | |
| Diss-Calcium (Ca) (mg/L) | 30.6 | | | | |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | | | | |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | | | | |
| Diss-Copper (Cu) (mg/L) | 0.00309 | | | | |
| Diss-Iron (Fe) (mg/L) | 0.14 | | | | |
| Diss-Lead (Pb) (mg/L) | <0.000050 | | | | |
| Diss-Magnesium (Mg) (mg/L) | 5.29 | | | | |
| Diss-Manganese (Mn) (mg/L) | 0.052 | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.00045 | | | | |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | | | | |
| Diss-Potassium (K) (mg/L) | 0.536 | | | | |
| Diss-Selenium (mg/L) | <0.00050 | | | | |
| Diss-Silicon (Si) (mg/L) | 6.23 | | | | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | | | | |
| Diss-Sodium (Na) (mg/L) | 3.84 | | | | |
| Diss-Strontium (Sr) (mg/L) | 0.138 | | | | |
| Diss-Tin (Sn) (mg/L) | <0.00010 | | | | |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216744 : W12 - 6k Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9-Feb-09 | 2-Jun-09 | 12-Aug-09 | 10-Nov-09 | 11-Feb-10 | 11-May-10 | 4-Aug-10 | 3-Nov-10 | 1-Feb-11 | 12-May-11 | 4-Aug-11 | 1-Nov-11 | 1-Feb-12 | 3-May-12 | 1-Aug-12 |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0055 | <0.003 | 0.0035 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 123 | 105 | 156 | 136 | <3 | 98 | 154 | 132 | 139 | 92 | 149 | 148 | 149 | 120 | 162 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 78.9 | 63.1 | 137 | 43.6 | 71.7 | 46.7 | 115 | 72.9 | 81.4 | 32.7 | 79.1 | 101 | 96.4 | 43.5 | 100 |
| Hardness (mg/L) | 83.3 | 69.5 | 121 | 78 | 79.3 | 59.5 | 111 | 84.4 | 97.2 | 44.6 | 100 | 110 | 109 | 58.4 | 118 |
| NTU (ntu) | 1.38 | 1 | 2.23 | 2.21 | 0.62 | 1.14 | 2.52 | 0.91 | 1.37 | 1.6 | 2.53 | 1.16 | 2.44 | 0.61 | 1.95 |
| TDS (mg/L) | 123 | 105 | 156 | 136 | <3 | 98 | 154 | 132 | 139 | 92 | 149 | 148 | 149 | 120 | 162 |
| TSS (mg/L) | <3 | <3 | <3 | 5 | 122 | <3 | <3 | <3 | <3 | <3 | 4.7 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00028 | 0.00037 | 0.00051 | 0.0003 | 0.00026 | 0.00031 | 0.00059 | 0.0003 | 0.00027 | 0.00031 | 0.00049 | 0.00035 | 0.00032 | 0.00028 | 0.00066 |
| Barium (Ba)-Total | 0.00961 | 0.00967 | 0.015 | 0.0116 | 0.0105 | 0.00828 | 0.0178 | 0.00934 | 0.0124 | 0.00825 | 0.0145 | 0.0113 | 0.0116 | 0.0081 | 0.0146 |
| Boron (B)-Total (mg/L) | 0.059 | 0.046 | 0.186 | 0.086 | 0.09 | 0.053 | 0.206 | 0.104 | 0.101 | 0.029 | 0.057 | 0.085 | 0.081 | 0.029 | 0.081 |
| Calcium (Ca)-Total ( | 23.8 | 21.2 | 36.9 | 23.4 | 23.4 | 17.6 | 34 | 26.9 | 29.8 | 13.7 | 32.3 | 34.7 | 34.9 | 18.4 | 38.6 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00051 | 0.00053 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00012 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 4.54 | 3.97 | 6.38 | 4.41 | 4.53 | 3.07 | 6.29 | 4.86 | 5.69 | 2.68 | 5.31 | 6.16 | 6.41 | 3.28 | 6.09 |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 6.76 | 4.5 | 5.41 | 6.06 | 6.53 | 4.8 | 4.79 | 6.73 | 7.58 | 4.96 | 6.56 | 7.26 | 8.13 | 5.14 | 6.81 |
| Silver (Ag)-Total (mg/L) | 0.000065 | 0.000011 | <0.00001 | 0.000017 | <0.00001 | 0.000014 | <0.00001 | <0.00001 | <0.00001 | 0.000012 | <0.00001 | <0.000010 | <0.000010 | 0.000014 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.32 | 3.14 | 6.81 | 3.36 | 4.38 | 2.98 | 7.12 | 4.7 | 4.98 | 2.17 | 3.55 | 5.28 | 5.56 | 2.48 | 4.66 |
| Strontium (Sr)-Total (mg/L) | 0.13 | 0.0997 | 0.185 | 0.111 | 0.116 | 0.0833 | 0.179 | 0.13 | 0.136 | 0.065 | 0.155 | 0.162 | 0.154 | 0.0859 | 0.187 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | 0.00044 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.045 | 0.0687 | 0.0128 | 0.109 | 0.0322 | 0.0477 | 0.089 | 0.023 | 0.0317 | 0.128 | 0.128 | 0.0198 | 0.022 | 0.064 | 0.0385 |
| Total Cadmium (mg/L) | <0.000017 | 0.000018 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | 0.000013 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00565 | 0.00897 | 0.00284 | 0.00959 | 0.00621 | 0.008 | 0.00349 | 0.00427 | 0.00496 | 0.00868 | 0.00641 | <0.0035 | 0.00339 | 0.00868 | 0.00351 |
| Total Iron (mg/L) | 0.289 | 0.183 | 0.32 | 0.21 | 0.149 | 0.123 | 0.48 | 0.139 | 0.303 | 0.159 | 0.392 | 0.147 | 0.412 | 0.115 | 0.366 |
| Total Lead (mg/L) | <0.00005 | <0.00005 | <0.00005 | 0.000053 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0634 | 0.0312 | 0.214 | 0.0358 | 0.0348 | 0.0183 | 0.387 | 0.0322 | 0.0698 | 0.0109 | 0.0869 | 0.0384 | 0.081 | 0.00533 | 0.204 |
| Total Molybdenum (mg/L) | 0.000467 | 0.000839 | 0.00115 | 0.000714 | 0.000624 | 0.000639 | 0.00125 | 0.000601 | 0.000646 | 0.000473 | 0.000904 | 0.000528 | 0.000411 | 0.000634 | 0.000849 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | 0.0019 | 0.0013 | 0.0035 | 0.0014 | <0.001 | <0.001 | <0.001 | <0.003 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | 0.0033 | <0.0030 |

| | E216744 : W12 - 6k Creek | | | | |
|---|---|---|---|---|---|
| | **5-Nov-12** | **7-Feb-13** | **2-May-13** | **8-Aug-13** | **7-Nov-13** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | | | | |
| TDS (mg/L) | 141 | 152 | 95 | 181 | 156 |
| **Physical Test** | | | | | |
| Alkalinity (CaCO3) ( | 71 | 88.7 | 43.2 | 113 | 81.3 |
| Hardness (mg/L) | 98.1 | 108 | 56.6 | 115 | 102 |
| NTU (ntu) | 1.53 | 1.11 | 1.15 | 1.11 | 0.77 |
| TDS (mg/L) | 141 | 152 | 95 | 181 | 156 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00029 | 0.00028 | 0.00025 | 0.00065 | 0.00033 |
| Barium (Ba)-Total | 0.0108 | 0.0105 | 0.00745 | 0.0146 | 0.0103 |
| Boron (B)-Total (mg/L) | 0.06 | 0.073 | 0.028 | 0.172 | 0.099 |
| Calcium (Ca)-Total ( | 29.5 | 33.1 | 17.5 | 35.9 | 31.9 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 5.24 | 6.19 | 3.12 | 6.22 | 5.48 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 6.19 | 7.76 | 5.05 | 5.43 | 6.48 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 3.73 | 5.15 | 2.42 | 6.45 | 4.81 |
| Strontium (Sr)-Total (mg/L) | 0.136 | 0.132 | 0.083 | 0.187 | 0.141 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0239 | 0.0169 | 0.0647 | 0.0122 | 0.0272 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00364 | 0.00341 | 0.00715 | 0.00254 | 0.00369 |
| Total Iron (mg/L) | 0.241 | 0.262 | 0.098 | 0.275 | 0.128 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0554 | 0.0774 | 0.00531 | 0.269 | 0.0397 |
| Total Molybdenum (mg/L) | 0.000451 | 0.000379 | 0.000548 | 0.00168 | 0.000621 |
| Total Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216744 : W12 - 6k Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 102 | 54 | 0.00500 | 0.08300 | 0.01152 | 0.03880 | 0.01358 |
| Chloride (mg/L) | 27 | 17 | 0.25000 | 5.88000 | 1.86889 | 1.26000 | 1.73888 |
| Diss-Orthophosphate (mg/L) | 104 | 57 | 0.00050 | 0.07300 | 0.00573 | 0.03750 | 0.01170 |
| Diss-Phosphorus (mg/L) | 61 | 58 | 0.00220 | 0.07800 | 0.01114 | 0.02995 | 0.01157 |
| Nitrate (N) (mg/L) | 42 | 31 | 0.00250 | 0.21000 | 0.02480 | 0.06305 | 0.03453 |
| Nitrate and Nitrite (mg/L) | 34 | 17 | 0.00250 | 0.11000 | 0.02318 | 0.09200 | 0.02607 |
| Nitrite (N) (mg/L) | 82 | 42 | 0.00050 | 0.03930 | 0.00300 | 0.00790 | 0.00533 |
| Sulphate (mg/L) | 105 | 102 | 0.50000 | 31.40000 | 5.46200 | 8.83600 | 5.73331 |
| Total Nitrogen (mg/L) | 42 | 40 | 0.06000 | 0.54000 | 0.36474 | 0.52900 | 0.10856 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 105 | 103 | 0.00010 | 0.10000 | 0.02912 | 0.06896 | 0.01983 |
| Diss-Antimony (Sb) (mg/L) | 98 | 22 | 0.00003 | 0.00022 | 0.00004 | 0.00008 | 0.00003 |
| Diss-Arsenic (As) (mg/L) | 105 | 96 | 0.00005 | 0.00120 | 0.00037 | 0.00070 | 0.00020 |
| Diss-Barium (Ba) (mg/L) | 98 | 96 | 0.00001 | 0.01460 | 0.00859 | 0.01239 | 0.00234 |
| Diss-Beryllium (Be) (mg/L) | 98 | 1 | 0.00003 | 0.00250 | 0.00010 | 0.00025 | 0.00026 |
| Diss-Boron (B) (mg/L) | 34 | 33 | 0.02000 | 0.23600 | 0.08826 | 0.20795 | 0.05519 |
| Diss-Cadmium (Cd) (mg/L) | 98 | 16 | 0.00001 | 0.00014 | 0.00001 | 0.00005 | 0.00002 |
| Diss-Calcium (Ca) (mg/L) | 97 | 97 | 8.71000 | 37.50000 | 22.10938 | 30.80000 | 6.75587 |
| Diss-Chromium (Cr) (mg/L) | 98 | 25 | 0.00010 | 0.00290 | 0.00041 | 0.00220 | 0.00060 |
| Diss-Cobalt (Co) (mg/L) | 98 | 44 | 0.00001 | 0.00101 | 0.00009 | 0.00046 | 0.00016 |
| Diss-Copper (Cu) (mg/L) | 105 | 105 | 0.00050 | 0.04100 | 0.00620 | 0.01018 | 0.00418 |
| Diss-Iron (Fe) (mg/L) | 105 | 104 | 0.00250 | 0.76000 | 0.16632 | 0.33240 | 0.09672 |
| Diss-Lead (Pb) (mg/L) | 105 | 55 | 0.00001 | 0.00126 | 0.00011 | 0.00050 | 0.00021 |
| Diss-Magnesium (Mg) (mg/L) | 97 | 97 | 1.58000 | 6.51000 | 3.97485 | 5.46000 | 1.13970 |
| Diss-Manganese (Mn) (mg/L) | 98 | 97 | 0.00019 | 0.27400 | 0.05083 | 0.19790 | 0.06085 |
| Diss-Molybdenum (Mo) (mg/L) | 98 | 97 | 0.00001 | 0.00156 | 0.00073 | 0.00144 | 0.00030 |
| Diss-Nickel (Ni) (mg/L) | 98 | 1 | 0.00025 | 0.00130 | 0.00026 | 0.00025 | 0.00011 |
| Diss-Potassium (K) (mg/L) | 98 | 97 | 0.02500 | 0.78000 | 0.31132 | 0.43330 | 0.10644 |
| Diss-Selenium (mg/L) | 98 | 3 | 0.00025 | 0.00060 | 0.00031 | 0.00050 | 0.00011 |
| Diss-Silicon (Si) (mg/L) | 97 | 97 | 2.36000 | 9.99000 | 5.68052 | 7.69000 | 1.23721 |
| Diss-Silver (Ag) (mg/L) | 98 | 24 | 0.00001 | 0.00012 | 0.00001 | 0.00002 | 0.00001 |
| Diss-Sodium (Na) (mg/L) | 97 | 97 | 1.52000 | 8.46000 | 3.97206 | 6.86000 | 1.37622 |
| Diss-Strontium (Sr) (mg/L) | 98 | 97 | 0.00001 | 0.18900 | 0.10347 | 0.15200 | 0.03460 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216744 : W12 - 6k Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 97 | 35 | 0.00003 | 0.00099 | 0.00011 | 0.00051 | 0.00015 |
| Diss-Zinc (Zn) (mg/L) | 105 | 65 | 0.00025 | 0.01020 | 0.00143 | 0.00318 | 0.00150 |
| TDS (mg/L) | 56 | 55 | 1.50000 | 184.00000 | 117.59821 | 154.00000 | 34.52620 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 108 | 103 | 1.00000 | 137.00000 | 64.22037 | 103.65000 | 26.59592 |
| Hardness (mg/L) | 102 | 102 | 28.20000 | 121.00000 | 71.95882 | 98.28000 | 21.68518 |
| NTU (ntu) | 107 | 107 | 0.37000 | 20.40000 | 1.63907 | 2.98250 | 1.96752 |
| TDS (mg/L) | 56 | 55 | 1.50000 | 184.00000 | 117.59821 | 154.00000 | 34.52620 |
| TSS (mg/L) | 106 | 15 | 0.50000 | 122.00000 | 4.18915 | 4.50000 | 14.93977 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 100 | 25 | 0.00003 | 0.00049 | 0.00005 | 0.00016 | 0.00006 |
| Arsenic (As)-Total ( | 107 | 105 | 0.00010 | 0.00140 | 0.00043 | 0.00080 | 0.00022 |
| Barium (Ba)-Total | 100 | 99 | 0.00602 | 0.01780 | 0.00941 | 0.01290 | 0.00251 |
| Boron (B)-Total (mg/L) | 38 | 37 | 0.02000 | 0.25100 | 0.09105 | 0.21870 | 0.05781 |
| Calcium (Ca)-Total ( | 101 | 101 | 8.71000 | 38.60000 | 22.26446 | 30.30000 | 6.95908 |
| Chromium (Cr)-Total (mg/L) | 100 | 34 | 0.00001 | 0.00500 | 0.00045 | 0.00244 | 0.00071 |
| Cobalt (Co)-Total (m | 100 | 54 | 0.00002 | 0.00123 | 0.00013 | 0.00057 | 0.00019 |
| Magnesium (Mg)-Total (mg/L) | 101 | 101 | 1.58000 | 6.41000 | 3.98891 | 5.39000 | 1.18202 |
| Nickel (Ni)-Total (mg/L) | 100 | 12 | 0.00025 | 0.00090 | 0.00030 | 0.00066 | 0.00014 |
| Silicon (Si)-Total (mg/L) | 101 | 101 | 3.62000 | 10.10000 | 5.71743 | 7.45000 | 1.18734 |
| Silver (Ag)-Total (mg/L) | 100 | 38 | 0.00001 | 0.00043 | 0.00001 | 0.00003 | 0.00004 |
| Sodium (Na)-Total (mg/L) | 100 | 100 | 2.09000 | 8.87000 | 3.97850 | 6.89450 | 1.45637 |
| Strontium (Sr)-Total (mg/L) | 101 | 101 | 0.03600 | 0.18700 | 0.10816 | 0.15800 | 0.03501 |
| Tin (Sn)-Total (mg/L) | 99 | 43 | 0.00003 | 0.00190 | 0.00016 | 0.00087 | 0.00031 |
| Total Aluminum (mg/L) | 107 | 107 | 0.01220 | 0.24000 | 0.06096 | 0.12470 | 0.03837 |
| Total Cadmium (mg/L) | 100 | 4 | 0.00001 | 0.00020 | 0.00002 | 0.00003 | 0.00002 |
| Total Copper (mg/L) | 107 | 106 | 0.00200 | 0.04500 | 0.00664 | 0.01054 | 0.00438 |
| Total Iron (mg/L) | 107 | 107 | 0.09800 | 1.42000 | 0.29966 | 0.62500 | 0.18482 |
| Total Lead (mg/L) | 107 | 60 | 0.00002 | 0.00126 | 0.00016 | 0.00100 | 0.00029 |
| Total Manganese (mg/L) | 100 | 100 | 0.00531 | 0.38700 | 0.07162 | 0.24980 | 0.08182 |
| Total Molybdenum (mg/L) | 100 | 91 | 0.00003 | 0.00441 | 0.00077 | 0.00167 | 0.00056 |
| Total Selenium (mg/L) | 113 | 2 | 0.00025 | 0.00070 | 0.00031 | 0.00054 | 0.00011 |
| Zinc (Zn)-Total (mg/L) | 107 | 65 | 0.00025 | 0.01570 | 0.00174 | 0.00534 | 0.00215 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216893 : W3a - W3 at outlet into Bootjack Lake | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13-Mar-09 | 21-May-09 | 12-Aug-09 | 17-Nov-09 | 11-Feb-10 | 11-May-10 | 12-Aug-10 | 2-Nov-10 | 8-Mar-11 | 25-May-11 | 20-Sep-11 | 6-Oct-11 | 1-Nov-11 | 1-Feb-12 | 22-Mar-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | 0.0077 |
| Chloride (mg/L) | | 4.97 | 2.16 | 13.5 | 9.69 | 7.17 | 3.9 | 7.86 | 6.36 | 8.3 | 14.1 | 14.2 | 12.3 | 12.2 | 14.2 |
| Diss-Orthophosphate (mg/L) | 0.0047 | 0.0044 | 0.0087 | 0.0047 | 0.005 | 0.0031 | 0.0089 | 0.0056 | 0.0058 | 0.0042 | 0.0046 | 0.0035 | 0.0024 | 0.0023 | 0.0014 |
| Diss-Phosphorus (mg/L) | 0.0089 | 0.0097 | 0.0092 | 0.0074 | 0.0068 | 0.0068 | 0.0092 | 0.0075 | 0.0069 | 0.0072 | | 0.0057 | 0.0049 | 0.0059 | 0.0137 |
| Nitrate (N) (mg/L) | 0.185 | 0.0176 | 0.0451 | 0.146 | 0.143 | 0.0648 | 0.0536 | 0.035 | 0.111 | 0.082 | 0.0204 | <0.0050 | 0.0571 | 0.0496 | 0.0991 |
| Nitrate and Nitrite (mg/L) | | | | | | 0.0648 | 0.0565 | 0.035 | 0.111 | 0.082 | 0.0204 | <0.0051 | 0.0571 | 0.0496 | 0.0991 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | 0.0012 | <0.001 | 0.0029 | <0.001 | <0.001 | <0.005 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 18.1 | 7.16 | 20 | 13.8 | 17.7 | 13.2 | 21.8 | 16.6 | 23.2 | 26.7 | 64.1 | 75.2 | 53.4 | 79.9 | 74.4 |
| Total Nitrogen (mg/L) | 0.28 | 0.31 | 0.32 | 0.39 | 0.27 | 0.23 | 0.16 | 0.2 | 0.224 | 0.38 | 0.16 | 0.17 | 0.230 | 0.15 | 0.29 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0278 | 0.174 | 0.0144 | 0.0776 | 0.0292 | 0.0455 | 0.0123 | 0.0135 | 0.0135 | 0.0872 | 0.0106 | 0.0112 | 0.0318 | 0.0364 | 0.0457 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.0001 |
| Diss-Arsenic (As) (mg/L) | 0.00055 | 0.00038 | 0.00064 | 0.0006 | 0.00044 | 0.00046 | 0.00055 | 0.00055 | 0.00046 | 0.00035 | 0.00046 | 0.00047 | 0.00040 | 0.00047 | 0.00092 |
| Diss-Barium (Ba) (mg/L) | 0.00599 | 0.0052 | 0.00922 | 0.00584 | 0.00608 | 0.00526 | 0.00943 | 0.00713 | 0.00677 | 0.00678 | 0.0109 | 0.0116 | 0.00920 | 0.0119 | 0.0142 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.123 | 0.026 | 0.165 | 0.094 | 0.106 | 0.063 | 0.191 | 0.16 | 0.14 | 0.033 | 0.106 | 0.095 | 0.082 | 0.13 | 0.116 |
| Diss-Cadmium (Cd) (mg/L) | 0.000022 | <0.000017 | 0.000029 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000011 |
| Diss-Calcium (Ca) (mg/L) | 19.6 | 10.2 | 24.6 | 17.4 | 18.3 | 14.6 | 25 | 23.5 | 22.5 | 16.1 | 35.8 | 38.7 | 30.0 | 40.3 | 42.6 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00855 | 0.0203 | 0.0109 | 0.0105 | 0.00869 | 0.0145 | 0.0113 | 0.00869 | 0.00658 | 0.0179 | 0.00883 | 0.00818 | 0.00868 | 0.00741 | 0.0116 |
| Diss-Iron (Fe) (mg/L) | 0.047 | 0.142 | 0.032 | 0.093 | 0.033 | 0.053 | <0.03 | <0.03 | <0.03 | 0.076 | <0.030 | <0.030 | 0.053 | 0.049 | 0.062 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 5.37 | 3.12 | 6.32 | 5.09 | 5.23 | 4.31 | 6.8 | 6.42 | 6.2 | 5.07 | 10 | 10.8 | 8.67 | 11 | 11.3 |
| Diss-Manganese (Mn) (mg/L) | 0.00141 | 0.00223 | 0.00231 | 0.00181 | 0.000418 | 0.000559 | 0.000385 | 0.00126 | 0.000356 | 0.0012 | 0.000932 | 0.000694 | 0.00164 | 0.00269 | 0.000989 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00598 | 0.00194 | 0.00891 | 0.0043 | 0.00517 | 0.00342 | 0.00779 | 0.00672 | 0.00653 | 0.00225 | 0.00538 | 0.00518 | 0.00427 | 0.00633 | 0.00757 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.662 | 0.504 | 0.909 | 0.592 | 0.604 | 0.545 | 0.85 | 0.793 | 0.75 | 0.547 | 0.672 | 0.715 | 0.742 | 0.804 | 1.29 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00084 |
| Diss-Silicon (Si) (mg/L) | 8.09 | 6.48 | 8.51 | 7.8 | 7.35 | 6.85 | 8.53 | 8.68 | 8.05 | 6.87 | 9 | 9.19 | 8.31 | 8.22 | 8.13 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | 0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 4.87 | 2.41 | 5.75 | 4.02 | 4.22 | 3.29 | 6.06 | 5.22 | 5.45 | 3.44 | 6.65 | 6.74 | 5.71 | 6.73 | 6.86 |
| Diss-Strontium (Sr) (mg/L) | 0.0752 | 0.0443 | 0.109 | 0.0717 | 0.0774 | 0.0613 | 0.117 | 0.108 | 0.0994 | 0.0684 | 0.162 | 0.159 | 0.154 | 0.161 | 0.177 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E216893 : W3a - W3 at outlet into Bootjack Lake | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3-May-12 | 21-Jun-12 | 12-Jul-12 | 8-Aug-12 | 28-Aug-12 | 11-Oct-12 | 15-Nov-12 | 6-Dec-12 | 2-Jan-13 | 7-Feb-13 | 14-Mar-13 | 4-Apr-13 | 8-Apr-13 | 18-Apr-13 | 25-Apr-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0073 | 0.007 | 0.0079 | 0.0056 | 0.0052 | 0.03 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | 0.0426 | <0.0050 | 0.0057 | 0.0053 | <0.0050 |
| Chloride (mg/L) | 11.8 | 18.4 | 20 | 19.9 | 19 | 18.5 | 20 | 18.7 | 17 | 15.3 | 16.9 | 9.8 | 8.25 | 9.16 | 8.95 |
| Diss-Orthophosphate (mg/L) | 0.0025 | 0.003 | 0.0064 | 0.0087 | 0.009 | 0.0084 | 0.0067 | 0.0069 | 0.0087 | 0.0094 | 0.0088 | 0.0069 | 0.0059 | 0.005 | 0.0037 |
| Diss-Phosphorus (mg/L) | 0.0107 | 0.0096 | 0.0134 | 0.0143 | 0.0135 | 0.0107 | 0.0084 | 0.0118 | 0.0121 | 0.0101 | 0.0162 | 0.0144 | 0.0128 | 0.0102 | 0.0085 |
| Nitrate (N) (mg/L) | 0.431 | 1.31 | 1.81 | 1.95 | 1.77 | 0.765 | 1.47 | 1.38 | 1.38 | 1.35 | 3.69 | 3.23 | 2.8 | 2.58 | 2.51 |
| Nitrate and Nitrite (mg/L) | 0.436 | 1.36 | 1.82 | 1.96 | 1.77 | 0.766 | 1.47 | 1.38 | 1.38 | 1.35 | 3.73 | 3.25 | 2.81 | 2.59 | 2.51 |
| Nitrite (N) (mg/L) | 0.0044 | 0.0462 | 0.0139 | 0.0019 | <0.0010 | 0.0015 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.037 | 0.0128 | 0.0105 | 0.0042 | 0.0029 |
| Sulphate (mg/L) | 50.3 | 75.5 | 81.3 | 78.5 | 82.3 | 99.9 | 105 | 100 | 101 | 98.9 | 126 | 85.9 | 76.4 | 95.4 | 89.1 |
| Total Nitrogen (mg/L) | 0.68 | 1.81 | 2.83 | 2.25 | 1.92 | 0.85 | 1.24 | 1.57 | 1.37 | 1.41 | 4 | 3.34 | 3.09 | 2.62 | 2.7 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0889 | 0.0374 | 0.0553 | 0.017 | 0.0146 | 0.0091 | 0.0135 | 0.0114 | 0.0091 | | | | 0.0554 | 0.0851 | 0.0299 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00047 | 0.00049 | 0.00076 | 0.00088 | 0.00087 | 0.00077 | 0.00059 | 0.00066 | 0.00074 | | | | 0.00033 | 0.00042 | 0.00038 |
| Diss-Barium (Ba) (mg/L) | 0.0134 | 0.0189 | 0.0213 | 0.0199 | 0.0188 | 0.0174 | 0.0179 | 0.0159 | 0.0151 | | | | 0.018 | 0.0194 | 0.0171 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.042 | 0.054 | 0.095 | 0.132 | 0.17 | 0.209 | 0.114 | 0.136 | 0.163 | | | | 0.032 | 0.041 | 0.036 |
| Diss-Cadmium (Cd) (mg/L) | 0.000016 | 0.000017 | 0.000029 | 0.000021 | 0.000019 | 0.000015 | 0.000014 | 0.000014 | 0.000012 | | | | 0.000022 | 0.000017 | 0.000029 |
| Diss-Calcium (Ca) (mg/L) | 29.4 | 43.4 | 55 | 54.9 | 55.6 | 63 | 56.3 | 52.7 | 55.1 | | | | 36.9 | 43.1 | 40.5 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | 0.00012 | 0.00011 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.0186 | 0.0157 | 0.0129 | 0.0121 | 0.00986 | 0.00661 | 0.00752 | 0.00709 | 0.00594 | | | | 0.0153 | 0.0139 | 0.0129 |
| Diss-Iron (Fe) (mg/L) | 0.093 | 0.055 | 0.113 | 0.041 | 0.042 | <0.030 | <0.030 | <0.030 | <0.030 | | | | 0.05 | 0.079 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | | | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 8.21 | 11.3 | 14.5 | 14 | 14.5 | 15.3 | 14.3 | 14.3 | 13.7 | | | | 9.58 | 11.5 | 10.8 |
| Diss-Manganese (Mn) (mg/L) | 0.00892 | 0.00464 | 0.0117 | 0.00541 | 0.00451 | 0.00669 | 0.00725 | 0.00677 | 0.00502 | | | | 0.0207 | 0.0141 | 0.0105 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00337 | 0.00479 | 0.00843 | 0.0105 | 0.012 | 0.0114 | 0.00985 | 0.00959 | 0.0106 | | | | 0.0078 | 0.00956 | 0.00748 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 1.11 | 1.32 | 1.56 | 1.67 | 1.6 | 1.42 | 1.29 | 1.26 | 1.25 | | | | 1.54 | 1.39 | 1.23 |
| Diss-Selenium (mg/L) | 0.0015 | 0.00574 | 0.00534 | 0.00585 | 0.00413 | 0.00137 | 0.00271 | 0.0025 | 0.0019 | | | | 0.00769 | 0.00832 | 0.00774 |
| Diss-Silicon (Si) (mg/L) | 6.91 | 7.3 | 8.64 | 8.45 | 8.66 | 8.65 | 7.51 | 7.84 | 8.15 | | | | 6.34 | 7.59 | 6.09 |
| Diss-Silver (Ag) (mg/L) | 0.000028 | 0.00002 | 0.000012 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 5.18 | 7.42 | 8.24 | 8.68 | 9.05 | 9.52 | 8.09 | 8.1 | 8.15 | | | | 5.57 | 6.43 | 5.8 |
| Diss-Strontium (Sr) (mg/L) | 0.129 | 0.19 | 0.238 | 0.233 | 0.27 | 0.256 | 0.248 | 0.248 | 0.238 | | | | 0.17 | 0.2 | 0.186 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | <0.00010 | <0.00010 | <0.00010 |

| | E216893 : W3a - W3 at outlet into Bootjack Lake | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2-May-13 | 6-Jun-13 | 17-Jun-13 | 19-Jun-13 | 27-Jun-13 | 3-Jul-13 | 10-Jul-13 | 18-Jul-13 | 8-Aug-13 | 5-Sep-13 | 14-Nov-13 | 3-Dec-13 |
| **Anions and Nutrients** | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | 0.0058 | <0.0050 | <0.0050 | 0.0053 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | 10.2 | 14.7 | 14.2 | 12.1 | 12.6 | 12.7 | 12.4 | 12.2 | 9.29 | 8.45 | 9.90 | 10.6 |
| Diss-Orthophosphate (mg/L) | 0.0046 | 0.0036 | 0.0039 | 0.0038 | 0.0044 | 0.0048 | 0.0055 | 0.0056 | 0.0055 | 0.0064 | 0.0041 | 0.0036 |
| Diss-Phosphorus (mg/L) | 0.0063 | 0.009 | 0.0069 | 0.0083 | 0.0081 | 0.0089 | 0.0074 | 0.0084 | 0.0099 | 0.0104 | 0.0080 | 0.0073 |
| Nitrate (N) (mg/L) | 2.17 | 3.14 | 0.887 | 0.55 | 0.781 | 0.826 | 0.997 | 1.24 | 2.14 | 1.77 | <0.0050 | 0.217 |
| Nitrate and Nitrite (mg/L) | 2.17 | 3.14 | 0.887 | 0.55 | 0.781 | 0.827 | 1 | 1.24 | 2.14 | 1.77 | <0.0051 | 0.217 |
| Nitrite (N) (mg/L) | 0.0011 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0014 | 0.0031 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 102 | 135 | 125 | 107 | 117 | 124 | 126 | 125 | 112 | 105 | 115 | 115 |
| Total Nitrogen (mg/L) | 2.32 | 3.18 | 1.09 | 0.781 | 0.978 | 0.993 | 1.21 | 1.4 | 2.26 | 3.83 | 0.233 | 0.483 |
| **Dissolved Metals** | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | | 0.0132 | 0.0171 | 0.0297 | 0.0182 | 0.0141 | 0.0109 | 0.0083 | | 0.0065 | | |
| Diss-Antimony (Sb) (mg/L) | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | |
| Diss-Arsenic (As) (mg/L) | | 0.00049 | 0.00042 | 0.00034 | 0.00039 | 0.00051 | 0.0005 | 0.00049 | | 0.00051 | | |
| Diss-Barium (Ba) (mg/L) | | 0.023 | 0.0214 | 0.0202 | 0.0218 | 0.0236 | 0.0227 | 0.0212 | | 0.0192 | | |
| Diss-Beryllium (Be) (mg/L) | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | |
| Diss-Boron (B) (mg/L) | | 0.087 | 0.085 | 0.057 | 0.079 | 0.114 | 0.147 | 0.185 | | 0.34 | | |
| Diss-Cadmium (Cd) (mg/L) | | 0.000016 | 0.000014 | 0.000019 | 0.000019 | 0.000015 | 0.000015 | 0.000014 | | 0.000015 | | |
| Diss-Calcium (Ca) (mg/L) | | 64.8 | 59.6 | 51.4 | 57.3 | 60 | 62.7 | 66.4 | | 59.9 | | |
| Diss-Chromium (Cr) (mg/L) | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | | |
| Diss-Cobalt (Co) (mg/L) | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | |
| Diss-Copper (Cu) (mg/L) | | 0.012 | 0.0123 | 0.0157 | 0.0139 | 0.0132 | 0.0117 | 0.0102 | | 0.00757 | | |
| Diss-Iron (Fe) (mg/L) | | <0.030 | <0.030 | 0.038 | <0.030 | <0.030 | <0.030 | <0.030 | | <0.030 | | |
| Diss-Lead (Pb) (mg/L) | | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | <0.000050 | | |
| Diss-Magnesium (Mg) (mg/L) | | 16.3 | 14.5 | 13.7 | 14.7 | 15.5 | 15.1 | 15.2 | | 14 | | |
| Diss-Manganese (Mn) (mg/L) | | 0.00635 | 0.00597 | 0.00827 | 0.00744 | 0.00751 | 0.0063 | 0.00477 | | 0.00172 | | |
| Diss-Molybdenum (Mo) (mg/L) | | 0.0143 | 0.0059 | 0.00484 | 0.00604 | 0.00853 | 0.00927 | 0.0104 | | 0.0136 | | |
| Diss-Nickel (Ni) (mg/L) | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | | |
| Diss-Potassium (K) (mg/L) | | 1.24 | 0.976 | 0.993 | 0.986 | 1.03 | 1.07 | 1.04 | | 1.19 | | |
| Diss-Selenium (mg/L) | | 0.0068 | 0.00247 | 0.00216 | 0.00231 | 0.00233 | 0.00248 | 0.00243 | | 0.00202 | | |
| Diss-Silicon (Si) (mg/L) | | 7.33 | 6.81 | 6.67 | 6.89 | 7.54 | 7.4 | 7.34 | | 7.83 | | |
| Diss-Silver (Ag) (mg/L) | | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 | | |
| Diss-Sodium (Na) (mg/L) | | 8.49 | 7.93 | 7.25 | 8.22 | 8.63 | 8.98 | 8.84 | | 9.4 | | |
| Diss-Strontium (Sr) (mg/L) | | 0.277 | 0.258 | 0.214 | 0.24 | 0.279 | 0.272 | 0.282 | | 0.25 | | |
| Diss-Tin (Sn) (mg/L) | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216893 : W3a - W3 at outlet into Bootjack Lake | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **13-Mar-09** | **21-May-09** | **12-Aug-09** | **17-Nov-09** | **11-Feb-10** | **11-May-10** | **12-Aug-10** | **2-Nov-10** | **8-Mar-11** | **25-May-11** | **20-Sep-11** | **6-Oct-11** | **1-Nov-11** | **1-Feb-12** | **22-Mar-12** |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 113 | 87 | 135 | 118 | <3 | 100 | 133 | 130 | 127 | 111 | 184 | 226 | 185 | 213 | 257 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 54.6 | 24.4 | 84.1 | 47.7 | 46.5 | 34.9 | 75 | 66.2 | 60.9 | 25.8 | 53.9 | 51.8 | 47.6 | 55.3 | 73.4 |
| Hardness (mg/L) | 71.1 | 38.3 | 87.4 | 64.4 | 67.1 | 54.2 | 90.5 | 85.1 | 81.6 | 61 | 131 | 141 | 111 | 146 | 153 |
| NTU (ntu) | 1.03 | 1.99 | 0.74 | 1.14 | 0.49 | 1.64 | 9.69 | 0.79 | 0.49 | 1.37 | 0.25 | 0.47 | 2.03 | 4.37 | 28.8 |
| TDS (mg/L) | 113 | 87 | 135 | 118 | <3 | 100 | 133 | 130 | 127 | 111 | 184 | 226 | 185 | 213 | 257 |
| TSS (mg/L) | <3 | <3 | 3.3 | <3 | 113 | 4.5 | 48.3 | <3 | <3 | <3 | <3.0 | <3.0 | <3.0 | <3.0 | 13.3 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | 0.00011 | 0.00013 |
| Arsenic (As)-Total ( | 0.00055 | 0.0004 | 0.00064 | 0.00063 | 0.00044 | 0.00048 | 0.00068 | 0.00056 | 0.00059 | 0.00041 | 0.00049 | 0.00044 | 0.00050 | 0.00062 | 0.00161 |
| Barium (Ba)-Total | 0.00664 | 0.00616 | 0.00968 | 0.00638 | 0.00644 | 0.00575 | 0.0137 | 0.00824 | 0.0071 | 0.00781 | 0.011 | 0.0114 | 0.00992 | 0.0147 | 0.0278 |
| Boron (B)-Total (mg/L) | 0.132 | 0.031 | 0.173 | 0.1 | 0.108 | 0.066 | 0.184 | 0.153 | 0.142 | 0.034 | 0.11 | 0.095 | 0.084 | 0.134 | 0.116 |
| Calcium (Ca)-Total ( | 18.7 | 10.4 | 23.8 | 17.6 | 17.8 | 14.1 | 25.9 | 23.3 | 23.2 | 16.4 | 35.8 | 39.1 | 30.2 | 41.6 | 41.4 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | 0.00086 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00189 |
| Cobalt (Co)-Total (m | <0.0001 | 0.00013 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00039 | <0.0001 | <0.0001 | 0.00012 | <0.00010 | <0.00010 | <0.00010 | 0.00016 | 0.00087 |
| Magnesium (Mg)-Total (mg/L) | 5.22 | 3.14 | 6.11 | 5.19 | 5.21 | 4.19 | 6.93 | 6.41 | 6.44 | 5.15 | 10.3 | 10.9 | 8.89 | 11.8 | 11.9 |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00139 |
| Silicon (Si)-Total (mg/L) | 7.76 | 6.69 | 8.24 | 7.94 | 7.23 | 6.73 | 8.76 | 8.74 | 8.36 | 7.16 | 9.15 | 9.26 | 8.57 | 9.17 | 11 |
| Silver (Ag)-Total (mg/L) | <0.00001 | 0.000013 | <0.00001 | <0.00001 | <0.00001 | 0.000015 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | 0.000011 | 0.00004 |
| Sodium (Na)-Total (mg/L) | 4.83 | 2.46 | 6.15 | 4.34 | 4.47 | 3.43 | 6.09 | 5.2 | 5.6 | 3.5 | 6.76 | 6.62 | 5.85 | 7.02 | 6.9 |
| Strontium (Sr)-Total (mg/L) | 0.0789 | 0.0449 | 0.114 | 0.0791 | 0.0812 | 0.0646 | 0.119 | 0.103 | 0.102 | 0.0726 | 0.171 | 0.162 | 0.159 | 0.163 | 0.196 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | 0.00036 | <0.00010 |
| Total Aluminum (mg/L) | 0.0697 | 0.254 | 0.047 | 0.131 | 0.0468 | 0.0964 | 0.156 | 0.116 | 0.0373 | 0.183 | 0.0215 | 0.0209 | 0.0933 | 0.274 | 1.61 |
| Total Cadmium (mg/L) | 0.00003 | <0.000017 | <0.00004 | 0.00002 | 0.000018 | <0.000017 | 0.000056 | <0.00001 | <0.00001 | 0.000013 | 0.000012 | <0.000010 | 0.000010 | 0.000014 | 0.000027 |
| Total Copper (mg/L) | 0.0102 | 0.025 | 0.0132 | 0.0121 | 0.0094 | 0.0164 | 0.029 | 0.0144 | 0.00778 | 0.0209 | 0.00963 | 0.00858 | 0.0101 | 0.0118 | 0.0322 |
| Total Iron (mg/L) | 0.211 | 0.25 | 0.07 | 0.142 | 0.052 | 0.101 | 0.235 | 0.161 | 0.046 | 0.188 | 0.036 | 0.033 | 0.117 | 0.29 | 1.74 |
| Total Lead (mg/L) | <0.00005 | 0.000057 | 0.000057 | <0.00005 | <0.00005 | <0.00005 | 0.000053 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | 0.000058 | 0.00045 |
| Total Manganese (mg/L) | 0.00504 | 0.00804 | 0.00731 | 0.00491 | 0.00113 | 0.00364 | 0.125 | 0.00947 | 0.00197 | 0.00656 | 0.00166 | 0.00165 | 0.00344 | 0.00793 | 0.0349 |
| Total Molybdenum (mg/L) | 0.00623 | 0.00218 | 0.00904 | 0.00458 | 0.00539 | 0.00364 | 0.0075 | 0.00638 | 0.00686 | 0.00237 | 0.00575 | 0.00527 | 0.00428 | 0.00657 | 0.00765 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.0009 |
| Zinc (Zn)-Total (mg/L) | <0.004 | 0.0034 | 0.0011 | 0.0012 | 0.001 | 0.0011 | 0.0026 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | 0.0042 | 0.0084 |

| | E216893 : W3a - W3 at outlet into Bootjack Lake | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **3-May-12** | **21-Jun-12** | **12-Jul-12** | **8-Aug-12** | **28-Aug-12** | **11-Oct-12** | **15-Nov-12** | **6-Dec-12** | **2-Jan-13** | **7-Feb-13** | **14-Mar-13** | **4-Apr-13** | **8-Apr-13** | **18-Apr-13** | **25-Apr-13** |
| Diss-Zinc (Zn) (mg/L) | 0.0167 | 0.024 | 0.0461 | 0.0208 | 0.0162 | 0.02 | 0.0231 | 0.0235 | 0.0203 | | | | 0.0088 | 0.0132 | 0.0157 |
| TDS (mg/L) | 181 | 249 | 311 | 277 | 291 | 303 | 286 | 270 | 280 | 271 | 331 | 239 | 219 | 246 | 236 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 42.5 | 52.2 | 78.5 | 92.6 | 99.6 | 90.4 | 65.2 | 68 | 75.8 | 77 | 70 | 48.7 | 44.1 | 52.6 | 47 |
| Hardness (mg/L) | 107 | 155 | 197 | 195 | 199 | 220 | 199 | 191 | 194 | 193 | 627 | 155 | 132 | 155 | 146 |
| NTU (ntu) | 2.92 | 1.95 | 3.66 | 6.4 | 1.87 | 0.81 | 6.07 | 2.02 | 1.67 | 1.16 | 2610 | 10.4 | 22.5 | 5.31 | 4.2 |
| TDS (mg/L) | 181 | 249 | 311 | 277 | 291 | 303 | 286 | 270 | 280 | 271 | 331 | 239 | 219 | 246 | 236 |
| TSS (mg/L) | <3.0 | <3.0 | 8.7 | 10.7 | 3.7 | <3.0 | 9.2 | 7.1 | <3.0 | <3.0 | 1910 | 35.7 | 56.6 | 14.7 | 8 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | 0.00012 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00050 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00053 | 0.00055 | 0.00098 | 0.00122 | 0.00093 | 0.00087 | 0.00071 | 0.00071 | 0.00081 | 0.00077 | 0.0244 | 0.00145 | 0.00119 | 0.00069 | 0.0006 |
| Barium (Ba)-Total | 0.0149 | 0.0195 | 0.0256 | 0.0261 | 0.0202 | 0.0183 | 0.0198 | 0.0168 | 0.0155 | 0.0158 | 1.27 | 0.0527 | 0.0594 | 0.0312 | 0.0251 |
| Boron (B)-Total (mg/L) | 0.044 | 0.055 | 0.1 | 0.127 | 0.17 | 0.215 | 0.111 | 0.139 | 0.155 | 0.195 | 0.083 | 0.034 | 0.031 | 0.044 | 0.038 |
| Calcium (Ca)-Total ( | 30 | 43.8 | 53.8 | 56 | 55.8 | 64 | 53.8 | 52.5 | 55.2 | 53.8 | 135 | 42.9 | 37.9 | 46.6 | 40 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.0348 | 0.00076 | 0.00105 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00018 | 0.00011 | 0.00037 | 0.00041 | 0.00012 | <0.00010 | 0.00019 | 0.0001 | <0.00010 | <0.00010 | 0.0531 | 0.00086 | 0.0012 | 0.00043 | 0.00028 |
| Magnesium (Mg)-Total (mg/L) | 8.32 | 11.4 | 14.3 | 14.4 | 14.8 | 15.4 | 13.9 | 14.3 | 14 | 14.3 | 70.2 | 11.7 | 10.4 | 12.6 | 10.9 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | 0.00071 | 0.00068 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.0751 | 0.0011 | 0.00171 | 0.0007 | 0.00065 |
| Silicon (Si)-Total (mg/L) | 7.27 | 7.4 | 9.64 | 9.69 | 8.98 | 8.84 | 7.56 | 7.98 | 8.4 | 8.54 | 99.6 | 8.52 | 9.53 | 8.57 | 6.61 |
| Silver (Ag)-Total (mg/L) | 0.000034 | 0.000026 | 0.000025 | 0.000025 | 0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000485 | 0.000026 | 0.000034 | 0.000022 | 0.000028 |
| Sodium (Na)-Total (mg/L) | 5.29 | 7.39 | 8.61 | 8.96 | 9.12 | 10.1 | 7.99 | 8.26 | 8.16 | 8.51 | 10.1 | 6.17 | 5.57 | 6.73 | 5.84 |
| Strontium (Sr)-Total (mg/L) | 0.133 | 0.195 | 0.243 | 0.225 | 0.259 | 0.268 | 0.241 | 0.235 | 0.244 | 0.234 | 0.652 | 0.19 | 0.18 | 0.22 | 0.185 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.0011 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.353 | 0.0968 | 0.397 | 0.474 | 0.101 | 0.0419 | 0.184 | 0.0926 | 0.0728 | 0.0575 | 62.8 | 1.09 | 1.69 | 0.561 | 0.323 |
| Total Cadmium (mg/L) | 0.000021 | 0.00002 | 0.000034 | 0.000035 | 0.000022 | 0.00002 | 0.00002 | 0.000018 | 0.000015 | 0.000015 | 0.000619 | 0.000037 | 0.00004 | 0.000023 | 0.000029 |
| Total Copper (mg/L) | 0.0221 | 0.0179 | 0.0223 | 0.0236 | 0.0128 | 0.00848 | 0.014 | 0.00981 | 0.0083 | 0.00746 | 1.96 | 0.0374 | 0.0551 | 0.0274 | 0.0198 |
| Total Iron (mg/L) | 0.255 | 0.125 | 0.474 | 0.549 | 0.149 | 0.074 | 0.208 | 0.126 | 0.097 | 0.078 | 61.5 | 0.958 | 1.45 | 0.467 | 0.299 |
| Total Lead (mg/L) | 0.000063 | <0.000050 | 0.000137 | 0.000148 | <0.000050 | <0.000050 | 0.00008 | <0.000050 | <0.000050 | <0.000050 | 0.0149 | 0.000255 | 0.000518 | 0.000172 | 0.000085 |
| Total Manganese (mg/L) | 0.0148 | 0.0113 | 0.0629 | 0.059 | 0.0149 | 0.0121 | 0.0284 | 0.0175 | 0.0124 | 0.0106 | 2.91 | 0.0759 | 0.0901 | 0.0424 | 0.025 |
| Total Molybdenum (mg/L) | 0.00356 | 0.00492 | 0.00869 | 0.0101 | 0.0122 | 0.0118 | 0.0096 | 0.00937 | 0.0107 | 0.0104 | 0.0172 | 0.00881 | 0.00765 | 0.0102 | 0.00767 |
| Total Selenium (mg/L) | 0.00156 | 0.00562 | 0.00509 | 0.00602 | 0.00423 | 0.0015 | 0.0027 | 0.0025 | 0.00193 | 0.00221 | 0.012 | 0.00792 | 0.00754 | 0.00814 | 0.00692 |
| Zinc (Zn)-Total (mg/L) | 0.0196 | 0.0265 | 0.0628 | 0.0312 | 0.0192 | 0.0235 | 0.0276 | 0.0278 | 0.0232 | 0.0242 | 0.323 | 0.0192 | 0.0188 | 0.0229 | 0.0187 |

| | E216893 : W3a - W3 at outlet into Bootjack Lake | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2-May-13** | **6-Jun-13** | **17-Jun-13** | **19-Jun-13** | **27-Jun-13** | **3-Jul-13** | **10-Jul-13** | **18-Jul-13** | **8-Aug-13** | **5-Sep-13** | **14-Nov-13** | **3-Dec-13** |
| Diss-Zinc (Zn) (mg/L) | | 0.0156 | 0.0127 | 0.0128 | 0.0117 | 0.01 | 0.0077 | 0.0065 | | 0.0046 | | |
| TDS (mg/L) | 230 | 343 | 318 | 277 | 294 | 326 | 317 | 335 | 340 | 311 | 275 | 287 |
| **Physical Test** | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 50.9 | 67.6 | 73.5 | 65.6 | 75.2 | 84.1 | 83 | 88.4 | 103 | 101 | 81.9 | 84.0 |
| Hardness (mg/L) | 162 | 229 | 209 | 184 | 204 | 214 | 219 | 228 | 216 | 207 | 210 | 218 |
| NTU (ntu) | 5.1 | 0.8 | 2.8 | 6.21 | 5.15 | 1.73 | 1.9 | 1.24 | 0.88 | 3.17 | 1.20 | 4.75 |
| TDS (mg/L) | 230 | 343 | 318 | 277 | 294 | 326 | 317 | 335 | 340 | 311 | 275 | 287 |
| TSS (mg/L) | 11.3 | <3.0 | 5 | 10.7 | 7.3 | 5.7 | 3.5 | 296 | <3.0 | 3 | <3.0 | 7.3 |
| **Total Metals** | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00054 | 0.00052 | 0.00054 | 0.00054 | 0.00054 | 0.0006 | 0.00057 | 0.0006 | 0.0007 | 0.00059 | 0.00070 | 0.00051 |
| Barium (Ba)-Total | 0.0281 | 0.0247 | 0.0262 | 0.0296 | 0.0268 | 0.0261 | 0.0253 | 0.0235 | 0.0218 | 0.0201 | 0.0211 | 0.0252 |
| Boron (B)-Total (mg/L) | 0.038 | 0.093 | 0.09 | 0.06 | 0.08 | 0.119 | 0.15 | 0.193 | 0.312 | 0.359 | 0.071 | 0.080 |
| Calcium (Ca)-Total ( | 45.2 | 63.7 | 61.4 | 52.2 | 56.1 | 63.4 | 62.5 | 65.8 | 62.7 | 63.1 | 58.3 | 60.6 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00031 | <0.00010 | 0.00019 | 0.0003 | 0.0002 | 0.00013 | 0.00011 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00021 |
| Magnesium (Mg)-Total (mg/L) | 12 | 16.3 | 15.4 | 14.2 | 14.4 | 16.3 | 15.1 | 15.2 | 14.4 | 14.7 | 15.6 | 16.2 |
| Nickel (Ni)-Total (mg/L) | 0.00058 | <0.00050 | 0.00053 | 0.00059 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00055 | <0.00050 | <0.00050 | 0.00064 |
| Silicon (Si)-Total (mg/L) | 7.37 | 7.35 | 7.57 | 7.86 | 7.31 | 8.13 | 7.7 | 7.56 | 8.03 | 8.23 | 6.26 | 7.15 |
| Silver (Ag)-Total (mg/L) | 0.000011 | <0.000010 | 0.000012 | 0.000016 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000017 |
| Sodium (Na)-Total (mg/L) | 6 | 8.64 | 8.64 | 7.7 | 8.49 | 8.87 | 8.89 | 9.29 | 9.85 | 9.85 | 6.93 | 7.11 |
| Strontium (Sr)-Total (mg/L) | 0.171 | 0.273 | 0.264 | 0.233 | 0.252 | 0.29 | 0.266 | 0.291 | 0.284 | 0.263 | 0.245 | 0.265 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.428 | 0.0518 | 0.227 | 0.469 | 0.247 | 0.14 | 0.127 | 0.0774 | 0.0659 | 0.0297 | 0.0857 | 0.286 |
| Total Cadmium (mg/L) | 0.000021 | 0.000021 | 0.000018 | 0.000023 | 0.000025 | 0.000017 | 0.000016 | 0.000015 | 0.000015 | 0.000015 | 0.000014 | 0.000020 |
| Total Copper (mg/L) | 0.0209 | 0.0129 | 0.0201 | 0.0287 | 0.0233 | 0.0184 | 0.0159 | 0.0134 | 0.0109 | 0.00943 | 0.0129 | 0.0198 |
| Total Iron (mg/L) | 0.377 | 0.06 | 0.216 | 0.403 | 0.225 | 0.146 | 0.13 | 0.089 | 0.073 | 0.051 | 0.109 | 0.288 |
| Total Lead (mg/L) | 0.000169 | <0.000050 | 0.000069 | 0.000141 | 0.000065 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000137 |
| Total Manganese (mg/L) | 0.0284 | 0.00825 | 0.0168 | 0.0256 | 0.0178 | 0.0131 | 0.0115 | 0.00976 | 0.00617 | 0.00452 | 0.00729 | 0.0189 |
| Total Molybdenum (mg/L) | 0.00679 | 0.0148 | 0.0062 | 0.00517 | 0.00609 | 0.00906 | 0.00947 | 0.0106 | 0.0144 | 0.0142 | 0.00490 | 0.00610 |
| Total Selenium (mg/L) | 0.00597 | 0.00706 | 0.00272 | 0.00223 | 0.00226 | 0.00241 | 0.00236 | 0.00238 | 0.00269 | 0.00216 | 0.00054 | 0.00102 |
| Zinc (Zn)-Total (mg/L) | 0.023 | 0.0153 | 0.0158 | 0.0166 | 0.0151 | 0.0105 | 0.0092 | 0.009 | 0.0065 | 0.0054 | 0.0070 | 0.0122 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216893 : W3a - W3 at outlet into Bootjack Lake | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 91 | 27 | 0.00500 | 0.04400 | 0.00742 | 0.01960 | 0.00691 |
| Chloride (mg/L) | 41 | 41 | 2.16000 | 20.00000 | 12.24171 | | 4.53790 |
| Diss-Orthophosphate (mg/L) | 91 | 81 | 0.00050 | 0.13400 | 0.01370 | 0.08260 | 0.02425 |
| Diss-Phosphorus (mg/L) | 76 | 75 | 0.00250 | 0.07900 | 0.01471 | 0.07345 | 0.01490 |
| Nitrate (N) (mg/L) | 54 | 52 | 0.00250 | 3.69000 | 0.85636 | 0.55940 | 1.00817 |
| Nitrate and Nitrite (mg/L) | 58 | 51 | 0.00255 | 3.73000 | 0.81777 | 0.44000 | 0.99026 |
| Nitrite (N) (mg/L) | 69 | 27 | 0.00050 | 0.04620 | 0.00318 | 0.00710 | 0.00731 |
| Sulphate (mg/L) | 94 | 94 | 4.00000 | 135.00000 | 43.30617 | 43.95500 | 41.94927 |
| Total Nitrogen (mg/L) | 64 | 60 | 0.06000 | 14.40000 | 1.21209 | 1.23485 | 1.96180 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 86 | 86 | 0.00650 | 0.32900 | 0.05757 | 0.15500 | 0.05047 |
| Diss-Antimony (Sb) (mg/L) | 86 | 22 | 0.00003 | 0.00011 | 0.00005 | 0.00009 | 0.00002 |
| Diss-Arsenic (As) (mg/L) | 86 | 85 | 0.00005 | 0.00092 | 0.00052 | 0.00071 | 0.00015 |
| Diss-Barium (Ba) (mg/L) | 86 | 86 | 0.00434 | 0.02360 | 0.00981 | 0.00957 | 0.00569 |
| Diss-Beryllium (Be) (mg/L) | 86 | 0 | 0.00003 | 0.00025 | 0.00009 | 0.00025 | 0.00009 |
| Diss-Boron (B) (mg/L) | 49 | 49 | 0.02600 | 0.34000 | 0.11282 | 0.18230 | 0.05903 |
| Diss-Cadmium (Cd) (mg/L) | 85 | 55 | 0.00001 | 0.00016 | 0.00002 | 0.00008 | 0.00002 |
| Diss-Calcium (Ca) (mg/L) | 84 | 84 | 8.52000 | 66.40000 | 26.70548 | 23.94000 | 16.98929 |
| Diss-Chromium (Cr) (mg/L) | 86 | 15 | 0.00010 | 0.00200 | 0.00026 | 0.00085 | 0.00025 |
| Diss-Cobalt (Co) (mg/L) | 86 | 31 | 0.00001 | 0.00060 | 0.00007 | 0.00024 | 0.00008 |
| Diss-Copper (Cu) (mg/L) | 86 | 86 | 0.00594 | 0.08840 | 0.01616 | 0.03205 | 0.00980 |
| Diss-Iron (Fe) (mg/L) | 86 | 68 | 0.01500 | 0.28700 | 0.06781 | 0.14800 | 0.04776 |
| Diss-Lead (Pb) (mg/L) | 86 | 36 | 0.00001 | 0.00030 | 0.00005 | 0.00017 | 0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 84 | 84 | 1.83000 | 16.30000 | 7.02345 | 6.53200 | 4.20701 |
| Diss-Manganese (Mn) (mg/L) | 86 | 85 | 0.00001 | 0.05120 | 0.00447 | 0.00694 | 0.00775 |
| Diss-Molybdenum (Mo) (mg/L) | 86 | 86 | 0.00115 | 0.01430 | 0.00545 | 0.00695 | 0.00280 |
| Diss-Nickel (Ni) (mg/L) | 86 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Diss-Potassium (K) (mg/L) | 86 | 86 | 0.30000 | 1.67000 | 0.79888 | 0.89200 | 0.30655 |
| Diss-Selenium (mg/L) | 86 | 28 | 0.00025 | 0.00832 | 0.00120 | 0.00065 | 0.00186 |
| Diss-Silicon (Si) (mg/L) | 84 | 84 | 5.33000 | 9.19000 | 7.57405 | 8.41600 | 0.77956 |
| Diss-Silver (Ag) (mg/L) | 86 | 16 | 0.00001 | 0.00006 | 0.00001 | 0.00002 | 0.00001 |
| Diss-Sodium (Na) (mg/L) | 85 | 84 | 0.00001 | 9.52000 | 5.08529 | 5.88900 | 2.06855 |
| Diss-Strontium (Sr) (mg/L) | 86 | 86 | 0.03880 | 0.28200 | 0.11593 | 0.10300 | 0.07339 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216893 : W3a - W3 at outlet into Bootjack Lake | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 86 | 24 | 0.00003 | 0.00027 | 0.00007 | 0.00024 | 0.00006 |
| Diss-Zinc (Zn) (mg/L) | 86 | 64 | 0.00025 | 0.04610 | 0.00561 | 0.00605 | 0.00876 |
| TDS (mg/L) | 66 | 65 | 1.50000 | 343.00000 | 190.59848 | 153.60000 | 88.50403 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 91 | 87 | 1.00000 | 103.00000 | 50.84835 | 68.86000 | 22.69367 |
| Hardness (mg/L) | 90 | 90 | 31.60000 | 627.00000 | 107.96000 | 86.91000 | 83.87304 |
| NTU (ntu) | 93 | 93 | 0.25000 | 2,610.00000 | 30.65022 | 3.61550 | 270.40416 |
| TDS (mg/L) | 66 | 65 | 1.50000 | 343.00000 | 190.59848 | 153.60000 | 88.50403 |
| TSS (mg/L) | 91 | 38 | 1.00000 | 1,910.00000 | 31.74286 | 21.20000 | 201.93157 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 91 | 28 | 0.00003 | 0.00025 | 0.00006 | 0.00010 | 0.00003 |
| Arsenic (As)-Total ( | 91 | 91 | 0.00020 | 0.02440 | 0.00090 | 0.00096 | 0.00250 |
| Barium (Ba)-Total | 91 | 91 | 0.00398 | 1.27000 | 0.02694 | 0.01258 | 0.13213 |
| Boron (B)-Total (mg/L) | 56 | 56 | 0.02800 | 0.35900 | 0.11550 | 0.19490 | 0.06576 |
| Calcium (Ca)-Total ( | 93 | 93 | 8.71000 | 135.00000 | 29.29355 | 24.05000 | 21.11819 |
| Chromium (Cr)-Total (mg/L) | 91 | 29 | 0.00001 | 0.03480 | 0.00073 | 0.00098 | 0.00363 |
| Cobalt (Co)-Total (m | 91 | 62 | 0.00002 | 0.05310 | 0.00080 | 0.00068 | 0.00555 |
| Magnesium (Mg)-Total (mg/L) | 93 | 93 | 1.88000 | 70.20000 | 8.10398 | 6.59000 | 7.93678 |
| Nickel (Ni)-Total (mg/L) | 91 | 21 | 0.00025 | 0.61000 | 0.00792 | 0.00180 | 0.06430 |
| Silicon (Si)-Total (mg/L) | 93 | 93 | 0.00004 | 99.60000 | 8.62946 | 8.62500 | 9.61855 |
| Silver (Ag)-Total (mg/L) | 91 | 50 | 0.00001 | 3.40000 | 0.03738 | 0.00005 | 0.35641 |
| Sodium (Na)-Total (mg/L) | 93 | 93 | 0.06300 | 10.10000 | 5.24681 | 5.90500 | 2.29025 |
| Strontium (Sr)-Total (mg/L) | 91 | 90 | 0.00003 | 0.65200 | 0.13141 | 0.11060 | 0.09670 |
| Tin (Sn)-Total (mg/L) | 91 | 32 | 0.00003 | 0.01660 | 0.00032 | 0.00114 | 0.00174 |
| Total Aluminum (mg/L) | 91 | 91 | 0.02040 | 62.80000 | 0.90892 | 0.61440 | 6.56626 |
| Total Cadmium (mg/L) | 91 | 65 | 0.00001 | 0.00062 | 0.00003 | 0.00007 | 0.00007 |
| Total Copper (mg/L) | 91 | 91 | 0.00746 | 1.96000 | 0.04221 | 0.03850 | 0.20362 |
| Total Iron (mg/L) | 91 | 91 | 0.02600 | 61.50000 | 0.92465 | 0.69760 | 6.42667 |
| Total Lead (mg/L) | 91 | 60 | 0.00002 | 0.01490 | 0.00028 | 0.00039 | 0.00156 |
| Total Manganese (mg/L) | 91 | 91 | 0.00113 | 2.91000 | 0.04832 | 0.05286 | 0.30417 |
| Total Molybdenum (mg/L) | 91 | 91 | 0.00060 | 0.01720 | 0.00587 | 0.00734 | 0.00326 |
| Total Selenium (mg/L) | 90 | 33 | 0.00025 | 0.01200 | 0.00148 | 0.08895 | 0.00228 |
| Zinc (Zn)-Total (mg/L) | 90 | 81 | 0.00025 | 0.32300 | 0.01171 | 0.00968 | 0.03484 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 14-Jan-09 | 9-Feb-09 | 4-Mar-09 | 7-Apr-09 | 21-Apr-09 | 28-Apr-09 | 5-May-09 | 12-May-09 | 20-May-09 | 9-Jun-09 | 8-Jul-09 | 22-Jul-09 | 5-Aug-09 | 2-Sep-09 | 30-Sep-09 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.018 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0075 | <0.005 | <0.005 |
| Chloride (mg/L) | | | | 1.55 | 1.2 | 1.18 | 1.4 | <0.5 | <0.5 | 3.03 | 3.7 | <25 | 3.6 | 7.5 | 5.5 |
| Diss-Orthophosphate (mg/L) | 0.033 | 0.0281 | 0.0609 | 0.0252 | 0.0257 | 0.0243 | 0.0257 | 0.0243 | 0.0234 | 0.0247 | 0.0331 | 0.0353 | 0.0425 | 0.0291 | 0.0275 |
| Diss-Phosphorus (mg/L) | 0.0378 | 0.028 | 0.0695 | 0.0261 | 0.0344 | 0.0294 | 0.0252 | 0.028 | 0.0269 | 0.0295 | 0.034 | 0.0398 | 0.0429 | 0.0336 | 0.0299 |
| Nitrate (N) (mg/L) | 1.99 | 1.52 | 2.32 | 0.858 | 3.53 | 5.41 | 8.26 | 3.68 | <0.005 | 19.8 | 18.6 | 20.2 | 20.1 | 19.1 | 15.7 |
| Nitrate and Nitrite (mg/L) | | | | | | | | | | | | | | | |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | 0.0105 | 0.0488 | 0.0464 | 0.0051 | <0.001 | 0.003 | <0.005 | 0.071 | <0.005 | <0.01 | 0.017 |
| Sulphate (mg/L) | 226 | 201 | 417 | 125 | 225 | 218 | 224 | 85.2 | 26.2 | 384 | 461 | 477 | 539 | 532 | 454 |
| Total Nitrogen (mg/L) | 3.04 | 1.79 | 3.02 | 1.07 | 4.46 | 6.82 | 11 | 4.4 | 7.63 | 31.6 | 20.6 | 25.1 | 21 | 23.9 | 19.7 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0047 | 0.008 | <0.005 | 0.029 | 0.334 | 0.0259 | 0.0378 | 0.0951 | 0.0735 | 0.0052 | <0.006 | 0.0053 | 0.0105 | <0.005 | 0.0116 |
| Diss-Antimony (Sb) (mg/L) | <0.0002 | <0.0002 | <0.0005 | 0.00011 | 0.0002 | 0.00025 | 0.00029 | 0.00015 | 0.00015 | 0.00026 | <0.0005 | <0.0005 | 0.00032 | <0.0005 | <0.0005 |
| Diss-Arsenic (As) (mg/L) | 0.00079 | 0.00073 | 0.00148 | 0.00065 | 0.00071 | 0.00071 | 0.00074 | 0.00046 | 0.00045 | 0.00066 | 0.00078 | 0.00087 | 0.00087 | 0.00065 | 0.00064 |
| Diss-Barium (Ba) (mg/L) | 0.0565 | 0.0519 | 0.1 | 0.0366 | 0.0418 | 0.0417 | 0.0419 | 0.0191 | 0.0203 | 0.0722 | 0.104 | 0.11 | 0.107 | 0.109 | 0.101 |
| Diss-Beryllium (Be) (mg/L) | <0.001 | <0.001 | <0.0025 | <0.0005 | <0.001 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.0025 | <0.0025 | <0.001 | <0.0025 | <0.0025 |
| Diss-Boron (B) (mg/L) | 0.059 | 0.06 | 0.086 | 0.063 | 0.044 | 0.049 | 0.05 | 0.029 | 0.029 | 0.067 | 0.089 | 0.097 | 0.093 | 0.095 | 0.088 |
| Diss-Cadmium (Cd) (mg/L) | <0.000034 | <0.000034 | <0.000085 | 0.000024 | <0.000034 | 0.000051 | 0.000051 | <0.000017 | 0.000021 | <0.000034 | 0.000095 | <0.000085 | 0.000043 | <0.000085 | <0.000085 |
| Diss-Calcium (Ca) (mg/L) | 135 | 129 | 233 | 96.6 | 99.5 | 99.8 | 106 | 48.7 | 54.2 | 170 | 202 | 221 | 242 | 232 | 202 |
| Diss-Chromium (Cr) (mg/L) | <0.001 | <0.001 | <0.0025 | <0.0005 | <0.001 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.0025 | <0.0025 | <0.001 | <0.0025 | <0.0025 |
| Diss-Cobalt (Co) (mg/L) | <0.0002 | <0.0002 | <0.0005 | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0005 | <0.0005 | <0.0002 | <0.0005 | <0.0005 |
| Diss-Copper (Cu) (mg/L) | 0.00505 | 0.00404 | 0.00635 | 0.00461 | 0.00723 | 0.00596 | 0.00736 | 0.00698 | 0.00765 | 0.00583 | 0.00649 | 0.00618 | 0.0057 | 0.00599 | 0.00547 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | 0.053 | <0.03 | 0.047 | 0.093 | 0.067 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Diss-Lead (Pb) (mg/L) | <0.0001 | <0.0001 | <0.00025 | <0.00005 | <0.0001 | <0.00005 | <0.0001 | <0.00005 | 0.00005 | <0.0001 | <0.00025 | <0.00025 | <0.0001 | <0.00025 | <0.00025 |
| Diss-Magnesium (Mg) (mg/L) | 25.8 | 22.8 | 46.3 | 16.2 | 20.9 | 19.9 | 20.7 | 8.56 | 9.59 | 36.1 | 43.7 | 45.7 | 48.4 | 45.6 | 41.9 |
| Diss-Manganese (Mn) (mg/L) | 0.00219 | 0.00153 | 0.00214 | 0.00331 | 0.0345 | 0.0542 | 0.0906 | 0.0255 | 0.00818 | 0.00238 | 0.00186 | 0.00162 | 0.00395 | 0.00261 | 0.00196 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0234 | 0.0206 | 0.0334 | 0.0165 | 0.0334 | 0.0387 | 0.0432 | 0.0165 | 0.0164 | 0.0497 | 0.0554 | 0.0595 | 0.0549 | 0.0365 | 0.0317 |
| Diss-Nickel (Ni) (mg/L) | <0.001 | <0.001 | <0.0025 | <0.0005 | <0.001 | 0.00087 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.0025 | <0.0025 | <0.001 | <0.0025 | <0.0025 |
| Diss-Potassium (K) (mg/L) | 2.17 | 1.71 | 3.26 | 1.52 | 1.6 | 1.63 | 1.63 | 0.78 | 0.761 | 2.42 | 3.14 | 3.2 | 3.27 | 3.22 | 2.96 |
| Diss-Selenium (mg/L) | 0.0074 | 0.0057 | 0.0093 | 0.0029 | 0.0081 | 0.0121 | 0.0158 | 0.0067 | 0.0081 | 0.0305 | 0.0326 | 0.0303 | 0.0284 | 0.0213 | 0.0172 |
| Diss-Silicon (Si) (mg/L) | 6.58 | 6.23 | 7.44 | 6.29 | 5.56 | 5.57 | 5.43 | 5.27 | 5.33 | 5.8 | 6.15 | 6.12 | 6.49 | 6.39 | 6.23 |
| Diss-Silver (Ag) (mg/L) | <0.00002 | <0.00002 | <0.00005 | <0.00001 | <0.00002 | <0.00001 | <0.00002 | <0.00001 | <0.00001 | <0.00002 | <0.00005 | <0.00005 | <0.00002 | <0.00005 | <0.00005 |
| Diss-Sodium (Na) (mg/L) | 9.65 | 7.96 | 15.7 | 6.75 | 6.82 | 6.65 | 7.26 | 3.28 | 3.43 | 11.2 | 14.9 | 16.1 | 15.7 | 14.7 | 14.4 |
| Diss-Strontium (Sr) (mg/L) | 1.08 | 1.25 | 2.14 | 0.738 | 1.07 | 1.11 | 0.946 | 0.46 | 0.489 | 1.75 | 2.64 | 2.66 | 2.66 | 2.4 | 2.16 |
| Diss-Tin (Sn) (mg/L) | <0.0002 | <0.0002 | <0.0005 | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0005 | <0.0005 | <0.0002 | <0.0005 | 0.0006 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6-Oct-09 | 14-Oct-09 | 21-Oct-09 | 22-Oct-09 | 29-Oct-09 | 10-Nov-09 | 16-Dec-09 | 13-Jan-10 | 10-Feb-10 | 3-Mar-10 | 7-Apr-10 | 15-Apr-10 | 21-Apr-10 | 28-Apr-10 | 4-May-10 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0053 | 0.0053 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Chloride (mg/L) | 5.7 | 6 | <5 | <5 | 3.4 | 1.13 | 5 | <5 | 7.1 | 1.28 | <0.5 | 0.5 | <0.5 | <0.5 | <0.5 |
| Diss-Orthophosphate (mg/L) | 0.0264 | 0.0241 | 0.026 | 0.0262 | 0.0214 | 0.0177 | 0.0099 | 0.0268 | 0.0253 | 0.0212 | 0.0159 | 0.0144 | 0.0138 | 0.0125 | 0.0122 |
| Diss-Phosphorus (mg/L) | 0.0302 | 0.0268 | 0.0307 | 0.0317 | 0.0239 | 0.0194 | 0.0146 | 0.0306 | 0.0287 | 0.0234 | 0.0164 | 0.0164 | 0.0172 | 0.0153 | 0.0146 |
| Nitrate (N) (mg/L) | 13.4 | 8.33 | 16.2 | 15.9 | 9.49 | 2.18 | 17.6 | 20 | 21.9 | 4.15 | 0.38 | 0.418 | 0.126 | 0.134 | 0.143 |
| Nitrate and Nitrite (mg/L) | | | | | | | | | | | | | | | 0.143 |
| Nitrite (N) (mg/L) | 0.018 | <0.01 | <0.01 | <0.01 | <0.005 | <0.001 | <0.01 | <0.01 | 0.042 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Sulphate (mg/L) | 397 | 255 | 461 | 454 | 290 | 103 | 443 | 445 | 502 | 122 | 43.6 | 47.2 | 24.3 | 25 | 25.9 |
| Total Nitrogen (mg/L) | 17.2 | 11.8 | 22.1 | 22.2 | 11.7 | 2.37 | 20.2 | 29.8 | 29.7 | 5.95 | 0.506 | 0.66 | 0.37 | 0.33 | 0.35 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0031 | <0.005 | 0.0059 | <0.005 | 0.0031 | 0.0134 | <0.005 | <0.005 | <0.005 | 0.025 | 0.0457 | 0.0381 | 0.064 | 0.0665 | 0.0502 |
| Diss-Antimony (Sb) (mg/L) | 0.00021 | <0.0005 | <0.0005 | <0.0005 | <0.0002 | 0.00015 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00014 | 0.00013 | 0.00011 | 0.00012 | 0.00012 |
| Diss-Arsenic (As) (mg/L) | 0.0006 | 0.00056 | 0.00064 | 0.00067 | 0.00059 | 0.00042 | <0.0005 | 0.00058 | 0.00064 | <0.0005 | 0.00033 | 0.00032 | 0.00031 | 0.00029 | 0.0003 |
| Diss-Barium (Ba) (mg/L) | 0.0805 | 0.0595 | 0.0917 | 0.0903 | 0.0626 | 0.0297 | 0.0987 | 0.0893 | 0.0982 | 0.0321 | 0.0151 | 0.017 | 0.00958 | 0.0107 | 0.0118 |
| Diss-Beryllium (Be) (mg/L) | <0.001 | <0.0025 | <0.0025 | <0.0025 | <0.001 | <0.0005 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Boron (B) (mg/L) | 0.072 | 0.065 | 0.082 | 0.079 | 0.063 | 0.051 | <0.05 | 0.073 | 0.074 | 0.058 | 0.035 | 0.039 | 0.023 | 0.027 | 0.031 |
| Diss-Cadmium (Cd) (mg/L) | <0.000034 | <0.00009 | 0.000103 | 0.000098 | <0.000034 | <0.000017 | <0.000085 | 0.000102 | 0.000113 | <0.000085 | 0.000025 | 0.000019 | 0.000019 | <0.00003 | 0.000024 |
| Diss-Calcium (Ca) (mg/L) | 198 | 138 | 222 | 219 | 148 | 75.8 | 202 | 203 | 223 | 84.1 | 47.1 | 49.8 | 34 | 35.6 | 38.5 |
| Diss-Chromium (Cr) (mg/L) | <0.001 | <0.0025 | <0.0025 | <0.0025 | <0.001 | <0.0005 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Cobalt (Co) (mg/L) | <0.0002 | <0.0005 | <0.0005 | <0.0005 | <0.0002 | <0.0001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Copper (Cu) (mg/L) | 0.00419 | 0.00458 | 0.00576 | 0.00572 | 0.00409 | 0.00435 | 0.00571 | 0.00546 | 0.00512 | 0.00482 | 0.00438 | 0.00419 | 0.00744 | 0.00686 | 0.00657 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | 0.048 | <0.03 | <0.03 | <0.03 | <0.03 | 0.039 | <0.03 | 0.059 | 0.032 | 0.051 |
| Diss-Lead (Pb) (mg/L) | <0.0001 | <0.00025 | <0.00025 | <0.00025 | <0.0001 | <0.00005 | <0.00025 | <0.00025 | <0.00025 | <0.00025 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 39.5 | 26.4 | 46.9 | 46.6 | 28 | 13.1 | 38.7 | 44.3 | 46.4 | 14.9 | 6.24 | 6.94 | 3.74 | 4.15 | 4.54 |
| Diss-Manganese (Mn) (mg/L) | 0.00127 | 0.00071 | 0.00162 | 0.00174 | 0.00164 | 0.00188 | 0.00214 | 0.0119 | 0.00139 | 0.00126 | 0.00126 | 0.00205 | 0.00148 | 0.00149 | 0.00156 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0271 | 0.0227 | 0.0303 | 0.0307 | 0.0233 | 0.0147 | 0.0227 | 0.0331 | 0.0388 | 0.0172 | 0.00831 | 0.00921 | 0.00589 | 0.00646 | 0.00726 |
| Diss-Nickel (Ni) (mg/L) | <0.001 | <0.0025 | <0.0025 | <0.0025 | <0.001 | <0.0005 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Potassium (K) (mg/L) | 2.48 | 2.02 | 2.94 | 2.96 | 2.03 | 1.16 | 1.99 | 2.64 | 2.83 | 1.32 | 0.655 | 0.698 | 0.457 | 0.441 | 0.521 |
| Diss-Selenium (mg/L) | 0.0149 | 0.0096 | 0.0183 | 0.0177 | 0.0115 | 0.0042 | 0.0179 | 0.0195 | 0.02 | 0.0051 | 0.0015 | 0.0017 | <0.001 | <0.001 | <0.001 |
| Diss-Silicon (Si) (mg/L) | 6.25 | 5.91 | 6.02 | 5.97 | 5.52 | 5.94 | 5.71 | 5.94 | 5.81 | 5.65 | 5.2 | 5.57 | 5.33 | 5.31 | 5.35 |
| Diss-Silver (Ag) (mg/L) | <0.00002 | <0.00005 | <0.00005 | <0.00005 | <0.00002 | <0.00001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Diss-Sodium (Na) (mg/L) | 11.8 | 9.37 | 14.4 | 14.5 | 10.1 | 4.96 | 12.3 | 13.7 | 15 | 5.8 | 2.64 | 2.85 | 1.73 | 1.81 | 2.11 |
| Diss-Strontium (Sr) (mg/L) | 1.93 | 1.35 | 2.04 | 2.07 | 1.43 | 0.606 | 1.59 | 2.15 | 2.38 | 0.667 | 0.259 | 0.299 | 0.143 | 0.151 | 0.18 |
| Diss-Tin (Sn) (mg/L) | <0.0002 | <0.0005 | <0.0005 | <0.0005 | <0.0002 | <0.0001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12-May-10 | 19-May-10 | 3-Jun-10 | 8-Jul-10 | 4-Aug-10 | 1-Sep-10 | 23-Sep-10 | 30-Sep-10 | 7-Oct-10 | 14-Oct-10 | 21-Oct-10 | 28-Oct-10 | 3-Nov-10 | 10-Jan-11 | 9-Feb-11 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Chloride (mg/L) | <0.5 | <0.5 | 2.7 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.64 | 0.53 | 0.79 | <5 |
| Diss-Orthophosphate (mg/L) | 0.0116 | 0.0134 | 0.018 | 0.0165 | 0.0245 | 0.0212 | 0.0151 | 0.0161 | 0.0175 | 0.0171 | 0.0181 | 0.016 | 0.0154 | 0.0136 | 0.0152 |
| Diss-Phosphorus (mg/L) | 0.0142 | 0.0155 | 0.0223 | 0.0318 | 0.023 | 0.0226 | 0.0189 | 0.0171 | 0.0178 | 0.0178 | 0.0173 | 0.0172 | 0.0166 | 0.0162 | 0.0173 |
| Nitrate (N) (mg/L) | 0.191 | 0.221 | 18.3 | 0.275 | 0.25 | 0.239 | 0.174 | 0.194 | 0.228 | 0.229 | 0.258 | 0.246 | 0.259 | 2.83 | 22.9 |
| Nitrate and Nitrite (mg/L) | 0.191 | 0.221 | 18.3 | 0.275 | 0.25 | 0.239 | 0.174 | 0.194 | 0.228 | 0.229 | 0.258 | 0.246 | 0.259 | 2.83 | 22.9 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 |
| Sulphate (mg/L) | 28.6 | 30.7 | 340 | 40.3 | 35.3 | 33.4 | 29.7 | 30.5 | 31.5 | 31.5 | 31.8 | 32.8 | 29.5 | 68.1 | 338 |
| Total Nitrogen (mg/L) | 0.35 | 0.26 | 27.6 | 0.39 | 0.43 | 0.39 | 0.33 | 0.25 | 0.41 | 0.38 | 0.28 | 0.25 | 0.39 | 2.9 | 29.3 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0271 | 0.0171 | 0.0054 | 0.0107 | 0.0067 | 0.0157 | 0.0516 | 0.0074 | 0.0076 | 0.0052 | 0.0047 | 0.008 | 0.0061 | 0.0051 | <0.003 |
| Diss-Antimony (Sb) (mg/L) | 0.00012 | 0.00014 | <0.0002 | 0.00015 | 0.00015 | 0.00013 | 0.00012 | 0.00012 | 0.00012 | <0.0001 | 0.00011 | 0.00011 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Arsenic (As) (mg/L) | 0.0003 | 0.00032 | 0.00037 | 0.00038 | 0.0004 | 0.00042 | 0.00038 | 0.00031 | 0.00035 | 0.00036 | 0.00036 | 0.00037 | 0.00036 | 0.00034 | 0.00033 |
| Diss-Barium (Ba) (mg/L) | 0.0133 | 0.0153 | 0.07 | 0.0214 | 0.0252 | 0.0228 | 0.0262 | 0.0231 | 0.0233 | 0.0246 | 0.0242 | 0.0232 | 0.0222 | 0.0236 | 0.0656 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Boron (B) (mg/L) | 0.035 | 0.037 | 0.061 | 0.054 | 0.056 | 0.061 | 0.047 | 0.057 | 0.06 | 0.06 | 0.056 | 0.062 | 0.056 | 0.048 | 0.049 |
| Diss-Cadmium (Cd) (mg/L) | 0.000023 | 0.000028 | <0.000034 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000014 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.00002 |
| Diss-Calcium (Ca) (mg/L) | 50.5 | 48.9 | 170 | 59.1 | 61.7 | 64.8 | 62.5 | 64.1 | 61 | 64.5 | 69.2 | 63.4 | 61.9 | 73 | 178 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Copper (Cu) (mg/L) | 0.00536 | 0.00493 | 0.00475 | 0.00404 | 0.00346 | 0.00424 | 0.0036 | 0.00357 | 0.00343 | 0.00311 | 0.00292 | 0.00304 | 0.00316 | 0.00203 | 0.00262 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | 0.062 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.0001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 4.92 | 5.55 | 30 | 7.7 | 8.11 | 8.62 | 7.77 | 7.86 | 8.11 | 8.11 | 8.31 | 8.46 | 7.8 | 10.3 | 31.6 |
| Diss-Manganese (Mn) (mg/L) | 0.00122 | 0.00153 | 0.00227 | 0.00518 | 0.00766 | 0.00508 | 0.00324 | 0.00354 | 0.0029 | 0.00397 | 0.0037 | 0.00552 | 0.00373 | 0.012 | 0.00144 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00789 | 0.00914 | 0.0241 | 0.0108 | 0.0129 | 0.0128 | 0.0116 | 0.0114 | 0.0122 | 0.0127 | 0.012 | 0.0123 | 0.0118 | 0.0128 | 0.0147 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00067 | <0.0005 |
| Diss-Potassium (K) (mg/L) | 0.53 | 0.611 | 1.87 | 0.812 | 0.94 | 0.953 | 0.955 | 0.815 | 0.825 | 0.894 | 0.867 | 0.862 | 0.793 | 0.806 | 1.33 |
| Diss-Selenium (mg/L) | 0.0012 | 0.0013 | 0.0223 | 0.0015 | 0.0014 | 0.0016 | 0.0016 | 0.0014 | 0.0016 | 0.0016 | 0.0018 | 0.0018 | 0.0017 | 0.00364 | 0.0128 |
| Diss-Silicon (Si) (mg/L) | 5.73 | 5.81 | 5.93 | 6.5 | 6.3 | 6.49 | 6.83 | 6.53 | 6.16 | 6.47 | 6.44 | 6.27 | 6.51 | 5.7 | 5.69 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00002 | <0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Diss-Sodium (Na) (mg/L) | 2.25 | 2.51 | 9.3 | 3.16 | 3.67 | 3.74 | 3.87 | 3.52 | 3.78 | 3.88 | 3.77 | 3.95 | 3.87 | 4.25 | 8.6 |
| Diss-Strontium (Sr) (mg/L) | 0.201 | 0.236 | 1.21 | 0.343 | 0.377 | 0.383 | 0.34 | 0.346 | 0.367 | 0.386 | 0.373 | 0.402 | 0.366 | 0.486 | 1.35 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15-Feb-11 | 7-Mar-11 | 5-Apr-11 | 4-May-11 | 11-May-11 | 18-May-11 | 26-May-11 | 1-Jun-11 | 9-Jun-11 | 14-Jul-11 | 4-Aug-11 | 8-Sep-11 | 20-Sep-11 | 30-Sep-11 | 6-Oct-11 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.005 | <0.005 | <0.005 | 0.0069 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0083 | <0.005 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | 1.12 | 0.8 | 0.68 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 |
| Diss-Orthophosphate (mg/L) | 0.0152 | 0.0145 | 0.016 | 0.0176 | 0.0142 | 0.0107 | 0.009 | 0.0113 | 0.0148 | 0.0143 | 0.015 | 0.017 | 0.017 | 0.0164 | 0.016 |
| Diss-Phosphorus (mg/L) | 0.0156 | 0.0162 | 0.017 | 0.0208 | 0.019 | 0.0179 | 0.0142 | 0.0142 | 0.0167 | 0.0156 | 0.0157 | | | | 0.0183 |
| Nitrate (N) (mg/L) | 7.03 | 3.76 | 1.9 | 0.156 | 0.269 | 0.174 | 0.1 | 0.0844 | 0.0759 | 0.091 | 0.0909 | 0.15 | 0.144 | 0.114 | 0.0806 |
| Nitrate and Nitrite (mg/L) | 7.03 | 3.76 | 1.9 | 0.156 | 0.269 | 0.174 | 0.1 | 0.0844 | 0.0759 | 0.091 | 0.0909 | 0.15 | 0.144 | 0.114 | 0.0816 |
| Nitrite (N) (mg/L) | <0.0010 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0010 | <0.0010 | <0.0010 | 0.001 |
| Sulphate (mg/L) | 124 | 79.5 | 63 | 29.1 | 28.7 | 21.7 | 23.9 | 27.3 | 32.9 | 35 | 36.6 | 35.3 | 33.2 | 32.6 | 32 |
| Total Nitrogen (mg/L) | 9.94 | 3.91 | 2.29 | 0.55 | 0.72 | 0.41 | 0.21 | 0.25 | 0.38 | 0.28 | 0.22 | 0.31 | 0.24 | 0.22 | 0.21 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | <0.003 | 0.0179 | 0.257 | 0.0528 | 0.161 | 0.152 | 0.0867 | 0.0345 | 0.0118 | 0.0192 | 0.0049 | 0.0074 | 0.0056 | 0.0052 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.0001 | 0.00011 | 0.00012 | <0.0001 | 0.00011 | 0.00011 | 0.00011 | 0.00012 | <0.0001 | <0.0001 | 0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00033 | 0.00033 | 0.00035 | 0.0004 | 0.00031 | 0.00044 | 0.00029 | 0.00028 | 0.00033 | 0.00033 | 0.00031 | 0.00028 | 0.00031 | 0.00032 | 0.00032 |
| Diss-Barium (Ba) (mg/L) | 0.0337 | 0.0266 | 0.0252 | 0.0121 | 0.00772 | 0.00777 | 0.00937 | 0.0104 | 0.0125 | 0.0172 | 0.0176 | 0.0214 | 0.0207 | 0.0212 | 0.0202 |
| Diss-Beryllium (Be) (mg/L) | <0.00050 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.05 | 0.046 | 0.055 | 0.029 | 0.02 | 0.022 | 0.025 | 0.027 | 0.034 | 0.041 | 0.038 | 0.046 | 0.049 | 0.049 | 0.045 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000013 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 94.6 | 76 | 71.2 | 31.6 | 26.4 | 24.2 | 31.3 | 34.2 | 41 | 55.1 | 54.2 | 60.8 | 60.7 | 59.2 | 62.7 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.0005 | <0.0005 | 0.00061 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.0001 | <0.0001 | 0.00012 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00222 | 0.00209 | 0.00331 | 0.00878 | 0.00835 | 0.0119 | 0.0114 | 0.00949 | 0.00671 | 0.00485 | 0.00519 | 0.00337 | 0.00339 | 0.0031 | 0.00288 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.03 | <0.03 | 0.218 | 0.052 | 0.136 | 0.12 | 0.084 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.00005 | <0.00005 | 0.000068 | <0.00005 | 0.000055 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 14.8 | 11.5 | 10.7 | 4.02 | 3.29 | 2.85 | 3.32 | 3.79 | 4.68 | 6.09 | 6.01 | 6.99 | 7.2 | 7.43 | 7.36 |
| Diss-Manganese (Mn) (mg/L) | 0.000437 | 0.000551 | 0.000925 | 0.00369 | 0.00124 | 0.00245 | 0.00209 | 0.00157 | 0.00139 | 0.0005 | 0.00375 | 0.00783 | 0.0111 | 0.0115 | 0.0116 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0126 | 0.013 | 0.0119 | 0.00442 | 0.00359 | 0.00388 | 0.00491 | 0.00521 | 0.00616 | 0.00732 | 0.00716 | 0.00846 | 0.00867 | 0.00891 | 0.00872 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.952 | 0.88 | 0.865 | 0.568 | 0.455 | 0.402 | 0.407 | 0.439 | 0.503 | 0.592 | 0.559 | 0.674 | 0.686 | 0.684 | 0.676 |
| Diss-Selenium (mg/L) | 0.00517 | 0.00439 | 0.00314 | 0.00102 | 0.00152 | 0.00123 | 0.00107 | 0.00101 | 0.0012 | 0.00113 | 0.00096 | 0.0012 | 0.00122 | 0.0012 | 0.00127 |
| Diss-Silicon (Si) (mg/L) | 5.64 | 5.66 | 5.92 | 5.81 | 5.28 | 5.35 | 5.69 | 5.9 | 5.98 | 6.32 | 6.52 | 6.51 | 6.5 | 6.49 | 6.55 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.00001 | <0.00001 | 0.000012 | <0.00001 | 0.000014 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 5.33 | 4.9 | 4.24 | 1.9 | 1.7 | 1.55 | 1.73 | 1.87 | 2.15 | 2.72 | 2.64 | 3.15 | 3.35 | 3.41 | 3.37 |
| Diss-Strontium (Sr) (mg/L) | 0.672 | 0.519 | 0.471 | 0.155 | 0.107 | 0.102 | 0.119 | 0.14 | 0.184 | 0.246 | 0.244 | 0.292 | 0.316 | 0.303 | 0.3 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12-Oct-11 | 19-Oct-11 | 1-Nov-11 | 5-Dec-11 | 5-Jan-12 | 7-Feb-12 | 15-Mar-12 | 3-Apr-12 | 11-Apr-12 | 26-Apr-12 | 3-May-12 | 10-May-12 | 16-May-12 | 24-May-12 | 7-Jun-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | 0.0056 | 0.0085 | <0.0050 | 0.0117 | 0.0055 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.6 | 0.79 | 0.69 | 0.54 | <0.50 | <0.50 | <0.50 |
| Diss-Orthophosphate (mg/L) | 0.0173 | 0.0170 | 0.0143 | 0.0149 | 0.0137 | 0.0146 | 0.014 | 0.0172 | 0.0218 | 0.0133 | 0.0082 | 0.0066 | 0.0087 | 0.0097 | 0.0133 |
| Diss-Phosphorus (mg/L) | 0.0196 | | 0.0163 | 0.016 | 0.0164 | 0.0169 | 0.0168 | 0.0192 | 0.032 | 0.0188 | 0.0145 | 0.011 | 0.0128 | 0.0119 | 0.0172 |
| Nitrate (N) (mg/L) | 0.0868 | 0.0877 | 0.11 | 0.225 | 0.179 | 0.214 | 0.193 | 0.258 | 0.348 | 4.83 | 5.27 | 4.12 | 1.16 | 0.665 | 0.912 |
| Nitrate and Nitrite (mg/L) | 0.0868 | 0.0877 | 0.11 | 0.225 | 0.179 | 0.214 | 0.193 | 0.258 | 0.348 | 4.84 | 5.27 | 4.12 | 1.16 | 0.665 | 0.912 |
| Nitrite (N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0046 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 31.4 | 30.5 | 28.3 | 29 | 28 | 26.6 | 25.9 | 43 | 45.3 | 119 | 115 | 91.1 | 43.3 | 41.3 | 70.1 |
| Total Nitrogen (mg/L) | 0.17 | 0.190 | 0.17 | 0.28 | 0.15 | 0.25 | 0.22 | 0.33 | 0.65 | 7.97 | 7.02 | 5.65 | 1.62 | 0.87 | 1.1 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0072 | 0.0053 | 0.007 | 0.0061 | 0.006 | 0.0042 | 0.0046 | 0.0291 | 0.0694 | 1.68 | 0.0595 | 0.0591 | 0.0593 | 0.0223 | 0.135 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00012 | 0.00013 | 0.00013 | 0.00011 | 0.0001 | 0.00013 |
| Diss-Arsenic (As) (mg/L) | 0.00032 | 0.00031 | 0.00028 | 0.0003 | 0.00027 | 0.00032 | 0.00027 | 0.00032 | 0.00045 | 0.00093 | 0.00035 | 0.00031 | 0.00028 | 0.00025 | 0.00037 |
| Diss-Barium (Ba) (mg/L) | 0.022 | 0.0216 | 0.0191 | 0.0172 | 0.0171 | 0.0179 | 0.0168 | 0.0192 | 0.0115 | 0.0361 | 0.0216 | 0.0191 | 0.0134 | 0.0138 | 0.0213 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.051 | 0.049 | 0.046 | 0.042 | 0.043 | 0.038 | 0.04 | 0.045 | 0.024 | 0.029 | 0.03 | 0.028 | 0.029 | 0.027 | 0.04 |
| Diss-Cadmium (Cd) (mg/L) | 0.000012 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000012 | <0.000010 | 0.000029 | 0.00002 | 0.000013 | <0.000010 | <0.000010 | 0.000011 |
| Diss-Calcium (Ca) (mg/L) | 62.7 | 61.9 | 59.1 | 55.5 | 56.6 | 54.7 | 55.3 | 61.9 | 41.9 | 72.5 | 65.5 | 54.7 | 39 | 43.3 | 61.4 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00225 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00093 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.003 | 0.00277 | 0.00272 | 0.00242 | 0.00246 | 0.00232 | 0.00185 | 0.003 | 0.015 | 0.0598 | 0.0139 | 0.0099 | 0.00861 | 0.00605 | 0.00869 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | 0.031 | 0.076 | 1.33 | 0.054 | 0.048 | 0.044 | <0.030 | 0.13 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000662 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 7.27 | 7.40 | 7.12 | 6.79 | 6.85 | 6.84 | 6.6 | 7.79 | 5.38 | 11.2 | 10.4 | 8.75 | 5.01 | 5.48 | 8.05 |
| Diss-Manganese (Mn) (mg/L) | 0.0111 | 0.0130 | 0.0111 | 0.00753 | 0.00652 | 0.00253 | 0.00622 | 0.0057 | 0.00101 | 0.0542 | 0.00147 | 0.00129 | 0.00158 | 0.00191 | 0.00396 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00949 | 0.00949 | 0.00894 | 0.00979 | 0.00885 | 0.00977 | 0.00904 | 0.00885 | 0.00431 | 0.0116 | 0.0119 | 0.00912 | 0.00679 | 0.0062 | 0.00829 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00197 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.758 | 0.673 | 0.626 | 0.577 | 0.581 | 0.59 | 0.531 | 0.614 | 0.578 | 1.01 | 0.693 | 0.581 | 0.452 | 0.453 | 0.69 |
| Diss-Selenium (mg/L) | 0.00127 | 0.00132 | 0.00137 | 0.00177 | 0.00178 | 0.0021 | 0.00204 | 0.00209 | 0.00091 | 0.0063 | 0.00771 | 0.00612 | 0.00207 | 0.00167 | 0.00237 |
| Diss-Silicon (Si) (mg/L) | 6.25 | 6.44 | 6.05 | 5.82 | 5.74 | 5.74 | 5.6 | 5.85 | 5.33 | 8.22 | 5.49 | 5.5 | 5.32 | 5.75 | 6.32 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000029 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 3.49 | 3.44 | 3.3 | 3.29 | 3.1 | 3.28 | 3.03 | 3.28 | 2.31 | 4.06 | 3.64 | 3.1 | 2.31 | 2.36 | 3.27 |
| Diss-Strontium (Sr) (mg/L) | 0.323 | 0.317 | 0.285 | 0.291 | 0.283 | 0.282 | 0.263 | 0.31 | 0.193 | 0.435 | 0.476 | 0.386 | 0.196 | 0.197 | 0.345 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5-Jul-12 | 2-Aug-12 | 6-Sep-12 | 3-Oct-12 | 11-Oct-12 | 18-Oct-12 | 25-Oct-12 | 31-Oct-12 | 5-Nov-12 | 6-Dec-12 | 3-Jan-13 | 7-Feb-13 | 19-Feb-13 | 14-Mar-13 | 4-Apr-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.020 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | 0.0075 | <0.0050 |
| Chloride (mg/L) | 1.28 | 0.79 | 0.61 | 0.61 | 0.53 | 0.65 | 0.76 | 0.88 | 1.13 | 0.71 | 0.58 | 0.52 | <0.50 | 0.55 | 0.86 |
| Diss-Orthophosphate (mg/L) | 0.0093 | 0.0131 | 0.0147 | 0.0159 | 0.0165 | 0.0163 | 0.0124 | 0.0133 | 0.0129 | 0.0096 | 0.0116 | 0.0122 | 0.0106 | 0.0135 | 0.011 |
| Diss-Phosphorus (mg/L) | 0.0121 | 0.0152 | 0.0167 | 0.0186 | 0.0179 | 0.0201 | 0.0143 | 0.0148 | 0.0162 | 0.0133 | 0.0123 | 0.0144 | 0.0132 | 0.0171 | 0.017 |
| Nitrate (N) (mg/L) | 1.42 | 0.141 | 0.0287 | 0.0627 | 0.0597 | 0.0496 | 0.0675 | 0.0969 | 0.106 | 0.189 | 0.22 | 0.196 | 0.212 | 0.208 | 0.133 |
| Nitrate and Nitrite (mg/L) | 1.42 | 0.141 | 0.0311 | 0.0627 | 0.0597 | 0.0496 | 0.0675 | 0.0969 | 0.106 | 0.189 | 0.22 | 0.196 | 0.212 | 0.208 | 0.133 |
| Nitrite (N) (mg/L) | <0.0010 | <0.0010 | 0.0024 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 71.9 | 54.1 | 41.6 | 37.6 | 35.2 | 35.3 | 34.4 | 36.3 | 41.7 | 35.5 | 32.8 | 32.4 | 31.2 | 33.1 | 41.4 |
| Total Nitrogen (mg/L) | 1.71 | 0.26 | 0.21 | 0.18 | 0.18 | 0.12 | 0.13 | 0.27 | 0.33 | 0.277 | 0.256 | 0.246 | 0.248 | 0.28 | 0.406 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0247 | 0.0101 | 0.0051 | 0.0037 | 0.0037 | 0.0033 | 0.0063 | 0.0053 | 0.0481 | 0.007 | 0.0038 | | 0.0033 | | |
| Diss-Antimony (Sb) (mg/L) | 0.00012 | 0.00011 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | |
| Diss-Arsenic (As) (mg/L) | 0.00029 | 0.00046 | 0.00032 | 0.00029 | 0.00029 | 0.00028 | 0.00028 | 0.00025 | 0.00029 | 0.00024 | 0.00023 | | 0.00025 | | |
| Diss-Barium (Ba) (mg/L) | 0.0218 | 0.0225 | 0.022 | 0.0216 | 0.0207 | 0.021 | 0.0182 | 0.018 | 0.0188 | 0.0164 | 0.0171 | | 0.0182 | | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | |
| Diss-Boron (B) (mg/L) | 0.036 | 0.041 | 0.044 | 0.043 | 0.042 | 0.044 | 0.037 | 0.037 | 0.039 | 0.034 | 0.033 | | 0.04 | | |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | 0.000013 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 | | |
| Diss-Calcium (Ca) (mg/L) | 59.3 | 60.2 | 68.6 | 65.1 | 64.4 | 64 | 57.8 | 57.4 | 56.4 | 51.4 | 55.5 | | 57.3 | | |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | | |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | |
| Diss-Copper (Cu) (mg/L) | 0.00596 | 0.004 | 0.00327 | 0.00264 | 0.00242 | 0.00271 | 0.0027 | 0.00278 | 0.00473 | 0.00261 | 0.00213 | | 0.00214 | | |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | 0.045 | <0.030 | <0.030 | | <0.030 | | |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | <0.000050 | | |
| Diss-Magnesium (Mg) (mg/L) | 8.12 | 7.39 | 7.85 | 7.45 | 7.26 | 7.41 | 6.77 | 7 | 6.95 | 6.34 | 6.5 | | 6.74 | | |
| Diss-Manganese (Mn) (mg/L) | 0.00215 | 0.00772 | 0.01 | 0.00104 | 0.0135 | 0.0188 | 0.00451 | 0.00694 | 0.00509 | 0.0264 | 0.0273 | | 0.00259 | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.00652 | 0.00771 | 0.00924 | 0.00889 | 0.00909 | 0.00888 | 0.00832 | 0.00882 | 0.00783 | 0.00775 | 0.00882 | | 0.00951 | | |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | | |
| Diss-Potassium (K) (mg/L) | 0.586 | 0.636 | 0.649 | 0.669 | 0.643 | 0.659 | 0.544 | 0.541 | 0.613 | 0.49 | 0.493 | | 0.518 | | |
| Diss-Selenium (mg/L) | 0.00263 | 0.00136 | 0.00105 | 0.001 | 0.00108 | 0.00113 | 0.00121 | 0.0013 | 0.00138 | 0.00156 | 0.00181 | | 0.00197 | | |
| Diss-Silicon (Si) (mg/L) | 6.24 | 6.28 | 6.71 | 6.48 | 6.22 | 6.32 | 5.91 | 5.84 | 5.86 | 5.51 | 5.64 | | 5.61 | | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 | | |
| Diss-Sodium (Na) (mg/L) | 3.12 | 3.27 | 3.29 | 3.53 | 3.39 | 3.38 | 3.07 | 3.04 | 3.13 | 2.75 | 2.95 | | 3.13 | | |
| Diss-Strontium (Sr) (mg/L) | 0.32 | 0.303 | 0.315 | 0.301 | 0.31 | 0.305 | 0.276 | 0.313 | 0.276 | 0.248 | 0.271 | | 0.282 | | |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8-Apr-13 | 18-Apr-13 | 25-Apr-13 | 2-May-13 | 9-May-13 | 16-May-13 | 6-Jun-13 | 10-Jul-13 | 8-Aug-13 | 5-Sep-13 | 24-Sep-13 | 3-Oct-13 | 10-Oct-13 | 17-Oct-13 | 24-Oct-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 | 0.0057 | <0.0050 | | | <0.0050 | <0.0050 | <0.0050 | 0.0062 | | <0.0050 | | | |
| Chloride (mg/L) | 0.59 | 0.76 | 1.12 | <0.50 | | | <0.50 | <0.50 | <0.50 | <0.50 | | <0.50 | | | |
| Diss-Orthophosphate (mg/L) | 0.0079 | 0.0084 | 0.0066 | 0.0078 | | | 0.006 | 0.0102 | 0.015 | 0.0171 | | 0.0125 | | | |
| Diss-Phosphorus (mg/L) | 0.0124 | 0.0119 | 0.0122 | 0.0093 | | | 0.0103 | 0.0116 | 0.0177 | 0.0199 | | 0.0146 | | | |
| Nitrate (N) (mg/L) | 0.0429 | 0.0481 | 0.128 | 0.0833 | | | 0.0416 | 0.0412 | 0.083 | 0.0734 | | 0.0464 | | | |
| Nitrate and Nitrite (mg/L) | 0.0429 | 0.0481 | 0.128 | 0.0833 | | | 0.0416 | 0.0431 | 0.083 | 0.0734 | | 0.0464 | | | |
| Nitrite (N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | | | <0.0010 | 0.0018 | <0.0010 | <0.0010 | | <0.0010 | | | |
| Sulphate (mg/L) | 26.9 | 38.3 | 39.4 | 34.2 | | | 34.3 | 36.8 | 35.3 | 31.2 | | 29.6 | | | |
| Total Nitrogen (mg/L) | 0.213 | 0.176 | 0.335 | 0.211 | | | 0.132 | 0.171 | 0.163 | 0.181 | | 0.118 | | | |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.243 | 0.318 | 0.0794 | 0.0868 | | | | | | | | | | | |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | | | | | | |
| Diss-Arsenic (As) (mg/L) | 0.00033 | 0.00033 | 0.00035 | 0.00024 | | | | | | | | | | | |
| Diss-Barium (Ba) (mg/L) | 0.0108 | 0.0133 | 0.00953 | 0.0101 | | | | | | | | | | | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | | | | | | |
| Diss-Boron (B) (mg/L) | 0.024 | 0.021 | 0.02 | 0.019 | | | | | | | | | | | |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | 0.000013 | <0.000010 | | | | | | | | | | | |
| Diss-Calcium (Ca) (mg/L) | 29.3 | 34.4 | 39.5 | 32.7 | | | | | | | | | | | |
| Diss-Chromium (Cr) (mg/L) | 0.00051 | 0.00054 | <0.00050 | <0.00050 | | | | | | | | | | | |
| Diss-Cobalt (Co) (mg/L) | 0.00011 | 0.00011 | <0.00010 | <0.00010 | | | | | | | | | | | |
| Diss-Copper (Cu) (mg/L) | 0.0103 | 0.00718 | 0.0165 | 0.00863 | | | | | | | | | | | |
| Diss-Iron (Fe) (mg/L) | 0.232 | 0.273 | 0.064 | 0.075 | | | | | | | | | | | |
| Diss-Lead (Pb) (mg/L) | 0.000059 | 0.000059 | <0.000050 | <0.000050 | | | | | | | | | | | |
| Diss-Magnesium (Mg) (mg/L) | 3.27 | 3.95 | 3.38 | 3.33 | | | | | | | | | | | |
| Diss-Manganese (Mn) (mg/L) | 0.00297 | 0.0041 | 0.00179 | 0.00158 | | | | | | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.004 | 0.00489 | 0.00285 | 0.00418 | | | | | | | | | | | |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | | | | | | | | | |
| Diss-Potassium (K) (mg/L) | 0.405 | 0.43 | 0.428 | 0.366 | | | | | | | | | | | |
| Diss-Selenium (mg/L) | 0.00075 | 0.00147 | 0.0017 | 0.00143 | | | | | | | | | | | |
| Diss-Silicon (Si) (mg/L) | 5.89 | 6.37 | 4.94 | 5.32 | | | | | | | | | | | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | | | | | | | | | |
| Diss-Sodium (Na) (mg/L) | 1.7 | 1.99 | 1.97 | 1.72 | | | | | | | | | | | |
| Diss-Strontium (Sr) (mg/L) | 0.114 | 0.157 | 0.138 | 0.114 | | | | | | | | | | | |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | | | | | | |

| | E225124 : W4 - North Dump | | |
|---|---|---|---|
| | 29-Oct-13 | 7-Nov-13 | 3-Dec-13 |
| **Anions and Nutrients** | | | |
| Ammonia (as N) (mg/L | | <0.0050 | <0.0050 |
| Chloride (mg/L) | | 0.65 | 0.73 |
| Diss-Orthophosphate (mg/L) | | 0.0110 | 0.0114 |
| Diss-Phosphorus (mg/L) | | 0.0127 | 0.0144 |
| Nitrate (N) (mg/L) | | 0.112 | 0.127 |
| Nitrate and Nitrite (mg/L) | | 0.112 | 0.127 |
| Nitrite (N) (mg/L) | | <0.0010 | <0.0010 |
| Sulphate (mg/L) | | 35.6 | 33.6 |
| Total Nitrogen (mg/L) | | 0.171 | 0.205 |
| **Dissolved Metals** | | | |
| Diss-Aluminum (Al) (mg/L) | | | |
| Diss-Antimony (Sb) (mg/L) | | | |
| Diss-Arsenic (As) (mg/L) | | | |
| Diss-Barium (Ba) (mg/L) | | | |
| Diss-Beryllium (Be) (mg/L) | | | |
| Diss-Boron (B) (mg/L) | | | |
| Diss-Cadmium (Cd) (mg/L) | | | |
| Diss-Calcium (Ca) (mg/L) | | | |
| Diss-Chromium (Cr) (mg/L) | | | |
| Diss-Cobalt (Co) (mg/L) | | | |
| Diss-Copper (Cu) (mg/L) | | | |
| Diss-Iron (Fe) (mg/L) | | | |
| Diss-Lead (Pb) (mg/L) | | | |
| Diss-Magnesium (Mg) (mg/L) | | | |
| Diss-Manganese (Mn) (mg/L) | | | |
| Diss-Molybdenum (Mo) (mg/L) | | | |
| Diss-Nickel (Ni) (mg/L) | | | |
| Diss-Potassium (K) (mg/L) | | | |
| Diss-Selenium (mg/L) | | | |
| Diss-Silicon (Si) (mg/L) | | | |
| Diss-Silver (Ag) (mg/L) | | | |
| Diss-Sodium (Na) (mg/L) | | | |
| Diss-Strontium (Sr) (mg/L) | | | |
| Diss-Tin (Sn) (mg/L) | | | |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **14-Jan-09** | **9-Feb-09** | **4-Mar-09** | **7-Apr-09** | **21-Apr-09** | **28-Apr-09** | **5-May-09** | **12-May-09** | **20-May-09** | **9-Jun-09** | **8-Jul-09** | **22-Jul-09** | **5-Aug-09** | **2-Sep-09** | **30-Sep-09** |
| Diss-Zinc (Zn) (mg/L) | <0.002 | 0.0026 | <0.005 | <0.001 | <0.002 | 0.0012 | <0.002 | <0.001 | <0.002 | <0.002 | <0.005 | <0.005 | <0.002 | <0.005 | <0.005 |
| TDS (mg/L) | 572 | 536 | 953 | 386 | 473 | 447 | 472 | 228 | 281 | 820 | 935 | 1050 | 1110 | 1070 | 947 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 219 | 209 | 308 | 179 | 95 | 84.7 | 81.9 | 54.8 | 56.7 | 117 | 147 | 156 | 174 | 169 | 177 |
| Hardness (mg/L) | 443 | 416 | 774 | 308 | 335 | 331 | 349 | 157 | 175 | 574 | 684 | 741 | 803 | 767 | 677 |
| NTU (ntu) | 0.76 | 0.45 | 0.72 | 4.02 | 11.7 | 2.98 | 8.08 | 5.38 | 3.5 | 0.69 | 0.85 | 0.46 | 1.68 | 0.8 | 4.89 |
| TDS (mg/L) | 572 | 536 | 953 | 386 | 473 | 447 | 472 | 228 | 281 | 820 | 935 | 1050 | 1110 | 1070 | 947 |
| TSS (mg/L) | <3 | <3 | <3 | <3 | 22 | <3 | 6 | <3 | <3 | <3 | 4.7 | <3 | <5 | <3 | <3 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0002 | <0.0002 | <0.0005 | 0.00012 | 0.00024 | 0.00023 | 0.00027 | 0.00014 | 0.00016 | 0.0003 | 0.00092 | <0.0005 | 0.00034 | <0.0005 | <0.0005 |
| Arsenic (As)-Total ( | 0.00081 | 0.00077 | 0.00141 | 0.00072 | 0.00104 | 0.00071 | 0.00086 | 0.00052 | 0.00122 | 0.00074 | 0.00081 | 0.00127 | 0.00093 | 0.00071 | 0.00062 |
| Barium (Ba)-Total | 0.0579 | 0.052 | 0.104 | 0.0392 | 0.0526 | 0.0416 | 0.0443 | 0.0211 | 0.049 | 0.0809 | 0.0956 | 0.117 | 0.108 | 0.113 | 0.0967 |
| Boron (B)-Total (mg/L) | 0.06 | 0.059 | 0.087 | 0.066 | 0.049 | 0.049 | 0.047 | 0.03 | 0.031 | 0.074 | 0.083 | 0.101 | 0.093 | 0.101 | 0.083 |
| Calcium (Ca)-Total ( | 137 | 136 | 224 | 95.3 | 104 | 93.9 | 100 | 45.8 | 56.1 | 176 | 192 | 224 | 243 | 227 | 188 |
| Chromium (Cr)-Total (mg/L) | <0.001 | <0.001 | <0.0025 | 0.00091 | 0.0013 | <0.0005 | <0.001 | 0.00136 | 0.00219 | <0.001 | <0.0025 | <0.0025 | <0.001 | <0.0025 | <0.0025 |
| Cobalt (Co)-Total (m | <0.0002 | <0.0002 | <0.0005 | 0.00015 | 0.00046 | 0.0001 | 0.00034 | 0.00022 | 0.00138 | <0.0002 | <0.0005 | <0.0005 | <0.0002 | <0.0005 | <0.0005 |
| Magnesium (Mg)-Total (mg/L) | 26.3 | 23.4 | 46.3 | 16.2 | 21.8 | 18.8 | 19.9 | 8.1 | 10.2 | 37.6 | 41.9 | 49.2 | 49.1 | 45.1 | 40.1 |
| Nickel (Ni)-Total (mg/L) | <0.001 | <0.001 | <0.0025 | <0.0005 | 0.0013 | 0.00095 | 0.0011 | 0.00114 | 0.0023 | 0.0022 | <0.0025 | <0.0025 | 0.0027 | <0.0025 | <0.0025 |
| Silicon (Si)-Total (mg/L) | 6.67 | 6.4 | 7.36 | 6.69 | 7.09 | 5.6 | 6.12 | 5.54 | 7.52 | 6.06 | 5.96 | 6.57 | 6.55 | 6.3 | 6 |
| Silver (Ag)-Total (mg/L) | <0.00002 | <0.00002 | <0.00005 | <0.00001 | 0.000026 | 0.000012 | <0.00002 | <0.00001 | 0.000023 | <0.00002 | <0.00005 | <0.00005 | <0.00002 | <0.00005 | <0.00005 |
| Sodium (Na)-Total (mg/L) | 9.68 | 8.03 | 16.1 | 6.99 | 7.41 | 7.03 | 7.09 | 3.3 | 3.56 | 12.2 | 14.3 | 17.3 | 16.6 | 15.2 | 13.9 |
| Strontium (Sr)-Total (mg/L) | 1.1 | 1.24 | 2.2 | 0.763 | 1.17 | 1.13 | 0.903 | 0.45 | 0.519 | 2.01 | 2.44 | 2.79 | 2.76 | 2.43 | 2.06 |
| Tin (Sn)-Total (mg/L) | <0.0002 | <0.0002 | <0.0005 | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0005 | <0.0005 | <0.0002 | <0.0005 | 0.00085 |
| Total Aluminum (mg/L) | 0.023 | 0.0121 | 0.0317 | 0.274 | 0.793 | 0.181 | 0.439 | 0.433 | 1.44 | 0.0326 | 0.0236 | 0.029 | 0.0396 | 0.0456 | 0.0698 |
| Total Cadmium (mg/L) | 0.000036 | <0.000034 | | 0.000036 | 0.000052 | 0.000064 | 0.000069 | <0.000017 | 0.000099 | 0.000061 | <0.000085 | 0.000108 | 0.000078 | 0.000115 | <0.000085 |
| Total Copper (mg/L) | 0.00614 | 0.00429 | 0.00856 | 0.00703 | 0.0163 | 0.00823 | 0.0118 | 0.0108 | 0.0304 | 0.00746 | 0.00668 | 0.00758 | 0.00674 | 0.00729 | 0.00689 |
| Total Iron (mg/L) | <0.03 | <0.03 | 0.068 | 0.259 | 0.763 | 0.167 | 0.471 | 0.355 | 1.91 | 0.035 | <0.03 | <0.03 | 0.039 | 0.047 | 0.059 |
| Total Lead (mg/L) | <0.0001 | <0.0001 | <0.00025 | 0.000078 | 0.00024 | 0.000257 | 0.00015 | 0.00018 | 0.00128 | <0.0001 | <0.00025 | <0.00025 | <0.0001 | <0.00025 | <0.00025 |
| Total Manganese (mg/L) | 0.0074 | 0.00286 | 0.0095 | 0.0137 | 0.135 | 0.0628 | 0.108 | 0.0407 | 0.451 | 0.00685 | 0.00535 | 0.007 | 0.0106 | 0.0131 | 0.0125 |
| Total Molybdenum (mg/L) | 0.0238 | 0.0202 | 0.0349 | 0.0169 | 0.0368 | 0.0371 | 0.041 | 0.0163 | 0.016 | 0.0565 | 0.0516 | 0.0627 | 0.0578 | 0.0373 | 0.0294 |
| Total Selenium (mg/L) | 0.0077 | 0.0058 | 0.0093 | 0.0029 | 0.0087 | 0.0105 | 0.0145 | 0.0061 | 0.0072 | 0.0324 | 0.0281 | 0.0305 | 0.0268 | 0.0211 | 0.0159 |
| Zinc (Zn)-Total (mg/L) | <0.004 | <0.002 | <0.005 | <0.002 | 0.005 | 0.0014 | <0.004 | 0.0026 | 0.0119 | <0.002 | <0.005 | <0.005 | <0.002 | <0.005 | <0.005 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6-Oct-09 | 14-Oct-09 | 21-Oct-09 | 22-Oct-09 | 29-Oct-09 | 10-Nov-09 | 16-Dec-09 | 13-Jan-10 | 10-Feb-10 | 3-Mar-10 | 7-Apr-10 | 15-Apr-10 | 21-Apr-10 | 28-Apr-10 | 4-May-10 |
| Diss-Zinc (Zn) (mg/L) | <0.002 | <0.005 | <0.005 | <0.005 | <0.002 | <0.001 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| TDS (mg/L) | 855 | 594 | 938 | 920 | 649 | 316 | 892 | <3 | <3 | <3 | 3.5 | <3 | 16.3 | 4 | 148 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 179 | 208 | 175 | 169 | 159 | 138 | 159 | 172 | 176 | 164 | 93.4 | 104 | 72.1 | 78 | 82 |
| Hardness (mg/L) | 657 | 453 | 747 | 739 | 484 | 243 | 665 | 690 | 749 | 271 | 143 | 153 | 100 | 106 | 115 |
| NTU (ntu) | 1.1 | 1.6 | 1.43 | 1.34 | 0.82 | 2.95 | 0.53 | 0.33 | 0.36 | 3.1 | 7.85 | 4.3 | 13 | 4.51 | 12.8 |
| TDS (mg/L) | 855 | 594 | 938 | 920 | 649 | 316 | 892 | <3 | <3 | <3 | 3.5 | <3 | 16.3 | 4 | 148 |
| TSS (mg/L) | <3 | 4.3 | 3.6 | 4.2 | <3 | 5.7 | <3 | 970 | 1060 | 337 | 178 | 195 | 131 | 127 | 16.3 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00024 | <0.0005 | <0.0005 | <0.0005 | <0.0002 | 0.00016 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00013 | 0.00013 | 0.00012 | 0.00012 | 0.00013 |
| Arsenic (As)-Total ( | <0.0007 | 0.00059 | 0.00064 | 0.00065 | 0.00055 | 0.00052 | <0.0005 | 0.0006 | 0.00064 | 0.00057 | 0.00045 | 0.00039 | 0.00051 | 0.00036 | 0.00043 |
| Barium (Ba)-Total | 0.0852 | 0.0631 | 0.0948 | 0.0952 | 0.0623 | 0.0334 | 0.0974 | 0.0923 | 0.102 | 0.0341 | 0.0204 | 0.0203 | 0.0191 | 0.014 | 0.0176 |
| Boron (B)-Total (mg/L) | 0.076 | 0.067 | 0.083 | 0.083 | 0.062 | 0.053 | <0.05 | 0.077 | 0.082 | 0.063 | 0.041 | 0.041 | 0.026 | 0.029 | 0.032 |
| Calcium (Ca)-Total ( | 197 | 135 | 215 | 212 | 144 | 76.7 | 198 | 198 | 215 | 82.2 | 48.8 | 50.3 | 32.6 | 35.3 | 40.6 |
| Chromium (Cr)-Total (mg/L) | <0.001 | <0.0025 | <0.0025 | <0.0025 | <0.001 | 0.00067 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | 0.00079 | 0.00066 | 0.00133 | 0.00062 | 0.00103 |
| Cobalt (Co)-Total (m | <0.0002 | <0.0005 | <0.0005 | <0.0005 | <0.0002 | 0.00018 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00023 | 0.00016 | 0.00043 | 0.00015 | 0.00027 |
| Magnesium (Mg)-Total (mg/L) | 39.7 | 25.8 | 46.4 | 46.4 | 27.6 | 13 | 39 | 43.8 | 46 | 14.7 | 6.56 | 7 | 3.95 | 4.13 | 4.43 |
| Nickel (Ni)-Total (mg/L) | <0.001 | <0.0025 | <0.0025 | <0.0025 | <0.001 | <0.0005 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | 0.00065 | <0.0005 | 0.001 | 0.00051 | 0.00086 |
| Silicon (Si)-Total (mg/L) | 6.29 | 5.81 | 6.04 | 5.97 | 5.47 | 6.38 | 5.75 | 5.87 | 5.71 | 6.03 | 6.31 | 6.14 | 6.94 | 5.69 | 6.46 |
| Silver (Ag)-Total (mg/L) | <0.00002 | <0.00005 | <0.00005 | <0.00005 | <0.00002 | <0.00001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00001 | <0.00001 | 0.000021 | <0.00001 | <0.00001 |
| Sodium (Na)-Total (mg/L) | 12.5 | 9.63 | 14.9 | 15 | 10 | 5.03 | 12.3 | 14 | 15.8 | 5.89 | 2.9 | 2.9 | 1.86 | 1.93 | 2.2 |
| Strontium (Sr)-Total (mg/L) | 2.09 | 1.41 | 2.13 | 2.19 | 1.41 | 0.618 | 1.57 | 2.19 | 2.49 | 0.665 | 0.273 | 0.299 | 0.152 | 0.156 | 0.185 |
| Tin (Sn)-Total (mg/L) | <0.0002 | <0.0005 | <0.0005 | <0.0005 | <0.0002 | <0.0001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Aluminum (mg/L) | 0.0537 | 0.0496 | 0.0646 | 0.0639 | 0.0311 | 0.29 | 0.0394 | 0.0177 | 0.0103 | 0.269 | 0.56 | 0.337 | 1.01 | 0.316 | 0.712 |
| Total Cadmium (mg/L) | 0.000034 | 0.000093 | 0.000108 | 0.000108 | <0.000034 | 0.000023 | <0.000085 | 0.000113 | 0.000118 | <0.000085 | 0.000027 | 0.000023 | 0.000032 | 0.000032 | 0.000026 |
| Total Copper (mg/L) | 0.0062 | 0.00729 | 0.00717 | 0.00689 | 0.00482 | 0.0103 | 0.00696 | 0.00609 | 0.00587 | 0.00678 | 0.00739 | 0.00653 | 0.0138 | 0.00899 | 0.0102 |
| Total Iron (mg/L) | 0.054 | 0.056 | 0.061 | 0.068 | 0.033 | 0.413 | 0.04 | <0.03 | <0.03 | 0.246 | 0.442 | 0.285 | 0.842 | 0.272 | 0.546 |
| Total Lead (mg/L) | <0.0001 | <0.00025 | <0.00025 | <0.00025 | <0.0001 | 0.000114 | <0.00025 | <0.00025 | <0.00025 | <0.00025 | 0.000135 | 0.000056 | 0.000297 | 0.00009 | 0.000171 |
| Total Manganese (mg/L) | 0.0117 | 0.0109 | 0.0125 | 0.0127 | 0.00635 | 0.0458 | 0.00716 | 0.0161 | 0.00246 | 0.00861 | 0.0104 | 0.0142 | 0.0246 | 0.0075 | 0.0118 |
| Total Molybdenum (mg/L) | 0.0277 | 0.0233 | 0.0325 | 0.0325 | 0.0228 | 0.0148 | 0.0222 | 0.0342 | 0.0394 | 0.0173 | 0.00889 | 0.00913 | 0.00627 | 0.00662 | 0.00733 |
| Total Selenium (mg/L) | 0.0151 | 0.0097 | 0.0174 | 0.019 | 0.0109 | 0.0038 | 0.0192 | 0.0197 | 0.0204 | <0.005 | 0.0015 | 0.0014 | <0.001 | <0.001 | <0.001 |
| Zinc (Zn)-Total (mg/L) | <0.002 | <0.005 | <0.005 | <0.005 | <0.002 | 0.0019 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0017 | <0.001 | 0.0031 | 0.0012 | 0.0026 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12-May-10 | 19-May-10 | 3-Jun-10 | 8-Jul-10 | 4-Aug-10 | 1-Sep-10 | 23-Sep-10 | 30-Sep-10 | 7-Oct-10 | 14-Oct-10 | 21-Oct-10 | 28-Oct-10 | 3-Nov-10 | 10-Jan-11 | 9-Feb-11 |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | <0.002 | <0.001 | <0.001 | <0.001 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| TDS (mg/L) | 153 | 173 | 747 | 205 | 222 | 231 | 204 | 211 | 233 | 216 | 221 | 216 | 213 | 275 | 783 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 94.4 | 107 | 143 | 134 | 157 | 158 | 143 | 156 | 161 | 163 | 158 | 158 | 156 | 144 | 143 |
| Hardness (mg/L) | 146 | 145 | 548 | 179 | 188 | 197 | 188 | 193 | 186 | 194 | 207 | 193 | 187 | 225 | 574 |
| NTU (ntu) | 2.49 | 1.96 | 4.25 | 5.94 | 3 | 8.48 | 1.48 | 2.16 | 1.44 | 5.6 | 1.01 | 1.83 | 1.56 | 14.3 | 1.83 |
| TDS (mg/L) | 153 | 173 | 747 | 205 | 222 | 231 | 204 | 211 | 233 | 216 | 221 | 216 | 213 | 275 | 783 |
| TSS (mg/L) | <3 | <3 | 7.3 | 11 | 5.8 | 13.1 | 8 | 4.5 | <3 | 14.7 | <3 | <3 | <3 | 28 | 3.5 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00013 | 0.00013 | <0.0002 | 0.00017 | 0.00016 | 0.00014 | 0.00013 | 0.00012 | 0.00012 | 0.00012 | 0.00012 | 0.00012 | 0.00011 | <0.0001 | <0.0001 |
| Arsenic (As)-Total ( | 0.00029 | 0.00033 | <0.0005 | 0.00088 | 0.00049 | 0.00057 | 0.00046 | 0.00038 | 0.00041 | 0.00042 | 0.00035 | 0.0004 | 0.00037 | 0.00046 | 0.00038 |
| Barium (Ba)-Total | 0.0149 | 0.0172 | 0.0749 | 0.0457 | 0.0295 | 0.0287 | 0.026 | 0.0239 | 0.0252 | 0.0262 | 0.0251 | 0.0245 | 0.0237 | 0.0283 | 0.0717 |
| Boron (B)-Total (mg/L) | 0.037 | 0.043 | 0.065 | 0.056 | 0.063 | 0.064 | 0.058 | 0.059 | 0.063 | 0.063 | 0.058 | 0.069 | 0.059 | 0.051 | 0.053 |
| Calcium (Ca)-Total ( | 47.5 | 47.3 | 166 | 59.1 | 61.1 | 62.6 | 65.6 | 62.6 | 61.8 | 65.5 | 70.1 | 64.2 | 62.5 | 73.4 | 182 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | <0.0005 | <0.001 | 0.00281 | 0.00075 | 0.00102 | 0.00072 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00078 | <0.0005 |
| Cobalt (Co)-Total (m | <0.0001 | <0.0001 | <0.0002 | 0.00095 | 0.00017 | 0.00025 | 0.00013 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0002 | <0.0001 |
| Magnesium (Mg)-Total (mg/L) | 4.89 | 5.52 | 29.5 | 8.14 | 8.11 | 8.57 | 8.25 | 7.76 | 8.32 | 8.39 | 8.51 | 8.59 | 7.92 | 10.5 | 32.6 |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.0005 | <0.001 | 0.00207 | 0.00054 | 0.00076 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00051 | <0.0005 |
| Silicon (Si)-Total (mg/L) | 5.9 | 5.9 | 6.18 | 10 | 6.77 | 7.38 | 7.44 | 6.58 | 6.51 | 6.96 | 6.67 | 6.51 | 6.71 | 6.59 | 5.93 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00006 | <0.00002 | 0.000023 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Sodium (Na)-Total (mg/L) | 2.26 | 2.68 | 9.76 | 3.57 | 4.01 | 3.77 | 3.55 | 3.57 | 3.91 | 3.93 | 3.87 | 4.16 | 3.86 | 4.35 | 9.32 |
| Strontium (Sr)-Total (mg/L) | 0.206 | 0.246 | 1.23 | 0.388 | 0.396 | 0.389 | 0.363 | 0.351 | 0.381 | 0.387 | 0.39 | 0.408 | 0.381 | 0.504 | 1.4 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Aluminum (mg/L) | 0.161 | 0.126 | 0.233 | 1.9 | 0.351 | 0.548 | 0.283 | 0.121 | 0.102 | 0.149 | 0.0516 | 0.0941 | 0.0769 | 0.404 | 0.0802 |
| Total Cadmium (mg/L) | 0.000022 | 0.000052 | <0.000034 | 0.000081 | 0.000025 | 0.000016 | 0.000011 | <0.00001 | 0.000011 | 0.000011 | <0.00001 | <0.00001 | <0.00001 | 0.000016 | 0.000017 |
| Total Copper (mg/L) | 0.0068 | 0.0068 | 0.00686 | 0.018 | 0.00638 | 0.00749 | 0.00621 | 0.00472 | 0.00461 | 0.00478 | 0.00367 | 0.00398 | 0.00385 | 0.00574 | 0.00357 |
| Total Iron (mg/L) | 0.152 | 0.098 | 0.22 | 1.66 | 0.302 | 0.488 | 0.24 | 0.111 | 0.097 | 0.147 | 0.044 | 0.079 | 0.068 | 0.376 | 0.065 |
| Total Lead (mg/L) | <0.00005 | 0.000066 | 0.00013 | 0.000568 | 0.000102 | 0.00015 | 0.000067 | 0.000051 | 0.000062 | 0.000054 | <0.00005 | <0.00005 | <0.00005 | 0.000134 | <0.00005 |
| Total Manganese (mg/L) | 0.0046 | 0.00578 | 0.0149 | 0.136 | 0.0339 | 0.0242 | 0.014 | 0.00893 | 0.0077 | 0.0142 | 0.00626 | 0.00925 | 0.00736 | 0.0325 | 0.00707 |
| Total Molybdenum (mg/L) | 0.00812 | 0.00952 | 0.0253 | 0.0115 | 0.0134 | 0.0132 | 0.0121 | 0.0116 | 0.0126 | 0.0127 | 0.0124 | 0.0126 | 0.0125 | 0.0133 | 0.0153 |
| Total Selenium (mg/L) | <0.001 | 0.0012 | 0.0206 | 0.0017 | 0.0016 | 0.0016 | 0.0016 | 0.0015 | 0.0016 | 0.0017 | 0.0017 | 0.0018 | 0.0018 | 0.00406 | 0.0135 |
| Zinc (Zn)-Total (mg/L) | 0.0011 | 0.0017 | <0.002 | 0.0049 | <0.001 | 0.0031 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | 0.0044 | <0.003 | <0.003 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **15-Feb-11** | **7-Mar-11** | **5-Apr-11** | **4-May-11** | **11-May-11** | **18-May-11** | **26-May-11** | **1-Jun-11** | **9-Jun-11** | **14-Jul-11** | **4-Aug-11** | **8-Sep-11** | **20-Sep-11** | **30-Sep-11** | **6-Oct-11** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 382 | 309 | 266 | 163 | 140 | 119 | 127 | 136 | 153 | 187 | 190 | 215 | 218 | 216 | 222 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 146 | 149 | 145 | 64.1 | 51.2 | 50.2 | 61.3 | 69.6 | 85.3 | 117 | 117 | 146 | 147 | 154 | 151 |
| Hardness (mg/L) | 297 | 237 | 222 | 95.6 | 79.3 | 72.1 | 91.8 | 101 | 122 | 163 | 160 | 181 | 181 | 179 | 187 |
| NTU (ntu) | 0.71 | 0.35 | 4.26 | 45.6 | 83.2 | 21.2 | 7.1 | 4.7 | 3.28 | 2.4 | 3.37 | 3.09 | 2.39 | 1.39 | 1.51 |
| TDS (mg/L) | 382 | 309 | 266 | 163 | 140 | 119 | 127 | 136 | 153 | 187 | 190 | 215 | 218 | 216 | 222 |
| TSS (mg/L) | <3.0 | <3 | 10.2 | 44.5 | 111 | 26.9 | 5.9 | 3.2 | <3 | <3 | 3.3 | 3 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.0001 | <0.0001 | 0.00013 | 0.00015 | 0.00012 | 0.00012 | 0.00012 | 0.00012 | 0.00016 | <0.0001 | 0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.0003 | 0.00036 | 0.00037 | 0.00072 | 0.00166 | 0.00073 | 0.00043 | 0.00037 | 0.00035 | 0.00034 | 0.00036 | 0.00036 | 0.00036 | 0.00034 | 0.00033 |
| Barium (Ba)-Total | 0.0341 | 0.0292 | 0.0272 | 0.027 | 0.0571 | 0.0225 | 0.0134 | 0.0136 | 0.0148 | 0.0187 | 0.0203 | 0.0235 | 0.0225 | 0.0219 | 0.021 |
| Boron (B)-Total (mg/L) | 0.055 | 0.051 | 0.061 | 0.032 | 0.026 | 0.023 | 0.029 | 0.03 | 0.037 | 0.047 | 0.041 | 0.05 | 0.051 | 0.051 | 0.045 |
| Calcium (Ca)-Total ( | 96 | 79.1 | 71.6 | 32.4 | 30 | 24.3 | 31.8 | 35.4 | 42.5 | 55.3 | 54.9 | 61.1 | 60.7 | 60.2 | 64 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.0005 | <0.0005 | 0.00216 | 0.00767 | 0.00262 | 0.00102 | 0.00072 | 0.00058 | 0.00058 | 0.00056 | <0.00050 | 0.00053 | 0.00051 | <0.00050 |
| Cobalt (Co)-Total (m | <0.00010 | <0.0001 | <0.0001 | 0.00064 | 0.00248 | 0.00078 | 0.00022 | 0.00015 | <0.0001 | <0.0001 | 0.00011 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 15.1 | 12 | 10.8 | 4.44 | 5.01 | 3.3 | 3.49 | 3.99 | 4.93 | 6.17 | 6.27 | 7.31 | 7.32 | 7.65 | 7.53 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.0005 | <0.0005 | 0.00161 | 0.00601 | 0.002 | 0.0007 | 0.0046 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 5.76 | 5.96 | 6.29 | 7.71 | 15.1 | 8.06 | 6.58 | 6.73 | 6.5 | 6.64 | 7.13 | 6.98 | 6.98 | 6.74 | 6.76 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.00001 | <0.00001 | 0.000018 | 0.000044 | 0.00003 | 0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 5.47 | 5.26 | 4.35 | 2.03 | 1.99 | 1.61 | 1.75 | 1.97 | 2.32 | 2.8 | 2.69 | 3.28 | 3.45 | 3.46 | 3.41 |
| Strontium (Sr)-Total (mg/L) | 0.691 | 0.543 | 0.485 | 0.171 | 0.137 | 0.0956 | 0.124 | 0.145 | 0.2 | 0.251 | 0.253 | 0.299 | 0.333 | 0.317 | 0.308 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0187 | 0.0237 | 0.148 | 1.41 | 5.13 | 1.67 | 0.605 | 0.357 | 0.205 | 0.13 | 0.236 | 0.156 | 0.171 | 0.0848 | 0.0518 |
| Total Cadmium (mg/L) | <0.000010 | <0.00001 | 0.000014 | 0.000025 | 0.000056 | 0.000026 | 0.000013 | 0.000014 | 0.000011 | 0.000012 | 0.000011 | 0.000011 | 0.000011 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.0027 | 0.00281 | 0.0045 | 0.0159 | 0.0373 | 0.0222 | 0.0145 | 0.0201 | 0.0085 | 0.00596 | 0.00693 | 0.00481 | 0.00463 | 0.00376 | 0.00348 |
| Total Iron (mg/L) | <0.030 | <0.03 | 0.135 | 1.12 | 4.66 | 1.46 | 0.455 | 0.302 | 0.158 | 0.112 | 0.217 | 0.143 | 0.175 | 0.118 | 0.06 |
| Total Lead (mg/L) | <0.000050 | <0.00005 | <0.00005 | 0.000389 | 0.00146 | 0.000446 | 0.000153 | 0.00009 | <0.00005 | <0.00005 | 0.000058 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.00141 | 0.00241 | 0.00662 | 0.0316 | 0.117 | 0.0355 | 0.00898 | 0.00671 | 0.00493 | 0.00876 | 0.01 | 0.0158 | 0.0161 | 0.0137 | 0.0151 |
| Total Molybdenum (mg/L) | 0.0132 | 0.0136 | 0.0122 | 0.00454 | 0.00409 | 0.00343 | 0.00505 | 0.00539 | 0.00668 | 0.00754 | 0.00777 | 0.00873 | 0.0092 | 0.00941 | 0.00898 |
| Total Selenium (mg/L) | 0.00678 | 0.00411 | 0.00313 | 0.00103 | 0.00135 | 0.00105 | 0.00103 | 0.00106 | 0.00111 | 0.00109 | 0.00091 | 0.00111 | 0.00111 | 0.00106 | 0.0011 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.003 | <0.003 | 0.0052 | 0.0122 | 0.0047 | <0.003 | 0.0073 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **12-Oct-11** | **19-Oct-11** | **1-Nov-11** | **5-Dec-11** | **5-Jan-12** | **7-Feb-12** | **15-Mar-12** | **3-Apr-12** | **11-Apr-12** | **26-Apr-12** | **3-May-12** | **10-May-12** | **16-May-12** | **24-May-12** | **7-Jun-12** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0058 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 216 | 214 | 204 | 198 | 185 | 186 | 189 | 218 | 201 | 315 | 301 | 245 | 149 | 171 | 228 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 153 | 152 | 147 | 139 | 137 | 139 | 144 | 145 | 79.2 | 84.5 | 69 | 65.8 | 73.8 | 94.5 | 98.5 |
| Hardness (mg/L) | 187 | 185 | 177 | 166 | 169 | 165 | 165 | 187 | 127 | 227 | 206 | 172 | 118 | 131 | 186 |
| NTU (ntu) | 1.59 | 2.38 | 1.31 | 1.48 | 2.46 | 1.88 | 0.41 | 1.9 | 25.9 | 147 | 4.19 | 2.79 | 2.32 | 2.16 | 9.87 |
| TDS (mg/L) | 216 | 214 | 204 | 198 | 185 | 186 | 189 | 218 | 201 | 315 | 301 | 245 | 149 | 171 | 228 |
| TSS (mg/L) | <3.0 | 5.9 | <3.0 | <3.0 | <3.0 | 5 | <3.0 | <3.0 | 8.9 | 329 | 4.7 | 11.5 | <3.0 | 3.2 | 4.5 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | 0.00011 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.0001 | 0.00028 | 0.00014 | 0.00015 | 0.00014 | 0.00011 | 0.00013 |
| Arsenic (As)-Total ( | 0.00037 | 0.00033 | 0.0003 | 0.00029 | 0.00029 | 0.00029 | 0.00029 | 0.00035 | 0.00101 | 0.0047 | 0.0005 | 0.00042 | 0.00032 | 0.00032 | 0.00062 |
| Barium (Ba)-Total | 0.0233 | 0.0233 | 0.0199 | 0.0172 | 0.018 | 0.0181 | 0.0176 | 0.0206 | 0.027 | 0.12 | 0.0254 | 0.0208 | 0.0152 | 0.0159 | 0.0261 |
| Boron (B)-Total (mg/L) | 0.054 | 0.053 | 0.048 | 0.035 | 0.044 | 0.038 | 0.044 | 0.049 | 0.03 | 0.031 | 0.03 | 0.032 | 0.032 | 0.027 | 0.041 |
| Calcium (Ca)-Total ( | 64.3 | 63.3 | 59.5 | 53.5 | 56.6 | 53.9 | 56.8 | 62.6 | 42.1 | 75.2 | 67.7 | 54.9 | 39.4 | 43.9 | 60.2 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00324 | 0.0124 | 0.0007 | 0.00057 | 0.00051 | <0.00050 | 0.0015 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00084 | 0.00632 | 0.00023 | 0.00013 | <0.00010 | <0.00010 | 0.0004 |
| Magnesium (Mg)-Total (mg/L) | 7.54 | 7.66 | 7.18 | 6.63 | 7.01 | 6.92 | 6.67 | 7.99 | 6.32 | 14.6 | 10.9 | 8.92 | 5.14 | 5.68 | 8.14 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00251 | 0.0118 | 0.00063 | <0.00050 | <0.00050 | <0.00050 | 0.0235 |
| Silicon (Si)-Total (mg/L) | 6.73 | 6.74 | 6.18 | 5.7 | 5.95 | 5.96 | 5.7 | 6.17 | 9.15 | 24.3 | 6.44 | 5.98 | 5.71 | 6.3 | 7.42 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000035 | 0.000132 | 0.000019 | 0.000014 | 0.00001 | <0.000010 | 0.000018 |
| Sodium (Na)-Total (mg/L) | 3.65 | 3.60 | 3.29 | 3.09 | 3.13 | 3.26 | 3.18 | 3.42 | 2.44 | 4.33 | 3.79 | 3.1 | 2.35 | 2.42 | 3.19 |
| Strontium (Sr)-Total (mg/L) | 0.331 | 0.333 | 0.292 | 0.288 | 0.292 | 0.285 | 0.268 | 0.325 | 0.213 | 0.486 | 0.486 | 0.396 | 0.217 | 0.199 | 0.338 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.125 | 0.0682 | 0.0586 | 0.0457 | 0.0594 | 0.0732 | <0.030 | 0.165 | 2.06 | 10.5 | 0.422 | 0.272 | 0.218 | 0.166 | 0.793 |
| Total Cadmium (mg/L) | 0.000012 | 0.000012 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000012 | 0.000019 | 0.000149 | 0.000023 | 0.000016 | 0.00001 | 0.000012 | 0.000021 |
| Total Copper (mg/L) | 0.00413 | 0.00372 | <0.0035 | 0.00292 | 0.00315 | 0.00299 | 0.00221 | 0.00398 | 0.0376 | 0.331 | 0.0191 | 0.012 | 0.0105 | 0.00804 | 0.014 |
| Total Iron (mg/L) | 0.133 | 0.079 | 0.059 | 0.05 | 0.066 | 0.08 | <0.030 | 0.142 | 1.83 | 10.1 | 0.384 | 0.225 | 0.165 | 0.163 | 0.748 |
| Total Lead (mg/L) | <0.000050 | 0.000497 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000487 | 0.00436 | 0.000119 | 0.000072 | 0.000061 | <0.000050 | 0.000207 |
| Total Manganese (mg/L) | 0.0171 | 0.0152 | 0.0123 | 0.0091 | 0.00995 | 0.00608 | 0.00728 | 0.00881 | 0.0347 | 0.401 | 0.00936 | 0.00513 | 0.00412 | 0.00642 | 0.0161 |
| Total Molybdenum (mg/L) | 0.00991 | 0.0102 | 0.00902 | 0.00909 | 0.00924 | 0.0099 | 0.00945 | 0.0093 | 0.00472 | 0.0114 | 0.0122 | 0.00928 | 0.00746 | 0.00628 | 0.00811 |
| Total Selenium (mg/L) | 0.00121 | 0.00128 | 0.00134 | 0.00155 | 0.00166 | 0.00192 | 0.00186 | 0.00217 | 0.00096 | 0.00621 | 0.00795 | 0.00604 | 0.00213 | 0.00176 | 0.00233 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | 0.0045 | <0.0030 | <0.0030 | <0.0030 | 0.0087 | 0.0069 | 0.0328 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0033 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **5-Jul-12** | **2-Aug-12** | **6-Sep-12** | **3-Oct-12** | **11-Oct-12** | **18-Oct-12** | **25-Oct-12** | **31-Oct-12** | **5-Nov-12** | **6-Dec-12** | **3-Jan-13** | **7-Feb-13** | **19-Feb-13** | **14-Mar-13** | **4-Apr-13** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | <0.0030 | | |
| TDS (mg/L) | 241 | 230 | 232 | 232 | 222 | 215 | 199 | 203 | 199 | 194 | 196 | 199 | 198 | 200 | 172 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 100 | 138 | 141 | 151 | 146 | 153 | 131 | 143 | 122 | 123 | 130 | 141 | 136 | 136 | 85.6 |
| Hardness (mg/L) | 182 | 181 | 204 | 193 | 191 | 190 | 172 | 172 | 169 | 155 | 165 | 171 | 169 | 174 | 130 |
| NTU (ntu) | 3.25 | 0.8 | 1.85 | 0.45 | 0.31 | 0.56 | 6.84 | 2.14 | 3.4 | 0.69 | 1.43 | 1.06 | 0.6 | 4.64 | 11.6 |
| TDS (mg/L) | 241 | 230 | 232 | 232 | 222 | 215 | 199 | 203 | 199 | 194 | 196 | 199 | 198 | 200 | 172 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | 17.1 | 10.7 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | 5.6 | 5.1 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00012 | 0.00012 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00013 |
| Arsenic (As)-Total ( | 0.00037 | 0.00035 | 0.00036 | 0.00034 | 0.00034 | 0.00033 | 0.00032 | 0.0003 | 0.00034 | 0.00029 | 0.00031 | 0.0003 | 0.00027 | 0.00038 | 0.00125 |
| Barium (Ba)-Total | 0.0229 | 0.0234 | 0.0231 | 0.0218 | 0.0219 | 0.0216 | 0.0195 | 0.0196 | 0.0196 | 0.0168 | 0.0176 | 0.0181 | 0.0188 | 0.0204 | 0.0216 |
| Boron (B)-Total (mg/L) | 0.035 | 0.044 | 0.05 | 0.044 | 0.045 | 0.044 | 0.04 | 0.035 | 0.039 | 0.039 | 0.03 | 0.037 | 0.043 | 0.043 | 0.03 |
| Calcium (Ca)-Total ( | 60 | 62.6 | 67.3 | 66.1 | 66.9 | 64.2 | 57.9 | 53.6 | 54.7 | 52 | 55.1 | 56.5 | 57 | 58.6 | 42.5 |
| Chromium (Cr)-Total (mg/L) | 0.00059 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00052 | 0.00183 |
| Cobalt (Co)-Total (m | 0.00011 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00014 | 0.00044 |
| Magnesium (Mg)-Total (mg/L) | 8.33 | 7.78 | 7.72 | 7.65 | 7.66 | 7.31 | 6.78 | 6.74 | 6.92 | 6.49 | 6.44 | 7.2 | 7.3 | 6.83 | 5.75 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00136 |
| Silicon (Si)-Total (mg/L) | 6.82 | 6.66 | 6.78 | 6.62 | 6.49 | 6.34 | 6.16 | 5.67 | 6.03 | 5.74 | 5.66 | 5.94 | 6 | 5.91 | 7.86 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000018 |
| Sodium (Na)-Total (mg/L) | 3.28 | 3.5 | 3.6 | 3.6 | 3.52 | 3.46 | 3.18 | 3.03 | 3.02 | 2.83 | 3.06 | 3.13 | 3.18 | 3.15 | 2.39 |
| Strontium (Sr)-Total (mg/L) | 0.3 | 0.32 | 0.331 | 0.316 | 0.331 | 0.299 | 0.29 | 0.29 | 0.277 | 0.282 | 0.265 | 0.283 | 0.302 | 0.269 | 0.214 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00015 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.257 | 0.0562 | 0.0413 | 0.0209 | 0.0168 | 0.053 | 0.111 | 0.101 | 0.185 | 0.0381 | 0.0619 | 0.0684 | 0.0222 | 0.282 | 1.12 |
| Total Cadmium (mg/L) | 0.000012 | 0.000014 | 0.000011 | <0.000010 | <0.000010 | 0.000011 | 0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000012 | 0.000012 |
| Total Copper (mg/L) | 0.0075 | 0.00495 | 0.00377 | 0.00334 | 0.003 | 0.00384 | 0.00424 | 0.00443 | 0.00581 | 0.00338 | 0.00422 | 0.00362 | 0.00558 | 0.00598 | 0.0134 |
| Total Iron (mg/L) | 0.209 | 0.047 | 0.044 | <0.030 | <0.030 | 0.062 | 0.123 | 0.118 | 0.17 | 0.046 | 0.075 | 0.086 | <0.030 | 0.266 | 0.979 |
| Total Lead (mg/L) | 0.000053 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000186 | 0.000075 | 0.000233 |
| Total Manganese (mg/L) | 0.00583 | 0.00964 | 0.0128 | 0.0132 | 0.0153 | 0.0254 | 0.0139 | 0.0145 | 0.008 | 0.0352 | 0.0325 | 0.022 | 0.00341 | 0.0143 | 0.0169 |
| Total Molybdenum (mg/L) | 0.00599 | 0.00805 | 0.00922 | 0.00906 | 0.00968 | 0.00863 | 0.00862 | 0.0084 | 0.00787 | 0.00886 | 0.00867 | 0.00921 | 0.0103 | 0.00855 | 0.00544 |
| Total Selenium (mg/L) | 0.00258 | 0.00142 | 0.00109 | 0.00103 | 0.00122 | 0.00116 | 0.00121 | 0.0014 | 0.00142 | 0.00171 | 0.00183 | 0.00206 | 0.00206 | 0.00205 | 0.00107 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0031 |

| | E225124 : W4 - North Dump Creek at road | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8-Apr-13 | 18-Apr-13 | 25-Apr-13 | 2-May-13 | 9-May-13 | 16-May-13 | 6-Jun-13 | 10-Jul-13 | 8-Aug-13 | 5-Sep-13 | 24-Sep-13 | 3-Oct-13 | 10-Oct-13 | 17-Oct-13 | 24-Oct-13 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | | | | | | | | | | |
| TDS (mg/L) | 128 | 154 | 148 | 127 | | | 159 | 200 | 214 | 224 | | 210 | | | |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 58.5 | 72 | 67.6 | 56.3 | | | 87.8 | 118 | 137 | 152 | | 133 | | | |
| Hardness (mg/L) | 86.7 | 102 | 113 | 95.3 | | | 117 | 149 | 172 | 179 | | 170 | | | |
| NTU (ntu) | 7.14 | 4.04 | 5.66 | 4.6 | 5.03 | 2.3 | 1.75 | 1.51 | 0.77 | 0.62 | 1.08 | 0.59 | 1.14 | 1.50 | 0.78 |
| TDS (mg/L) | 128 | 154 | 148 | 127 | | | 159 | 200 | 214 | 224 | | 210 | | | |
| TSS (mg/L) | 6.6 | <3.0 | 4.7 | <3.0 | 4.1 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | 0.00011 | <0.00010 | | | 0.00011 | <0.00010 | 0.0001 | 0.00011 | | <0.00010 | | | |
| Arsenic (As)-Total ( | 0.00045 | 0.00035 | 0.00057 | 0.00034 | | | 0.00032 | 0.00026 | 0.00037 | 0.0003 | | 0.00032 | | | |
| Barium (Ba)-Total | 0.0139 | 0.0142 | 0.0126 | 0.0116 | | | 0.0135 | 0.0187 | 0.0225 | 0.023 | | 0.0195 | | | |
| Boron (B)-Total (mg/L) | 0.023 | 0.023 | 0.022 | 0.02 | | | 0.028 | 0.035 | 0.042 | 0.049 | | 0.043 | | | |
| Calcium (Ca)-Total ( | 29.1 | 39.5 | 39 | 30.8 | | | 39.8 | 51.2 | 58.6 | 61 | | 57.7 | | | |
| Chromium (Cr)-Total (mg/L) | 0.00106 | 0.00068 | 0.00084 | 0.00051 | | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | | | |
| Cobalt (Co)-Total (m | 0.00027 | 0.00016 | 0.00016 | 0.00014 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | | |
| Magnesium (Mg)-Total (mg/L) | 3.39 | 4.59 | 3.5 | 3.18 | | | 4.26 | 5.04 | 6.18 | 6.51 | | 6.36 | | | |
| Nickel (Ni)-Total (mg/L) | 0.00081 | 0.00052 | <0.00050 | <0.00050 | | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | | | |
| Silicon (Si)-Total (mg/L) | 6.4 | 6.53 | 5.48 | 5.29 | | | 5.76 | 6.08 | 6.49 | 6.67 | | 6.51 | | | |
| Silver (Ag)-Total (mg/L) | 0.000019 | <0.000010 | 0.000018 | <0.000010 | | | <0.000010 | <0.000010 | <0.000010 | 0.000012 | | <0.000010 | | | |
| Sodium (Na)-Total (mg/L) | 1.72 | 2.06 | 2.01 | 1.67 | | | 1.96 | 2.46 | 3.15 | 3.16 | | 2.97 | | | |
| Strontium (Sr)-Total (mg/L) | 0.117 | 0.163 | 0.142 | 0.118 | | | 0.155 | 0.198 | 0.251 | 0.259 | | 0.252 | | | |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | | |
| Total Aluminum (mg/L) | 0.588 | 0.383 | 0.417 | 0.28 | | | 0.116 | 0.0596 | 0.0446 | 0.0335 | | 0.0315 | | | |
| Total Cadmium (mg/L) | 0.000012 | 0.000011 | 0.000014 | 0.000012 | | | 0.000011 | 0.000012 | 0.000012 | 0.000012 | | <0.000010 | | | |
| Total Copper (mg/L) | 0.0315 | 0.00892 | 0.0218 | 0.0106 | | | 0.00657 | 0.00493 | 0.00399 | 0.00393 | | 0.00356 | | | |
| Total Iron (mg/L) | 0.509 | 0.324 | 0.347 | 0.242 | | | 0.102 | 0.058 | 0.049 | 0.05 | | 0.039 | | | |
| Total Lead (mg/L) | 0.00016 | 0.000083 | 0.000116 | 0.000081 | | | <0.000050 | <0.000050 | 0.000052 | <0.000050 | | <0.000050 | | | |
| Total Manganese (mg/L) | 0.00988 | 0.00654 | 0.00863 | 0.00615 | | | 0.00649 | 0.0128 | 0.0243 | 0.035 | | 0.0203 | | | |
| Total Molybdenum (mg/L) | 0.00397 | 0.00485 | 0.00304 | 0.00408 | | | 0.00539 | 0.00608 | 0.0082 | 0.00909 | | 0.00841 | | | |
| Total Selenium (mg/L) | 0.00075 | 0.00139 | 0.00129 | 0.00136 | | | 0.00081 | 0.00082 | 0.00086 | 0.00078 | | 0.00081 | | | |
| Zinc (Zn)-Total (mg/L) | 0.0036 | <0.0030 | <0.0030 | <0.0030 | | | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | <0.0030 | | | |

| | E225124 : W4 - North Dump | | |
|---|---|---|---|
| | 29-Oct-13 | 7-Nov-13 | 3-Dec-13 |
| Diss-Zinc (Zn) (mg/L) | | | |
| TDS (mg/L) | | 203 | 226 |
| **Physical Test** | | | |
| Alkalinity (CaCO3) ( | | 137 | 115 |
| Hardness (mg/L) | | 162 | 161 |
| NTU (ntu) | 0.69 | 0.67 | 5.35 |
| TDS (mg/L) | | 203 | 226 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | |
| Antimony (Sb)-Total (mg/L) | | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | | 0.00029 | 0.00041 |
| Barium (Ba)-Total | | 0.0181 | 0.0202 |
| Boron (B)-Total (mg/L) | | 0.036 | 0.036 |
| Calcium (Ca)-Total ( | | 55.0 | 54.3 |
| Chromium (Cr)-Total (mg/L) | | <0.00050 | 0.00080 |
| Cobalt (Co)-Total (m | | <0.00010 | 0.00018 |
| Magnesium (Mg)-Total (mg/L) | | 6.04 | 6.15 |
| Nickel (Ni)-Total (mg/L) | | <0.00050 | 0.00071 |
| Silicon (Si)-Total (mg/L) | | 5.75 | 7.06 |
| Silver (Ag)-Total (mg/L) | | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | | 2.78 | 2.70 |
| Strontium (Sr)-Total (mg/L) | | 0.226 | 0.242 |
| Tin (Sn)-Total (mg/L) | | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | | 0.0293 | 0.431 |
| Total Cadmium (mg/L) | | <0.000010 | 0.000011 |
| Total Copper (mg/L) | | 0.00305 | 0.00664 |
| Total Iron (mg/L) | | 0.037 | 0.405 |
| Total Lead (mg/L) | | <0.000050 | 0.000099 |
| Total Manganese (mg/L) | | 0.0163 | 0.0241 |
| Total Molybdenum (mg/L) | | 0.00754 | 0.00744 |
| Total Selenium (mg/L) | | 0.00113 | 0.00114 |
| Zinc (Zn)-Total (mg/L) | | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225124 : W4 - North Dump Creek at road | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 305 | 72 | 0.00500 | 12.00000 | 0.04802 | 0.03004 | 0.68685 |
| Chloride (mg/L) | 123 | 59 | 0.25000 | 12.50000 | 1.04927 | 1.20000 | 1.73957 |
| Diss-Orthophosphate (mg/L) | 306 | 286 | 0.00050 | 0.11800 | 0.01507 | 0.04721 | 0.01416 |
| Diss-Phosphorus (mg/L) | 274 | 241 | 0.00250 | 0.09400 | 0.01838 | 0.05477 | 0.01424 |
| Nitrate (N) (mg/L) | 178 | 176 | 0.00170 | 22.90000 | 3.51647 | 10.25500 | 5.40195 |
| Nitrate and Nitrite (mg/L) | 148 | 120 | 0.00900 | 22.90000 | 0.63893 | 0.49600 | 2.56251 |
| Nitrite (N) (mg/L) | 242 | 75 | 0.00050 | 0.85800 | 0.01052 | 0.04684 | 0.06279 |
| Sulphate (mg/L) | 307 | 307 | 1.70000 | 539.00000 | 84.27818 | 353.70000 | 123.50972 |
| Total Nitrogen (mg/L) | 190 | 185 | 0.03700 | 31.60000 | 4.58389 | 14.19500 | 7.17925 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 290 | 275 | 0.00150 | 1.68000 | 0.04547 | 0.13705 | 0.11295 |
| Diss-Antimony (Sb) (mg/L) | 286 | 141 | 0.00003 | 0.00047 | 0.00010 | 0.00027 | 0.00008 |
| Diss-Arsenic (As) (mg/L) | 291 | 282 | 0.00005 | 0.00162 | 0.00041 | 0.00108 | 0.00028 |
| Diss-Barium (Ba) (mg/L) | 286 | 282 | 0.00500 | 0.11000 | 0.02884 | 0.08169 | 0.02655 |
| Diss-Beryllium (Be) (mg/L) | 286 | 0 | 0.00003 | 0.00250 | 0.00033 | 0.00250 | 0.00057 |
| Diss-Boron (B) (mg/L) | 190 | 176 | 0.01300 | 0.14900 | 0.05202 | 0.10690 | 0.02438 |
| Diss-Cadmium (Cd) (mg/L) | 286 | 147 | 0.00001 | 0.00048 | 0.00003 | 0.00010 | 0.00004 |
| Diss-Calcium (Ca) (mg/L) | 286 | 286 | 10.70000 | 242.00000 | 66.51678 | 185.80000 | 54.57997 |
| Diss-Chromium (Cr) (mg/L) | 286 | 46 | 0.00010 | 0.00250 | 0.00041 | 0.00136 | 0.00043 |
| Diss-Cobalt (Co) (mg/L) | 286 | 74 | 0.00001 | 0.00093 | 0.00009 | 0.00050 | 0.00013 |
| Diss-Copper (Cu) (mg/L) | 296 | 296 | 0.00185 | 0.05980 | 0.00803 | 0.01542 | 0.00493 |
| Diss-Iron (Fe) (mg/L) | 291 | 158 | 0.00250 | 1.33000 | 0.04659 | 0.13600 | 0.09022 |
| Diss-Lead (Pb) (mg/L) | 291 | 92 | 0.00001 | 0.00124 | 0.00008 | 0.00050 | 0.00015 |
| Diss-Magnesium (Mg) (mg/L) | 286 | 286 | 1.44000 | 48.40000 | 10.85797 | 36.21500 | 11.94878 |
| Diss-Manganese (Mn) (mg/L) | 286 | 281 | 0.00028 | 0.26700 | 0.00874 | 0.03777 | 0.02155 |
| Diss-Molybdenum (Mo) (mg/L) | 291 | 290 | 0.00050 | 0.05950 | 0.01064 | 0.03442 | 0.01119 |
| Diss-Nickel (Ni) (mg/L) | 286 | 7 | 0.00005 | 0.00420 | 0.00039 | 0.00069 | 0.00037 |
| Diss-Potassium (K) (mg/L) | 286 | 285 | 0.26000 | 3.55000 | 0.98557 | 2.83550 | 0.82745 |
| Diss-Selenium (mg/L) | 286 | 149 | 0.00010 | 0.04160 | 0.00468 | 0.02452 | 0.00820 |
| Diss-Silicon (Si) (mg/L) | 286 | 286 | 4.28000 | 8.22000 | 5.84752 | 7.28550 | 0.67073 |
| Diss-Silver (Ag) (mg/L) | 286 | 41 | 0.00001 | 0.00010 | 0.00001 | 0.00005 | 0.00001 |
| Diss-Sodium (Na) (mg/L) | 286 | 286 | 1.18000 | 16.10000 | 4.61056 | 13.20000 | 3.82168 |
| Diss-Strontium (Sr) (mg/L) | 286 | 286 | 0.04000 | 2.66000 | 0.48237 | 1.67000 | 0.61486 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225124 : W4 - North Dump Creek at road | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 272 | 57 | 0.00003 | 0.00064 | 0.00009 | 0.00025 | 0.00010 |
| Diss-Zinc (Zn) (mg/L) | 291 | 129 | 0.00025 | 0.01580 | 0.00148 | 0.00290 | 0.00115 |
| TDS (mg/L) | 270 | 261 | 1.50000 | 1,110.00000 | 275.99926 | 834.55000 | 244.62509 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 306 | 287 | 0.00500 | 308.00000 | 102.84119 | 221.45000 | 59.59814 |
| Hardness (mg/L) | 301 | 301 | 32.80000 | 803.00000 | 205.18505 | 582.80000 | 179.62914 |
| NTU (ntu) | 319 | 317 | 0.13000 | 147.00000 | 3.30696 | 4.64700 | 10.44114 |
| TDS (mg/L) | 270 | 261 | 1.50000 | 1,110.00000 | 275.99926 | 834.55000 | 244.62509 |
| TSS (mg/L) | 305 | 82 | 0.50000 | 1,060.00000 | 14.46426 | 5.55000 | 87.91357 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 300 | 165 | 0.00003 | 0.00092 | 0.00011 | 0.00028 | 0.00010 |
| Arsenic (As)-Total ( | 308 | 300 | 0.00005 | 0.00470 | 0.00047 | 0.00118 | 0.00039 |
| Barium (Ba)-Total | 300 | 297 | 0.00780 | 0.12000 | 0.03032 | 0.08624 | 0.02665 |
| Boron (B)-Total (mg/L) | 201 | 187 | 0.01300 | 0.14900 | 0.05233 | 0.10920 | 0.02408 |
| Calcium (Ca)-Total ( | 303 | 303 | 11.20000 | 243.00000 | 64.66238 | 177.50000 | 52.72291 |
| Chromium (Cr)-Total (mg/L) | 300 | 103 | 0.00001 | 0.01240 | 0.00059 | 0.00125 | 0.00094 |
| Cobalt (Co)-Total (m | 300 | 138 | 0.00001 | 0.00632 | 0.00023 | 0.00100 | 0.00045 |
| Magnesium (Mg)-Total (mg/L) | 303 | 303 | 1.37000 | 49.20000 | 10.54376 | 36.54000 | 11.66498 |
| Nickel (Ni)-Total (mg/L) | 303 | 58 | 0.00003 | 0.02350 | 0.00067 | 0.00179 | 0.00163 |
| Silicon (Si)-Total (mg/L) | 303 | 303 | 2.40000 | 24.30000 | 6.07990 | 7.33800 | 1.44656 |
| Silver (Ag)-Total (mg/L) | 300 | 77 | 0.00001 | 0.00013 | 0.00001 | 0.00005 | 0.00002 |
| Sodium (Na)-Total (mg/L) | 290 | 290 | 1.03000 | 17.30000 | 4.59572 | 13.19500 | 3.88242 |
| Strontium (Sr)-Total (mg/L) | 312 | 312 | 0.04100 | 2.79000 | 0.47850 | 1.72000 | 0.61075 |
| Tin (Sn)-Total (mg/L) | 282 | 53 | 0.00003 | 0.00171 | 0.00010 | 0.00033 | 0.00017 |
| Total Aluminum (mg/L) | 307 | 306 | 0.00390 | 10.50000 | 0.21241 | 0.34210 | 0.70672 |
| Total Cadmium (mg/L) | 299 | 197 | 0.00001 | 0.00021 | 0.00004 | 0.00020 | 0.00005 |
| Total Copper (mg/L) | 308 | 307 | 0.00221 | 0.33100 | 0.01187 | 0.01952 | 0.02445 |
| Total Iron (mg/L) | 308 | 264 | 0.00100 | 10.10000 | 0.21350 | 0.33150 | 0.67143 |
| Total Lead (mg/L) | 308 | 167 | 0.00002 | 0.00436 | 0.00019 | 0.00100 | 0.00036 |
| Total Manganese (mg/L) | 303 | 300 | 0.00097 | 0.45100 | 0.01936 | 0.06149 | 0.04633 |
| Total Molybdenum (mg/L) | 303 | 294 | 0.00001 | 0.06270 | 0.01057 | 0.03521 | 0.01123 |
| Total Selenium (mg/L) | 312 | 168 | 0.00005 | 0.04020 | 0.00437 | 0.03214 | 0.00776 |
| Zinc (Zn)-Total (mg/L) | 308 | 149 | 0.00025 | 0.03280 | 0.00202 | 0.00443 | 0.00249 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E208039 : W5 - Bootjack Creek above Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9-Feb-09 | 2-Jun-09 | 11-Aug-09 | 26-Aug-09 | 19-Nov-09 | 11-Feb-10 | 11-May-10 | 4-Aug-10 | 3-Nov-10 | 2-Feb-11 | 11-May-11 | 9-Jun-11 | 14-Jul-11 | 4-Aug-11 | 8-Sep-11 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0123 | 0.0126 | 0.0098 | <0.0050 |
| Chloride (mg/L) | | <0.5 | <0.5 | <0.5 | 0.78 | 1.04 | <0.5 | 0.78 | 0.64 | 0.74 | <0.5 | <2.5 | <0.5 | <0.5 | <0.50 |
| Diss-Orthophosphate (mg/L) | 0.0031 | 0.0024 | 0.0067 | 0.0056 | 0.0016 | 0.0025 | 0.0019 | 0.0074 | 0.0021 | 0.0041 | 0.0021 | 0.0019 | 0.0028 | 0.0036 | 0.0035 |
| Diss-Phosphorus (mg/L) | 0.0076 | 0.0103 | 0.0094 | 0.0057 | 0.0115 | 0.0067 | 0.0089 | 0.0095 | 0.0047 | 0.0074 | 0.0098 | 0.0094 | 0.0101 | 0.0112 | |
| Nitrate (N) (mg/L) | 0.834 | 0.0218 | 0.0356 | 0.0368 | 0.599 | 0.266 | 0.0743 | 0.941 | 0.231 | 0.468 | 0.0583 | <0.025 | 0.0744 | 0.0859 | 0.14 |
| Nitrate and Nitrite (mg/L) | | | | | | | 0.0743 | 0.942 | 0.231 | 0.468 | 0.0583 | <0.025 | 0.0744 | 0.0859 | 0.14 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0015 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.0010 |
| Sulphate (mg/L) | 25.2 | 9.01 | 65.5 | 74.4 | 20.9 | 49.2 | 14.9 | 53.2 | 31.2 | 33.1 | 1.96 | 4.7 | 8.94 | 8.05 | 48.9 |
| Total Nitrogen (mg/L) | 0.95 | 0.38 | 0.23 | 0.15 | 1.19 | 0.53 | 0.35 | 1.11 | 0.415 | 0.66 | 0.56 | 0.56 | 0.59 | 0.66 | 0.42 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0411 | 0.101 | 0.017 | 0.0114 | 0.246 | 0.04 | 0.0969 | 0.016 | 0.011 | 0.0228 | 0.215 | 0.0964 | 0.0805 | 0.114 | 0.0153 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00026 | 0.00033 | 0.00038 | 0.00033 | 0.0003 | 0.00025 | 0.00028 | 0.00036 | 0.00033 | 0.00026 | 0.00024 | 0.00036 | 0.00042 | 0.00042 | 0.00033 |
| Diss-Barium (Ba) (mg/L) | 0.0125 | 0.0101 | 0.021 | 0.0193 | 0.0104 | 0.0143 | 0.0101 | 0.0208 | 0.015 | 0.0137 | 0.00637 | 0.01 | 0.012 | 0.0117 | 0.0201 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.035 | 0.018 | 0.073 | 0.074 | 0.027 | 0.064 | 0.043 | 0.1 | 0.055 | 0.043 | 0.014 | 0.03 | 0.032 | 0.028 | 0.056 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 30.6 | 15.5 | 44.7 | 47.9 | 17.3 | 30.4 | 17.6 | 46.8 | 37.9 | 32.1 | 7.01 | 14.8 | 20.4 | 19.9 | 44 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | 0.00067 | <0.0005 | <0.0005 | 0.0009 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00064 | 0.00065 | 0.00058 | 0.00066 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0004 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00331 | 0.00512 | 0.00333 | 0.00226 | 0.00636 | 0.00377 | 0.0059 | 0.00247 | 0.00265 | 0.00296 | 0.00578 | 0.00669 | 0.00537 | 0.00568 | 0.00223 |
| Diss-Iron (Fe) (mg/L) | 0.089 | 0.109 | 0.049 | 0.038 | 0.264 | 0.053 | 0.096 | 0.032 | 0.034 | 0.046 | 0.121 | 0.092 | 0.123 | 0.187 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.00006 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 7.55 | 4.41 | 12 | 13.4 | 4.88 | 8.27 | 4.58 | 12.7 | 9.94 | 8.46 | 1.69 | 3.47 | 5.06 | 4.82 | 10.9 |
| Diss-Manganese (Mn) (mg/L) | 0.0106 | 0.00478 | 0.00964 | 0.013 | 0.00601 | 0.00729 | 0.00248 | 0.0105 | 0.00728 | 0.0149 | 0.00076 | 0.00321 | 0.00713 | 0.0077 | 0.000433 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00215 | 0.00117 | 0.00426 | 0.00436 | 0.00114 | 0.00259 | 0.00166 | 0.00641 | 0.00481 | 0.00239 | 0.000376 | 0.00159 | 0.00247 | 0.00224 | 0.00675 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | 0.00069 | <0.0005 | <0.0005 | 0.00075 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00073 | 0.00084 | 0.00077 | 0.0009 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.713 | 0.698 | 1.38 | 1.14 | 0.563 | 0.755 | 0.628 | 1.07 | 0.932 | 0.725 | 0.463 | 0.598 | 0.501 | 0.442 | 0.845 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 6.28 | 5.1 | 7.26 | 7.61 | 5.76 | 6.8 | 5.8 | 8.8 | 7.49 | 6.69 | 4.06 | 4.67 | 5.74 | 5.8 | 7.87 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 4.64 | 2.77 | 7.26 | 7.37 | 3.18 | 5.42 | 3.51 | 7.28 | 6.03 | 5.3 | 1.58 | 2.84 | 3.67 | 3.4 | 5.81 |
| Diss-Strontium (Sr) (mg/L) | 0.167 | 0.107 | 0.217 | 0.225 | 0.0954 | 0.145 | 0.11 | 0.218 | 0.197 | 0.171 | 0.0555 | 0.123 | 0.154 | 0.162 | 0.229 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 |

| | E208039 : W5 - Bootjack Creek above Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 20-Sep-11 | 30-Sep-11 | 6-Oct-11 | 12-Oct-11 | 19-Oct-11 | 1-Nov-11 | 1-Dec-11 | 15-Dec-11 | 5-Jan-12 | 7-Feb-12 | 15-Mar-12 | 3-Apr-12 | 26-Apr-12 | 3-May-12 | 10-May-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 | 0.0063 | <0.0050 | <0.0050 | <0.0050 | 0.0066 | 0.0072 | 0.0085 | 0.0091 | 0.0177 | 0.0072 | 0.0055 | 0.0084 | <0.0050 |
| Chloride (mg/L) | <0.50 | <0.50 | 1.2 | 0.68 | 0.66 | 0.95 | 0.79 | 0.64 | 0.8 | 0.62 | 0.56 | <2.5 | <0.50 | <2.5 | <2.5 |
| Diss-Orthophosphate (mg/L) | 0.0023 | 0.0029 | 0.0039 | 0.0017 | 0.0013 | 0.0021 | 0.0024 | 0.0032 | 0.0032 | 0.0042 | 0.0041 | 0.0032 | 0.0025 | 0.0021 | 0.0014 |
| Diss-Phosphorus (mg/L) | | | 0.0081 | 0.0047 | | 0.0046 | 0.0083 | 0.0084 | 0.0092 | 0.0093 | 0.0111 | 0.0192 | 0.0145 | 0.0128 | 0.0114 |
| Nitrate (N) (mg/L) | 0.204 | 0.3 | 0.36 | 0.443 | 0.0596 | 0.928 | 2.57 | 0.673 | 0.0946 | 0.148 | 0.137 | 0.132 | 0.0558 | <0.025 | <0.025 |
| Nitrate and Nitrite (mg/L) | 0.204 | 0.3 | 0.361 | 0.443 | 0.0596 | 0.928 | 2.57 | 0.673 | 0.0946 | 0.148 | 0.137 | 0.132 | 0.0558 | <0.025 | <0.025 |
| Nitrite (N) (mg/L) | <0.0010 | <0.0010 | 0.0026 | <0.0010 | <0.0010 | <0.0010 | 0.0019 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0050 | <0.0010 | <0.0050 | <0.0050 |
| Sulphate (mg/L) | 53.7 | 59.3 | 60 | 60.5 | 42.0 | 29.5 | 23.6 | 29.5 | 7.72 | 9.75 | 6.21 | 3.9 | 1.02 | <2.5 | <2.5 |
| Total Nitrogen (mg/L) | 0.33 | 0.48 | 0.58 | 0.64 | 0.220 | 1.1 | 3.87 | 0.87 | 0.26 | 0.38 | 0.39 | 0.56 | 0.48 | 0.37 | 0.44 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0137 | 0.0113 | 0.0129 | 0.012 | 0.0087 | 0.0131 | 0.0371 | | 0.0389 | 0.0281 | 0.0554 | 0.316 | 0.289 | 0.262 | 0.204 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00032 | 0.00029 | 0.00044 | 0.00032 | 0.00025 | 0.0003 | 0.00032 | | 0.00032 | 0.00033 | 0.00031 | 0.00035 | 0.00029 | 0.00023 | 0.00028 |
| Diss-Barium (Ba) (mg/L) | 0.0188 | 0.0193 | 0.0181 | 0.019 | 0.0193 | 0.015 | 0.0131 | | 0.0105 | 0.0125 | 0.0104 | 0.0101 | 0.00661 | 0.00676 | 0.00695 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.056 | 0.056 | 0.051 | 0.059 | 0.059 | 0.064 | 0.048 | | 0.044 | 0.048 | 0.039 | 0.02 | 0.011 | 0.011 | 0.014 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 45.2 | 48.2 | 47 | 45.9 | 43.0 | 36.6 | 30.8 | | 21.5 | 24.8 | 19.4 | 14.5 | 6.7 | 7.44 | 8.36 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | <0.00050 | <0.00050 | 0.00093 | 0.00084 | 0.00078 | 0.00072 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | 0.00014 | 0.00012 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00209 | 0.00232 | 0.00187 | 0.00204 | 0.00175 | 0.0022 | 0.0031 | | 0.0046 | 0.00294 | 0.00339 | 0.00585 | 0.00543 | 0.00574 | 0.00554 |
| Diss-Iron (Fe) (mg/L) | 0.034 | 0.036 | <0.030 | 0.031 | 0.036 | 0.041 | 0.081 | | 0.093 | 0.068 | 0.117 | 0.335 | 0.192 | 0.173 | 0.15 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | <0.000050 | <0.000050 | <0.000050 | 0.00006 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 11.4 | 11.7 | 7.56 | 11.3 | 10.9 | 9.1 | 7.42 | | 5.73 | 6.57 | 5.07 | 3.43 | 1.57 | 1.76 | 2.01 |
| Diss-Manganese (Mn) (mg/L) | 0.0104 | 0.00922 | 0.00414 | 0.0108 | 0.00775 | 0.00861 | 0.0056 | | 0.00498 | 0.0062 | 0.00458 | 0.00731 | 0.00244 | 0.00231 | 0.00295 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00686 | 0.00699 | 0.0068 | 0.00728 | 0.00630 | 0.0049 | 0.00376 | | 0.00136 | 0.00152 | 0.001 | 0.000576 | 0.000173 | 0.000182 | 0.000254 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | 0.00098 | <0.00050 | 0.00061 | 0.00093 | 0.00083 | 0.00084 | 0.0008 |
| Diss-Potassium (K) (mg/L) | 0.915 | 0.942 | 0.963 | 1.12 | 0.994 | 0.973 | 0.751 | | 0.664 | 0.673 | 0.6 | 0.689 | 0.472 | 0.458 | 0.459 |
| Diss-Selenium (mg/L) | 0.00067 | 0.00095 | 0.00128 | 0.00164 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 7.82 | 7.76 | 7.81 | 7.47 | 7.50 | 6.43 | 6.22 | | 5.37 | 5.92 | 5.17 | 5.02 | 3.98 | 3.96 | 3.92 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 6.06 | 6.15 | 6.18 | 6.4 | 6.27 | 6.31 | 4.9 | | 5.13 | 6.08 | 4.82 | 2.72 | 1.45 | 1.58 | 1.81 |
| Diss-Strontium (Sr) (mg/L) | 0.237 | 0.226 | 0.246 | 0.226 | 0.225 | 0.195 | 0.183 | | 0.161 | 0.173 | 0.151 | 0.114 | 0.0629 | 0.0716 | 0.0868 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | 0.00025 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E208039 : W5 - Bootjack Creek above Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 16-May-12 | 24-May-12 | 7-Jun-12 | 5-Jul-12 | 2-Aug-12 | 6-Sep-12 | 3-Oct-12 | 5-Nov-12 | 6-Dec-12 | 3-Jan-13 | 7-Feb-13 | 14-Mar-13 | 4-Apr-13 | 18-Apr-13 | 25-Apr-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0095 | 0.0057 | 0.0066 | 0.0073 | <0.0050 | 0.006 | <0.0050 | <0.0050 | 0.0055 | 0.0077 | <0.0050 | 0.0082 | 0.0068 | | |
| Chloride (mg/L) | <2.5 | <0.50 | <2.5 | <2.5 | <0.50 | <0.50 | 0.75 | 1.27 | 0.76 | 0.68 | 0.58 | 0.56 | <2.5 | | |
| Diss-Orthophosphate (mg/L) | 0.0029 | 0.0034 | 0.0025 | 0.0025 | 0.0062 | 0.0051 | 0.0029 | 0.0026 | 0.0025 | 0.0032 | 0.0047 | 0.0017 | 0.0023 | | |
| Diss-Phosphorus (mg/L) | 0.0141 | 0.011 | 0.0159 | 0.0143 | 0.0105 | 0.0098 | 0.0071 | 0.0204 | 0.013 | 0.0101 | 0.0111 | 0.0112 | 0.0189 | | |
| Nitrate (N) (mg/L) | <0.025 | 0.0178 | 0.038 | <0.025 | 0.0379 | 0.0082 | <0.0050 | 0.301 | 0.0736 | 0.0931 | 0.0816 | 0.498 | 0.203 | | |
| Nitrate and Nitrite (mg/L) | <0.025 | 0.0178 | 0.038 | <0.025 | 0.0379 | 0.0082 | <0.0051 | 0.302 | 0.0736 | 0.0931 | 0.0816 | 0.498 | 0.203 | | |
| Nitrite (N) (mg/L) | <0.0050 | <0.0010 | <0.0050 | <0.0050 | <0.0010 | <0.0010 | <0.0010 | 0.0013 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0050 | | |
| Sulphate (mg/L) | <2.5 | 1.47 | <2.5 | <2.5 | 2.93 | 3.91 | 4.57 | 6.38 | 6.96 | 6.93 | 6.47 | 13.1 | <2.5 | | |
| Total Nitrogen (mg/L) | 0.51 | 0.34 | 0.75 | 0.61 | 0.23 | 0.28 | 0.29 | 0.97 | 0.529 | 0.407 | 0.419 | 0.805 | 0.83 | | |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.146 | 0.0882 | 0.292 | 0.241 | 0.0356 | 0.0149 | 0.0147 | 0.387 | 0.174 | 0.0416 | | | | | |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00011 | <0.00010 | <0.00010 | | | | | |
| Diss-Arsenic (As) (mg/L) | 0.00033 | 0.00032 | 0.00037 | 0.0004 | 0.0004 | 0.00032 | 0.00032 | 0.00042 | 0.00037 | 0.00033 | | | | | |
| Diss-Barium (Ba) (mg/L) | 0.00841 | 0.0088 | 0.009 | 0.00988 | 0.015 | 0.0185 | 0.0193 | 0.00923 | 0.0094 | 0.0112 | | | | | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | |
| Diss-Boron (B) (mg/L) | 0.021 | 0.019 | 0.018 | 0.017 | 0.038 | 0.048 | 0.042 | 0.022 | 0.026 | 0.041 | | | | | |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | | | |
| Diss-Calcium (Ca) (mg/L) | 10.3 | 13.2 | 10.4 | 12.5 | 23.1 | 33.7 | 31.5 | 12.6 | 15.4 | 20.2 | | | | | |
| Diss-Chromium (Cr) (mg/L) | 0.0007 | 0.0005 | 0.00088 | 0.00095 | <0.00050 | <0.00050 | <0.00050 | 0.00095 | 0.00073 | <0.00050 | | | | | |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | 0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00015 | <0.00010 | <0.00010 | | | | | |
| Diss-Copper (Cu) (mg/L) | 0.00623 | 0.00512 | 0.00713 | 0.00638 | 0.00359 | 0.002 | 0.00202 | 0.00589 | 0.00483 | 0.00319 | | | | | |
| Diss-Iron (Fe) (mg/L) | 0.148 | 0.105 | 0.242 | 0.246 | 0.093 | <0.030 | <0.030 | 0.414 | 0.27 | 0.099 | | | | | |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000083 | 0.00005 | <0.000050 | | | | | |
| Diss-Magnesium (Mg) (mg/L) | 2.53 | 3.21 | 2.4 | 2.96 | 5.67 | 8.4 | 7.7 | 3.1 | 4.09 | 5.43 | | | | | |
| Diss-Manganese (Mn) (mg/L) | 0.00388 | 0.00249 | 0.00213 | 0.00644 | 0.0115 | 0.008 | 0.00562 | 0.00907 | 0.00382 | 0.00747 | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.000449 | 0.00055 | 0.000335 | 0.000356 | 0.00179 | 0.00235 | 0.00205 | 0.000483 | 0.000608 | 0.000888 | | | | | |
| Diss-Nickel (Ni) (mg/L) | 0.00078 | 0.00072 | 0.00111 | 0.00117 | 0.0007 | <0.00050 | 0.00051 | 0.00099 | 0.00077 | 0.00056 | | | | | |
| Diss-Potassium (K) (mg/L) | 0.554 | 0.551 | 0.451 | 0.333 | 0.827 | 0.963 | 1.19 | 0.619 | 0.56 | 0.61 | | | | | |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | | | |
| Diss-Silicon (Si) (mg/L) | 4.09 | 4.27 | 4.19 | 4.82 | 5.67 | 6.37 | 5.82 | 5.06 | 5.16 | 5.39 | | | | | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | 0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000013 | <0.000010 | <0.000010 | | | | | |
| Diss-Sodium (Na) (mg/L) | 2.36 | 3 | 1.97 | 2.23 | 5.07 | 6.92 | 7.24 | 2.78 | 3.9 | 5.26 | | | | | |
| Diss-Strontium (Sr) (mg/L) | 0.101 | 0.109 | 0.104 | 0.115 | 0.179 | 0.251 | 0.222 | 0.111 | 0.129 | 0.175 | | | | | |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | |

| | E208039 : W5 - Bootjack Creek above Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1-May-13 | 9-May-13 | 16-May-13 | 6-Jun-13 | 10-Jul-13 | 8-Aug-13 | 5-Sep-13 | 24-Sep-13 | 3-Oct-13 | 10-Oct-13 | 17-Oct-13 | 24-Oct-13 | 29-Oct-13 | 7-Nov-13 | 3-Dec-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | | | 0.0072 | 0.0072 | 0.0224 | 0.0061 | | 0.005 | | | | | <0.0050 | <0.0050 |
| Chloride (mg/L) | <0.50 | | | <0.50 | <0.50 | <0.50 | <0.50 | | 0.87 | | | | | 1.36 | 1.87 |
| Diss-Orthophosphate (mg/L) | 0.0019 | | | 0.0024 | 0.0071 | <0.0010 | 0.0074 | | 0.0037 | | | | | 0.0025 | 0.0023 |
| Diss-Phosphorus (mg/L) | 0.0097 | | | 0.0137 | 0.0138 | 0.0066 | 0.0128 | | 0.0078 | | | | | 0.0063 | 0.0175 |
| Nitrate (N) (mg/L) | 0.0293 | | | <0.0050 | 0.108 | 0.0758 | 0.046 | | 0.0089 | | | | | 0.0505 | 1.38 |
| Nitrate and Nitrite (mg/L) | 0.0293 | | | <0.0051 | 0.11 | 0.0758 | 0.046 | | 0.0089 | | | | | 0.0505 | 1.38 |
| Nitrite (N) (mg/L) | <0.0010 | | | <0.0010 | 0.0017 | <0.0010 | <0.0010 | | <0.0010 | | | | | <0.0010 | 0.0019 |
| Sulphate (mg/L) | 1.38 | | | 1.09 | 2.49 | 4.79 | 4.45 | | 36.4 | | | | | 17.9 | 20.6 |
| Total Nitrogen (mg/L) | 0.446 | | | 0.544 | 0.488 | 0.631 | 0.251 | | 0.278 | | | | | 0.332 | 1.86 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Antimony (Sb) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Arsenic (As) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Barium (Ba) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Beryllium (Be) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Boron (B) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Cadmium (Cd) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Calcium (Ca) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Chromium (Cr) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Cobalt (Co) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Copper (Cu) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Iron (Fe) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Lead (Pb) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Magnesium (Mg) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Manganese (Mn) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Nickel (Ni) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Potassium (K) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Selenium (mg/L) | | | | | | | | | | | | | | | |
| Diss-Silicon (Si) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Silver (Ag) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Sodium (Na) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Strontium (Sr) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Tin (Sn) (mg/L) | | | | | | | | | | | | | | | |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E208039 : W5 - Bootjack Creek above Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **9-Feb-09** | **2-Jun-09** | **11-Aug-09** | **26-Aug-09** | **19-Nov-09** | **11-Feb-10** | **11-May-10** | **4-Aug-10** | **3-Nov-10** | **2-Feb-11** | **11-May-11** | **9-Jun-11** | **14-Jul-11** | **4-Aug-11** | **8-Sep-11** |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0014 | <0.001 | <0.003 | <0.003 | <0.003 | 0.0042 | <0.003 | 0.0034 | <0.0030 |
| TDS (mg/L) | 140 | 92 | 212 | 229 | 119 | <3 | 102 | 230 | 183 | 148 | 71 | 96 | 113 | 127 | 203 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 77.9 | 53.2 | 126 | 110 | 47.3 | 64.4 | 50.4 | 122 | 109 | 82.4 | 20.6 | 47.5 | 64.3 | 61.4 | 112 |
| Hardness (mg/L) | 108 | 56.8 | 161 | 175 | 63.3 | 110 | 62.8 | 169 | 136 | 115 | 24.5 | 51.3 | 71.8 | 69.4 | 155 |
| NTU (ntu) | 0.7 | 1.83 | 0.73 | 1.02 | 2.84 | 0.47 | 1.56 | 0.44 | 0.51 | 1.24 | 2.17 | 0.79 | 1.25 | 1.18 | 0.34 |
| TDS (mg/L) | 140 | 92 | 212 | 229 | 119 | <3 | 102 | 230 | 183 | 148 | 71 | 96 | 113 | 127 | 203 |
| TSS (mg/L) | <3 | <3 | <3 | <3 | <3 | 158 | 3.5 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 |
| Arsenic (As)-Total ( | 0.00027 | 0.00037 | 0.0004 | 0.00031 | 0.00034 | 0.00027 | 0.00036 | 0.00038 | 0.00033 | 0.00029 | 0.00024 | 0.00039 | 0.00044 | 0.00044 | 0.00033 |
| Barium (Ba)-Total | 0.0131 | 0.0112 | 0.0219 | 0.0193 | 0.0118 | 0.0151 | 0.0123 | 0.0224 | 0.0155 | 0.0138 | 0.00738 | 0.0108 | 0.0131 | 0.0127 | 0.021 |
| Boron (B)-Total (mg/L) | 0.038 | 0.021 | 0.077 | 0.075 | 0.033 | 0.067 | 0.043 | 0.111 | 0.058 | 0.045 | 0.016 | 0.031 | 0.038 | 0.03 | 0.06 |
| Calcium (Ca)-Total ( | 28.9 | 15 | 44.6 | 45.1 | 17.3 | 28.7 | 16.5 | 46.8 | 38.7 | 32 | 7.17 | 15.3 | 21.2 | 19.6 | 44.3 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | 0.00084 | <0.0005 | <0.0005 | 0.00115 | <0.0005 | 0.00064 | <0.0005 | <0.0005 | <0.0005 | 0.00098 | 0.00089 | 0.00081 | 0.00084 | <0.00050 |
| Cobalt (Co)-Total (m | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00016 | <0.0001 | 0.00013 | 0.00045 | <0.0001 | <0.0001 | 0.00013 | <0.0001 | <0.0001 | <0.0001 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 7.45 | 4.31 | 12.1 | 12.7 | 4.89 | 8.13 | 4.38 | 12.8 | 10.3 | 8.45 | 1.75 | 3.53 | 5.23 | 4.83 | 11.1 |
| Nickel (Ni)-Total (mg/L) | <0.0005 | 0.00102 | <0.0005 | <0.0005 | 0.00094 | <0.0005 | 0.00065 | <0.0005 | <0.0005 | <0.0005 | 0.00081 | 0.00081 | 0.00092 | 0.00093 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 6.12 | 5.08 | 7.32 | 7.25 | 5.91 | 6.69 | 5.76 | 8.88 | 7.78 | 6.69 | 4.31 | 4.87 | 6.01 | 5.89 | 7.96 |
| Silver (Ag)-Total (mg/L) | <0.00001 | 0.000014 | 0.00001 | <0.00001 | 0.000012 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000011 | <0.00001 | <0.00001 | <0.00001 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.97 | 2.96 | 7.47 | 7.45 | 3.49 | 5.83 | 3.63 | 7.88 | 6.27 | 5.42 | 1.63 | 3 | 3.75 | 3.23 | 5.98 |
| Strontium (Sr)-Total (mg/L) | 0.177 | 0.113 | 0.23 | 0.231 | 0.105 | 0.147 | 0.117 | 0.236 | 0.207 | 0.171 | 0.0597 | 0.131 | 0.159 | 0.163 | 0.234 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 |
| Total Aluminum (mg/L) | 0.0566 | 0.178 | 0.0319 | 0.0184 | 0.351 | 0.0626 | 0.228 | 0.0309 | 0.0187 | 0.0398 | 0.316 | 0.151 | 0.126 | 0.158 | 0.0285 |
| Total Cadmium (mg/L) | <0.000017 | <0.000017 | 0.000018 | 0.000025 | <0.000017 | <0.000017 | <0.000017 | 0.000018 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000011 | <0.000010 |
| Total Copper (mg/L) | 0.00365 | 0.00646 | 0.00374 | 0.00236 | 0.00755 | 0.00406 | 0.00718 | 0.00306 | 0.00323 | 0.00319 | 0.00673 | 0.00731 | 0.00592 | 0.0062 | 0.00247 |
| Total Iron (mg/L) | 0.109 | 0.179 | 0.086 | 0.063 | 0.349 | 0.076 | 0.245 | 0.059 | 0.047 | 0.072 | 0.216 | 0.15 | 0.178 | 0.283 | 0.058 |
| Total Lead (mg/L) | <0.00005 | 0.000057 | <0.00005 | <0.00005 | 0.000079 | <0.00005 | 0.00008 | <0.00005 | <0.00005 | <0.00005 | 0.00006 | <0.00005 | <0.00005 | <0.00005 | <0.000050 |
| Total Manganese (mg/L) | 0.0142 | 0.0137 | 0.0334 | 0.0244 | 0.0101 | 0.00718 | 0.0312 | 0.0206 | 0.00984 | 0.0209 | 0.00709 | 0.00692 | 0.0147 | 0.0147 | 0.0144 |
| Total Molybdenum (mg/L) | 0.00217 | 0.00131 | 0.00448 | 0.00443 | 0.00139 | 0.00266 | 0.00176 | 0.0069 | 0.00508 | 0.00247 | 0.000408 | 0.00186 | 0.00261 | 0.00235 | 0.00707 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | 0.0015 | 0.0021 | <0.001 | <0.001 | 0.0015 | <0.001 | 0.0016 | <0.001 | 0.0036 | <0.003 | 0.0032 | <0.003 | <0.003 | 0.0037 | <0.0030 |

| | E208039 : W5 - Bootjack Creek above Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **20-Sep-11** | **30-Sep-11** | **6-Oct-11** | **12-Oct-11** | **19-Oct-11** | **1-Nov-11** | **1-Dec-11** | **15-Dec-11** | **5-Jan-12** | **7-Feb-12** | **15-Mar-12** | **3-Apr-12** | **26-Apr-12** | **3-May-12** | **10-May-12** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 205 | 204 | 226 | 224 | 192 | 168 | 155 | 172 | 119 | 117 | 113 | 98 | 72 | 74 | 75 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 111 | 115 | 109 | 108 | 117 | 104 | 79.9 | 101 | 76.5 | 86.7 | 74.2 | 52.4 | 21.2 | 22.4 | 27 |
| Hardness (mg/L) | 160 | 169 | 166 | 161 | 152 | 129 | 107 | 128 | 77.4 | 89.1 | 69.4 | 50.3 | 23.2 | 25.8 | 29.2 |
| NTU (ntu) | 0.51 | 0.28 | 0.81 | 1.35 | 1.05 | 1.01 | 2.18 | 0.4 | 2.23 | 0.83 | 0.62 | 3.07 | 1.69 | 1.47 | 1.09 |
| TDS (mg/L) | 205 | 204 | 226 | 224 | 192 | 168 | 155 | 172 | 119 | 117 | 113 | 98 | 72 | 74 | 75 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | 3.8 | 3.2 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00031 | 0.0003 | 0.00044 | 0.00036 | 0.00027 | 0.00028 | 0.00032 | 0.0003 | 0.00034 | 0.00033 | 0.00035 | 0.00037 | 0.00027 | 0.00027 | 0.00035 |
| Barium (Ba)-Total | 0.0192 | 0.0194 | 0.0195 | 0.0197 | 0.0203 | 0.0147 | 0.0133 | 0.0149 | 0.011 | 0.0123 | 0.0105 | 0.0111 | 0.00761 | 0.00724 | 0.00731 |
| Boron (B)-Total (mg/L) | 0.061 | 0.057 | 0.057 | 0.062 | 0.062 | 0.061 | 0.049 | 0.059 | 0.047 | 0.049 | 0.041 | 0.022 | 0.012 | 0.013 | 0.016 |
| Calcium (Ca)-Total ( | 45.8 | 48.4 | 48.6 | 48 | 44.0 | 34.5 | 30.6 | 36.6 | 22.1 | 24.5 | 20.4 | 14.4 | 6.97 | 7.36 | 8.33 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00055 | 0.00117 | 0.00097 | 0.00081 | 0.0008 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00017 | 0.00015 | 0.00011 | 0.00011 |
| Magnesium (Mg)-Total (mg/L) | 11.8 | 11.9 | 7.63 | 11.9 | 11.2 | 8.63 | 7.56 | 8.99 | 6.01 | 6.47 | 5.28 | 3.46 | 1.65 | 1.72 | 2 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.0005 | <0.00050 | 0.00059 | <0.00050 | 0.00055 | 0.00118 | 0.00097 | 0.00083 | 0.00083 |
| Silicon (Si)-Total (mg/L) | 8.02 | 7.85 | 8.14 | 7.81 | 7.66 | 6.1 | 6.23 | 7.07 | 5.55 | 5.84 | 5.44 | 5.18 | 4.26 | 3.96 | 3.93 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000013 | 0.000012 | 0.000012 | 0.000012 |
| Sodium (Na)-Total (mg/L) | 6.4 | 6.23 | 6.56 | 6.71 | 6.44 | 6.13 | 5.37 | 5.9 | 5.58 | 6.04 | 4.84 | 2.76 | 1.53 | 1.62 | 1.82 |
| Strontium (Sr)-Total (mg/L) | 0.251 | 0.231 | 0.249 | 0.235 | 0.235 | 0.185 | 0.181 | 0.19 | 0.169 | 0.174 | 0.157 | 0.117 | 0.0668 | 0.0738 | 0.0891 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00065 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0187 | 0.0162 | 0.0166 | 0.0264 | 0.0158 | 0.019 | 0.0492 | 0.0268 | 0.0553 | 0.0418 | 0.179 | 0.429 | 0.383 | 0.302 | 0.248 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00232 | 0.00215 | 0.00216 | 0.00246 | 0.00212 | <0.0025 | 0.00325 | 0.00233 | 0.00372 | 0.00302 | 0.00356 | 0.00644 | 0.00651 | 0.00615 | 0.00589 |
| Total Iron (mg/L) | 0.05 | 0.043 | 0.07 | 0.057 | 0.053 | 0.066 | 0.099 | 0.06 | 0.121 | 0.094 | 0.155 | 0.458 | 0.286 | 0.214 | 0.198 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000085 | 0.000059 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0131 | 0.0109 | 0.0157 | 0.0178 | 0.0126 | 0.0128 | 0.00685 | 0.00814 | 0.00974 | 0.0109 | 0.00778 | 0.011 | 0.00675 | 0.00536 | 0.00702 |
| Total Molybdenum (mg/L) | 0.00735 | 0.00718 | 0.00754 | 0.00769 | 0.00656 | 0.00468 | 0.00379 | 0.00552 | 0.00155 | 0.00174 | 0.00104 | 0.000612 | 0.000172 | 0.000201 | 0.000289 |
| Total Selenium (mg/L) | 0.00067 | 0.00092 | 0.00129 | 0.00155 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0035 | <0.0030 | <0.0030 | <0.0030 |

| | E208039 : W5 - Bootjack Creek above Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 16-May-12 | 24-May-12 | 7-Jun-12 | 5-Jul-12 | 2-Aug-12 | 6-Sep-12 | 3-Oct-12 | 5-Nov-12 | 6-Dec-12 | 3-Jan-13 | 7-Feb-13 | 14-Mar-13 | 4-Apr-13 | 18-Apr-13 | 25-Apr-13 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | 0.004 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | | | | |
| TDS (mg/L) | 80 | 90 | 89 | 98 | 126 | 146 | 144 | 96 | 91 | 116 | 111 | 121 | 73 | | |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 35.7 | 50.1 | 31.1 | 38.8 | 88.5 | 118 | 115 | 34.5 | 49.6 | 77.1 | 73.3 | 61.9 | 28.9 | | |
| Hardness (mg/L) | 36.2 | 46.2 | 35.9 | 43.4 | 81.1 | 119 | 110 | 44.3 | 55.3 | 72.9 | 71.7 | 72.4 | 32.8 | | |
| NTU (ntu) | 1.14 | 0.71 | 3.37 | 2.16 | 0.64 | 0.27 | 2.33 | 6.28 | 1.69 | 2.01 | 0.69 | 4.35 | 2.46 | 1.51 | 1.15 |
| TDS (mg/L) | 80 | 90 | 89 | 98 | 126 | 146 | 144 | 96 | 91 | 116 | 111 | 121 | 73 | | |
| TSS (mg/L) | <3.0 | <3.0 | 3.8 | <3.0 | <3.0 | <3.0 | 3.7 | <3.0 | 3.8 | 3.6 | <3.0 | 3.2 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.0001 | 0.00012 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00011 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | |
| Arsenic (As)-Total ( | 0.00039 | 0.0004 | 0.00044 | 0.00046 | 0.00046 | 0.00036 | 0.00029 | 0.00047 | 0.00037 | 0.00034 | 0.00039 | 0.00036 | 0.00106 | | |
| Barium (Ba)-Total | 0.00932 | 0.00903 | 0.0113 | 0.0109 | 0.0152 | 0.0191 | 0.0169 | 0.0107 | 0.00889 | 0.0118 | 0.0107 | 0.0142 | 0.0108 | | |
| Boron (B)-Total (mg/L) | 0.022 | 0.021 | 0.019 | 0.02 | 0.041 | 0.049 | 0.042 | 0.023 | 0.027 | 0.039 | 0.037 | 0.023 | 0.013 | | |
| Calcium (Ca)-Total ( | 10.6 | 13.4 | 11.1 | 13 | 23.4 | 33.8 | 32.3 | 12.6 | 15.9 | 20.8 | 19.9 | 20.6 | 9.3 | | |
| Chromium (Cr)-Total (mg/L) | 0.00088 | 0.00058 | 0.00131 | 0.00103 | <0.00050 | <0.00050 | <0.00050 | 0.00116 | 0.00072 | <0.00050 | <0.00050 | 0.00073 | 0.00113 | | |
| Cobalt (Co)-Total (m | 0.0001 | <0.00010 | 0.00021 | 0.00012 | <0.00010 | <0.00010 | <0.00010 | 0.00022 | 0.00012 | <0.00010 | <0.00010 | 0.00016 | 0.0002 | | |
| Magnesium (Mg)-Total (mg/L) | 2.61 | 3.25 | 2.57 | 3.1 | 5.79 | 8.49 | 7.74 | 3.09 | 4.21 | 5.55 | 5.32 | 5.1 | 2.33 | | |
| Nickel (Ni)-Total (mg/L) | 0.00083 | 0.00068 | 0.0013 | 0.00127 | 0.00074 | <0.00050 | <0.00050 | 0.00114 | 0.00075 | 0.00052 | 0.00051 | 0.00116 | 0.00113 | | |
| Silicon (Si)-Total (mg/L) | 4.28 | 4.36 | 4.66 | 5.08 | 5.8 | 6.45 | 6 | 5.15 | 5.38 | 5.51 | 5.32 | 4.84 | 4.85 | | |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | 0.000021 | 0.000013 | <0.000010 | <0.000010 | <0.000010 | 0.000017 | 0.000019 | <0.000010 | <0.000010 | <0.000010 | 0.000015 | | |
| Sodium (Na)-Total (mg/L) | 2.49 | 3.01 | 2.03 | 2.29 | 5.27 | 6.96 | 6.41 | 2.74 | 3.4 | 5.5 | 5.37 | 3.31 | 1.99 | | |
| Strontium (Sr)-Total (mg/L) | 0.105 | 0.119 | 0.107 | 0.127 | 0.187 | 0.254 | 0.23 | 0.109 | 0.149 | 0.18 | 0.165 | 0.157 | 0.0821 | | |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | |
| Total Aluminum (mg/L) | 0.205 | 0.11 | 0.501 | 0.311 | 0.051 | 0.019 | 0.0229 | 0.475 | 0.207 | 0.0551 | 0.0563 | 0.281 | 0.448 | | |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | 0.000014 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000011 | | |
| Total Copper (mg/L) | 0.0073 | 0.00572 | 0.00903 | 0.00725 | 0.0041 | 0.00223 | 0.00219 | 0.00716 | 0.00488 | 0.00357 | 0.00436 | 0.00605 | 0.00756 | | |
| Total Iron (mg/L) | 0.22 | 0.14 | 0.464 | 0.32 | 0.123 | 0.045 | 0.046 | 0.561 | 0.372 | 0.126 | 0.141 | 0.364 | 0.427 | | |
| Total Lead (mg/L) | <0.000050 | <0.000050 | 0.000102 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000123 | 0.00006 | <0.000050 | <0.000050 | 0.000085 | 0.000082 | | |
| Total Manganese (mg/L) | 0.0128 | 0.00739 | 0.0267 | 0.0119 | 0.0198 | 0.0181 | 0.0162 | 0.0346 | 0.0183 | 0.0114 | 0.0124 | 0.0411 | 0.0149 | | |
| Total Molybdenum (mg/L) | 0.000488 | 0.000619 | 0.000384 | 0.000436 | 0.0019 | 0.00242 | 0.00207 | 0.00049 | 0.000719 | 0.00094 | 0.000778 | 0.000908 | 0.000325 | | |
| Total Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | |
| Zinc (Zn)-Total (mg/L) | 0.0031 | <0.0030 | 0.0038 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0031 | | |

| | E208039 : W5 - Bootjack Creek above Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1-May-13 | 9-May-13 | 16-May-13 | 6-Jun-13 | 10-Jul-13 | 8-Aug-13 | 5-Sep-13 | 24-Sep-13 | 3-Oct-13 | 10-Oct-13 | 17-Oct-13 | 24-Oct-13 | 29-Oct-13 | 7-Nov-13 | 3-Dec-13 |
| Diss-Zinc (Zn) (mg/L) | | | | | | | | | | | | | | | |
| TDS (mg/L) | 77 | | | 84 | 125 | 174 | 182 | | 176 | | | | | 133 | 134 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 22.6 | | | 40.8 | 81.4 | 135 | 143 | | 85.4 | | | | | 80.8 | 41.0 |
| Hardness (mg/L) | 24.5 | | | 41.8 | 79.4 | 119 | 139 | | 119 | | | | | 86.9 | 65.2 |
| NTU (ntu) | 1.37 | 2.22 | 1.24 | 1.21 | 1.29 | 2.26 | 0.64 | 1.79 | 0.36 | 2.67 | 1.04 | 0.28 | 0.52 | 0.84 | 6.31 |
| TDS (mg/L) | 77 | | | 84 | 125 | 174 | 182 | | 176 | | | | | 133 | 134 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | 55.6 | 5.3 | 6.0 | 4.8 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | | | | <0.00010 | 0.00011 |
| Arsenic (As)-Total ( | 0.00031 | | | 0.00049 | 0.0005 | 0.00064 | 0.00041 | | 0.00037 | | | | | 0.00033 | 0.00042 |
| Barium (Ba)-Total | 0.0067 | | | 0.00984 | 0.0167 | 0.0285 | 0.0222 | | 0.0189 | | | | | 0.0142 | 0.0171 |
| Boron (B)-Total (mg/L) | 0.011 | | | 0.018 | 0.037 | 0.062 | 0.063 | | 0.038 | | | | | 0.033 | 0.023 |
| Calcium (Ca)-Total ( | 7.02 | | | 11.9 | 22.8 | 34.7 | 40 | | 33.9 | | | | | 24.5 | 18.5 |
| Chromium (Cr)-Total (mg/L) | 0.00079 | | | 0.00081 | <0.00050 | 0.00066 | <0.00050 | | <0.00050 | | | | | <0.00050 | 0.00136 |
| Cobalt (Co)-Total (m | 0.00012 | | | 0.0001 | <0.00010 | 0.00032 | <0.00010 | | <0.00010 | | | | | <0.00010 | 0.00030 |
| Magnesium (Mg)-Total (mg/L) | 1.7 | | | 2.92 | 5.47 | 7.88 | 9.45 | | 8.4 | | | | | 6.21 | 4.62 |
| Nickel (Ni)-Total (mg/L) | 0.00077 | | | 0.00095 | 0.00075 | 0.00103 | 0.00057 | | 0.0006 | | | | | <0.00050 | 0.00120 |
| Silicon (Si)-Total (mg/L) | 4.14 | | | 4.4 | 5.96 | 6.74 | 6.52 | | 5.78 | | | | | 5.15 | 6.00 |
| Silver (Ag)-Total (mg/L) | <0.000010 | | | 0.000011 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 | | | | | <0.000010 | 0.000025 |
| Sodium (Na)-Total (mg/L) | 1.63 | | | 2.53 | 4.93 | 9.01 | 8.92 | | 5.4 | | | | | 4.84 | 3.61 |
| Strontium (Sr)-Total (mg/L) | 0.0682 | | | 0.124 | 0.216 | 0.311 | 0.311 | | 0.255 | | | | | 0.183 | 0.155 |
| Tin (Sn)-Total (mg/L) | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | | | | | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.272 | | | 0.196 | 0.0905 | 0.363 | 0.0537 | | 0.0922 | | | | | 0.0691 | 0.590 |
| Total Cadmium (mg/L) | <0.000010 | | | <0.000010 | 0.000014 | 0.000022 | <0.000010 | | <0.000010 | | | | | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00575 | | | 0.00639 | 0.00596 | 0.00576 | 0.00252 | | 0.00337 | | | | | 0.00354 | 0.00760 |
| Total Iron (mg/L) | 0.175 | | | 0.214 | 0.142 | 0.504 | 0.075 | | 0.141 | | | | | 0.121 | 0.614 |
| Total Lead (mg/L) | <0.000050 | | | <0.000050 | <0.000050 | 0.00013 | <0.000050 | | <0.000050 | | | | | <0.000050 | 0.000150 |
| Total Manganese (mg/L) | 0.00446 | | | 0.0144 | 0.0318 | 0.44 | 0.0815 | | 0.0544 | | | | | 0.0302 | 0.0304 |
| Total Molybdenum (mg/L) | 0.000199 | | | 0.000471 | 0.00169 | 0.00328 | 0.00325 | | 0.00178 | | | | | 0.00119 | 0.000836 |
| Total Selenium (mg/L) | <0.00050 | | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | | | | | <0.00050 | 0.00107 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | | | <0.0030 | <0.0030 | 0.0041 | <0.0030 | | 0.0032 | | | | | <0.0030 | 0.0036 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E208039 : W5 - Bootjack Creek above Hazeltine Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 168 | 84 | 0.00500 | 0.08600 | 0.00806 | 0.02240 | 0.00801 |
| Chloride (mg/L) | 74 | 41 | 0.25000 | 1.87000 | 0.69459 | 1.40500 | 0.40963 |
| Diss-Orthophosphate (mg/L) | 172 | 138 | 0.00050 | 0.10200 | 0.00531 | 0.02320 | 0.00978 |
| Diss-Phosphorus (mg/L) | 88 | 84 | 0.00250 | 0.04800 | 0.01133 | 0.03400 | 0.00629 |
| Nitrate (N) (mg/L) | 103 | 95 | 0.00000 | 2.57000 | 0.20563 | 0.61075 | 0.35216 |
| Nitrate and Nitrite (mg/L) | 63 | 51 | 0.00255 | 2.57000 | 0.19826 | 0.16000 | 0.39544 |
| Nitrite (N) (mg/L) | 148 | 81 | 0.00050 | 0.06200 | 0.00323 | 0.01040 | 0.00576 |
| Sulphate (mg/L) | 171 | 164 | 0.50000 | 1,760.00000 | 22.12889 | 29.67500 | 134.53276 |
| Total Nitrogen (mg/L) | 73 | 70 | 0.06000 | 3.87000 | 0.61156 | 1.23500 | 0.51283 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 142 | 140 | 0.00150 | 0.59200 | 0.12456 | 0.25400 | 0.09941 |
| Diss-Antimony (Sb) (mg/L) | 138 | 51 | 0.00003 | 0.00021 | 0.00006 | 0.00011 | 0.00003 |
| Diss-Arsenic (As) (mg/L) | 145 | 131 | 0.00005 | 0.00100 | 0.00036 | 0.00080 | 0.00018 |
| Diss-Barium (Ba) (mg/L) | 138 | 134 | 0.00500 | 0.02430 | 0.01093 | 0.01761 | 0.00407 |
| Diss-Beryllium (Be) (mg/L) | 138 | 0 | 0.00003 | 0.00250 | 0.00031 | 0.00250 | 0.00072 |
| Diss-Boron (B) (mg/L) | 74 | 60 | 0.00500 | 0.10000 | 0.03670 | 0.05000 | 0.01849 |
| Diss-Cadmium (Cd) (mg/L) | 138 | 28 | 0.00001 | 0.00034 | 0.00002 | 0.00010 | 0.00004 |
| Diss-Calcium (Ca) (mg/L) | 137 | 137 | 6.70000 | 164.00000 | 21.00686 | 33.97000 | 16.23580 |
| Diss-Chromium (Cr) (mg/L) | 138 | 69 | 0.00010 | 0.00520 | 0.00057 | 0.00179 | 0.00061 |
| Diss-Cobalt (Co) (mg/L) | 138 | 63 | 0.00001 | 0.00091 | 0.00014 | 0.00051 | 0.00018 |
| Diss-Copper (Cu) (mg/L) | 163 | 161 | 0.00020 | 0.07520 | 0.00522 | 0.00750 | 0.00587 |
| Diss-Iron (Fe) (mg/L) | 145 | 139 | 0.00100 | 0.64600 | 0.15434 | 0.28430 | 0.09157 |
| Diss-Lead (Pb) (mg/L) | 145 | 68 | 0.00001 | 0.00146 | 0.00016 | 0.00101 | 0.00027 |
| Diss-Magnesium (Mg) (mg/L) | 136 | 136 | 1.57000 | 13.40000 | 5.17640 | 8.19200 | 2.77063 |
| Diss-Manganese (Mn) (mg/L) | 139 | 134 | 0.00025 | 6.82000 | 0.06058 | 0.04715 | 0.57823 |
| Diss-Molybdenum (Mo) (mg/L) | 156 | 143 | 0.00017 | 0.00728 | 0.00134 | 0.00185 | 0.00146 |
| Diss-Nickel (Ni) (mg/L) | 138 | 73 | 0.00025 | 0.00300 | 0.00055 | 0.00090 | 0.00035 |
| Diss-Potassium (K) (mg/L) | 138 | 138 | 0.33300 | 1.43000 | 0.73936 | 1.08600 | 0.21200 |
| Diss-Selenium (mg/L) | 138 | 22 | 0.00005 | 0.00340 | 0.00046 | 0.00173 | 0.00052 |
| Diss-Silicon (Si) (mg/L) | 136 | 136 | 3.60000 | 9.13000 | 5.37846 | 6.82400 | 1.10981 |
| Diss-Silver (Ag) (mg/L) | 138 | 28 | 0.00001 | 0.00005 | 0.00001 | 0.00005 | 0.00001 |
| Diss-Sodium (Na) (mg/L) | 136 | 136 | 1.42000 | 7.37000 | 3.67051 | 5.68800 | 1.51827 |
| Diss-Strontium (Sr) (mg/L) | 138 | 138 | 0.05550 | 0.25800 | 0.12992 | 0.21450 | 0.05234 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E208039 : W5 - Bootjack Creek above Hazeltine Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 122 | 39 | 0.00003 | 0.00099 | 0.00009 | 0.00030 | 0.00012 |
| Diss-Zinc (Zn) (mg/L) | 145 | 78 | 0.00003 | 0.04300 | 0.00204 | 0.00309 | 0.00357 |
| TDS (mg/L) | 117 | 104 | 1.50000 | 230.00000 | 102.47094 | 141.90000 | 56.65250 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 178 | 173 | 0.50000 | 374.00000 | 60.80337 | 109.90000 | 39.28095 |
| Hardness (mg/L) | 167 | 167 | 23.20000 | 175.00000 | 71.00240 | 117.25000 | 37.18308 |
| NTU (ntu) | 185 | 182 | 0.27000 | 357.00000 | 4.25632 | 6.71000 | 26.18472 |
| TDS (mg/L) | 117 | 104 | 1.50000 | 230.00000 | 102.47094 | 141.90000 | 56.65250 |
| TSS (mg/L) | 172 | 48 | 0.50000 | 158.00000 | 4.13634 | 8.96500 | 13.40117 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 157 | 67 | 0.00003 | 0.00039 | 0.00006 | 0.00012 | 0.00004 |
| Arsenic (As)-Total ( | 176 | 172 | 0.00010 | 0.02700 | 0.00056 | 0.00104 | 0.00202 |
| Barium (Ba)-Total | 157 | 152 | 0.00560 | 0.06900 | 0.01268 | 0.02032 | 0.00644 |
| Boron (B)-Total (mg/L) | 86 | 72 | 0.00500 | 0.16000 | 0.03915 | 0.05000 | 0.02301 |
| Calcium (Ca)-Total ( | 169 | 169 | 6.94000 | 48.60000 | 19.74302 | 31.41000 | 10.14372 |
| Chromium (Cr)-Total (mg/L) | 157 | 87 | 0.00001 | 0.00586 | 0.00066 | 0.00224 | 0.00069 |
| Cobalt (Co)-Total (m | 157 | 94 | 0.00001 | 0.00400 | 0.00027 | 0.00100 | 0.00043 |
| Magnesium (Mg)-Total (mg/L) | 169 | 169 | 1.65000 | 21.90000 | 5.21621 | 8.16300 | 2.93337 |
| Nickel (Ni)-Total (mg/L) | 169 | 112 | 0.00025 | 0.00600 | 0.00066 | 0.00124 | 0.00055 |
| Silicon (Si)-Total (mg/L) | 169 | 169 | 2.00000 | 9.60000 | 5.39772 | 7.24000 | 1.31117 |
| Silver (Ag)-Total (mg/L) | 157 | 62 | 0.00001 | 0.00006 | 0.00001 | 0.00005 | 0.00001 |
| Sodium (Na)-Total (mg/L) | 156 | 156 | 1.50000 | 9.26000 | 3.80686 | 5.68000 | 1.68561 |
| Strontium (Sr)-Total (mg/L) | 171 | 171 | 0.04660 | 2.95000 | 0.15341 | 0.21730 | 0.22227 |
| Tin (Sn)-Total (mg/L) | 132 | 47 | 0.00003 | 0.00192 | 0.00013 | 0.00052 | 0.00026 |
| Total Aluminum (mg/L) | 173 | 173 | 0.00950 | 2.26000 | 0.23032 | 0.52815 | 0.25417 |
| Total Cadmium (mg/L) | 157 | 27 | 0.00001 | 0.00049 | 0.00004 | 0.00020 | 0.00006 |
| Total Copper (mg/L) | 176 | 174 | 0.00100 | 0.09600 | 0.00656 | 0.01080 | 0.00895 |
| Total Iron (mg/L) | 176 | 175 | 0.00200 | 2.27000 | 0.28261 | 0.61700 | 0.26938 |
| Total Lead (mg/L) | 176 | 104 | 0.00002 | 0.01500 | 0.00038 | 0.00150 | 0.00125 |
| Total Manganese (mg/L) | 169 | 169 | 0.00360 | 0.44000 | 0.02719 | 0.07576 | 0.05186 |
| Total Molybdenum (mg/L) | 169 | 147 | 0.00003 | 0.00777 | 0.00142 | 0.00194 | 0.00162 |
| Total Selenium (mg/L) | 168 | 35 | 0.00005 | 0.00400 | 0.00045 | 0.00344 | 0.00057 |
| Zinc (Zn)-Total (mg/L) | 176 | 116 | 0.00003 | 0.03520 | 0.00278 | 0.01190 | 0.00364 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E208038 : W7 - Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6-Jan-09 | 28-Jan-09 | 10-Feb-09 | 24-Feb-09 | 18-Mar-09 | 1-Apr-09 | 13-May-09 | 11-Aug-09 | 19-Nov-09 | 10-Feb-10 | 12-May-10 | 8-Jul-10 | 5-Aug-10 | 23-Aug-10 | 1-Sep-10 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | 0.0066 | <0.005 | <0.005 | <0.005 | 0.0051 | <0.005 | 0.0061 | <0.005 | 0.0094 | 0.025 | 0.0103 | 0.0072 | <0.005 | 0.0334 |
| Chloride (mg/L) | | <0.5 | <0.5 | | | <0.5 | <0.5 | 0.78 | 0.88 | 0.58 | <0.5 | <0.5 | 0.7 | 1.03 | 1.02 |
| Diss-Orthophosphate (mg/L) | 0.0116 | 0.0168 | 0.017 | 0.0151 | 0.0137 | 0.0119 | 0.0011 | 0.017 | 0.005 | 0.0147 | 0.0088 | 0.0105 | 0.0143 | 0.0072 | 0.0047 |
| Diss-Phosphorus (mg/L) | 0.0149 | 0.0206 | 0.0228 | 0.0199 | 0.0172 | 0.0169 | 0.0064 | 0.0195 | 0.015 | 0.0185 | 0.0128 | 0.0163 | 0.0191 | 0.0123 | 0.01 |
| Nitrate (N) (mg/L) | 0.127 | 0.136 | 0.12 | 0.12 | 0.11 | 0.228 | 0.0147 | 0.0377 | 0.499 | 0.0874 | 0.0193 | 0.022 | 0.013 | 3.83 | 10.7 |
| Nitrate and Nitrite (mg/L) | | | | | | | | | | | 0.0218 | 0.022 | 0.014 | 3.85 | 10.8 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | 0.0017 | <0.001 | 0.0015 | 0.0014 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0025 | <0.001 | <0.001 | 0.0262 | 0.116 |
| Sulphate (mg/L) | 25 | 25.9 | 25.9 | 24.9 | 25.6 | 25.5 | 18.5 | 26.5 | 23.2 | 31.9 | 26.1 | 27.4 | 26.6 | 32.4 | 32.9 |
| Total Nitrogen (mg/L) | 0.37 | 0.33 | 0.22 | 0.38 | 0.3 | 0.41 | 0.34 | 0.24 | 1.05 | 0.34 | 0.34 | 0.26 | 0.23 | 5.32 | 13.9 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0051 | 0.0049 | 0.0229 | 0.0044 | <0.004 | 0.0095 | 0.0623 | 0.0067 | 0.212 | 0.0133 | 0.021 | 0.0077 | 0.0058 | 0.0058 | 0.0063 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Arsenic (As) (mg/L) | 0.0004 | 0.0004 | 0.00038 | 0.00038 | 0.00041 | 0.00039 | 0.00029 | 0.0006 | 0.00041 | 0.00044 | 0.00039 | 0.00053 | 0.0006 | 0.00049 | 0.00048 |
| Diss-Barium (Ba) (mg/L) | 0.00881 | 0.00738 | 0.00706 | 0.00657 | 0.0072 | 0.00765 | 0.00656 | 0.00791 | 0.00918 | 0.0084 | 0.00734 | 0.00847 | 0.00849 | 0.00885 | 0.0125 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Boron (B) (mg/L) | 0.022 | 0.021 | 0.02 | 0.02 | 0.022 | 0.022 | 0.015 | 0.021 | 0.02 | 0.026 | 0.025 | 0.026 | 0.024 | 0.032 | 0.036 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 |
| Diss-Calcium (Ca) (mg/L) | 32.6 | 34.3 | 34.2 | 31 | 33.2 | 34.1 | 21.9 | 37.2 | 23.1 | 35.1 | 37.1 | 35.1 | 37.2 | 43.2 | 48.3 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00106 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00055 | 0.00136 |
| Diss-Copper (Cu) (mg/L) | 0.00187 | 0.00173 | 0.00171 | 0.00157 | 0.00176 | 0.00198 | 0.0028 | 0.00131 | 0.00603 | 0.00205 | 0.0021 | 0.00153 | 0.00129 | 0.00125 | 0.00183 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | 0.05 | 0.031 | 0.265 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | 0.051 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.000089 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 4.9 | 5.13 | 4.88 | 4.77 | 4.96 | 5.09 | 3.62 | 6.15 | 5.07 | 5.79 | 4.95 | 5.85 | 6.18 | 8.55 | 10.5 |
| Diss-Manganese (Mn) (mg/L) | 0.000656 | 0.00314 | 0.00276 | 0.00311 | 0.00268 | 0.00437 | 0.00193 | 0.000493 | 0.00567 | 0.00348 | 0.00513 | 0.00175 | 0.000584 | 0.00706 | 0.009 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00194 | 0.00186 | 0.00186 | 0.00181 | 0.00198 | 0.00196 | 0.00145 | 0.002 | 0.00132 | 0.00212 | 0.00192 | 0.00211 | 0.00208 | 0.00229 | 0.00218 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00075 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Potassium (K) (mg/L) | 0.512 | 0.461 | 0.428 | 0.421 | 0.455 | 0.471 | 0.396 | 0.554 | 0.575 | 0.491 | 0.426 | 0.46 | 0.519 | 0.635 | 1.16 |
| Diss-Selenium (mg/L) | 0.0011 | <0.001 | <0.001 | 0.0011 | <0.001 | 0.0011 | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Diss-Silicon (Si) (mg/L) | 4.18 | 4.3 | 4.21 | 4.13 | 4.26 | 4.33 | 3.48 | 3.69 | 5.2 | 4.61 | 3.26 | 3.29 | 2.8 | 3.74 | 4.55 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Diss-Sodium (Na) (mg/L) | 4.94 | 4.56 | 4.32 | 4.42 | 4.57 | 4.58 | 3.2 | 4.83 | 3.56 | 4.8 | 4.2 | 4.43 | 4.94 | 5.46 | 5.67 |
| Diss-Strontium (Sr) (mg/L) | 0.225 | 0.204 | 0.245 | 0.219 | 0.214 | 0.201 | 0.165 | 0.24 | 0.147 | 0.239 | 0.213 | 0.229 | 0.242 | 0.271 | 0.285 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

| | E208038 : W7 - Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 23-Sep-10 | 7-Oct-10 | 3-Nov-10 | 1-Dec-10 | 10-Jan-11 | 2-Feb-11 | 7-Mar-11 | 5-Apr-11 | 11-May-11 | 8-Jun-11 | 14-Jul-11 | 4-Aug-11 | 25-Aug-11 | 8-Sep-11 | 20-Sep-11 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | 0.0089 | 0.0287 | <0.005 | <0.005 | 0.0058 | <0.005 | <0.005 | 0.0217 | 0.0155 | 0.0174 | 0.0117 | 0.0092 | 0.0062 |
| Chloride (mg/L) | 0.76 | 1.09 | 1.51 | 1.11 | 0.57 | 0.59 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.50 | 0.55 | 0.67 |
| Diss-Orthophosphate (mg/L) | 0.0021 | 0.0035 | 0.0071 | 0.0124 | 0.0191 | 0.0204 | 0.026 | 0.0147 | 0.0036 | 0.0118 | <0.001 | 0.0053 | 0.0052 | 0.0082 | 0.0048 |
| Diss-Phosphorus (mg/L) | 0.007 | 0.0072 | 0.0108 | 0.0165 | 0.0272 | 0.0243 | 0.0289 | 0.0228 | 0.0113 | 0.0154 | 0.0046 | 0.0093 | | | |
| Nitrate (N) (mg/L) | 0.147 | <0.005 | 0.155 | 0.112 | 0.175 | 0.109 | 0.0904 | 0.799 | 0.0163 | 0.01 | 0.0179 | 0.0355 | 0.0283 | 0.0437 | 0.0236 |
| Nitrate and Nitrite (mg/L) | 0.147 | <0.0051 | 0.155 | 0.114 | 0.175 | 0.109 | 0.0904 | 0.799 | 0.0163 | 0.01 | 0.0179 | 0.0355 | 0.0283 | 0.0458 | 0.0236 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | 0.0016 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0010 | 0.002 | <0.0010 |
| Sulphate (mg/L) | 27.6 | 25.6 | 31.4 | 27.3 | 31.1 | 33 | 31.7 | 33.9 | 18.4 | 27.1 | 26.7 | 9.83 | 27.2 | 27.1 | 27 |
| Total Nitrogen (mg/L) | 0.41 | 0.25 | 0.312 | 0.36 | 0.363 | 0.34 | 0.323 | 1.14 | 0.48 | 0.37 | 0.44 | 0.54 | 0.29 | 0.22 | 0.22 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0078 | 0.0066 | 0.0038 | 0.0039 | 0.0054 | 0.005 | <0.003 | 0.0788 | 0.0985 | 0.0128 | 0.0167 | 0.0304 | 0.0098 | 0.0041 | 0.0058 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00045 | 0.00041 | 0.00047 | 0.0005 | 0.00046 | 0.00044 | 0.00043 | 0.00044 | 0.00032 | 0.0004 | 0.00047 | 0.00067 | 0.0005 | 0.00052 | 0.00049 |
| Diss-Barium (Ba) (mg/L) | 0.01 | 0.00764 | 0.00838 | 0.00871 | 0.00761 | 0.00927 | 0.00794 | 0.00905 | 0.00734 | 0.00707 | 0.00693 | 0.0124 | 0.00676 | 0.00755 | 0.00681 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.023 | 0.027 | 0.03 | 0.025 | 0.026 | 0.024 | 0.021 | 0.023 | 0.018 | 0.02 | 0.022 | 0.021 | 0.023 | 0.022 | 0.023 |
| Diss-Cadmium (Cd) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 38.6 | 39 | 43 | 40 | 36.9 | 36.5 | 34.8 | 33.4 | 20.3 | 31.5 | 33.9 | 33.1 | 34 | 34.6 | 35 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00153 | 0.00159 | 0.0013 | 0.00122 | 0.00149 | 0.00223 | 0.00144 | 0.00298 | 0.00363 | 0.00191 | 0.00173 | 0.00234 | 0.00137 | 0.00128 | 0.00122 |
| Diss-Iron (Fe) (mg/L) | 0.034 | 0.041 | 0.037 | <0.03 | <0.03 | <0.03 | <0.03 | 0.091 | 0.078 | <0.03 | 0.036 | 0.12 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 7.04 | 7.56 | 8.63 | 7.02 | 5.89 | 5.81 | 5.43 | 5.57 | 3.6 | 4.81 | 4.95 | 5.92 | 5.32 | 5.66 | 6 |
| Diss-Manganese (Mn) (mg/L) | 0.000881 | 0.00912 | 0.00812 | 0.024 | 0.00555 | 0.00343 | 0.00437 | 0.00694 | 0.00159 | 0.00682 | 0.015 | 0.0116 | 0.000373 | 0.000155 | 0.0107 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00216 | 0.00192 | 0.00183 | 0.00174 | 0.00206 | 0.00201 | 0.00198 | 0.00162 | 0.00129 | 0.00204 | 0.00206 | 0.00212 | 0.0022 | 0.00206 | 0.00205 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00058 | <0.0005 | <0.0005 | 0.001 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.709 | 0.583 | 0.647 | 0.568 | 0.476 | 0.494 | 0.46 | 0.553 | 0.42 | 0.408 | 0.375 | 0.509 | 0.385 | 0.432 | 0.46 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | 0.00071 | <0.001 | 0.00068 | 0.00067 | 0.00057 | 0.00105 | 0.00072 | 0.00068 | 0.0007 | 0.0006 | 0.00058 |
| Diss-Silicon (Si) (mg/L) | 3.78 | 3.64 | 5.34 | 4.7 | 4.32 | 4.21 | 3.85 | 4.3 | 3.53 | 3.4 | 3.54 | 4.12 | 3.45 | 3.57 | 3.7 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 5.73 | 5.58 | 5.99 | 5.1 | 4.71 | 4.85 | 4.74 | 3.91 | 2.98 | 3.9 | 4.26 | 4.06 | 4.91 | 4.6 | 4.94 |
| Diss-Strontium (Sr) (mg/L) | 0.235 | 0.244 | 0.269 | 0.236 | 0.257 | 0.255 | 0.235 | 0.218 | 0.137 | 0.221 | 0.214 | 0.215 | 0.249 | 0.226 | 0.24 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00071 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 |

| | E208038 : W7 - Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 30-Sep-11 | 6-Oct-11 | 12-Oct-11 | 19-Oct-11 | 1-Nov-11 | 5-Dec-11 | 5-Jan-12 | 1-Feb-12 | 15-Mar-12 | 3-Apr-12 | 12-Apr-12 | 18-Apr-12 | 26-Apr-12 | 3-May-12 | 10-May-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0056 | 0.0067 | 0.0086 | 0.0076 | 0.0081 | 0.0171 | 0.012 | 0.0148 | 0.0168 | 0.0128 | 0.0135 | 0.0068 | 0.0096 | 0.0095 | 0.0085 |
| Chloride (mg/L) | 0.97 | 1.2 | 1.27 | 1.37 | 1.28 | 0.66 | 0.54 | <0.50 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <0.50 |
| Diss-Orthophosphate (mg/L) | 0.0042 | 0.004 | 0.0062 | 0.0039 | 0.0071 | 0.0261 | 0.0322 | 0.0379 | 0.0364 | 0.0181 | 0.0055 | 0.0022 | 0.0026 | 0.0096 | 0.0066 |
| Diss-Phosphorus (mg/L) | | 0.0085 | 0.0113 | | 0.0112 | 0.0295 | 0.0394 | 0.0426 | 0.0442 | 0.0278 | 0.0235 | 0.0188 | 0.0146 | 0.0199 | 0.0167 |
| Nitrate (N) (mg/L) | 0.0094 | 0.0486 | 0.0245 | 0.0871 | 0.153 | 0.238 | 0.185 | 0.198 | 0.206 | 0.836 | 1.06 | 0.312 | 0.0735 | 0.0538 | 0.0066 |
| Nitrate and Nitrite (mg/L) | 0.0094 | 0.0514 | 0.0245 | 0.0871 | 0.153 | 0.239 | 0.186 | 0.199 | 0.206 | 0.838 | 1.06 | 0.312 | 0.0735 | 0.0538 | 0.0066 |
| Nitrite (N) (mg/L) | <0.0010 | 0.0028 | <0.0010 | <0.0010 | <0.0010 | 0.0012 | 0.0013 | 0.001 | <0.0010 | 0.002 | <0.0050 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 26.5 | 26.6 | 27 | 25.0 | 25.4 | 27.4 | 28.1 | 29.1 | 28.3 | 27.6 | 17.4 | 13.0 | 12.9 | 22.9 | 26.1 |
| Total Nitrogen (mg/L) | 0.21 | 0.33 | 0.26 | 0.230 | 0.34 | 0.42 | 0.31 | 0.42 | 0.42 | 1.29 | 1.69 | 0.930 | 0.55 | 0.33 | 0.37 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0035 | <0.0030 | 0.0038 | <0.0030 | 0.0036 | 0.0055 | 0.005 | 0.0041 | 0.0034 | 0.0745 | 0.22 | 0.244 | 0.159 | 0.0599 | 0.0263 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00048 | 0.00046 | 0.00051 | 0.00046 | 0.00047 | 0.00051 | 0.00049 | 0.00052 | 0.0005 | 0.00048 | 0.00042 | 0.00036 | 0.00034 | 0.0004 | 0.00047 |
| Diss-Barium (Ba) (mg/L) | 0.0075 | 0.00775 | 0.00801 | 0.00863 | 0.00756 | 0.00695 | 0.00665 | 0.00711 | 0.0067 | 0.00785 | 0.00816 | 0.00747 | 0.00655 | 0.00704 | 0.00695 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.023 | 0.023 | 0.025 | 0.024 | 0.027 | 0.021 | 0.022 | 0.021 | 0.024 | 0.021 | 0.017 | 0.012 | 0.015 | 0.019 | 0.021 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 35.8 | 40.8 | 40.2 | 40.1 | 40.5 | 35.1 | 35.5 | 36.3 | 35.4 | 31.8 | 19.9 | 15.9 | 17.7 | 26.8 | 29.6 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.0007 | 0.00072 | 0.00061 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00011 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.0012 | 0.00111 | 0.00116 | 0.00118 | 0.00106 | 0.00124 | 0.00128 | 0.00131 | 0.00126 | 0.00339 | 0.00565 | 0.00556 | 0.00432 | 0.00265 | 0.00183 |
| Diss-Iron (Fe) (mg/L) | 0.031 | <0.030 | 0.035 | 0.037 | 0.037 | <0.030 | <0.030 | <0.030 | <0.030 | 0.119 | 0.221 | 0.231 | 0.125 | 0.046 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 6.79 | 7.53 | 7.32 | 7.50 | 7.64 | 6.08 | 5.58 | 5.62 | 5.45 | 5.38 | 3.73 | 3.21 | 3.13 | 4.32 | 4.73 |
| Diss-Manganese (Mn) (mg/L) | 0.0121 | 0.0021 | 0.0106 | 0.00876 | 0.0104 | 0.00551 | 0.00347 | 0.00369 | 0.00147 | 0.00917 | 0.00798 | 0.00699 | 0.00394 | 0.00289 | 0.00318 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00194 | 0.00186 | 0.00196 | 0.00182 | 0.00187 | 0.00198 | 0.002 | 0.00206 | 0.00205 | 0.00162 | 0.000989 | 0.000816 | 0.000978 | 0.00171 | 0.00185 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00051 | 0.0009 | 0.00093 | 0.00072 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.534 | 0.61 | 0.655 | 0.620 | 0.608 | 0.473 | 0.458 | 0.488 | 0.448 | 0.511 | 0.555 | 0.496 | 0.421 | 0.404 | 0.392 |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00056 | 0.00061 | 0.00063 | 0.00065 | 0.00059 | <0.00050 | <0.00050 | <0.00050 | 0.00056 | 0.00065 |
| Diss-Silicon (Si) (mg/L) | 4.03 | 4.39 | 4 | 3.95 | 4.52 | 4.55 | 4.38 | 4.37 | 4.35 | 4.85 | 4.31 | 4.36 | 3.77 | 3.69 | 3.58 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 5.19 | 5.47 | 5.63 | 5.52 | 5.35 | 4.72 | 4.62 | 4.69 | 4.53 | 4.11 | 2.76 | 2.40 | 2.68 | 3.62 | 3.89 |
| Diss-Strontium (Sr) (mg/L) | 0.24 | 0.248 | 0.255 | 0.260 | 0.241 | 0.239 | 0.24 | 0.233 | 0.222 | 0.208 | 0.139 | 0.101 | 0.119 | 0.19 | 0.2 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E208038 : W7 - Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 16-May-12 | 24-May-12 | 7-Jun-12 | 5-Jul-12 | 2-Aug-12 | 6-Sep-12 | 3-Oct-12 | 11-Oct-12 | 18-Oct-12 | 25-Oct-12 | 31-Oct-12 | 5-Nov-12 | 6-Dec-12 | 2-Jan-13 | 3-Jan-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0184 | 0.0069 | 0.026 | 0.0135 | 0.0085 | 0.0079 | 0.0103 | <0.020 | 0.0075 | 0.0073 | 0.0084 | 0.0139 | 0.0179 | 0.0117 | 0.0134 |
| Chloride (mg/L) | <0.50 | <0.50 | <2.5 | <2.5 | <0.50 | 0.63 | 1.2 | 1.45 | 1.54 | 1.45 | 1.41 | 1.17 | 0.99 | 0.56 | 0.56 |
| Diss-Orthophosphate (mg/L) | 0.0079 | 0.0131 | 0.006 | 0.007 | 0.0123 | 0.0109 | 0.0092 | 0.0084 | 0.009 | 0.007 | 0.0111 | 0.0116 | 0.0257 | 0.0454 | 0.0454 |
| Diss-Phosphorus (mg/L) | 0.0163 | 0.02 | 0.018 | 0.0165 | 0.0153 | 0.0154 | 0.0135 | 0.012 | 0.0143 | 0.0139 | 0.0174 | 0.024 | 0.0347 | 0.052 | 0.052 |
| Nitrate (N) (mg/L) | <0.0050 | 0.0163 | 0.102 | 0.051 | 0.0255 | <0.0050 | 0.0128 | 0.0151 | 0.022 | 0.0524 | 0.109 | 0.442 | 0.293 | 0.155 | 0.154 |
| Nitrate and Nitrite (mg/L) | <0.0051 | 0.0163 | 0.102 | 0.051 | 0.0255 | <0.0051 | 0.0128 | 0.0161 | 0.022 | 0.0524 | 0.111 | 0.444 | 0.295 | 0.156 | 0.154 |
| Nitrite (N) (mg/L) | <0.0010 | <0.0010 | <0.0050 | <0.0050 | <0.0010 | <0.0010 | <0.0010 | 0.0011 | <0.0010 | <0.0010 | 0.0013 | 0.0023 | 0.0012 | 0.0011 | <0.0010 |
| Sulphate (mg/L) | 26.7 | 27.7 | 17.1 | 4.2 | 27.3 | 27.8 | 26.8 | 26 | 25.3 | 26.1 | 23.8 | 20.5 | 24.4 | 27.7 | 27.8 |
| Total Nitrogen (mg/L) | 0.44 | 0.26 | 0.64 | 0.49 | 0.48 | 0.34 | 0.31 | 0.3 | 0.23 | 0.27 | 0.44 | 0.99 | 0.685 | 0.385 | 0.381 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0127 | 0.0096 | 0.128 | 0.0964 | 0.0083 | 0.0044 | <0.0030 | <0.0030 | 0.003 | 0.0076 | 0.0231 | 0.184 | 0.0752 | 0.0042 | 0.0043 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00043 | 0.00049 | 0.00046 | 0.00052 | 0.00061 | 0.00058 | 0.00054 | 0.00053 | 0.0005 | 0.00051 | 0.00048 | 0.00047 | 0.00053 | 0.0006 | 0.00063 |
| Diss-Barium (Ba) (mg/L) | 0.00732 | 0.00692 | 0.00762 | 0.0082 | 0.0068 | 0.00731 | 0.0073 | 0.00727 | 0.00742 | 0.00693 | 0.00667 | 0.00742 | 0.00712 | 0.00677 | 0.00667 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.024 | 0.019 | 0.021 | 0.024 | 0.022 | 0.024 | 0.024 | 0.022 | 0.024 | 0.022 | 0.019 | 0.022 | 0.021 | 0.021 | 0.02 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000011 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 30.3 | 31.9 | 25.7 | 28.1 | 32.2 | 38.3 | 40.8 | 44.3 | 44.4 | 39.8 | 35.8 | 25.1 | 31.5 | 35.6 | 35.4 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | 0.00052 | 0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00065 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | <0.0020 | 0.00128 | 0.00513 | 0.00314 | 0.00119 | 0.00099 | 0.00089 | 0.00086 | 0.00096 | 0.0011 | 0.00159 | 0.00428 | 0.00265 | 0.00109 | 0.00124 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | 0.177 | 0.131 | <0.030 | <0.030 | <0.030 | <0.030 | 0.031 | 0.038 | 0.097 | 0.287 | 0.155 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 4.65 | 4.98 | 4.32 | 4.74 | 5.31 | 6.23 | 7.15 | 7.89 | 7.95 | 7.33 | 6.84 | 5.18 | 6.03 | 5.52 | 5.56 |
| Diss-Manganese (Mn) (mg/L) | 0.00482 | 0.001 | 0.00726 | 0.0178 | 0.0123 | 0.00446 | 0.0129 | 0.00684 | 0.0128 | 0.00774 | 0.0157 | 0.0174 | 0.004 | 0.00447 | 0.00456 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00217 | 0.00185 | 0.0017 | 0.00191 | 0.00218 | 0.00218 | 0.0019 | 0.00193 | 0.0018 | 0.00182 | 0.00168 | 0.00143 | 0.00172 | 0.0021 | 0.00209 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | 0.00077 | 0.00061 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00068 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.402 | 0.4 | 0.445 | 0.38 | 0.406 | 0.431 | 0.534 | 0.561 | 0.597 | 0.572 | 0.605 | 0.666 | 0.46 | 0.445 | 0.45 |
| Diss-Selenium (mg/L) | 0.00063 | 0.00064 | <0.00050 | 0.00053 | 0.00057 | 0.00051 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00057 | 0.00054 |
| Diss-Silicon (Si) (mg/L) | 3.39 | 3.44 | 3.85 | 3.62 | 3.38 | 3.52 | 4.16 | 4.39 | 4.64 | 4.65 | 4.58 | 4.8 | 4.77 | 4.07 | 4.09 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 4.2 | 4.22 | 3.25 | 3.8 | 4.65 | 5.07 | 5.44 | 5.63 | 5.67 | 5.62 | 4.91 | 3.66 | 4.16 | 4.58 | 4.5 |
| Diss-Strontium (Sr) (mg/L) | 0.218 | 0.197 | 0.159 | 0.202 | 0.221 | 0.244 | 0.25 | 0.268 | 0.257 | 0.251 | 0.24 | 0.178 | 0.224 | 0.24 | 0.237 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E208038 : W7 - Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7-Feb-13 | 14-Mar-13 | 4-Apr-13 | 18-Apr-13 | 25-Apr-13 | 1-May-13 | 9-May-13 | 16-May-13 | 6-Jun-13 | 10-Jul-13 | 8-Aug-13 | 5-Sep-13 | 24-Sep-13 | 1-Oct-13 | 10-Oct-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0129 | 0.0087 | 0.0104 | | | <0.0050 | | | 0.0229 | 0.0127 | 0.0137 | 0.009 | 0.0078 | <0.0050 | <0.0050 |
| Chloride (mg/L) | <0.50 | <10 | <2.5 | | | <0.50 | | | <0.50 | <0.50 | 0.97 | 2.43 | 2.78 | 3.22 | 2.19 |
| Diss-Orthophosphate (mg/L) | 0.0518 | 0.0433 | 0.0098 | | | 0.0176 | | | 0.0217 | 0.0145 | 0.0261 | 0.0203 | 0.017 | 0.0115 | 0.0082 |
| Diss-Phosphorus (mg/L) | 0.0577 | 0.0507 | 0.0265 | | | 0.0236 | | | 0.0322 | 0.0215 | 0.0329 | 0.0281 | 0.022 | 0.0117 | 0.0170 |
| Nitrate (N) (mg/L) | 0.149 | 0.45 | 0.806 | | | 0.0071 | | | 0.0325 | 0.0536 | 0.0887 | 0.0195 | 0.013 | 0.0152 | 0.117 |
| Nitrate and Nitrite (mg/L) | 0.15 | 0.45 | 0.806 | | | 0.0071 | | | 0.0355 | 0.0571 | 0.0905 | 0.0195 | 0.013 | 0.0152 | 0.117 |
| Nitrite (N) (mg/L) | 0.0012 | <0.020 | <0.0050 | | | <0.0010 | | | 0.0029 | 0.0036 | 0.0018 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 28.3 | 25 | 15.7 | | | 22.8 | | | 26 | 26.2 | 25.2 | 21.7 | 27 | 39.5 | 34.5 |
| Total Nitrogen (mg/L) | 0.387 | 0.666 | 1.41 | | | 0.414 | | | 0.444 | 0.448 | 0.432 | 0.237 | 0.206 | 0.229 | 0.482 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | 0.0207 | 0.247 | | | 0.0552 | | | 0.0247 | 0.0111 | 0.0057 | <0.0030 | 0.0044 | 0.0039 | 0.0646 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00055 | 0.00058 | 0.00077 | | | 0.00051 | | | 0.00059 | 0.0007 | 0.00079 | 0.00072 | 0.00068 | 0.00062 | 0.00058 |
| Diss-Barium (Ba) (mg/L) | 0.00663 | 0.00711 | 0.00848 | | | 0.00706 | | | 0.00707 | 0.00706 | 0.0075 | 0.00841 | 0.00807 | 0.00869 | 0.00836 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.021 | 0.023 | 0.015 | | | 0.017 | | | 0.023 | 0.022 | 0.021 | 0.023 | 0.021 | 0.023 | 0.022 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | 0.000012 | | | <0.000010 | | | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 34 | 33.7 | 19.5 | | | 26.5 | | | 31.5 | 33.9 | 37 | 47.2 | 49.3 | 48.8 | 40.1 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | 0.00078 | | | <0.00050 | | | 0.00066 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00136 | 0.00171 | 0.00679 | | | 0.00245 | | | 0.00169 | <0.0012 | <0.0012 | 0.00067 | 0.00063 | 0.00079 | 0.00229 |
| Diss-Iron (Fe) (mg/L) | <0.030 | 0.036 | 0.23 | | | 0.039 | | | 0.033 | <0.030 | <0.030 | <0.030 | 0.041 | 0.055 | 0.164 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | | | <0.000050 | | | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 5.59 | 5.07 | 3.67 | | | 4.19 | | | 4.88 | 5.06 | 6.4 | 9.8 | 10 | 9.91 | 8.14 |
| Diss-Manganese (Mn) (mg/L) | 0.000471 | 0.00459 | 0.0054 | | | 0.0034 | | | 0.00796 | 0.0142 | 0.00127 | 0.00343 | 0.0179 | 0.0167 | 0.0133 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00205 | 0.00197 | 0.00106 | | | 0.00179 | | | 0.00214 | 0.00231 | 0.00218 | 0.00176 | 0.00196 | 0.00335 | 0.00242 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | 0.00105 | | | <0.00050 | | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.435 | 0.417 | 0.514 | | | 0.433 | | | 0.409 | 0.376 | 0.487 | 0.756 | 0.803 | 1.02 | 0.871 |
| Diss-Selenium (mg/L) | 0.00055 | 0.00059 | <0.00050 | | | <0.00050 | | | 0.00053 | 0.00055 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 3.95 | 3.87 | 4.51 | | | 3.37 | | | 3.51 | 3.09 | 3.57 | 4.48 | 5.3 | 5.18 | 4.98 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | | | <0.000010 | | | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 4.56 | 4.3 | 2.83 | | | 3.98 | | | 4.01 | 4.42 | 5.32 | 6.75 | 7.32 | 9.16 | 6.55 |
| Diss-Strontium (Sr) (mg/L) | 0.229 | 0.218 | 0.128 | | | 0.184 | | | 0.209 | 0.229 | 0.244 | 0.293 | 0.285 | 0.293 | 0.248 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E208038 : W7 - Hazeltine Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | 17-Oct-13 | 22-Oct-13 | 24-Oct-13 | 29-Oct-13 | 31-Oct-13 | 7-Nov-13 | 5-Dec-13 |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | 0.0062 | | <0.0050 | 0.0065 | 0.0079 | 0.0106 |
| Chloride (mg/L) | <0.50 | 3.08 | | 2.83 | 2.66 | 2.20 | 1.22 |
| Diss-Orthophosphate (mg/L) | 0.0067 | 0.0053 | | 0.006 | 0.0067 | 0.0060 | 0.0284 |
| Diss-Phosphorus (mg/L) | 0.0119 | 0.0113 | | 0.0133 | 0.0119 | 0.0101 | 0.0381 |
| Nitrate (N) (mg/L) | 0.0454 | 0.0145 | | 0.0369 | 0.0376 | 0.0426 | 0.591 |
| Nitrate and Nitrite (mg/L) | 0.0465 | 0.0145 | | 0.0369 | 0.0376 | 0.0436 | 0.594 |
| Nitrite (N) (mg/L) | 0.0012 | <0.0010 | | <0.0010 | <0.0010 | 0.0010 | 0.0028 |
| Sulphate (mg/L) | 31.4 | 40.4 | | 39.3 | 36.3 | 27.0 | 32.4 |
| Total Nitrogen (mg/L) | 0.252 | 0.214 | | 0.277 | 0.277 | 0.255 | 0.947 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0098 | 0.0042 | | 0.0087 | 0.0082 | 0.0042 | |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | |
| Diss-Arsenic (As) (mg/L) | 0.00056 | 0.00052 | | 0.00054 | 0.00049 | 0.00047 | |
| Diss-Barium (Ba) (mg/L) | 0.00828 | 0.00878 | | 0.00801 | 0.00870 | 0.00757 | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | |
| Diss-Boron (B) (mg/L) | 0.023 | 0.026 | | 0.021 | 0.025 | 0.022 | |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | | <0.000010 | <0.000010 | <0.000010 | |
| Diss-Calcium (Ca) (mg/L) | 46.2 | 46.5 | | 45 | 43.1 | 42.5 | |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | | <0.00050 | <0.00050 | <0.00050 | |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | |
| Diss-Copper (Cu) (mg/L) | 0.00115 | 0.00094 | | 0.00115 | 0.00097 | 0.00082 | |
| Diss-Iron (Fe) (mg/L) | 0.057 | <0.030 | | 0.05 | 0.068 | <0.030 | |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | | <0.000050 | <0.000050 | <0.000050 | |
| Diss-Magnesium (Mg) (mg/L) | 9.02 | 9.43 | | 9.46 | 8.97 | 8.76 | |
| Diss-Manganese (Mn) (mg/L) | 0.0104 | 0.00322 | | 0.01 | 0.0152 | 0.00573 | |
| Diss-Molybdenum (Mo) (mg/L) | 0.00321 | 0.00429 | | 0.00358 | 0.00349 | 0.00185 | |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | | <0.00050 | <0.00050 | <0.00050 | |
| Diss-Potassium (K) (mg/L) | 0.881 | 0.992 | | 0.897 | 0.979 | 0.642 | |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 | | <0.00050 | <0.00050 | <0.00050 | |
| Diss-Silicon (Si) (mg/L) | 4.42 | 4.42 | | 5.07 | 4.88 | 4.55 | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | | <0.000010 | <0.000010 | <0.000010 | |
| Diss-Sodium (Na) (mg/L) | 7.90 | 9.17 | | 7.95 | 8.48 | 5.86 | |
| Diss-Strontium (Sr) (mg/L) | 0.284 | 0.310 | | 0.294 | 0.285 | 0.239 | |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E208038 : W7 - Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **6-Jan-09** | **28-Jan-09** | **10-Feb-09** | **24-Feb-09** | **18-Mar-09** | **1-Apr-09** | **13-May-09** | **11-Aug-09** | **19-Nov-09** | **10-Feb-10** | **12-May-10** | **8-Jul-10** | **5-Aug-10** | **23-Aug-10** | **1-Sep-10** |
| Diss-Zinc (Zn) (mg/L) | 0.0013 | <0.001 | 0.0013 | 0.0017 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0015 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0016 |
| TDS (mg/L) | 133 | 132 | 143 | 128 | 132 | 133 | 108 | 142 | 132 | 151 | 131 | 134 | 148 | 185 | 231 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 80.7 | 83.1 | 78.6 | 72.8 | 81.5 | 79.1 | 56.7 | 104 | 63.4 | 85.4 | 75.3 | 86.4 | 95.3 | 103 | 94.4 |
| Hardness (mg/L) | 101 | 107 | 106 | 97.1 | 103 | 106 | 69.6 | 118 | 78.6 | 112 | 113 | 112 | 118 | 143 | 164 |
| NTU (ntu) | 0.54 | 0.99 | 0.62 | 0.6 | 0.44 | 1.14 | 1.37 | 1.4 | 3.64 | 0.51 | 3.73 | 0.8 | 0.8 | 0.51 | 1.34 |
| TDS (mg/L) | 133 | 132 | 143 | 128 | 132 | 133 | 108 | 142 | 132 | 151 | 131 | 134 | 148 | 185 | 231 |
| TSS (mg/L) | <3 | <3 | <3 | 3.3 | <3 | <3 | <3 | <3 | <3 | <3 | 6.5 | <3 | <3 | <3 | <3 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00026 | <0.0001 | <0.0001 |
| Arsenic (As)-Total ( | 0.00043 | 0.00039 | 0.0004 | 0.00039 | 0.00041 | 0.00039 | 0.00026 | 0.00062 | 0.00047 | 0.00044 | 0.00044 | 0.00054 | 0.00066 | 0.00052 | 0.00045 |
| Barium (Ba)-Total | 0.00948 | 0.00767 | 0.00729 | 0.00713 | 0.00745 | 0.00788 | 0.00702 | 0.00843 | 0.0105 | 0.00877 | 0.00984 | 0.00951 | 0.00932 | 0.00922 | 0.0133 |
| Boron (B)-Total (mg/L) | 0.023 | 0.022 | 0.021 | 0.02 | 0.023 | 0.022 | 0.016 | 0.021 | 0.022 | 0.026 | 0.028 | 0.029 | 0.028 | 0.033 | 0.038 |
| Calcium (Ca)-Total ( | 31.5 | 33.8 | 31.5 | 29.2 | 31.7 | 32.9 | 21 | 36.8 | 23 | 33.9 | 35 | 33.1 | 37.6 | 43.3 | 48.6 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00108 | <0.0005 | 0.00111 | <0.0005 | 0.0006 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Cobalt (Co)-Total (m | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00015 | <0.0001 | 0.00013 | <0.0001 | <0.0001 | 0.00058 | 0.00136 |
| Magnesium (Mg)-Total (mg/L) | 4.79 | 5.07 | 4.86 | 4.68 | 4.94 | 4.96 | 3.52 | 6.12 | 5.12 | 5.79 | 4.9 | 5.59 | 6.28 | 8.59 | 10.5 |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | 0.00084 | <0.0005 | <0.0005 | 0.00076 | <0.0005 | 0.00098 | <0.0005 | 0.00056 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Silicon (Si)-Total (mg/L) | 4.14 | 4.25 | 4.07 | 4.01 | 4.2 | 4.22 | 3.44 | 3.76 | 5.4 | 4.58 | 3.57 | 3.21 | 2.87 | 3.8 | 4.69 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000015 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Sodium (Na)-Total (mg/L) | 5.02 | 4.87 | 4.67 | 4.81 | 4.7 | 4.68 | 3.18 | 4.86 | 3.61 | 5.09 | 4.34 | 4.7 | 5.39 | 5.55 | 5.64 |
| Strontium (Sr)-Total (mg/L) | 0.228 | 0.214 | 0.252 | 0.224 | 0.22 | 0.203 | 0.168 | 0.244 | 0.152 | 0.25 | 0.225 | 0.254 | 0.256 | 0.272 | 0.295 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Aluminum (mg/L) | 0.0249 | 0.0261 | 0.0213 | 0.0317 | 0.0114 | 0.0268 | 0.108 | 0.045 | 0.324 | 0.0316 | 0.223 | 0.0657 | 0.031 | 0.0256 | 0.0511 |
| Total Cadmium (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | 0.000033 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 |
| Total Copper (mg/L) | 0.00331 | 0.00331 | 0.00207 | 0.00297 | 0.0023 | 0.00253 | 0.00372 | 0.00179 | 0.00738 | 0.00231 | 0.00361 | 0.00208 | 0.00154 | 0.0017 | 0.00218 |
| Total Iron (mg/L) | 0.035 | 0.039 | 0.032 | 0.046 | <0.03 | 0.046 | 0.104 | 0.117 | 0.391 | 0.051 | 0.259 | 0.095 | 0.069 | 0.06 | 0.124 |
| Total Lead (mg/L) | 0.000119 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.000076 | <0.00005 | 0.000088 | <0.00005 | 0.000089 | <0.00005 | 0.000054 | <0.00005 | <0.00005 |
| Total Manganese (mg/L) | 0.00576 | 0.00738 | 0.00633 | 0.00582 | 0.0063 | 0.00755 | 0.00708 | 0.029 | 0.012 | 0.00694 | 0.0358 | 0.0301 | 0.0246 | 0.0132 | 0.0162 |
| Total Molybdenum (mg/L) | 0.00205 | 0.00192 | 0.00189 | 0.00191 | 0.00207 | 0.00203 | 0.00139 | 0.00245 | 0.0014 | 0.00218 | 0.00217 | 0.00231 | 0.00212 | 0.00231 | 0.00225 |
| Total Selenium (mg/L) | 0.0011 | <0.001 | 0.0011 | 0.001 | 0.001 | <0.001 | 0.0012 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc (Zn)-Total (mg/L) | 0.0029 | <0.004 | <0.004 | <0.003 | <0.001 | 0.0011 | 0.0015 | <0.001 | 0.0017 | <0.001 | 0.0019 | <0.001 | <0.001 | <0.001 | <0.001 |

| | E208038 : W7 - Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **23-Sep-10** | **7-Oct-10** | **3-Nov-10** | **1-Dec-10** | **10-Jan-11** | **2-Feb-11** | **7-Mar-11** | **5-Apr-11** | **11-May-11** | **8-Jun-11** | **14-Jul-11** | **4-Aug-11** | **25-Aug-11** | **8-Sep-11** | **20-Sep-11** |
| Diss-Zinc (Zn) (mg/L) | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 145 | 171 | 177 | 158 | 151 | 149 | 148 | 162 | 107 | 124 | 127 | 134 | 141 | 145 | 144 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 94.9 | 110 | 113 | 101 | 88 | 83.7 | 83 | 68.2 | 49.5 | 72.7 | 76.8 | 78.4 | 82.7 | 86.7 | 90.7 |
| Hardness (mg/L) | 125 | 128 | 143 | 129 | 116 | 115 | 109 | 106 | 65.4 | 98.5 | 105 | 86.8 | 107 | 110 | 112 |
| NTU (ntu) | 0.49 | 0.34 | 0.41 | 0.55 | 1.25 | 2.25 | 0.38 | 4.96 | 2.44 | 1.56 | 2.41 | 2.32 | 1.33 | 2.31 | 1.05 |
| TDS (mg/L) | 145 | 171 | 177 | 158 | 151 | 149 | 148 | 162 | 107 | 124 | 127 | 134 | 141 | 145 | 144 |
| TSS (mg/L) | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | 6.7 | 4.8 | 4.7 | 4.3 | 3.7 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00048 | 0.00044 | 0.00051 | 0.00053 | 0.00051 | 0.00052 | 0.00046 | 0.00055 | 0.00036 | 0.0004 | 0.00048 | 0.00071 | 0.00053 | 0.00056 | 0.00054 |
| Barium (Ba)-Total | 0.00845 | 0.00808 | 0.00855 | 0.0089 | 0.00907 | 0.0111 | 0.00823 | 0.0118 | 0.0083 | 0.00816 | 0.00793 | 0.0132 | 0.00714 | 0.00869 | 0.00729 |
| Boron (B)-Total (mg/L) | 0.031 | 0.03 | 0.035 | 0.029 | 0.028 | 0.033 | 0.022 | 0.026 | 0.02 | 0.02 | 0.026 | 0.023 | 0.024 | 0.023 | 0.026 |
| Calcium (Ca)-Total ( | 40 | 39.5 | 43 | 39.4 | 37.5 | 37.2 | 35.6 | 33.4 | 20.7 | 32.2 | 33.9 | 33.4 | 33.7 | 33.1 | 35.6 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00132 | <0.0005 | 0.00091 | 0.00083 | <0.0005 | 0.00058 | 0.00068 | <0.00050 | 0.0005 | <0.00050 |
| Cobalt (Co)-Total (m | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00015 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | 0.00011 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 7.34 | 7.78 | 8.81 | 7.16 | 5.99 | 6.08 | 5.6 | 5.71 | 3.68 | 4.9 | 4.97 | 6.04 | 5.36 | 5.55 | 6.21 |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00085 | 0.00073 | <0.0005 | <0.0005 | 0.00107 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 3.86 | 3.79 | 5.43 | 4.76 | 4.5 | 4.58 | 3.99 | 4.92 | 3.85 | 3.6 | 3.72 | 4.29 | 3.55 | 3.75 | 3.9 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 5.14 | 5.78 | 6.22 | 5.08 | 5.05 | 5.09 | 4.83 | 4.11 | 3.12 | 3.97 | 4.26 | 4.13 | 4.93 | 4.33 | 5.16 |
| Strontium (Sr)-Total (mg/L) | 0.253 | 0.256 | 0.281 | 0.243 | 0.259 | 0.274 | 0.249 | 0.234 | 0.141 | 0.216 | 0.214 | 0.224 | 0.254 | 0.216 | 0.256 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00083 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0172 | 0.0081 | 0.0119 | 0.0248 | 0.0642 | 0.086 | 0.0183 | 0.386 | 0.23 | 0.0872 | 0.105 | 0.0985 | 0.0436 | 0.155 | 0.0233 |
| Total Cadmium (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000012 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00197 | 0.00174 | 0.00146 | 0.00156 | 0.00223 | 0.00627 | 0.00162 | 0.00391 | 0.00436 | 0.0027 | 0.00221 | 0.00265 | 0.00164 | 0.00216 | 0.00148 |
| Total Iron (mg/L) | 0.062 | 0.048 | 0.061 | 0.063 | 0.091 | 0.116 | <0.03 | 0.421 | 0.192 | 0.106 | 0.138 | 0.202 | 0.07 | 0.244 | 0.06 |
| Total Lead (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.000187 | <0.00005 | 0.000107 | 0.000051 | 0.000086 | <0.00005 | <0.00005 | <0.000050 | 0.000068 | <0.000050 |
| Total Manganese (mg/L) | 0.00993 | 0.0101 | 0.0108 | 0.0288 | 0.0148 | 0.00944 | 0.00648 | 0.0142 | 0.00789 | 0.0229 | 0.032 | 0.0308 | 0.024 | 0.0487 | 0.0178 |
| Total Molybdenum (mg/L) | 0.00227 | 0.00203 | 0.00202 | 0.00205 | 0.00209 | 0.00229 | 0.00205 | 0.00173 | 0.00135 | 0.00214 | 0.00204 | 0.00222 | 0.00223 | 0.00194 | 0.00225 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | 0.0007 | <0.001 | 0.00073 | 0.00069 | 0.00055 | 0.00068 | 0.00071 | 0.00071 | 0.00066 | 0.0006 | 0.00056 |
| Zinc (Zn)-Total (mg/L) | <0.003 | <0.003 | <0.003 | <0.003 | 0.0033 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | 0.0037 | <0.0030 | <0.0030 | <0.0030 |

| | E208038 : W7 - Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 30-Sep-11 | 6-Oct-11 | 12-Oct-11 | 19-Oct-11 | 1-Nov-11 | 5-Dec-11 | 5-Jan-12 | 1-Feb-12 | 15-Mar-12 | 3-Apr-12 | 12-Apr-12 | 18-Apr-12 | 26-Apr-12 | 3-May-12 | 10-May-12 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 151 | 172 | 167 | 152 | 159 | 145 | 143 | 141 | 142 | 151 | 122 | 109 | 102 | 132 | 125 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 104 | 108 | 109 | 111 | 109 | 89.1 | 84.8 | 85.6 | 87 | 77.9 | 45.7 | 39.2 | 50.2 | 65.8 | 72.9 |
| Hardness (mg/L) | 117 | 133 | 130 | 131 | 132 | 113 | 112 | 114 | 111 | 102 | 65.1 | 53.0 | 57.2 | 84.7 | 93.4 |
| NTU (ntu) | 0.74 | 0.78 | 0.55 | 0.55 | 0.78 | 0.93 | 1.37 | 0.59 | 0.64 | 1.98 | 5.67 | 3.48 | 2.94 | 1.32 | 2.22 |
| TDS (mg/L) | 151 | 172 | 167 | 152 | 159 | 145 | 143 | 141 | 142 | 151 | 122 | 109 | 102 | 132 | 125 |
| TSS (mg/L) | 18 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | 10.7 | <3.0 | 3.3 | <3.0 | 5.5 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00025 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00048 | 0.00045 | 0.00078 | 0.00047 | 0.00044 | 0.00049 | 0.00052 | 0.00082 | 0.00051 | 0.00048 | 0.00051 | 0.00042 | 0.00038 | 0.00043 | 0.00055 |
| Barium (Ba)-Total | 0.00803 | 0.00793 | 0.00819 | 0.00904 | 0.00772 | 0.00689 | 0.00723 | 0.0244 | 0.00714 | 0.00873 | 0.0109 | 0.00980 | 0.00787 | 0.00744 | 0.00799 |
| Boron (B)-Total (mg/L) | 0.025 | 0.023 | 0.026 | 0.028 | 0.029 | 0.022 | 0.026 | 0.023 | 0.027 | 0.023 | 0.019 | 0.014 | 0.018 | 0.019 | 0.024 |
| Calcium (Ca)-Total ( | 36.8 | 42.1 | 40.7 | 41.3 | 41.3 | 35.2 | 35.5 | 38.1 | 36.6 | 32.4 | 20.6 | 17.2 | 17.6 | 26.6 | 29.6 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00124 | 0.00118 | 0.00093 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00045 | <0.00010 | <0.00010 | 0.00024 | 0.00021 | 0.00014 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 7.09 | 7.82 | 7.48 | 7.82 | 7.79 | 6.1 | 5.79 | 6.28 | 5.71 | 5.55 | 3.91 | 3.48 | 3.13 | 4.3 | 4.83 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00067 | <0.00050 | 0.00059 | 0.00125 | 0.00116 | 0.00086 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 4.26 | 4.61 | 4.11 | 4.18 | 4.6 | 4.59 | 4.58 | 5.72 | 4.6 | 5.1 | 4.86 | 5.01 | 3.98 | 3.76 | 3.92 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000011 | <0.000010 | <0.000010 | 0.000013 | 0.000011 | 0.000011 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 5.39 | 5.39 | 5.78 | 5.80 | 5.52 | 4.73 | 5.06 | 4.93 | 4.74 | 4.24 | 2.81 | 2.55 | 2.63 | 3.55 | 3.99 |
| Strontium (Sr)-Total (mg/L) | 0.256 | 0.249 | 0.263 | 0.274 | 0.248 | 0.235 | 0.248 | 0.247 | 0.23 | 0.213 | 0.142 | 0.110 | 0.12 | 0.183 | 0.225 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.018 | 0.0158 | 0.0172 | 0.0148 | 0.0123 | 0.0225 | 0.0241 | 0.561 | 0.0899 | 0.153 | 0.506 | 0.453 | 0.294 | 0.134 | 0.144 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000016 | 0.000011 | 0.00001 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00138 | 0.00126 | 0.00133 | 0.00121 | <0.0015 | 0.00145 | 0.00149 | 0.0441 | 0.00154 | 0.00385 | 0.00717 | 0.00664 | 0.00521 | 0.00308 | 0.00259 |
| Total Iron (mg/L) | 0.065 | 0.073 | 0.072 | 0.074 | 0.065 | 0.048 | 0.042 | 0.498 | 0.055 | 0.205 | 0.545 | 0.456 | 0.271 | 0.125 | 0.156 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000408 | <0.000050 | <0.000050 | 0.000146 | 0.000092 | 0.000079 | <0.000050 | 0.000051 |
| Total Manganese (mg/L) | 0.0169 | 0.0159 | 0.0143 | 0.0146 | 0.012 | 0.00958 | 0.00883 | 0.0219 | 0.00799 | 0.0139 | 0.0436 | 0.0194 | 0.014 | 0.0108 | 0.0196 |
| Total Molybdenum (mg/L) | 0.00208 | 0.00186 | 0.00204 | 0.00195 | 0.00192 | 0.00202 | 0.0022 | 0.00225 | 0.00206 | 0.00164 | 0.0011 | 0.000943 | 0.00101 | 0.00162 | 0.00212 |
| Total Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00051 | 0.00056 | 0.00064 | 0.00064 | 0.00061 | <0.00050 | <0.00050 | <0.00050 | 0.00057 | 0.0007 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0042 | <0.0030 | 0.0038 | 0.0036 | 0.0033 | 0.004 | <0.0030 | <0.0030 |

| | E208038 : W7 - Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 16-May-12 | 24-May-12 | 7-Jun-12 | 5-Jul-12 | 2-Aug-12 | 6-Sep-12 | 3-Oct-12 | 11-Oct-12 | 18-Oct-12 | 25-Oct-12 | 31-Oct-12 | 5-Nov-12 | 6-Dec-12 | 2-Jan-13 | 3-Jan-13 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0032 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 125 | 134 | 122 | 138 | 139 | 148 | 169 | 171 | 165 | 157 | 151 | 139 | 153 | 142 | 138 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 78.5 | 89.7 | 57.4 | 68.8 | 85.8 | 92.3 | 111 | 115 | 121 | 105 | 102 | 63.1 | 80.4 | 89 | 89 |
| Hardness (mg/L) | 94.9 | 100 | 82 | 89.7 | 102 | 121 | 131 | 143 | 143 | 130 | 118 | 84 | 103 | 112 | 111 |
| NTU (ntu) | 4.42 | 4.42 | 6.99 | 2.12 | 0.88 | 0.76 | 2.7 | 0.59 | 0.62 | 0.85 | 1.3 | 6 | 2.16 | 1.55 | 1.67 |
| TDS (mg/L) | 125 | 134 | 122 | 138 | 139 | 148 | 169 | 171 | 165 | 157 | 151 | 139 | 153 | 142 | 138 |
| TSS (mg/L) | 10.7 | 7.8 | 17.2 | 3.3 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | 3.2 | 6.4 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00056 | 0.00056 | 0.0006 | 0.0006 | 0.00065 | 0.00058 | 0.00056 | 0.00059 | 0.00052 | 0.00054 | 0.00051 | 0.00055 | 0.00063 | 0.00064 | 0.0006 |
| Barium (Ba)-Total | 0.00951 | 0.00804 | 0.0119 | 0.00896 | 0.00729 | 0.00709 | 0.00721 | 0.00761 | 0.00756 | 0.00711 | 0.00685 | 0.00886 | 0.00817 | 0.00726 | 0.00698 |
| Boron (B)-Total (mg/L) | 0.026 | 0.018 | 0.02 | 0.025 | 0.022 | 0.025 | 0.025 | 0.024 | 0.024 | 0.02 | 0.019 | 0.023 | 0.022 | 0.019 | 0.019 |
| Calcium (Ca)-Total ( | 31.9 | 32.1 | 24.1 | 28.4 | 32.8 | 36.7 | 41.2 | 45.2 | 42.8 | 40.4 | 34.5 | 24.6 | 32.9 | 35.3 | 35.8 |
| Chromium (Cr)-Total (mg/L) | 0.00056 | <0.00050 | 0.00141 | 0.00076 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00095 | 0.00065 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00015 | 0.00011 | 0.00031 | 0.00012 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00016 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 4.99 | 5.06 | 4.36 | 4.83 | 5.4 | 6.15 | 7.25 | 8.07 | 7.82 | 7.46 | 6.74 | 5.18 | 6.4 | 5.5 | 5.67 |
| Nickel (Ni)-Total (mg/L) | 0.0006 | <0.00050 | 0.0014 | 0.00069 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00084 | 0.00057 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 3.98 | 3.73 | 4.98 | 3.91 | 3.5 | 3.49 | 4.26 | 4.53 | 4.57 | 4.71 | 4.57 | 4.91 | 5.23 | 4.09 | 4.2 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | 0.000014 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.00001 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.37 | 4.2 | 3.32 | 4 | 4.65 | 5.16 | 5.69 | 6 | 5.69 | 5.65 | 4.79 | 3.79 | 4.36 | 4.51 | 4.67 |
| Strontium (Sr)-Total (mg/L) | 0.233 | 0.192 | 0.138 | 0.187 | 0.213 | 0.242 | 0.257 | 0.275 | 0.257 | 0.233 | 0.237 | 0.178 | 0.236 | 0.246 | 0.24 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.222 | 0.147 | 0.599 | 0.189 | 0.0396 | 0.0225 | 0.0241 | 0.0144 | 0.0117 | 0.0288 | 0.0569 | 0.335 | 0.166 | 0.0414 | 0.0419 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | 0.000015 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00317 | 0.00236 | 0.0077 | 0.0039 | 0.00169 | 0.00117 | 0.00121 | 0.00104 | 0.00095 | 0.00139 | 0.00211 | 0.00541 | 0.00347 | 0.0021 | 0.00224 |
| Total Iron (mg/L) | 0.262 | 0.177 | 0.698 | 0.243 | 0.076 | 0.063 | 0.07 | 0.07 | 0.069 | 0.093 | 0.158 | 0.462 | 0.297 | 0.069 | 0.067 |
| Total Lead (mg/L) | 0.000094 | 0.00005 | 0.000154 | 0.000053 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000097 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0354 | 0.0295 | 0.0498 | 0.0273 | 0.031 | 0.0194 | 0.0184 | 0.0188 | 0.017 | 0.0151 | 0.0189 | 0.0279 | 0.0224 | 0.0138 | 0.0133 |
| Total Molybdenum (mg/L) | 0.00228 | 0.00172 | 0.00165 | 0.00213 | 0.00209 | 0.00214 | 0.00194 | 0.00194 | 0.00179 | 0.00171 | 0.00167 | 0.00175 | 0.00186 | 0.00215 | 0.00207 |
| Total Selenium (mg/L) | 0.00072 | 0.0007 | 0.00051 | 0.00055 | 0.00062 | 0.00052 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00057 | 0.00057 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | 0.0033 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

| | E208038 : W7 - Hazeltine Creek | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7-Feb-13 | 14-Mar-13 | 4-Apr-13 | 18-Apr-13 | 25-Apr-13 | 1-May-13 | 9-May-13 | 16-May-13 | 6-Jun-13 | 10-Jul-13 | 8-Aug-13 | 5-Sep-13 | 24-Sep-13 | 1-Oct-13 | 10-Oct-13 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | | | <0.0030 | | | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 145 | 148 | 120 | | | 125 | | | 121 | 122 | 176 | 170 | 144 | 214 | 187 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 83.7 | 78.9 | 49.3 | | | 69 | | | 76.7 | 80.6 | 105 | 149 | 149 | 141 | 91.9 |
| Hardness (mg/L) | 108 | 105 | 63.9 | | | 83.3 | | | 98.9 | 105 | 119 | 158 | 164 | 163 | 134 |
| NTU (ntu) | 0.75 | 1.95 | 3.68 | 2.68 | 2.03 | 2.25 | 4.36 | 2.92 | 2.27 | 2.46 | 0.71 | 0.39 | 0.93 | 0.94 | 1.74 |
| TDS (mg/L) | 145 | 148 | 120 | | | 125 | | | 121 | 122 | 176 | 170 | 144 | 214 | 187 |
| TSS (mg/L) | <3.0 | <3.0 | 3.8 | <3.0 | 3.3 | 5 | 6.3 | 5.4 | 5 | 4.4 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | 0.0001 | | | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.0006 | 0.00058 | 0.00146 | | | 0.00054 | | | 0.00061 | 0.00076 | 0.00085 | 0.00081 | 0.00071 | 0.00063 | 0.00058 |
| Barium (Ba)-Total | 0.00723 | 0.00771 | 0.00978 | | | 0.00758 | | | 0.00751 | 0.00801 | 0.00824 | 0.00895 | 0.0084 | 0.00886 | 0.00890 |
| Boron (B)-Total (mg/L) | 0.022 | 0.024 | 0.016 | | | 0.018 | | | 0.021 | 0.035 | 0.022 | 0.024 | 0.021 | 0.023 | 0.022 |
| Calcium (Ca)-Total ( | 34.7 | 33.9 | 20.4 | | | 26.6 | | | 30.4 | 34.2 | 37.8 | 48.8 | 49.9 | 49.5 | 39.5 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | 0.00112 | | | <0.00050 | | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 | 0.00019 | | | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 5.74 | 5.19 | 3.94 | | | 4.2 | | | 4.76 | 5.17 | 6.67 | 10.1 | 10.5 | 10.2 | 7.98 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | 0.00134 | | | <0.00050 | | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 4.14 | 4.1 | 5.05 | | | 3.64 | | | 3.53 | 3.27 | 3.73 | 4.58 | 5.49 | 5.34 | 5.02 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | 0.000014 | | | <0.000010 | | | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.63 | 4.39 | 2.94 | | | 3.69 | | | 3.95 | 4.64 | 5.36 | 7.11 | 7.28 | 9.12 | 6.70 |
| Strontium (Sr)-Total (mg/L) | 0.234 | 0.23 | 0.141 | | | 0.191 | | | 0.208 | 0.229 | 0.249 | 0.291 | 0.285 | 0.297 | 0.252 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0361 | 0.0963 | 0.444 | | | 0.154 | | | 0.112 | 0.0837 | 0.0217 | 0.0091 | 0.0114 | 0.0188 | 0.131 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | 0.000014 | | | <0.000010 | | | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00146 | 0.00222 | 0.00707 | | | 0.00297 | | | 0.00221 | 0.00293 | 0.00138 | 0.00089 | 0.00095 | 0.00092 | 0.00275 |
| Total Iron (mg/L) | 0.056 | 0.12 | 0.437 | | | 0.142 | | | 0.137 | 0.115 | 0.075 | 0.066 | 0.077 | 0.099 | 0.238 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | 0.000097 | | | <0.000050 | | | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0115 | 0.0153 | 0.0183 | | | 0.0113 | | | 0.0271 | 0.0458 | 0.0297 | 0.0266 | 0.0212 | 0.0198 | 0.0158 |
| Total Molybdenum (mg/L) | 0.0021 | 0.00203 | 0.00112 | | | 0.00182 | | | 0.00211 | 0.00225 | 0.0023 | 0.00177 | 0.00198 | 0.00345 | 0.00244 |
| Total Selenium (mg/L) | 0.00053 | 0.00055 | <0.00050 | | | 0.00053 | | | 0.00056 | 0.00058 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | | | <0.0030 | | | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

| | E208038 : W7 - Hazeltine Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | 17-Oct-13 | 22-Oct-13 | 24-Oct-13 | 29-Oct-13 | 31-Oct-13 | 7-Nov-13 | 5-Dec-13 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | | <0.0030 | <0.0030 | <0.0030 | |
| TDS (mg/L) | 162 | 205 | | 203 | 195 | 179 | 169 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 125 | 126 | | 120 | 116 | 130 | 89.5 |
| Hardness (mg/L) | 152 | 155 | | 151 | 145 | 142 | 123 |
| NTU (ntu) | 2.45 | 1.47 | 0.47 | 1.15 | 0.59 | 0.67 | 1.65 |
| TDS (mg/L) | 162 | 205 | | 203 | 195 | 179 | 169 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | 197 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00068 | 0.00061 | | 0.00064 | 0.00058 | 0.00055 | 0.00068 |
| Barium (Ba)-Total | 0.00828 | 0.00902 | | 0.00878 | 0.00874 | 0.00787 | 0.0107 |
| Boron (B)-Total (mg/L) | 0.024 | 0.031 | | 0.027 | 0.025 | 0.021 | 0.020 |
| Calcium (Ca)-Total ( | 46.6 | 47.4 | | 46.7 | 43.4 | 43.5 | 38.2 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 9.02 | 9.68 | | 9.95 | 9.32 | 8.96 | 6.59 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | | <0.00050 | <0.00050 | <0.00050 | 0.00051 |
| Silicon (Si)-Total (mg/L) | 4.44 | 4.57 | | 5.31 | 5.02 | 4.70 | 5.12 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | | <0.000010 | 0.000033 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 7.62 | 9.37 | | 8.56 | 8.86 | 5.92 | 4.96 |
| Strontium (Sr)-Total (mg/L) | 0.291 | 0.322 | | 0.314 | 0.296 | 0.256 | 0.237 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0253 | 0.0110 | | 0.0222 | 0.0224 | 0.0208 | 0.137 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00159 | 0.00122 | | 0.00139 | 0.00129 | 0.00122 | 0.00297 |
| Total Iron (mg/L) | 0.098 | 0.069 | | 0.094 | 0.108 | 0.087 | 0.182 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0118 | 0.0129 | | 0.014 | 0.0176 | 0.0234 | 0.0160 |
| Total Molybdenum (mg/L) | 0.00321 | 0.00445 | | 0.00383 | 0.00362 | 0.00188 | 0.00188 |
| Total Selenium (mg/L) | <0.00050 | <0.00050 | | <0.00050 | <0.00050 | <0.00050 | 0.00051 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E208038 : W7 - Hazeltine Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 263 | 149 | 0.00500 | 0.10000 | 0.01006 | 0.03000 | 0.00945 |
| Chloride (mg/L) | 105 | 54 | 0.25000 | 5.00000 | 0.86990 | 2.19500 | 0.82865 |
| Diss-Orthophosphate (mg/L) | 266 | 212 | 0.00050 | 0.08400 | 0.00958 | 0.02005 | 0.01133 |
| Diss-Phosphorus (mg/L) | 182 | 178 | 0.00250 | 0.05770 | 0.01662 | 0.03075 | 0.01090 |
| Nitrate (N) (mg/L) | 140 | 131 | 0.00250 | 10.70000 | 0.22717 | 0.43125 | 0.96420 |
| Nitrate and Nitrite (mg/L) | 130 | 107 | 0.00255 | 10.80000 | 0.20509 | 0.10600 | 1.00688 |
| Nitrite (N) (mg/L) | 219 | 103 | 0.00050 | 0.18800 | 0.00368 | 0.00800 | 0.01496 |
| Sulphate (mg/L) | 265 | 260 | 0.50000 | 52.00000 | 13.20555 | 17.52000 | 10.83139 |
| Total Nitrogen (mg/L) | 116 | 116 | 0.15000 | 13.90000 | 0.59366 | 1.02850 | 1.35475 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 243 | 230 | 0.00150 | 0.61000 | 0.04969 | 0.19320 | 0.07116 |
| Diss-Antimony (Sb) (mg/L) | 239 | 34 | 0.00003 | 0.00010 | 0.00004 | 0.00008 | 0.00002 |
| Diss-Arsenic (As) (mg/L) | 246 | 242 | 0.00005 | 0.00110 | 0.00045 | 0.00090 | 0.00016 |
| Diss-Barium (Ba) (mg/L) | 239 | 226 | 0.00373 | 0.01250 | 0.00661 | 0.00951 | 0.00163 |
| Diss-Beryllium (Be) (mg/L) | 239 | 0 | 0.00003 | 0.00250 | 0.00022 | 0.00250 | 0.00056 |
| Diss-Boron (B) (mg/L) | 134 | 117 | 0.00400 | 0.05000 | 0.02241 | 0.05000 | 0.01052 |
| Diss-Cadmium (Cd) (mg/L) | 239 | 43 | 0.00001 | 0.00046 | 0.00002 | 0.00010 | 0.00004 |
| Diss-Calcium (Ca) (mg/L) | 240 | 240 | 11.90000 | 54.90000 | 27.32333 | 40.91000 | 9.41371 |
| Diss-Chromium (Cr) (mg/L) | 239 | 61 | 0.00010 | 0.00410 | 0.00041 | 0.00184 | 0.00056 |
| Diss-Cobalt (Co) (mg/L) | 239 | 77 | 0.00001 | 0.00136 | 0.00009 | 0.00050 | 0.00016 |
| Diss-Copper (Cu) (mg/L) | 267 | 262 | 0.00050 | 0.07910 | 0.00286 | 0.00560 | 0.00491 |
| Diss-Iron (Fe) (mg/L) | 246 | 189 | 0.00250 | 0.39000 | 0.08271 | 0.27900 | 0.08009 |
| Diss-Lead (Pb) (mg/L) | 246 | 88 | 0.00001 | 0.00143 | 0.00011 | 0.00050 | 0.00022 |
| Diss-Magnesium (Mg) (mg/L) | 240 | 240 | 2.26000 | 12.60000 | 4.79071 | 8.84200 | 2.05127 |
| Diss-Manganese (Mn) (mg/L) | 239 | 235 | 0.00016 | 0.05200 | 0.00843 | 0.02132 | 0.00739 |
| Diss-Molybdenum (Mo) (mg/L) | 260 | 247 | 0.00028 | 0.00429 | 0.00114 | 0.00138 | 0.00069 |
| Diss-Nickel (Ni) (mg/L) | 239 | 37 | 0.00010 | 0.00880 | 0.00037 | 0.00082 | 0.00058 |
| Diss-Potassium (K) (mg/L) | 239 | 239 | 0.27000 | 2.91000 | 0.51486 | 0.87720 | 0.22423 |
| Diss-Selenium (mg/L) | 239 | 77 | 0.00005 | 0.00160 | 0.00045 | 0.00104 | 0.00026 |
| Diss-Silicon (Si) (mg/L) | 238 | 238 | 2.76000 | 8.30000 | 4.03445 | 5.79200 | 0.77881 |
| Diss-Silver (Ag) (mg/L) | 239 | 9 | 0.00001 | 0.00005 | 0.00001 | 0.00005 | 0.00001 |
| Diss-Sodium (Na) (mg/L) | 238 | 238 | 2.09000 | 9.49000 | 4.26345 | 6.51000 | 1.28994 |
| Diss-Strontium (Sr) (mg/L) | 239 | 238 | 0.03250 | 0.31000 | 0.15153 | 0.19580 | 0.06828 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E208038 : W7 - Hazeltine Creek | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 222 | 60 | 0.00003 | 0.00090 | 0.00008 | 0.00031 | 0.00010 |
| Diss-Zinc (Zn) (mg/L) | 246 | 110 | 0.00025 | 0.04360 | 0.00160 | 0.00340 | 0.00291 |
| TDS (mg/L) | 212 | 199 | 2.00000 | 1,110.00000 | 121.05519 | 184.50000 | 82.70783 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 269 | 250 | 0.50000 | 195.00000 | 71.01078 | 111.40000 | 32.05319 |
| Hardness (mg/L) | 260 | 260 | 39.40000 | 820.10000 | 88.76192 | 135.50000 | 55.29899 |
| NTU (ntu) | 275 | 274 | 0.10000 | 16.00000 | 1.82015 | 4.26900 | 1.84020 |
| TDS (mg/L) | 212 | 199 | 2.00000 | 1,110.00000 | 121.05519 | 184.50000 | 82.70783 |
| TSS (mg/L) | 254 | 74 | 0.50000 | 197.00000 | 3.55531 | 6.81000 | 12.46691 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 255 | 50 | 0.00003 | 0.00026 | 0.00005 | 0.00010 | 0.00003 |
| Arsenic (As)-Total ( | 273 | 267 | 0.00008 | 0.03400 | 0.00070 | 0.00097 | 0.00267 |
| Barium (Ba)-Total | 255 | 242 | 0.00390 | 0.02440 | 0.00742 | 0.01060 | 0.00224 |
| Boron (B)-Total (mg/L) | 135 | 120 | 0.00500 | 0.05000 | 0.02363 | 0.05000 | 0.01048 |
| Calcium (Ca)-Total ( | 265 | 265 | 12.00000 | 54.60000 | 26.53849 | 36.26000 | 9.33313 |
| Chromium (Cr)-Total (mg/L) | 255 | 90 | 0.00001 | 0.00510 | 0.00050 | 0.00180 | 0.00062 |
| Cobalt (Co)-Total (m | 255 | 126 | 0.00001 | 0.00524 | 0.00019 | 0.00100 | 0.00040 |
| Magnesium (Mg)-Total (mg/L) | 265 | 265 | 2.15000 | 12.70000 | 4.67015 | 7.63600 | 2.04392 |
| Nickel (Ni)-Total (mg/L) | 266 | 84 | 0.00003 | 0.01000 | 0.00043 | 0.00100 | 0.00065 |
| Silicon (Si)-Total (mg/L) | 265 | 265 | 1.30000 | 8.40000 | 4.05432 | 5.82700 | 0.91513 |
| Silver (Ag)-Total (mg/L) | 255 | 38 | 0.00001 | 0.00009 | 0.00001 | 0.00005 | 0.00001 |
| Sodium (Na)-Total (mg/L) | 252 | 252 | 2.10000 | 9.37000 | 4.22671 | 6.21500 | 1.28800 |
| Strontium (Sr)-Total (mg/L) | 270 | 270 | 0.06460 | 0.32200 | 0.14961 | 0.18580 | 0.06968 |
| Tin (Sn)-Total (mg/L) | 226 | 55 | 0.00003 | 0.00161 | 0.00008 | 0.00022 | 0.00017 |
| Total Aluminum (mg/L) | 270 | 270 | 0.00810 | 0.63000 | 0.10723 | 0.32800 | 0.11570 |
| Total Cadmium (mg/L) | 255 | 54 | 0.00001 | 0.00075 | 0.00003 | 0.00020 | 0.00006 |
| Total Copper (mg/L) | 273 | 269 | 0.00080 | 0.07710 | 0.00340 | 0.00647 | 0.00545 |
| Total Iron (mg/L) | 273 | 270 | 0.00400 | 1.01000 | 0.17257 | 0.45300 | 0.14083 |
| Total Lead (mg/L) | 272 | 146 | 0.00002 | 0.02120 | 0.00025 | 0.00100 | 0.00131 |
| Total Manganese (mg/L) | 266 | 266 | 0.00196 | 0.07680 | 0.01794 | 0.04911 | 0.01212 |
| Total Molybdenum (mg/L) | 266 | 247 | 0.00001 | 0.00445 | 0.00113 | 0.00134 | 0.00075 |
| Total Selenium (mg/L) | 267 | 86 | 0.00005 | 0.00140 | 0.00042 | 0.00117 | 0.00026 |
| Zinc (Zn)-Total (mg/L) | 273 | 140 | 0.00003 | 0.04180 | 0.00203 | 0.00700 | 0.00329 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 14-Jan-09 | 9-Feb-09 | 4-Mar-09 | 7-Apr-09 | 21-Apr-09 | 28-Apr-09 | 5-May-09 | 12-May-09 | 20-May-09 | 9-Jun-09 | 14-Jul-09 | 5-Aug-09 | 2-Sep-09 | 30-Sep-09 | 6-Oct-09 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0067 | 0.0074 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Chloride (mg/L) | | | | 1.13 | <2.5 | <2.5 | <2.5 | <2.5 | 0.59 | 2.1 | 2.13 | 2.89 | 3.62 | 3.43 | 3.1 |
| Diss-Orthophosphate (mg/L) | 0.0137 | 0.014 | 0.01 | 0.0042 | 0.0024 | 0.0027 | 0.003 | 0.0031 | 0.0022 | 0.0112 | 0.0118 | 0.0229 | 0.023 | 0.0142 | 0.0136 |
| Diss-Phosphorus (mg/L) | 0.0203 | 0.0182 | 0.0187 | 0.0141 | 0.013 | 0.0162 | 0.0171 | 0.022 | 0.025 | 0.0191 | 0.0142 | 0.026 | 0.0276 | 0.0163 | 0.0164 |
| Nitrate (N) (mg/L) | 0.0942 | 0.0952 | 0.0792 | 0.415 | 0.079 | 0.041 | <0.025 | <0.025 | <0.005 | 0.0261 | 0.0283 | <0.005 | 0.012 | <0.005 | 0.0059 |
| Nitrate and Nitrite (mg/L) | | | | | | | | | | | | | | | |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Sulphate (mg/L) | 11.2 | 10.5 | 21.7 | 18.2 | 5.4 | 4.5 | <2.5 | 3.3 | 3.76 | 3.26 | 5.35 | 3.61 | 2.8 | 4.4 | 4.77 |
| Total Nitrogen (mg/L) | 0.29 | 0.23 | 0.24 | 0.89 | 0.59 | 0.54 | 1.05 | 0.32 | 0.89 | 0.5 | 0.45 | 0.26 | 0.15 | 0.14 | 0.06 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.018 | 0.0141 | 0.0235 | 0.103 | 0.153 | 0.171 | 0.163 | 0.176 | 0.183 | 0.0362 | 0.0217 | 0.012 | 0.0099 | 0.0081 | 0.007 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Arsenic (As) (mg/L) | 0.00104 | 0.00105 | 0.00071 | 0.00043 | 0.00028 | 0.00032 | 0.00039 | 0.00037 | 0.00045 | 0.00115 | 0.00134 | 0.00175 | 0.00175 | 0.00151 | 0.00141 |
| Diss-Barium (Ba) (mg/L) | 0.00936 | 0.00939 | 0.0106 | 0.0106 | 0.00945 | 0.00891 | 0.00878 | 0.0094 | 0.00951 | 0.0125 | 0.0132 | 0.0123 | 0.0119 | 0.0105 | 0.00981 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Boron (B) (mg/L) | 0.019 | 0.019 | 0.015 | 0.012 | <0.01 | 0.011 | 0.011 | 0.013 | 0.011 | 0.021 | 0.023 | 0.026 | 0.026 | 0.024 | 0.021 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | 0.000022 | 0.000022 | 0.000029 | 0.000022 | 0.000019 | <0.000017 | <0.000017 | 0.000023 | <0.000017 | <0.000017 | <0.000017 |
| Diss-Calcium (Ca) (mg/L) | 39.8 | 41 | 48.2 | 33.3 | 15.4 | 17.7 | 14.3 | 15.9 | 18.1 | 36.9 | 43.2 | 51.2 | 49.5 | 44.7 | 47.1 |
| Diss-Chromium (Cr) (mg/L) | 0.00072 | 0.00096 | <0.0005 | 0.0017 | 0.00059 | 0.00094 | 0.00077 | 0.00101 | 0.00112 | 0.00145 | 0.00068 | 0.00124 | 0.00131 | 0.00076 | 0.0009 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00011 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Copper (Cu) (mg/L) | 0.00135 | 0.00088 | 0.00158 | 0.00371 | 0.00373 | 0.00436 | 0.00467 | 0.00454 | 0.00424 | 0.00133 | 0.00153 | 0.00067 | 0.00087 | 0.00111 | 0.00054 |
| Diss-Iron (Fe) (mg/L) | 0.053 | 0.053 | 0.058 | 0.147 | 0.141 | 0.159 | 0.168 | 0.169 | 0.184 | 0.069 | 0.092 | 0.033 | 0.041 | 0.03 | <0.03 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | 0.000056 | <0.00005 | <0.00005 | 0.000053 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 17.4 | 17.4 | 14.8 | 9.25 | 4.48 | 4.65 | 4.29 | 4.67 | 5.55 | 16.4 | 18.8 | 23 | 21.6 | 21.7 | 21.5 |
| Diss-Manganese (Mn) (mg/L) | 0.00855 | 0.0108 | 0.00715 | 0.00814 | 0.00964 | 0.00371 | 0.003 | 0.00285 | 0.00341 | 0.0102 | 0.0368 | 0.00483 | 0.000594 | 0.00209 | 0.00276 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00243 | 0.00213 | 0.00183 | 0.00206 | 0.00267 | 0.00329 | 0.00222 | 0.00281 | 0.00261 | 0.00341 | 0.00456 | 0.00558 | 0.00499 | 0.00343 | 0.0028 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.0005 | 0.00081 | 0.0009 | 0.00137 | 0.00127 | 0.00125 | 0.00132 | 0.00094 | <0.0005 | 0.00087 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Potassium (K) (mg/L) | 0.977 | 0.904 | 0.936 | 1.03 | 1.12 | 1.04 | 1.22 | 1.23 | 1.18 | 1.59 | 1.57 | 1.5 | 1.7 | 1.45 | 1.21 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Diss-Silicon (Si) (mg/L) | 7.01 | 6.91 | 5.64 | 4.55 | 3.14 | 3.7 | 3.47 | 3.35 | 3.94 | 6.88 | 7.47 | 8.29 | 8.07 | 8.07 | 8.09 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.00001 | <0.00001 | 0.000013 | 0.000013 | 0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Diss-Sodium (Na) (mg/L) | 8.89 | 8.26 | 6.5 | 5.24 | 2.19 | 2.34 | 2.19 | 2.39 | 2.74 | 7.8 | 9.08 | 10.9 | 9.94 | 9.94 | 9.19 |
| Diss-Strontium (Sr) (mg/L) | 0.273 | 0.36 | 0.269 | 0.185 | 0.111 | 0.142 | 0.097 | 0.141 | 0.153 | 0.32 | 0.418 | 0.43 | 0.388 | 0.375 | 0.365 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00013 | <0.0001 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15-Oct-09 | 21-Oct-09 | 29-Oct-09 | 19-Nov-09 | 16-Dec-09 | 10-Feb-10 | 3-Mar-10 | 7-Apr-10 | 15-Apr-10 | 21-Apr-10 | 28-Apr-10 | 4-May-10 | 11-May-10 | 19-May-10 | 3-Jun-10 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0051 | <0.005 | 0.0051 | <0.005 | <0.005 | 0.0054 | <0.005 | <0.005 | <0.005 | <0.005 |
| Chloride (mg/L) | 3.57 | 3.71 | 2.71 | 2.17 | 3.52 | 2.51 | <5 | 1.42 | 2.8 | 2.7 | 1.78 | 1.13 | 2.04 | 2.25 | 2.6 |
| Diss-Orthophosphate (mg/L) | 0.0108 | 0.0187 | 0.0091 | 0.0017 | 0.0071 | 0.011 | 0.0066 | 0.0072 | 0.007 | 0.007 | 0.0072 | 0.005 | 0.0065 | 0.0079 | 0.0084 |
| Diss-Phosphorus (mg/L) | 0.0137 | 0.0283 | 0.0194 | 0.0209 | 0.0168 | 0.0149 | 0.0168 | 0.0172 | 0.0164 | 0.0174 | 0.0201 | 0.0188 | 0.0145 | 0.0163 | 0.0513 |
| Nitrate (N) (mg/L) | <0.005 | <0.005 | 0.22 | 0.119 | 0.0753 | 0.138 | 0.25 | 0.0753 | 0.083 | 0.063 | 0.0526 | 0.0771 | 0.0483 | 0.0206 | 0.058 |
| Nitrate and Nitrite (mg/L) | | | | | | | | | | | | 0.0771 | 0.0483 | 0.0206 | 0.058 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.001 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 |
| Sulphate (mg/L) | 5.71 | 4.94 | 13 | 14.6 | 8.5 | 17.1 | 12.8 | 5.01 | 5.7 | 5.4 | 5.2 | 3.93 | 4.73 | 4.51 | 3.5 |
| Total Nitrogen (mg/L) | <0.05 | 0.25 | 0.58 | 1.02 | 0.62 | 0.51 | 0.85 | 0.684 | 0.79 | 0.63 | 0.83 | 1.05 | 0.4 | 0.31 | 0.41 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.007 | 0.0296 | 0.0633 | 0.188 | 0.0191 | 0.0389 | 0.109 | 0.125 | 0.092 | 0.0735 | 0.0687 | 0.143 | 0.0537 | 0.0412 | 0.0304 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Arsenic (As) (mg/L) | 0.00124 | 0.00132 | 0.001 | 0.00063 | 0.00086 | 0.00096 | 0.00051 | 0.00055 | 0.00069 | 0.00074 | 0.00075 | 0.00058 | 0.00078 | 0.00095 | 0.00106 |
| Diss-Barium (Ba) (mg/L) | 0.01 | 0.00993 | 0.00815 | 0.00935 | 0.0143 | 0.0103 | 0.00957 | 0.00937 | 0.00984 | 0.00992 | 0.00972 | 0.00889 | 0.0102 | 0.0111 | 0.0109 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Boron (B) (mg/L) | 0.02 | 0.019 | 0.016 | 0.014 | 0.019 | 0.018 | 0.015 | 0.016 | 0.019 | 0.017 | 0.019 | 0.018 | 0.022 | 0.022 | 0.024 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 |
| Diss-Calcium (Ca) (mg/L) | 41.3 | 38 | 26.7 | 23.2 | 40.9 | 32.8 | 22.2 | 19.6 | 23 | 23.3 | 24.1 | 17.7 | 32.2 | 34.9 | 34.5 |
| Diss-Chromium (Cr) (mg/L) | 0.00056 | <0.0005 | 0.00129 | 0.00162 | 0.00151 | 0.0009 | 0.00077 | 0.00079 | 0.00083 | 0.00072 | 0.00068 | 0.00077 | 0.00078 | 0.0007 | 0.00083 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Copper (Cu) (mg/L) | <0.0006 | 0.00142 | 0.00225 | 0.00541 | 0.00137 | 0.00141 | 0.00286 | 0.00332 | 0.00287 | 0.00255 | 0.00274 | 0.00392 | 0.0021 | 0.00198 | 0.00167 |
| Diss-Iron (Fe) (mg/L) | <0.03 | 0.095 | 0.151 | 0.282 | 0.052 | 0.08 | 0.136 | 0.15 | 0.13 | 0.119 | 0.129 | 0.169 | 0.105 | 0.082 | 0.073 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | 0.000166 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 20.5 | 16.7 | 12.2 | 8.51 | 19 | 14.1 | 7.63 | 7.84 | 9.85 | 10 | 10.6 | 7.05 | 12.2 | 13.7 | 15.2 |
| Diss-Manganese (Mn) (mg/L) | 0.00433 | 0.00672 | 0.00372 | 0.00636 | 0.0191 | 0.00909 | 0.00306 | 0.00322 | 0.00699 | 0.00863 | 0.00812 | 0.00788 | 0.0106 | 0.00957 | 0.0131 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00244 | 0.00216 | 0.00138 | 0.00114 | 0.00192 | 0.00146 | 0.000828 | 0.00106 | 0.00115 | 0.00141 | 0.00147 | 0.00123 | 0.00167 | 0.00222 | 0.00244 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | 0.00078 | 0.00117 | <0.0005 | <0.0005 | 0.00091 | 0.00109 | 0.00093 | 0.00081 | 0.00089 | 0.0013 | 0.00063 | 0.00068 | 0.00072 |
| Diss-Potassium (K) (mg/L) | 1.32 | 2.17 | 1.09 | 0.993 | 1.24 | 0.908 | 0.974 | 1.22 | 1.22 | 1.25 | 1.18 | 1.26 | 1.1 | 1.26 | 1.16 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Diss-Silicon (Si) (mg/L) | 7.54 | 6.86 | 6.1 | 5.56 | 7.88 | 6.31 | 4.76 | 4.66 | 5.09 | 5.18 | 5.23 | 4.68 | 5.65 | 5.76 | 5.89 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | 0.000016 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000018 | <0.00001 | <0.00001 | <0.00001 |
| Diss-Sodium (Na) (mg/L) | 9.49 | 8.2 | 6.51 | 4.57 | 8.97 | 7.51 | 4.71 | 4.42 | 5.32 | 5.23 | 5.68 | 4.67 | 6.31 | 7.16 | 7.58 |
| Diss-Strontium (Sr) (mg/L) | 0.348 | 0.276 | 0.222 | 0.164 | 0.311 | 0.258 | 0.145 | 0.141 | 0.18 | 0.193 | 0.189 | 0.147 | 0.221 | 0.249 | 0.253 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8-Jul-10 | 4-Aug-10 | 1-Sep-10 | 23-Sep-10 | 30-Sep-10 | 7-Oct-10 | 14-Oct-10 | 21-Oct-10 | 28-Oct-10 | 4-Nov-10 | 10-Jan-11 | 7-Mar-11 | 5-Apr-11 | 4-May-11 | 11-May-11 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0088 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0069 | 0.0076 |
| Chloride (mg/L) | 2.87 | 3.81 | 3.46 | 3.27 | 3.67 | 3.71 | 3.78 | 3.91 | 4.07 | 3.79 | 3.81 | 3.36 | 0.88 | 0.56 | <2.5 |
| Diss-Orthophosphate (mg/L) | 0.0174 | 0.0236 | 0.0164 | 0.0098 | 0.0108 | 0.0112 | 0.011 | 0.0116 | 0.0114 | 0.0127 | 0.0146 | 0.0143 | 0.0052 | 0.0107 | 0.0067 |
| Diss-Phosphorus (mg/L) | 0.0229 | 0.027 | 0.0218 | 0.0152 | 0.0143 | 0.0148 | 0.0131 | 0.0122 | 0.014 | 0.0157 | 0.0199 | 0.0177 | 0.0211 | 0.0252 | 0.0219 |
| Nitrate (N) (mg/L) | 0.0855 | 0.0774 | 0.021 | 0.0071 | <0.005 | <0.005 | <0.005 | 0.0078 | 0.0075 | 0.0344 | 0.14 | 0.127 | 0.282 | 0.119 | <0.025 |
| Nitrate and Nitrite (mg/L) | 0.0865 | 0.0786 | 0.021 | 0.0071 | <0.0051 | <0.0051 | <0.0051 | 0.0078 | 0.0075 | 0.0344 | 0.14 | 0.127 | 0.282 | 0.119 | <0.025 |
| Nitrite (N) (mg/L) | <0.001 | 0.0012 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 |
| Sulphate (mg/L) | 4.34 | 4.88 | 4.47 | 5.86 | 5.94 | 5.91 | 6.09 | 6.85 | 7.02 | 7.5 | 17.4 | 18 | 15.9 | 5.24 | 3.5 |
| Total Nitrogen (mg/L) | 0.28 | 0.2 | 0.31 | 0.22 | 0.14 | 0.2 | 0.11 | <0.05 | <0.05 | 0.16 | 0.22 | 0.273 | 0.97 | 0.78 | 0.87 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0172 | 0.0174 | 0.0159 | 0.0114 | 0.0101 | 0.0077 | 0.0078 | 0.0074 | 0.0093 | 0.01 | 0.0099 | 0.012 | 0.155 | 0.196 | 0.167 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Arsenic (As) (mg/L) | 0.00132 | 0.00163 | 0.00132 | 0.00126 | 0.00128 | 0.00134 | 0.0014 | 0.00134 | 0.00128 | 0.00137 | 0.00115 | 0.00122 | 0.00045 | 0.00038 | 0.00044 |
| Diss-Barium (Ba) (mg/L) | 0.0121 | 0.0123 | 0.0107 | 0.0118 | 0.00999 | 0.0101 | 0.0105 | 0.0101 | 0.00967 | 0.00987 | 0.00908 | 0.0101 | 0.0105 | 0.00897 | 0.0094 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Boron (B) (mg/L) | 0.023 | 0.028 | 0.025 | 0.019 | 0.025 | 0.026 | 0.024 | 0.023 | 0.025 | 0.026 | 0.025 | 0.019 | 0.013 | 0.017 | 0.019 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000014 | <0.00001 |
| Diss-Calcium (Ca) (mg/L) | 44.2 | 49.7 | 42.3 | 45.4 | 47 | 44.5 | 46.1 | 48.1 | 42.8 | 42.8 | 44.8 | 39.9 | 23 | 13.1 | 14.5 |
| Diss-Chromium (Cr) (mg/L) | 0.00083 | 0.00082 | 0.00067 | 0.00067 | 0.00084 | 0.0007 | 0.00075 | 0.00081 | 0.00076 | 0.00091 | 0.00083 | 0.00071 | 0.00075 | 0.0008 | 0.00077 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00011 | <0.0001 |
| Diss-Copper (Cu) (mg/L) | 0.00078 | 0.00055 | 0.00121 | 0.00092 | 0.00053 | <0.0005 | <0.0005 | <0.0005 | 0.00051 | 0.00072 | 0.00051 | 0.00067 | 0.00361 | 0.00457 | 0.00432 |
| Diss-Iron (Fe) (mg/L) | 0.042 | <0.03 | 0.068 | 0.041 | 0.036 | 0.032 | <0.03 | <0.03 | 0.035 | 0.032 | 0.036 | 0.043 | 0.174 | 0.155 | 0.153 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 20.5 | 23.4 | 19.4 | 21 | 21.8 | 22 | 21.7 | 21.7 | 20.6 | 20.3 | 20.1 | 18.5 | 7.65 | 3.95 | 4.62 |
| Diss-Manganese (Mn) (mg/L) | 0.0109 | 0.0132 | 0.022 | 0.000594 | 0.00884 | 0.00824 | 0.00538 | 0.00762 | 0.00871 | 0.0121 | 0.00823 | 0.0135 | 0.0108 | 0.00561 | 0.00132 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00299 | 0.00426 | 0.00281 | 0.00251 | 0.00256 | 0.00259 | 0.00263 | 0.00246 | 0.00227 | 0.0022 | 0.00169 | 0.00154 | 0.000683 | 0.00052 | 0.000608 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | 0.00051 | <0.0005 | <0.0005 | 0.00053 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00122 | 0.00137 | 0.00133 |
| Diss-Potassium (K) (mg/L) | 1.13 | 1.18 | 1.18 | 1.34 | 1.12 | 1.09 | 1.15 | 1.12 | 1.22 | 1.09 | 0.993 | 1.03 | 1.13 | 1.7 | 1.78 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.00054 | <0.0005 | 0.00059 | <0.0005 | <0.0005 |
| Diss-Silicon (Si) (mg/L) | 7.81 | 7.82 | 7.26 | 7.96 | 8.06 | 7.78 | 7.99 | 8.01 | 7.73 | 7.95 | 7.86 | 7.4 | 4.74 | 3.53 | 3.67 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000014 | 0.000016 | 0.000017 |
| Diss-Sodium (Na) (mg/L) | 8.8 | 10.4 | 8.83 | 10.5 | 9.78 | 10 | 10.3 | 10.1 | 10 | 10.1 | 9.4 | 9.62 | 3.95 | 2.51 | 2.72 |
| Diss-Strontium (Sr) (mg/L) | 0.354 | 0.411 | 0.346 | 0.347 | 0.363 | 0.363 | 0.384 | 0.375 | 0.372 | 0.365 | 0.359 | 0.318 | 0.162 | 0.0942 | 0.105 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 18-May-11 | 26-May-11 | 1-Jun-11 | 9-Jun-11 | 14-Jul-11 | 4-Aug-11 | 8-Sep-11 | 20-Sep-11 | 30-Sep-11 | 6-Oct-11 | 12-Oct-11 | 19-Oct-11 | 1-Nov-11 | 5-Dec-11 | 5-Jan-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.008 | 0.0059 | 0.0118 | 0.0151 | 0.0128 | 0.0106 | <0.0050 | <0.0050 | 0.005 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | 0.0086 | 0.0077 |
| Chloride (mg/L) | 8.2 | <2.5 | <2.5 | <2.5 | 2.26 | 2.8 | 4.75 | 4.82 | 4.9 | 4.92 | 5.04 | 5.07 | 4.84 | 3.43 | 3.35 |
| Diss-Orthophosphate (mg/L) | 0.0058 | 0.0044 | 0.0059 | 0.0087 | 0.0117 | 0.0121 | 0.0138 | 0.0131 | 0.012 | 0.0114 | 0.0113 | 0.0107 | 0.0111 | 0.0118 | 0.0143 |
| Diss-Phosphorus (mg/L) | 0.0265 | 0.0196 | 0.0172 | 0.0172 | 0.0177 | 0.0175 | | | | 0.0148 | 0.0155 | | 0.0149 | 0.0183 | 0.0192 |
| Nitrate (N) (mg/L) | <0.05 | <0.025 | 0.032 | <0.025 | 0.0351 | 0.054 | 0.0356 | 0.0188 | 0.0115 | <0.0050 | <0.0050 | <0.0050 | 0.0371 | 0.171 | 0.176 |
| Nitrate and Nitrite (mg/L) | <0.051 | <0.025 | 0.032 | <0.025 | 0.0351 | 0.054 | 0.0356 | 0.0188 | 0.0115 | <0.0051 | <0.0051 | <0.0051 | 0.0389 | 0.171 | 0.176 |
| Nitrite (N) (mg/L) | <0.01 | <0.005 | <0.005 | <0.005 | <0.001 | <0.005 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0018 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | <5 | 3.5 | 3.2 | 3.4 | 3.77 | 3.8 | 6.86 | 6.88 | 7.04 | 7.48 | 7.78 | 8.27 | 8.19 | 12.6 | 12.6 |
| Total Nitrogen (mg/L) | 0.76 | 0.47 | 0.68 | 0.65 | 0.55 | 0.56 | 0.22 | 0.15 | 0.15 | 0.2 | 0.15 | 0.160 | 0.21 | 0.4 | 0.32 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.211 | 0.148 | 0.106 | 0.0572 | 0.0356 | 0.0399 | 0.0109 | 0.0093 | 0.0076 | 0.008 | 0.008 | 0.0072 | 0.012 | 0.031 | 0.0262 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00049 | 0.00061 | 0.00067 | 0.00084 | 0.00106 | 0.00109 | 0.00132 | 0.00135 | 0.00133 | 0.00127 | 0.00138 | 0.00133 | 0.00117 | 0.00112 | 0.00107 |
| Diss-Barium (Ba) (mg/L) | 0.00912 | 0.0107 | 0.0104 | 0.0109 | 0.0108 | 0.0114 | 0.0114 | 0.0106 | 0.0108 | 0.00969 | 0.0108 | 0.0109 | 0.00948 | 0.00881 | 0.00844 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.016 | 0.023 | 0.02 | 0.026 | 0.024 | 0.022 | 0.025 | 0.025 | 0.025 | 0.021 | 0.026 | 0.024 | 0.024 | 0.02 | 0.02 |
| Diss-Cadmium (Cd) (mg/L) | 0.000039 | 0.000012 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 15 | 20.1 | 23 | 29.6 | 38.8 | 38.8 | 46.3 | 45.8 | 47.8 | 45.3 | 45.3 | 44.7 | 41.8 | 35.8 | 35.1 |
| Diss-Chromium (Cr) (mg/L) | 0.0008 | 0.00096 | 0.0008 | 0.00084 | 0.00079 | 0.00075 | 0.00077 | 0.00082 | 0.00083 | 0.00077 | 0.00076 | 0.00071 | 0.0008 | 0.00085 | 0.0007 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00483 | 0.00425 | 0.00357 | 0.00234 | 0.00146 | 0.00145 | <0.00050 | <0.00050 | 0.00056 | <0.00050 | <0.00050 | <0.00050 | 0.00059 | 0.00125 | 0.00125 |
| Diss-Iron (Fe) (mg/L) | 0.178 | 0.179 | 0.131 | 0.097 | 0.103 | 0.119 | <0.030 | <0.030 | 0.03 | <0.030 | <0.030 | <0.030 | 0.045 | 0.092 | 0.081 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 4.4 | 7.35 | 8.63 | 11.8 | 15.6 | 15.8 | 22.2 | 21.9 | 21.8 | 21.6 | 20.8 | 21.4 | 19.8 | 16.3 | 15.8 |
| Diss-Manganese (Mn) (mg/L) | 0.00182 | 0.00901 | 0.0134 | 0.0256 | 0.0208 | 0.0235 | 0.000937 | 0.0103 | 0.0105 | 0.0124 | 0.00964 | 0.00813 | 0.00951 | 0.0122 | 0.0117 |
| Diss-Molybdenum (Mo) (mg/L) | 0.000682 | 0.000977 | 0.0011 | 0.00158 | 0.00204 | 0.00221 | 0.00276 | 0.00252 | 0.00255 | 0.0023 | 0.00245 | 0.00229 | 0.0019 | 0.00153 | 0.00132 |
| Diss-Nickel (Ni) (mg/L) | 0.0015 | 0.00184 | 0.00155 | 0.00121 | 0.00085 | 0.0009 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 1.73 | 1.69 | 1.66 | 1.47 | 1.09 | 1.09 | 1.07 | 1.11 | 1.09 | 1.08 | 1.3 | 1.17 | 1.13 | 1.01 | 1 |
| Diss-Selenium (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 3.56 | 4.57 | 4.99 | 5.76 | 6.65 | 6.74 | 7.85 | 7.83 | 7.88 | 7.81 | 7.54 | 7.93 | 7.48 | 7 | 6.62 |
| Diss-Silver (Ag) (mg/L) | 0.000026 | 0.000022 | 0.000011 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 2.49 | 3.99 | 4.58 | 6.01 | 7.51 | 7.14 | 10.2 | 10.8 | 10.4 | 9.9 | 10.5 | 10.1 | 9.18 | 8.65 | 8.13 |
| Diss-Strontium (Sr) (mg/L) | 0.0999 | 0.15 | 0.171 | 0.225 | 0.285 | 0.295 | 0.383 | 0.391 | 0.381 | 0.351 | 0.381 | 0.374 | 0.322 | 0.292 | 0.29 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7-Feb-12 | 15-Mar-12 | 3-Apr-12 | 26-Apr-12 | 3-May-12 | 10-May-12 | 16-May-12 | 24-May-12 | 7-Jun-12 | 5-Jul-12 | 2-Aug-12 | 6-Sep-12 | 3-Oct-12 | 11-Oct-12 | 18-Oct-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0074 | 0.0164 | 0.0092 | 0.0086 | 0.0117 | 0.0066 | 0.0087 | 0.0068 | 0.0111 | 0.0093 | <0.0050 | <0.0050 | <0.0050 | <0.020 | <0.0050 |
| Chloride (mg/L) | 4.18 | 2.52 | <2.5 | 0.51 | <2.5 | <2.5 | 3.1 | 3.22 | <2.5 | <2.5 | 5.17 | 5.87 | 6.36 | 6.26 | 6.29 |
| Diss-Orthophosphate (mg/L) | 0.0149 | 0.0101 | 0.0065 | 0.0059 | 0.0048 | 0.0049 | 0.007 | 0.0064 | 0.0046 | 0.0075 | 0.0178 | 0.0148 | 0.0121 | 0.0113 | 0.0108 |
| Diss-Phosphorus (mg/L) | 0.0207 | 0.0178 | 0.0256 | 0.0254 | 0.0221 | 0.0187 | 0.0168 | 0.0135 | 0.022 | 0.0189 | 0.0211 | 0.018 | 0.0162 | 0.0145 | 0.0171 |
| Nitrate (N) (mg/L) | 0.0994 | 0.155 | 0.355 | 0.0264 | <0.025 | 0.089 | <0.025 | 0.0188 | 0.037 | 0.031 | 0.0675 | <0.0050 | 0.0084 | <0.0050 | 0.0178 |
| Nitrate and Nitrite (mg/L) | 0.0994 | 0.155 | 0.361 | 0.0264 | <0.025 | 0.089 | <0.025 | 0.0188 | 0.037 | 0.031 | 0.0675 | <0.0051 | 0.0084 | <0.0051 | 0.0178 |
| Nitrite (N) (mg/L) | <0.0010 | <0.0010 | 0.0058 | <0.0010 | <0.0050 | <0.0050 | <0.0050 | <0.0010 | <0.0050 | <0.0050 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 9.61 | 13 | 8.9 | 2.79 | 2.6 | 3.3 | 4.2 | 5.59 | 3.3 | 2.6 | 5.81 | 7.24 | 8.23 | 8.96 | 8.79 |
| Total Nitrogen (mg/L) | 0.18 | 0.49 | 1.31 | 0.73 | 0.76 | 0.72 | 0.75 | 0.27 | 0.87 | 0.88 | 0.23 | 0.22 | 0.19 | 0.25 | 0.16 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0131 | 0.0379 | 0.204 | 0.175 | 0.179 | 0.131 | 0.0653 | 0.0352 | 0.148 | 0.114 | 0.0179 | 0.0095 | 0.0069 | 0.0067 | 0.0077 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00126 | 0.0008 | 0.00048 | 0.00046 | 0.00045 | 0.00057 | 0.00079 | 0.00089 | 0.00056 | 0.00071 | 0.00138 | 0.00133 | 0.00131 | 0.00133 | 0.00126 |
| Diss-Barium (Ba) (mg/L) | 0.00979 | 0.00882 | 0.00933 | 0.00886 | 0.009 | 0.00915 | 0.0105 | 0.0101 | 0.00871 | 0.0106 | 0.0114 | 0.0107 | 0.00975 | 0.00978 | 0.0102 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.022 | 0.019 | 0.014 | 0.018 | 0.017 | 0.018 | 0.024 | 0.018 | 0.02 | 0.022 | 0.026 | 0.028 | 0.026 | 0.024 | 0.027 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.00001 | <0.000010 | <0.000010 | <0.000010 | 0.000011 | 0.000011 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 40.3 | 33.2 | 23.5 | 16 | 18.4 | 21.6 | 26.4 | 33.4 | 21.1 | 27.1 | 45.2 | 49.4 | 47.4 | 47.8 | 46.6 |
| Diss-Chromium (Cr) (mg/L) | 0.00075 | 0.00069 | 0.00093 | 0.00078 | 0.00074 | 0.00084 | 0.00076 | 0.00065 | 0.00086 | 0.00096 | 0.0008 | 0.0008 | 0.00077 | 0.00072 | 0.00074 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | 0.00011 | 0.0001 | 0.00011 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00068 | 0.00141 | 0.00374 | 0.00443 | 0.00463 | 0.00371 | <0.0025 | 0.00147 | 0.00469 | 0.00312 | 0.00057 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | 0.056 | 0.093 | 0.278 | 0.201 | 0.195 | 0.173 | 0.116 | 0.072 | 0.229 | 0.176 | 0.059 | 0.032 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | 0.000054 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 19.8 | 13.6 | 7.74 | 5.36 | 5.99 | 8.16 | 11.4 | 15.5 | 7.04 | 9.65 | 21.6 | 23 | 22.2 | 21.9 | 21.5 |
| Diss-Manganese (Mn) (mg/L) | 0.0116 | 0.00989 | 0.00942 | 0.00533 | 0.00619 | 0.00973 | 0.013 | 0.0137 | 0.0052 | 0.012 | 0.0211 | 0.00912 | 0.00635 | 0.00466 | 0.00633 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00172 | 0.00112 | 0.00063 | 0.000589 | 0.000609 | 0.000903 | 0.00139 | 0.00139 | 0.001 | 0.00125 | 0.00292 | 0.00276 | 0.00241 | 0.00221 | 0.00213 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | 0.00057 | 0.00125 | 0.00134 | 0.00139 | 0.00122 | 0.00094 | 0.00061 | 0.00155 | 0.0016 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 1.06 | 0.927 | 1.03 | 1.34 | 1.39 | 1.31 | 1.31 | 1.17 | 1.08 | 1.06 | 1.12 | 1.05 | 1.13 | 1.05 | 1.16 |
| Diss-Selenium (mg/L) | 0.00055 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 7.79 | 6 | 4.8 | 3.67 | 3.87 | 4.43 | 4.96 | 5.9 | 4.27 | 5.15 | 7.59 | 7.98 | 8.01 | 7.76 | 7.95 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | 0.000014 | 0.000019 | 0.000025 | 0.000017 | <0.000010 | <0.000010 | 0.000017 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 9.71 | 6.78 | 4.05 | 3 | 3.11 | 4.01 | 5.78 | 7.16 | 3.85 | 4.56 | 10.3 | 11.2 | 10.3 | 10.2 | 9.92 |
| Diss-Strontium (Sr) (mg/L) | 0.345 | 0.241 | 0.153 | 0.11 | 0.124 | 0.162 | 0.222 | 0.241 | 0.138 | 0.189 | 0.382 | 0.393 | 0.371 | 0.373 | 0.362 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 25-Oct-12 | 31-Oct-12 | 5-Nov-12 | 6-Dec-12 | 3-Jan-13 | 7-Feb-13 | 14-Mar-13 | 4-Apr-13 | 18-Apr-13 | 25-Apr-13 | 1-May-13 | 9-May-13 | 16-May-13 | 6-Jun-13 | 10-Jul-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 | 0.0064 | 0.0057 | 0.0067 | <0.0050 | 0.0094 | 0.0086 | | | 0.0064 | | | 0.0085 | 0.0051 |
| Chloride (mg/L) | 6.03 | 5.05 | 3.2 | 2.98 | 4.93 | 3.87 | 1.99 | <2.5 | | | 0.77 | | | 2.52 | 6.06 |
| Diss-Orthophosphate (mg/L) | 0.0101 | 0.0123 | 0.009 | 0.0083 | 0.0155 | 0.0119 | 0.0068 | 0.0033 | | | 0.0043 | | | 0.0091 | 0.0191 |
| Diss-Phosphorus (mg/L) | 0.0167 | 0.0177 | 0.0218 | 0.0187 | 0.0191 | 0.0186 | 0.0169 | 0.0206 | | | 0.0164 | | | 0.0225 | 0.0247 |
| Nitrate (N) (mg/L) | 0.0503 | 0.0874 | 0.408 | 0.449 | 0.191 | 0.167 | 0.274 | 0.271 | | | 0.0154 | | | 0.0344 | 0.107 |
| Nitrate and Nitrite (mg/L) | 0.0503 | 0.0874 | 0.408 | 0.449 | 0.191 | 0.167 | 0.274 | 0.271 | | | 0.0154 | | | 0.0344 | 0.107 |
| Nitrite (N) (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0050 | | | <0.0010 | | | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 9.43 | 8.92 | 12.3 | 17.6 | 13.3 | 15.3 | 13.1 | 5.6 | | | 2.68 | | | 3.88 | 7.24 |
| Total Nitrogen (mg/L) | 0.22 | 0.48 | 0.98 | 0.893 | 0.359 | 0.402 | 0.698 | 0.975 | | | 0.644 | | | 0.565 | 0.297 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0106 | 0.0203 | 0.0906 | 0.0597 | 0.0191 | | | | | | | | | | |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | | | | | |
| Diss-Arsenic (As) (mg/L) | 0.0012 | 0.00116 | 0.00082 | 0.00086 | 0.00119 | | | | | | | | | | |
| Diss-Barium (Ba) (mg/L) | 0.00904 | 0.00839 | 0.00816 | 0.00814 | 0.00951 | | | | | | | | | | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | | | | | |
| Diss-Boron (B) (mg/L) | 0.021 | 0.018 | 0.019 | 0.02 | 0.02 | | | | | | | | | | |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | | | | | | | | |
| Diss-Calcium (Ca) (mg/L) | 42.5 | 35.6 | 29.2 | 31.9 | 41.2 | | | | | | | | | | |
| Diss-Chromium (Cr) (mg/L) | 0.00071 | 0.00071 | 0.00079 | 0.00074 | 0.00082 | | | | | | | | | | |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | | | | | |
| Diss-Copper (Cu) (mg/L) | 0.0005 | 0.00104 | 0.00266 | 0.00218 | 0.00078 | | | | | | | | | | |
| Diss-Iron (Fe) (mg/L) | 0.037 | 0.079 | 0.22 | 0.168 | 0.069 | | | | | | | | | | |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | | | | | | | | | |
| Diss-Magnesium (Mg) (mg/L) | 20.1 | 16.7 | 12 | 13.6 | 19 | | | | | | | | | | |
| Diss-Manganese (Mn) (mg/L) | 0.00624 | 0.0105 | 0.0132 | 0.0129 | 0.0183 | | | | | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.00187 | 0.00174 | 0.00121 | 0.00115 | 0.00162 | | | | | | | | | | |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | 0.00056 | 0.00087 | 0.00068 | <0.00050 | | | | | | | | | | |
| Diss-Potassium (K) (mg/L) | 1.08 | 1.1 | 1.13 | 0.897 | 1.02 | | | | | | | | | | |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00053 | | | | | | | | | | |
| Diss-Silicon (Si) (mg/L) | 7.6 | 6.74 | 5.75 | 6.05 | 7.46 | | | | | | | | | | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | | | | | | | | |
| Diss-Sodium (Na) (mg/L) | 9.65 | 8.16 | 6.4 | 6.67 | 9.14 | | | | | | | | | | |
| Diss-Strontium (Sr) (mg/L) | 0.337 | 0.32 | 0.225 | 0.262 | 0.346 | | | | | | | | | | |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | | | | | |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 8-Aug-13 | 5-Sep-13 | 24-Sep-13 | 3-Oct-13 | 10-Oct-13 | 17-Oct-13 | 24-Oct-13 | 29-Oct-13 | 7-Nov-13 | 5-Dec-13 |
| **Anions and Nutrients** | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 | | <0.0050 | | | | | <0.0050 | 0.0053 |
| Chloride (mg/L) | 7.18 | 7.62 | | 7.34 | | | | | 6.55 | 5.16 |
| Diss-Orthophosphate (mg/L) | 0.0198 | 0.0167 | | 0.013 | | | | | 0.0127 | 0.0121 |
| Diss-Phosphorus (mg/L) | 0.0249 | 0.0223 | | 0.018 | | | | | 0.0166 | 0.0183 |
| Nitrate (N) (mg/L) | 0.0799 | 0.0422 | | 0.0328 | | | | | 0.0484 | 0.635 |
| Nitrate and Nitrite (mg/L) | 0.0799 | 0.0422 | | 0.0328 | | | | | 0.0484 | 0.637 |
| Nitrite (N) (mg/L) | <0.0010 | <0.0010 | | <0.0010 | | | | | <0.0010 | 0.0015 |
| Sulphate (mg/L) | 7.91 | 8.21 | | 10.2 | | | | | 11.9 | 26.1 |
| Total Nitrogen (mg/L) | 0.211 | 0.182 | | 0.192 | | | | | 0.198 | 0.873 |
| **Dissolved Metals** | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | | | | 0.008 | | | | | | |
| Diss-Antimony (Sb) (mg/L) | | | | <0.00010 | | | | | | |
| Diss-Arsenic (As) (mg/L) | | | | 0.00129 | | | | | | |
| Diss-Barium (Ba) (mg/L) | | | | 0.00918 | | | | | | |
| Diss-Beryllium (Be) (mg/L) | | | | <0.00010 | | | | | | |
| Diss-Boron (B) (mg/L) | | | | 0.022 | | | | | | |
| Diss-Cadmium (Cd) (mg/L) | | | | <0.000010 | | | | | | |
| Diss-Calcium (Ca) (mg/L) | | | | 45.4 | | | | | | |
| Diss-Chromium (Cr) (mg/L) | | | | 0.00067 | | | | | | |
| Diss-Cobalt (Co) (mg/L) | | | | <0.00010 | | | | | | |
| Diss-Copper (Cu) (mg/L) | | | | <0.00050 | | | | | | |
| Diss-Iron (Fe) (mg/L) | | | | 0.03 | | | | | | |
| Diss-Lead (Pb) (mg/L) | | | | <0.000050 | | | | | | |
| Diss-Magnesium (Mg) (mg/L) | | | | 21.6 | | | | | | |
| Diss-Manganese (Mn) (mg/L) | | | | 0.00542 | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | | | | 0.00222 | | | | | | |
| Diss-Nickel (Ni) (mg/L) | | | | <0.00050 | | | | | | |
| Diss-Potassium (K) (mg/L) | | | | 1.03 | | | | | | |
| Diss-Selenium (mg/L) | | | | <0.00050 | | | | | | |
| Diss-Silicon (Si) (mg/L) | | | | 7.98 | | | | | | |
| Diss-Silver (Ag) (mg/L) | | | | <0.000010 | | | | | | |
| Diss-Sodium (Na) (mg/L) | | | | 9.6 | | | | | | |
| Diss-Strontium (Sr) (mg/L) | | | | 0.357 | | | | | | |
| Diss-Tin (Sn) (mg/L) | | | | <0.00010 | | | | | | |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **14-Jan-09** | **9-Feb-09** | **4-Mar-09** | **7-Apr-09** | **21-Apr-09** | **28-Apr-09** | **5-May-09** | **12-May-09** | **20-May-09** | **9-Jun-09** | **14-Jul-09** | **5-Aug-09** | **2-Sep-09** | **30-Sep-09** | **6-Oct-09** |
| Diss-Zinc (Zn) (mg/L) | <0.001 | 0.0066 | <0.001 | 0.0013 | 0.0015 | 0.0014 | 0.0027 | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| TDS (mg/L) | 193 | 208 | 198 | 169 | 114 | 114 | 118 | 127 | 135 | 150 | 226 | 257 | 237 | 236 | 225 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 171 | 171 | 155 | 102 | 48.7 | 49.6 | 44.9 | 59.3 | 55.3 | 173 | 193 | 237 | 208 | 204 | 204 |
| Hardness (mg/L) | 171 | 174 | 181 | 121 | 57 | 63.3 | 53.5 | 58.9 | 68 | 159 | 185 | 223 | 212 | 201 | 206 |
| NTU (ntu) | 0.52 | 1.43 | 5.42 | 4.22 | 4.63 | 3.64 | 2.5 | 6.98 | 1.41 | 0.66 | 11.4 | 6.93 | 0.75 | 0.62 | 0.38 |
| TDS (mg/L) | 193 | 208 | 198 | 169 | 114 | 114 | 118 | 127 | 135 | 150 | 226 | 257 | 237 | 236 | 225 |
| TSS (mg/L) | <3 | <3 | 5.8 | 4.5 | 4 | <3 | 3.5 | 8.9 | <3 | <3 | 33.3 | 14 | <3 | <3 | <3 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic (As)-Total ( | 0.00104 | 0.00113 | 0.0008 | 0.00055 | 0.00036 | 0.00039 | 0.00042 | 0.00037 | 0.00048 | 0.00122 | 0.00186 | 0.00177 | 0.00184 | 0.0016 | 0.00141 |
| Barium (Ba)-Total | 0.00966 | 0.0107 | 0.0128 | 0.0127 | 0.012 | 0.0106 | 0.00926 | 0.0116 | 0.00997 | 0.0134 | 0.0217 | 0.0134 | 0.0134 | 0.0111 | 0.0103 |
| Boron (B)-Total (mg/L) | 0.019 | 0.021 | 0.016 | 0.013 | <0.01 | 0.011 | 0.011 | 0.014 | 0.011 | 0.023 | 0.025 | 0.025 | 0.029 | 0.024 | 0.023 |
| Calcium (Ca)-Total ( | 39.3 | 40.2 | 46.1 | 31 | 15.4 | 16.1 | 13.9 | 15.3 | 17.8 | 37.8 | 43.5 | 49 | 47.7 | 44.4 | 47 |
| Chromium (Cr)-Total (mg/L) | 0.00082 | 0.00095 | 0.00094 | 0.0015 | 0.00096 | 0.00123 | 0.00097 | 0.00181 | 0.00112 | 0.00133 | 0.00234 | 0.00105 | 0.00098 | 0.00098 | 0.00077 |
| Cobalt (Co)-Total (m | <0.0001 | <0.0001 | 0.00015 | 0.00018 | 0.00022 | 0.00018 | 0.00013 | 0.00022 | <0.0001 | <0.0001 | 0.00057 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Magnesium (Mg)-Total (mg/L) | 17.8 | 17 | 14.9 | 8.89 | 4.49 | 4.59 | 4.15 | 4.51 | 5.38 | 16.6 | 18.9 | 22.1 | 21.4 | 21.8 | 21.4 |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.0005 | 0.00077 | 0.00128 | 0.00121 | 0.00176 | 0.00135 | 0.00196 | 0.00158 | 0.00118 | 0.00184 | 0.00144 | 0.00067 | 0.00052 | <0.0005 |
| Silicon (Si)-Total (mg/L) | 7.05 | 6.86 | 5.91 | 4.63 | 3.45 | 3.81 | 3.43 | 3.52 | 3.95 | 7.02 | 8.53 | 8.07 | 8.05 | 8.04 | 8.02 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | 0.000018 | 0.000013 | 0.000019 | 0.00002 | 0.000017 | 0.000018 | 0.000018 | <0.00001 | 0.000015 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Sodium (Na)-Total (mg/L) | 9.12 | 8.69 | 6.87 | 5.38 | 2.25 | 2.38 | 2.16 | 2.55 | 2.7 | 8.58 | 9.44 | 10.8 | 10.1 | 10.9 | 9.8 |
| Strontium (Sr)-Total (mg/L) | 0.279 | 0.372 | 0.288 | 0.195 | 0.119 | 0.15 | 0.0946 | 0.143 | 0.161 | 0.348 | 0.428 | 0.433 | 0.406 | 0.394 | 0.395 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Aluminum (mg/L) | 0.0287 | 0.102 | 0.213 | 0.289 | 0.365 | 0.362 | 0.23 | 0.426 | 0.225 | 0.0556 | 0.794 | 0.0805 | 0.143 | 0.0162 | 0.0139 |
| Total Cadmium (mg/L) | <0.000017 | <0.000017 | <0.000017 | 0.000027 | 0.000026 | 0.000024 | 0.000021 | 0.00003 | 0.000021 | 0.000021 | 0.000045 | 0.000035 | 0.000027 | 0.000034 | <0.000017 |
| Total Copper (mg/L) | 0.00138 | 0.00165 | 0.00218 | 0.00366 | 0.00486 | 0.00481 | 0.00485 | 0.00586 | 0.00469 | 0.00153 | 0.00732 | 0.00154 | 0.00208 | 0.00115 | <0.0007 |
| Total Iron (mg/L) | 0.082 | 0.207 | 0.352 | 0.411 | 0.4 | 0.35 | 0.253 | 0.478 | 0.322 | 0.104 | 1.21 | 0.16 | 0.216 | 0.049 | 0.041 |
| Total Lead (mg/L) | <0.00005 | <0.00005 | 0.000091 | 0.00012 | 0.00011 | 0.000119 | 0.000061 | 0.000129 | 0.000303 | <0.00005 | 0.000334 | <0.00015 | 0.000072 | <0.00005 | <0.00005 |
| Total Manganese (mg/L) | 0.0141 | 0.0425 | 0.0188 | 0.0347 | 0.0317 | 0.0147 | 0.0136 | 0.0497 | 0.0141 | 0.0191 | 0.202 | 0.0329 | 0.0353 | 0.00783 | 0.00881 |
| Total Molybdenum (mg/L) | 0.00248 | 0.0022 | 0.00188 | 0.00233 | 0.00283 | 0.00371 | 0.00214 | 0.00333 | 0.00298 | 0.00384 | 0.00459 | 0.0057 | 0.00503 | 0.0036 | 0.003 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc (Zn)-Total (mg/L) | <0.002 | 0.0116 | 0.0016 | <0.003 | 0.0031 | 0.0029 | <0.003 | 0.0032 | 0.0045 | <0.003 | <0.007 | 0.0016 | <0.003 | <0.004 | 0.0019 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **15-Oct-09** | **21-Oct-09** | **29-Oct-09** | **19-Nov-09** | **16-Dec-09** | **10-Feb-10** | **3-Mar-10** | **7-Apr-10** | **15-Apr-10** | **21-Apr-10** | **28-Apr-10** | **4-May-10** | **11-May-10** | **19-May-10** | **3-Jun-10** |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | <0.001 | 0.0015 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0028 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| TDS (mg/L) | 198 | 190 | 179 | 169 | 199 | 26.8 | 4.8 | <3 | <3 | <3 | <3 | 135 | 164 | 181 | 185 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 224 | 157 | 111 | 82.2 | 199 | 130 | 85.4 | 72.8 | 92.7 | 102 | 103 | 70.5 | 121 | 141 | 171 |
| Hardness (mg/L) | 187 | 164 | 117 | 93.1 | 181 | 140 | 86.8 | 81.2 | 98 | 99.5 | 104 | 73.3 | 131 | 143 | 149 |
| NTU (ntu) | 0.48 | 4.31 | 1.53 | 2.74 | 28.2 | 1.02 | 2.4 | 0.98 | 0.87 | 0.99 | 0.7 | 2.42 | 2.15 | 0.58 | 0.53 |
| TDS (mg/L) | 198 | 190 | 179 | 169 | 199 | 26.8 | 4.8 | <3 | <3 | <3 | <3 | 135 | 164 | 181 | 185 |
| TSS (mg/L) | <3 | 4.7 | <3 | 3 | 79 | 183 | 144 | 135 | 153 | 143 | 141 | <3 | <3 | <3 | <3 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic (As)-Total ( | 0.00119 | 0.00137 | 0.001 | 0.00065 | 0.00153 | 0.00095 | 0.00057 | 0.00058 | 0.00068 | 0.0007 | 0.00075 | 0.0006 | 0.00082 | 0.00096 | 0.00099 |
| Barium (Ba)-Total | 0.00997 | 0.0118 | 0.00882 | 0.0104 | 0.0282 | 0.0111 | 0.0109 | 0.01 | 0.0105 | 0.0106 | 0.0102 | 0.00991 | 0.0106 | 0.0115 | 0.0122 |
| Boron (B)-Total (mg/L) | 0.023 | 0.022 | 0.017 | 0.019 | 0.021 | 0.018 | 0.018 | 0.018 | 0.021 | 0.018 | 0.021 | 0.018 | 0.022 | 0.025 | 0.027 |
| Calcium (Ca)-Total ( | 39.2 | 37.4 | 25.7 | 23 | 40.3 | 31.4 | 22 | 19.4 | 23 | 23.2 | 23.7 | 16.8 | 30.9 | 32.1 | 33.7 |
| Chromium (Cr)-Total (mg/L) | 0.00073 | 0.00119 | 0.001 | 0.00149 | 0.00534 | 0.0009 | 0.00113 | 0.00088 | 0.00104 | 0.00078 | 0.0009 | 0.00099 | 0.00087 | 0.0008 | 0.00102 |
| Cobalt (Co)-Total (m | <0.0001 | 0.00014 | <0.0001 | 0.00015 | 0.00075 | <0.0001 | 0.00014 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00012 | <0.0001 | <0.0001 | <0.0001 |
| Magnesium (Mg)-Total (mg/L) | 19.9 | 16.4 | 12 | 8.41 | 18.8 | 13.9 | 7.68 | 7.73 | 9.8 | 10 | 10.3 | 6.83 | 11.9 | 13.2 | 14.9 |
| Nickel (Ni)-Total (mg/L) | 0.0005 | 0.0009 | 0.00083 | 0.00143 | 0.00209 | 0.00058 | 0.00114 | 0.00119 | 0.00117 | 0.00086 | 0.001 | 0.00149 | 0.00062 | 0.00068 | 0.00087 |
| Silicon (Si)-Total (mg/L) | 7.25 | 6.98 | 5.91 | 5.58 | 9.32 | 6.23 | 4.89 | 4.63 | 5.08 | 5.25 | 5.14 | 4.62 | 5.51 | 5.57 | 5.88 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | <0.00001 | 0.000027 | 0.000032 | <0.00001 | 0.000011 | 0.000012 | <0.00001 | <0.00001 | 0.000013 | 0.000022 | <0.00001 | <0.00003 | <0.00001 |
| Sodium (Na)-Total (mg/L) | 9.32 | 8.64 | 6.6 | 4.85 | 8.87 | 7.81 | 4.9 | 4.65 | 5.6 | 5.34 | 5.85 | 4.8 | 6.33 | 7.45 | 8.18 |
| Strontium (Sr)-Total (mg/L) | 0.361 | 0.29 | 0.224 | 0.171 | 0.319 | 0.26 | 0.152 | 0.145 | 0.189 | 0.198 | 0.196 | 0.147 | 0.223 | 0.26 | 0.256 |
| Tin (Sn)-Total (mg/L) | <0.0001 | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Aluminum (mg/L) | 0.0146 | 0.226 | 0.0991 | 0.27 | 0.967 | 0.0846 | 0.217 | 0.18 | 0.124 | 0.107 | 0.0932 | 0.234 | 0.0759 | 0.0592 | 0.103 |
| Total Cadmium (mg/L) | <0.000017 | <0.000017 | 0.000027 | <0.000017 | 0.00005 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | 0.000018 | <0.000017 | <0.000017 | <0.000017 |
| Total Copper (mg/L) | 0.00072 | 0.00199 | 0.00257 | 0.00657 | 0.00588 | 0.00166 | 0.00326 | 0.0036 | 0.00321 | 0.00297 | 0.00284 | 0.00434 | 0.00228 | 0.00224 | 0.00271 |
| Total Iron (mg/L) | 0.043 | 0.325 | 0.213 | 0.363 | 1.51 | 0.154 | 0.289 | 0.2 | 0.167 | 0.178 | 0.148 | 0.28 | 0.143 | 0.109 | 0.202 |
| Total Lead (mg/L) | <0.00005 | 0.000069 | 0.000055 | 0.000185 | 0.00049 | <0.00005 | 0.000067 | 0.000053 | <0.00005 | <0.00005 | <0.00005 | 0.000087 | <0.00005 | <0.00005 | <0.00005 |
| Total Manganese (mg/L) | 0.012 | 0.0272 | 0.0188 | 0.016 | 0.236 | 0.023 | 0.0492 | 0.0137 | 0.0139 | 0.0137 | 0.0142 | 0.0281 | 0.0188 | 0.019 | 0.0321 |
| Total Molybdenum (mg/L) | 0.00254 | 0.00237 | 0.00151 | 0.00128 | 0.002 | 0.00156 | 0.000881 | 0.00104 | 0.00126 | 0.00145 | 0.00151 | 0.00124 | 0.00174 | 0.00229 | 0.00265 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc (Zn)-Total (mg/L) | <0.001 | <0.002 | <0.001 | 0.002 | 0.0066 | <0.001 | 0.0014 | 0.0052 | 0.0015 | 0.0011 | 0.0011 | 0.0011 | 0.0013 | <0.001 | <0.001 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **8-Jul-10** | **4-Aug-10** | **1-Sep-10** | **23-Sep-10** | **30-Sep-10** | **7-Oct-10** | **14-Oct-10** | **21-Oct-10** | **28-Oct-10** | **4-Nov-10** | **10-Jan-11** | **7-Mar-11** | **5-Apr-11** | **4-May-11** | **11-May-11** |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | <0.001 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | 0.0038 | <0.003 |
| TDS (mg/L) | 206 | 252 | 219 | 211 | 225 | 232 | 201 | 215 | 211 | 221 | 223 | 215 | 162 | 120 | 129 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 200 | 225 | 187 | 191 | 209 | 213 | 209 | 203 | 191 | 189 | 182 | 170 | 69.5 | 39.4 | 48.5 |
| Hardness (mg/L) | 195 | 221 | 186 | 200 | 207 | 202 | 205 | 209 | 192 | 190 | 195 | 176 | 88.9 | 48.9 | 55.3 |
| NTU (ntu) | 0.44 | 0.6 | 4.87 | 0.33 | 0.3 | 0.3 | 0.19 | 0.24 | 0.44 | 2.1 | 0.85 | 0.58 | 3.65 | 3.62 | 2.93 |
| TDS (mg/L) | 206 | 252 | 219 | 211 | 225 | 232 | 201 | 215 | 211 | 221 | 223 | 215 | 162 | 120 | 129 |
| TSS (mg/L) | <3 | <3 | 18.6 | <3 | <3 | <3 | <3 | <3 | <3 | 4.8 | <3 | <3 | 5.2 | 5 | 5.9 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic (As)-Total ( | 0.00132 | 0.0017 | 0.00162 | 0.00132 | 0.00127 | 0.00128 | 0.00133 | 0.0013 | 0.00134 | 0.00154 | 0.00125 | 0.0012 | 0.00058 | 0.00039 | 0.0005 |
| Barium (Ba)-Total | 0.013 | 0.0131 | 0.0158 | 0.0104 | 0.0102 | 0.0104 | 0.0106 | 0.0099 | 0.00996 | 0.0112 | 0.00993 | 0.0105 | 0.0125 | 0.0103 | 0.0106 |
| Boron (B)-Total (mg/L) | 0.027 | 0.031 | 0.027 | 0.027 | 0.027 | 0.029 | 0.028 | 0.023 | 0.029 | 0.028 | 0.03 | 0.02 | 0.016 | 0.02 | 0.02 |
| Calcium (Ca)-Total ( | 42.6 | 49.4 | 40.5 | 44.9 | 46.3 | 44.8 | 47.4 | 46.9 | 43.3 | 44.6 | 44.5 | 40.8 | 22.8 | 13.4 | 14.7 |
| Chromium (Cr)-Total (mg/L) | 0.00122 | 0.00108 | 0.00199 | 0.00095 | 0.00086 | 0.00075 | 0.00085 | 0.00094 | 0.00072 | 0.0012 | 0.00102 | 0.00097 | 0.00131 | 0.00107 | 0.00124 |
| Cobalt (Co)-Total (m | <0.0001 | <0.0001 | 0.0004 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00021 | 0.00016 | 0.00016 |
| Magnesium (Mg)-Total (mg/L) | 19.8 | 23.5 | 19.1 | 20.9 | 21.5 | 22.2 | 22.6 | 21.5 | 20.8 | 21.4 | 21 | 19.1 | 7.63 | 4.16 | 4.68 |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.0005 | 0.00145 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00103 | <0.0005 | 0.00146 | 0.00151 | 0.00158 |
| Silicon (Si)-Total (mg/L) | 7.51 | 7.85 | 7.89 | 8 | 7.92 | 7.9 | 8.35 | 7.87 | 7.81 | 8.49 | 8.22 | 7.7 | 4.89 | 3.84 | 3.89 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000019 | 0.000016 | 0.000021 |
| Sodium (Na)-Total (mg/L) | 9.38 | 11.5 | 8.75 | 9.44 | 9.54 | 10 | 10.4 | 9.93 | 10.4 | 10.3 | 10.1 | 9.64 | 4.01 | 2.57 | 2.75 |
| Strontium (Sr)-Total (mg/L) | 0.383 | 0.436 | 0.336 | 0.365 | 0.366 | 0.373 | 0.39 | 0.37 | 0.388 | 0.39 | 0.387 | 0.333 | 0.163 | 0.0941 | 0.104 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Aluminum (mg/L) | 0.0384 | 0.0477 | 0.573 | 0.0192 | 0.0148 | 0.0146 | 0.0112 | 0.0118 | 0.0155 | 0.106 | 0.0214 | 0.0501 | 0.327 | 0.295 | 0.288 |
| Total Cadmium (mg/L) | <0.000017 | <0.000017 | 0.000025 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000026 | 0.000015 | 0.000012 |
| Total Copper (mg/L) | 0.00098 | 0.00058 | 0.00324 | <0.0009 | 0.00064 | 0.00063 | <0.0005 | <0.0005 | 0.0006 | 0.00088 | 0.00086 | 0.00086 | 0.00435 | 0.00484 | 0.00476 |
| Total Iron (mg/L) | 0.111 | 0.094 | 0.904 | 0.063 | 0.047 | 0.045 | 0.033 | 0.032 | 0.046 | 0.194 | 0.062 | 0.103 | 0.456 | 0.258 | 0.299 |
| Total Lead (mg/L) | <0.00005 | <0.00005 | 0.000271 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.000106 | 0.000056 | 0.000062 |
| Total Manganese (mg/L) | 0.0269 | 0.0329 | 0.102 | 0.0109 | 0.00982 | 0.00961 | 0.00996 | 0.00954 | 0.0102 | 0.0285 | 0.0132 | 0.0159 | 0.0708 | 0.0139 | 0.0218 |
| Total Molybdenum (mg/L) | 0.00318 | 0.00402 | 0.00274 | 0.00262 | 0.00262 | 0.00278 | 0.00282 | 0.00242 | 0.00243 | 0.00237 | 0.00198 | 0.0016 | 0.000714 | 0.000552 | 0.000726 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.00052 | <0.0005 | 0.00061 | <0.0005 | <0.0005 |
| Zinc (Zn)-Total (mg/L) | <0.001 | <0.001 | 0.0041 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **18-May-11** | **26-May-11** | **1-Jun-11** | **9-Jun-11** | **14-Jul-11** | **4-Aug-11** | **8-Sep-11** | **20-Sep-11** | **30-Sep-11** | **6-Oct-11** | **12-Oct-11** | **19-Oct-11** | **1-Nov-11** | **5-Dec-11** | **5-Jan-12** |
| Diss-Zinc (Zn) (mg/L) | 0.0076 | <0.003 | 0.0052 | <0.003 | 0.0049 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0031 | <0.0030 |
| TDS (mg/L) | 127 | 166 | 149 | 165 | 195 | 202 | 234 | 236 | 217 | 236 | 232 | 221 | 206 | 183 | 178 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 45.9 | 73.9 | 89 | 118 | 154 | 155 | 210 | 207 | 214 | 202 | 201 | 198 | 180 | 150 | 143 |
| Hardness (mg/L) | 55.5 | 80.5 | 92.9 | 123 | 161 | 162 | 207 | 204 | 209 | 202 | 199 | 200 | 186 | 157 | 153 |
| NTU (ntu) | 3.33 | 1.78 | 1.43 | 4.94 | 0.72 | 1.08 | 0.71 | 0.38 | 0.25 | 0.28 | 0.44 | 0.38 | 0.63 | 1.07 | 1.96 |
| TDS (mg/L) | 127 | 166 | 149 | 165 | 195 | 202 | 234 | 236 | 217 | 236 | 232 | 221 | 206 | 183 | 178 |
| TSS (mg/L) | <3 | 68.9 | 3.2 | 11.3 | <3 | 3.3 | 4.3 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00055 | 0.00062 | 0.00074 | 0.0009 | 0.00111 | 0.00112 | 0.0013 | 0.00135 | 0.00123 | 0.00126 | 0.0014 | 0.00130 | 0.0012 | 0.00101 | 0.00102 |
| Barium (Ba)-Total | 0.0104 | 0.0104 | 0.0118 | 0.0117 | 0.0112 | 0.013 | 0.0114 | 0.0111 | 0.0108 | 0.00979 | 0.0112 | 0.0115 | 0.00953 | 0.00806 | 0.00842 |
| Boron (B)-Total (mg/L) | 0.018 | 0.023 | 0.022 | 0.029 | 0.028 | 0.023 | 0.03 | 0.029 | 0.026 | 0.022 | 0.027 | 0.026 | 0.03 | 0.018 | 0.021 |
| Calcium (Ca)-Total ( | 15.1 | 20.6 | 24.2 | 30.9 | 38.6 | 39.6 | 46.8 | 47.1 | 47.8 | 46.3 | 46.7 | 45.6 | 41.4 | 33.6 | 36 |
| Chromium (Cr)-Total (mg/L) | 0.00124 | 0.00114 | 0.00111 | 0.00113 | 0.00097 | 0.00123 | 0.00088 | 0.00083 | 0.00094 | 0.00079 | 0.00085 | 0.00097 | 0.00088 | 0.00095 | 0.00077 |
| Cobalt (Co)-Total (m | 0.00017 | 0.00011 | 0.00011 | <0.0001 | <0.0001 | 0.00014 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 4.45 | 7.53 | 9.07 | 12.3 | 15.6 | 16.1 | 22.6 | 23 | 21.7 | 22 | 21.5 | 22.0 | 19.8 | 15.6 | 16.2 |
| Nickel (Ni)-Total (mg/L) | 0.00181 | 0.0015 | 0.00154 | 0.00116 | 0.00082 | 0.00114 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 3.72 | 4.78 | 5.37 | 6.04 | 6.63 | 7.03 | 7.97 | 8.12 | 7.81 | 7.96 | 7.77 | 8.14 | 7.44 | 6.61 | 6.8 |
| Silver (Ag)-Total (mg/L) | 0.000033 | 0.000023 | 0.000014 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 2.51 | 4.02 | 4.84 | 6.34 | 7.66 | 7.3 | 10.2 | 11.4 | 10.3 | 9.84 | 10.9 | 10.5 | 9.33 | 8.2 | 8.35 |
| Strontium (Sr)-Total (mg/L) | 0.1 | 0.154 | 0.18 | 0.242 | 0.287 | 0.307 | 0.383 | 0.425 | 0.385 | 0.365 | 0.399 | 0.394 | 0.323 | 0.253 | 0.297 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.321 | 0.2 | 0.166 | 0.0954 | 0.0582 | 0.178 | 0.0173 | 0.0183 | 0.0171 | 0.0131 | 0.0133 | 0.0116 | 0.016 | 0.0383 | 0.0438 |
| Total Cadmium (mg/L) | 0.000053 | 0.000013 | 0.000019 | <0.00001 | <0.00001 | 0.000012 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00549 | 0.00422 | 0.00414 | 0.00285 | 0.00158 | 0.00194 | <0.00050 | 0.00052 | 0.00051 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00138 | 0.00128 |
| Total Iron (mg/L) | 0.32 | 0.239 | 0.211 | 0.157 | 0.145 | 0.369 | 0.047 | 0.046 | 0.043 | 0.041 | 0.041 | 0.041 | 0.053 | 0.109 | 0.12 |
| Total Lead (mg/L) | 0.000085 | <0.00005 | 0.000083 | <0.00005 | <0.00005 | 0.000058 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0235 | 0.0183 | 0.0212 | 0.0368 | 0.0275 | 0.0453 | 0.0142 | 0.0126 | 0.0141 | 0.0134 | 0.0122 | 0.0113 | 0.0102 | 0.0132 | 0.0181 |
| Total Molybdenum (mg/L) | 0.000615 | 0.00105 | 0.00123 | 0.0019 | 0.00208 | 0.00225 | 0.00285 | 0.00276 | 0.00264 | 0.00239 | 0.00259 | 0.00246 | 0.00207 | 0.00143 | 0.00139 |
| Total Selenium (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.003 | <0.003 | 0.0041 | 0.0039 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **7-Feb-12** | **15-Mar-12** | **3-Apr-12** | **26-Apr-12** | **3-May-12** | **10-May-12** | **16-May-12** | **24-May-12** | **7-Jun-12** | **5-Jul-12** | **2-Aug-12** | **6-Sep-12** | **3-Oct-12** | **11-Oct-12** | **18-Oct-12** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | 0.0034 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 203 | 175 | 142 | 128 | 136 | 143 | 137 | 182 | 150 | 177 | 241 | 237 | 230 | 228 | 226 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 183 | 136 | 79.8 | 59.5 | 60.8 | 80.8 | 117 | 159 | 73.9 | 99.3 | 213 | 207 | 206 | 205 | 199 |
| Hardness (mg/L) | 182 | 139 | 90.6 | 61.9 | 70.6 | 87.4 | 113 | 147 | 81.7 | 107 | 202 | 218 | 210 | 209 | 205 |
| NTU (ntu) | 0.66 | 0.88 | 3.12 | 1.23 | 0.99 | 0.95 | 0.83 | 0.85 | 4.32 | 1.71 | 0.44 | 0.24 | 1.64 | 0.55 | 0.7 |
| TDS (mg/L) | 203 | 175 | 142 | 128 | 136 | 143 | 137 | 182 | 150 | 177 | 241 | 237 | 230 | 228 | 226 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | 7.8 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00012 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00127 | 0.00083 | 0.00057 | 0.0005 | 0.00049 | 0.00069 | 0.00086 | 0.00095 | 0.00073 | 0.00803 | 0.00149 | 0.00138 | 0.00137 | 0.00145 | 0.00129 |
| Barium (Ba)-Total | 0.01 | 0.0091 | 0.0106 | 0.0102 | 0.00907 | 0.00984 | 0.0112 | 0.0103 | 0.0113 | 0.0117 | 0.012 | 0.0109 | 0.0102 | 0.0106 | 0.0101 |
| Boron (B)-Total (mg/L) | 0.022 | 0.021 | 0.017 | 0.02 | 0.015 | 0.02 | 0.025 | 0.019 | 0.024 | 0.021 | 0.027 | 0.029 | 0.026 | 0.027 | 0.028 |
| Calcium (Ca)-Total ( | 41.1 | 34.5 | 23.9 | 16.4 | 17.7 | 22.3 | 28.6 | 34 | 21.8 | 27.7 | 45.9 | 48.8 | 48.4 | 49.8 | 46.2 |
| Chromium (Cr)-Total (mg/L) | 0.00082 | 0.00088 | 0.00122 | 0.00106 | 0.00086 | 0.00102 | 0.00099 | 0.0008 | 0.00148 | 0.00109 | 0.00086 | 0.00087 | 0.00083 | 0.00089 | 0.00082 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 | 0.00018 | 0.00016 | 0.00013 | 0.00012 | <0.00010 | <0.00010 | 0.00026 | 0.00012 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 20.6 | 14.2 | 8 | 5.46 | 5.77 | 8.38 | 11.8 | 15.8 | 7.29 | 9.93 | 22 | 22.9 | 22.4 | 23.2 | 21.5 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | 0.0006 | 0.0016 | 0.00142 | 0.00147 | 0.00141 | 0.00099 | 0.0006 | 0.00202 | 0.0018 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 8.12 | 6.3 | 5.12 | 3.81 | 3.79 | 4.62 | 5.21 | 6.02 | 4.88 | 5.34 | 7.72 | 7.88 | 8.05 | 8.3 | 7.88 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | 0.000021 | 0.000023 | 0.000026 | 0.000021 | <0.000010 | <0.000010 | 0.000031 | 0.000015 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 9.78 | 6.93 | 4.22 | 3.03 | 2.91 | 4.21 | 6.04 | 7.19 | 3.97 | 4.62 | 10.2 | 11 | 10.7 | 10.9 | 9.97 |
| Strontium (Sr)-Total (mg/L) | 0.347 | 0.25 | 0.163 | 0.114 | 0.117 | 0.162 | 0.229 | 0.243 | 0.156 | 0.195 | 0.384 | 0.399 | 0.372 | 0.406 | 0.363 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.026 | 0.0761 | 0.342 | 0.242 | 0.211 | 0.186 | 0.094 | 0.0465 | 0.387 | 0.169 | 0.032 | 0.0156 | 0.0106 | 0.0383 | 0.0159 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | 0.000013 | 0.000012 | 0.000013 | 0.000011 | <0.000010 | <0.000010 | 0.000024 | 0.000027 | <0.000010 | <0.000010 | <0.000010 | 0.000012 | <0.000010 |
| Total Copper (mg/L) | 0.00069 | 0.00153 | 0.00424 | 0.00475 | 0.00484 | 0.00408 | 0.00303 | 0.00203 | 0.00611 | 0.00361 | 0.0009 | <0.00050 | 0.0007 | 0.0008 | 0.00052 |
| Total Iron (mg/L) | 0.073 | 0.155 | 0.452 | 0.317 | 0.252 | 0.248 | 0.156 | 0.104 | 0.6 | 0.26 | 0.097 | 0.047 | 0.037 | 0.087 | 0.052 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | 0.000103 | 0.000054 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000126 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0144 | 0.016 | 0.0257 | 0.0348 | 0.0134 | 0.0166 | 0.0173 | 0.0207 | 0.0639 | 0.0291 | 0.0262 | 0.0131 | 0.00808 | 0.0133 | 0.0088 |
| Total Molybdenum (mg/L) | 0.00173 | 0.00117 | 0.000669 | 0.000646 | 0.00061 | 0.00093 | 0.00144 | 0.00143 | 0.00127 | 0.00149 | 0.00297 | 0.00281 | 0.00254 | 0.0024 | 0.00212 |
| Total Selenium (mg/L) | 0.00055 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00056 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | 0.0085 | 0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0038 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **25-Oct-12** | **31-Oct-12** | **5-Nov-12** | **6-Dec-12** | **3-Jan-13** | **7-Feb-13** | **14-Mar-13** | **4-Apr-13** | **18-Apr-13** | **25-Apr-13** | **1-May-13** | **9-May-13** | **16-May-13** | **6-Jun-13** | **10-Jul-13** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | | | | | | | | | |
| TDS (mg/L) | 217 | 195 | 171 | 184 | 210 | 197 | 160 | 115 | | | 131 | | | 175 | 245 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 181 | 163 | 106 | 117 | 176 | 156 | 102 | 59.5 | | | 57.8 | | | 119 | 212 |
| Hardness (mg/L) | 189 | 158 | 122 | 136 | 181 | 161 | 111 | 68.2 | | | 62.3 | | | 124 | 205 |
| NTU (ntu) | 0.47 | 0.79 | 2.73 | 1.11 | 1.49 | 0.6 | 3.62 | 1.31 | 1.07 | 1.06 | 2.59 | 2.37 | 0.6 | 1.34 | 1.25 |
| TDS (mg/L) | 217 | 195 | 171 | 184 | 210 | 197 | 160 | 115 | | | 131 | | | 175 | 245 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | <3.0 | 4.2 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | | | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00124 | 0.00114 | 0.00089 | 0.00076 | 0.00121 | 0.00103 | 0.00078 | 0.00116 | | | 0.00052 | | | 0.001 | 0.00141 |
| Barium (Ba)-Total | 0.00909 | 0.00846 | 0.00796 | 0.00746 | 0.00965 | 0.00948 | 0.00957 | 0.00938 | | | 0.00856 | | | 0.00988 | 0.013 |
| Boron (B)-Total (mg/L) | 0.022 | 0.017 | 0.019 | 0.021 | 0.019 | 0.021 | 0.018 | 0.013 | | | 0.015 | | | 0.023 | 0.026 |
| Calcium (Ca)-Total ( | 43.6 | 35.5 | 26.5 | 31.9 | 41.6 | 37.1 | 26.9 | 17.9 | | | 15.7 | | | 29 | 47.2 |
| Chromium (Cr)-Total (mg/L) | 0.00078 | 0.00072 | 0.0009 | 0.00074 | 0.00091 | 0.00079 | 0.00093 | 0.00096 | | | 0.00098 | | | 0.00091 | 0.00079 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00012 | 0.00019 | | | 0.00013 | | | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 20.6 | 16.6 | 11.9 | 13.9 | 19.2 | 16.6 | 10.7 | 5.69 | | | 5.6 | | | 12.4 | 21.2 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | 0.00089 | 0.00062 | <0.00050 | <0.00050 | 0.00105 | 0.00143 | | | 0.00132 | | | 0.00106 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 7.83 | 6.71 | 5.72 | 6.18 | 7.58 | 6.54 | 5.31 | 4.23 | | | 3.91 | | | 5.52 | 7.5 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000013 | 0.00002 | | | 0.000016 | | | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 10 | 8.08 | 6.22 | 6.18 | 8.81 | 7.95 | 5.87 | 3.06 | | | 3.05 | | | 5.86 | 10.3 |
| Strontium (Sr)-Total (mg/L) | 0.355 | 0.303 | 0.227 | 0.248 | 0.344 | 0.298 | 0.206 | 0.113 | | | 0.113 | | | 0.235 | 0.402 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | | | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0156 | 0.0308 | 0.125 | 0.0804 | 0.0649 | 0.0357 | 0.19 | 0.275 | | | 0.248 | | | 0.089 | 0.034 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000013 | | | 0.000011 | | | 0.00001 | <0.000010 |
| Total Copper (mg/L) | 0.00063 | 0.00123 | 0.00336 | 0.00247 | 0.00137 | 0.0012 | 0.00273 | 0.00632 | | | 0.00426 | | | 0.00246 | 0.00072 |
| Total Iron (mg/L) | 0.05 | 0.1 | 0.269 | 0.227 | 0.165 | 0.11 | 0.318 | 0.306 | | | 0.271 | | | 0.173 | 0.08 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | 0.00005 | <0.000050 | <0.000050 | <0.000050 | 0.000073 | 0.000061 | | | 0.000053 | | | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.00892 | 0.0121 | 0.0161 | 0.017 | 0.0318 | 0.0217 | 0.0351 | 0.0191 | | | 0.0109 | | | 0.0192 | 0.033 |
| Total Molybdenum (mg/L) | 0.00198 | 0.00166 | 0.00122 | 0.00123 | 0.00164 | 0.00142 | 0.000903 | 0.000534 | | | 0.00058 | | | 0.00156 | 0.00273 |
| Total Selenium (mg/L) | 0.0005 | <0.00050 | <0.00050 | <0.00050 | 0.00051 | <0.00050 | <0.00050 | <0.00050 | | | <0.00050 | | | <0.00050 | 0.00051 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0033 | | | <0.0030 | | | <0.0030 | <0.0030 |

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **8-Aug-13** | **5-Sep-13** | **24-Sep-13** | **3-Oct-13** | **10-Oct-13** | **17-Oct-13** | **24-Oct-13** | **29-Oct-13** | **7-Nov-13** | **5-Dec-13** |
| Diss-Zinc (Zn) (mg/L) | | | | <0.0030 | | | | | | |
| TDS (mg/L) | 277 | 235 | | 236 | | | | | 212 | 219 |
| **Physical Test** | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 224 | 218 | | 191 | | | | | 180 | 152 |
| Hardness (mg/L) | 221 | 221 | | 202 | | | | | 180 | 174 |
| NTU (ntu) | 0.41 | 0.29 | 0.41 | 0.43 | 0.35 | 1.10 | 0.31 | 0.27 | 0.34 | 0.68 |
| TDS (mg/L) | 277 | 235 | | 236 | | | | | 212 | 219 |
| TSS (mg/L) | <3.0 | 3.5 | <3.0 | 3.1 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | | <0.00010 | | | | | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00163 | 0.00156 | | 0.00128 | | | | | 0.00126 | 0.00095 |
| Barium (Ba)-Total | 0.0128 | 0.0124 | | 0.00957 | | | | | 0.00815 | 0.0110 |
| Boron (B)-Total (mg/L) | 0.028 | 0.028 | | 0.025 | | | | | 0.021 | 0.020 |
| Calcium (Ca)-Total ( | 49.9 | 49.9 | | 45.8 | | | | | 39.8 | 41.5 |
| Chromium (Cr)-Total (mg/L) | 0.00083 | 0.00079 | | 0.00078 | | | | | 0.00070 | 0.00085 |
| Cobalt (Co)-Total (m | <0.00010 | <0.00010 | | <0.00010 | | | | | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 23.3 | 23.5 | | 22.1 | | | | | 19.5 | 17.1 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | | <0.00050 | | | | | <0.00050 | 0.00050 |
| Silicon (Si)-Total (mg/L) | 7.96 | 7.92 | | 8.12 | | | | | 7.39 | 7.25 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | | <0.000010 | | | | | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 10.8 | 11.4 | | 9.75 | | | | | 9.21 | 8.91 |
| Strontium (Sr)-Total (mg/L) | 0.436 | 0.418 | | 0.36 | | | | | 0.312 | 0.310 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | | <0.00010 | | | | | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0292 | 0.0175 | | 0.0125 | | | | | 0.0112 | 0.0525 |
| Total Cadmium (mg/L) | <0.000010 | <0.000010 | | <0.000010 | | | | | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00078 | 0.00053 | | 0.0006 | | | | | 0.00051 | 0.00164 |
| Total Iron (mg/L) | 0.065 | 0.053 | | 0.053 | | | | | 0.055 | 0.129 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | | <0.000050 | | | | | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0173 | 0.017 | | 0.0116 | | | | | 0.0127 | 0.0296 |
| Total Molybdenum (mg/L) | 0.00345 | 0.00335 | | 0.00217 | | | | | 0.00176 | 0.00133 |
| Total Selenium (mg/L) | 0.00054 | 0.00052 | | <0.00050 | | | | | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | | 0.0135 | | | | | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 324 | 133 | 0.00500 | 0.55100 | 0.00955 | 0.02000 | 0.03165 |
| Chloride (mg/L) | 104 | 87 | 0.25000 | 8.20000 | 2.95663 | 1.30000 | 1.86204 |
| Diss-Orthophosphate (mg/L) | 316 | 279 | 0.00050 | 0.25700 | 0.01023 | 0.02400 | 0.01652 |
| Diss-Phosphorus (mg/L) | 231 | 231 | 0.00210 | 0.33100 | 0.01905 | 0.03100 | 0.02143 |
| Nitrate (N) (mg/L) | 181 | 151 | 0.00000 | 0.91600 | 0.09012 | 0.36740 | 0.13424 |
| Nitrate and Nitrite (mg/L) | 120 | 95 | 0.00255 | 1.91000 | 0.24037 | 1.69350 | 0.44021 |
| Nitrite (N) (mg/L) | 262 | 101 | 0.00050 | 0.23700 | 0.00373 | 0.01000 | 0.01503 |
| Sulphate (mg/L) | 321 | 313 | 0.25000 | 50.80000 | 9.06227 | 39.86000 | 10.29723 |
| Total Nitrogen (mg/L) | 159 | 156 | 0.02500 | 1.31000 | 0.46327 | 0.96400 | 0.28787 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 277 | 274 | 0.00250 | 0.35500 | 0.07231 | 0.18750 | 0.06872 |
| Diss-Antimony (Sb) (mg/L) | 277 | 78 | 0.00003 | 0.00109 | 0.00006 | 0.00010 | 0.00007 |
| Diss-Arsenic (As) (mg/L) | 278 | 275 | 0.00005 | 0.00200 | 0.00088 | 0.00147 | 0.00038 |
| Diss-Barium (Ba) (mg/L) | 278 | 274 | 0.00404 | 0.02650 | 0.01043 | 0.01959 | 0.00361 |
| Diss-Beryllium (Be) (mg/L) | 278 | 0 | 0.00003 | 0.00250 | 0.00022 | 0.00250 | 0.00050 |
| Diss-Boron (B) (mg/L) | 172 | 151 | 0.00400 | 0.05000 | 0.02079 | 0.05000 | 0.00978 |
| Diss-Cadmium (Cd) (mg/L) | 278 | 104 | 0.00001 | 0.00057 | 0.00002 | 0.00010 | 0.00004 |
| Diss-Calcium (Ca) (mg/L) | 280 | 280 | 5.21000 | 51.20000 | 31.03357 | 45.30000 | 11.38316 |
| Diss-Chromium (Cr) (mg/L) | 278 | 224 | 0.00010 | 0.00640 | 0.00078 | 0.00195 | 0.00074 |
| Diss-Cobalt (Co) (mg/L) | 278 | 99 | 0.00001 | 0.00065 | 0.00008 | 0.00050 | 0.00011 |
| Diss-Copper (Cu) (mg/L) | 308 | 287 | 0.00001 | 0.08150 | 0.00285 | 0.00504 | 0.00619 |
| Diss-Iron (Fe) (mg/L) | 278 | 254 | 0.00250 | 0.45500 | 0.11610 | 0.29490 | 0.08249 |
| Diss-Lead (Pb) (mg/L) | 278 | 125 | 0.00001 | 0.03370 | 0.00021 | 0.00050 | 0.00202 |
| Diss-Magnesium (Mg) (mg/L) | 280 | 280 | 1.54000 | 23.40000 | 12.67575 | 21.70000 | 6.02139 |
| Diss-Manganese (Mn) (mg/L) | 278 | 277 | 0.00006 | 0.06090 | 0.00978 | 0.02184 | 0.00679 |
| Diss-Molybdenum (Mo) (mg/L) | 308 | 297 | 0.00008 | 0.02730 | 0.00388 | 0.02289 | 0.00608 |
| Diss-Nickel (Ni) (mg/L) | 278 | 143 | 0.00020 | 0.00200 | 0.00062 | 0.00125 | 0.00041 |
| Diss-Potassium (K) (mg/L) | 278 | 277 | 0.27000 | 3.46000 | 1.15981 | 2.70800 | 0.58223 |
| Diss-Selenium (mg/L) | 278 | 53 | 0.00025 | 0.00140 | 0.00042 | 0.00090 | 0.00020 |
| Diss-Silicon (Si) (mg/L) | 279 | 279 | 2.80000 | 9.56000 | 5.68065 | 7.95000 | 1.55078 |
| Diss-Silver (Ag) (mg/L) | 278 | 40 | 0.00001 | 0.00010 | 0.00001 | 0.00005 | 0.00001 |
| Diss-Sodium (Na) (mg/L) | 279 | 279 | 1.58000 | 29.10000 | 8.40348 | 23.64000 | 5.47601 |
| Diss-Strontium (Sr) (mg/L) | 278 | 278 | 0.06540 | 0.43000 | 0.24229 | 0.37890 | 0.10023 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E216743 : W8 - Edney Creek north-east tributary | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 263 | 67 | 0.00003 | 0.00075 | 0.00007 | 0.00020 | 0.00009 |
| Diss-Zinc (Zn) (mg/L) | 278 | 138 | 0.00003 | 0.06830 | 0.00176 | 0.00354 | 0.00494 |
| TDS (mg/L) | 256 | 231 | 0.50000 | 499.00000 | 159.93789 | 246.00000 | 75.11019 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 323 | 300 | 0.50000 | 244.00000 | 115.52415 | 212.00000 | 65.14967 |
| Hardness (mg/L) | 319 | 319 | 19.30000 | 223.00000 | 127.06458 | 200.00000 | 53.48914 |
| NTU (ntu) | 334 | 334 | 0.17000 | 137.00000 | 3.07126 | 11.66000 | 9.32121 |
| TDS (mg/L) | 256 | 231 | 0.50000 | 499.00000 | 159.93789 | 246.00000 | 75.11019 |
| TSS (mg/L) | 309 | 76 | 0.50000 | 183.00000 | 7.61149 | 13.17000 | 24.40544 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 305 | 86 | 0.00003 | 0.00259 | 0.00006 | 0.00012 | 0.00015 |
| Arsenic (As)-Total ( | 323 | 321 | 0.00010 | 0.08900 | 0.00121 | 0.00159 | 0.00493 |
| Barium (Ba)-Total | 305 | 303 | 0.00423 | 0.03000 | 0.01133 | 0.02060 | 0.00418 |
| Boron (B)-Total (mg/L) | 182 | 164 | 0.00400 | 0.05000 | 0.02198 | 0.05000 | 0.00945 |
| Calcium (Ca)-Total ( | 323 | 323 | 5.29000 | 49.90000 | 30.20492 | 45.21000 | 11.68047 |
| Chromium (Cr)-Total (mg/L) | 305 | 266 | 0.00001 | 0.01000 | 0.00100 | 0.00300 | 0.00093 |
| Cobalt (Co)-Total (m | 305 | 164 | 0.00001 | 0.00117 | 0.00017 | 0.00100 | 0.00022 |
| Magnesium (Mg)-Total (mg/L) | 323 | 323 | 1.54000 | 23.50000 | 12.42211 | 21.40000 | 6.16439 |
| Nickel (Ni)-Total (mg/L) | 323 | 197 | 0.00003 | 0.00500 | 0.00080 | 0.00197 | 0.00063 |
| Silicon (Si)-Total (mg/L) | 323 | 323 | 1.01000 | 10.20000 | 5.72406 | 8.10000 | 1.65264 |
| Silver (Ag)-Total (mg/L) | 305 | 92 | 0.00001 | 0.00017 | 0.00001 | 0.00005 | 0.00002 |
| Sodium (Na)-Total (mg/L) | 311 | 311 | 0.00090 | 28.80000 | 8.08007 | 23.06000 | 5.29171 |
| Strontium (Sr)-Total (mg/L) | 327 | 327 | 0.01840 | 0.44800 | 0.24130 | 0.38250 | 0.10626 |
| Tin (Sn)-Total (mg/L) | 272 | 58 | 0.00003 | 0.00379 | 0.00009 | 0.00040 | 0.00026 |
| Total Aluminum (mg/L) | 323 | 323 | 0.00810 | 2.02000 | 0.16112 | 0.41840 | 0.20368 |
| Total Cadmium (mg/L) | 305 | 127 | 0.00001 | 0.00020 | 0.00003 | 0.00020 | 0.00004 |
| Total Copper (mg/L) | 322 | 310 | 0.00010 | 0.08240 | 0.00297 | 0.00607 | 0.00514 |
| Total Iron (mg/L) | 323 | 322 | 0.01900 | 2.73000 | 0.26118 | 0.65260 | 0.27997 |
| Total Lead (mg/L) | 321 | 186 | 0.00002 | 0.00136 | 0.00015 | 0.00100 | 0.00024 |
| Total Manganese (mg/L) | 323 | 323 | 0.00227 | 0.23600 | 0.02120 | 0.04460 | 0.02268 |
| Total Molybdenum (mg/L) | 322 | 303 | 0.00003 | 0.19800 | 0.00440 | 0.02268 | 0.01234 |
| Total Selenium (mg/L) | 326 | 90 | 0.00005 | 0.00300 | 0.00041 | 0.10124 | 0.00025 |
| Zinc (Zn)-Total (mg/L) | 323 | 185 | 0.00003 | 0.04390 | 0.00233 | 0.00868 | 0.00395 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E223292 : W8z - SW Edney Tributary, Control | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 14-Jan-09 | 9-Feb-09 | 4-Mar-09 | 7-Apr-09 | 21-Apr-09 | 28-Apr-09 | 5-May-09 | 12-May-09 | 20-May-09 | 10-Jun-09 | 14-Jul-09 | 11-Feb-10 | 3-Mar-10 | 7-Apr-10 | 15-Apr-10 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0079 | 0.0069 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Chloride (mg/L) | | | | <0.5 | <2.5 | <2.5 | <2.5 | <2.5 | <0.5 | <0.5 | <0.5 | 0.59 | <5 | <0.5 | <2.5 |
| Diss-Orthophosphate (mg/L) | <0.001 | 0.0012 | 0.0011 | <0.001 | <0.001 | 0.0013 | 0.0014 | 0.0016 | <0.001 | 0.0019 | <0.001 | 0.0013 | 0.0021 | 0.0022 | 0.0012 |
| Diss-Phosphorus (mg/L) | 0.0174 | 0.015 | 0.0155 | 0.0116 | 0.012 | 0.0097 | 0.0096 | 0.012 | <0.01 | 0.011 | <0.02 | 0.0172 | 0.0173 | 0.0122 | 0.0116 |
| Nitrate (N) (mg/L) | 0.09 | 0.0721 | 0.163 | 0.178 | <0.025 | <0.025 | <0.025 | <0.025 | <0.005 | 0.0084 | <0.005 | 0.125 | 0.562 | 0.056 | 0.06 |
| Nitrate and Nitrite (mg/L) | | | | | | | | | | | | | | | |
| Nitrite (N) (mg/L) | 0.007 | 0.001 | <0.01 | <0.001 | <0.005 | <0.005 | <0.005 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.01 | <0.001 | <0.005 |
| Sulphate (mg/L) | <2.5 | 0.8 | <5 | 0.68 | <2.5 | <2.5 | <2.5 | <2.5 | <0.5 | <0.5 | <0.5 | 1.5 | <5 | <0.5 | <2.5 |
| Total Nitrogen (mg/L) | 0.72 | 0.49 | 0.51 | 0.83 | 0.29 | 0.38 | 0.53 | 0.48 | 0.56 | 0.609 | 0.92 | 0.68 | 1.53 | 0.688 | 0.73 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.204 | 0.234 | 0.208 | 0.223 | 0.23 | 0.196 | 0.175 | 0.194 | 0.194 | 0.169 | 0.253 | 0.255 | 0.222 | 0.211 | 0.198 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Arsenic (As) (mg/L) | 0.00035 | 0.00033 | 0.00032 | 0.00032 | 0.00027 | 0.00023 | 0.00023 | 0.00019 | 0.00025 | 0.00032 | 0.00048 | 0.00039 | 0.00036 | 0.0003 | 0.00026 |
| Diss-Barium (Ba) (mg/L) | 0.0064 | 0.00625 | 0.00657 | 0.00672 | 0.00568 | 0.00453 | 0.0041 | 0.00427 | 0.00456 | 0.00783 | 0.00805 | 0.00638 | 0.00645 | 0.00472 | 0.00458 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Boron (B) (mg/L) | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.013 | <0.01 | 0.01 | <0.01 | <0.01 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | 0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 |
| Diss-Calcium (Ca) (mg/L) | 9.47 | 9.93 | 9.99 | 9.25 | 5.91 | 5.4 | 4.76 | 5.08 | 5.87 | 9.78 | 10.4 | 8.46 | 7.86 | 6.27 | 6.34 |
| Diss-Chromium (Cr) (mg/L) | 0.00113 | 0.00101 | 0.00095 | 0.00117 | 0.00097 | 0.00105 | 0.00084 | 0.00113 | 0.00113 | 0.00148 | 0.00128 | 0.00128 | 0.00131 | 0.00113 | 0.00108 |
| Diss-Cobalt (Co) (mg/L) | 0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00017 | 0.00012 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Copper (Cu) (mg/L) | 0.00369 | 0.00304 | 0.00307 | 0.00324 | 0.00313 | 0.00303 | 0.00282 | 0.00285 | 0.00301 | 0.00296 | 0.00464 | 0.0045 | 0.00413 | 0.00372 | 0.00347 |
| Diss-Iron (Fe) (mg/L) | 0.303 | 0.281 | 0.284 | 0.263 | 0.211 | 0.154 | 0.152 | 0.168 | 0.182 | 0.12 | 0.394 | 0.335 | 0.295 | 0.198 | 0.189 |
| Diss-Lead (Pb) (mg/L) | 0.000059 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.00007 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 2.89 | 2.98 | 3.02 | 2.83 | 1.82 | 1.64 | 1.44 | 1.53 | 1.73 | 2.95 | 3.02 | 2.58 | 2.39 | 1.94 | 1.98 |
| Diss-Manganese (Mn) (mg/L) | 0.00251 | 0.00215 | 0.0021 | 0.00242 | 0.00251 | 0.00155 | 0.00107 | 0.00129 | 0.00103 | 0.0123 | 0.00354 | 0.00257 | 0.00217 | 0.00158 | 0.0014 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0001 | 0.00009 | 0.000082 | 0.000107 | 0.000058 | 0.000103 | 0.000076 | 0.000066 | 0.000078 | 0.000088 | 0.000124 | 0.000104 | 0.000091 | 0.000089 | 0.000062 |
| Diss-Nickel (Ni) (mg/L) | 0.00154 | 0.00136 | 0.00144 | 0.00149 | 0.00131 | 0.00118 | 0.00102 | 0.00111 | 0.0012 | 0.00171 | 0.00205 | 0.00176 | 0.00159 | 0.00136 | 0.00132 |
| Diss-Potassium (K) (mg/L) | 0.479 | 0.446 | 0.454 | 0.611 | 0.65 | 0.543 | 0.477 | 0.484 | 0.431 | 0.796 | 0.522 | 0.439 | 0.639 | 0.493 | 0.467 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Diss-Silicon (Si) (mg/L) | 5.81 | 5.89 | 5.83 | 5.44 | 4.02 | 3.97 | 3.54 | 3.28 | 3.76 | 4.35 | 4.18 | 5.76 | 5.46 | 4.29 | 4.1 |
| Diss-Silver (Ag) (mg/L) | 0.000012 | 0.00001 | <0.00001 | <0.00001 | 0.000012 | 0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000019 | 0.000013 | 0.000028 | <0.00001 | <0.00001 | <0.00001 |
| Diss-Sodium (Na) (mg/L) | 3.97 | 3.71 | 3.78 | 3.62 | 2.09 | 1.96 | 1.74 | 1.64 | 1.92 | 3.17 | 3.11 | 3.54 | 2.94 | 2.51 | 2.38 |
| Diss-Strontium (Sr) (mg/L) | 0.1 | 0.136 | 0.114 | 0.11 | 0.0648 | 0.0672 | 0.0474 | 0.0609 | 0.0688 | 0.119 | 0.154 | 0.103 | 0.0894 | 0.0752 | 0.076 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

| | E223292 : W8z - SW Edney Tributary, Control | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 21-Apr-10 | 28-Apr-10 | 4-May-10 | 11-May-10 | 19-May-10 | 3-Jun-10 | 8-Jul-10 | 23-Sep-10 | 30-Sep-10 | 7-Oct-10 | 28-Oct-10 | 4-Nov-10 | 10-Jan-11 | 2-Feb-11 | 4-May-11 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | 0.0073 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0052 |
| Chloride (mg/L) | <2.5 | <2.5 | <0.5 | <0.5 | <0.5 | <2.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.66 | 0.77 | 1.17 | <2.5 | <0.5 |
| Diss-Orthophosphate (mg/L) | 0.0015 | 0.0014 | <0.001 | 0.0011 | 0.0021 | 0.0013 | 0.0011 | 0.0079 | <0.001 | 0.0015 | 0.0011 | 0.0015 | 0.0024 | <0.001 | 0.0012 |
| Diss-Phosphorus (mg/L) | 0.0131 | 0.0157 | 0.0123 | 0.013 | 0.018 | 0.0173 | 0.0125 | 0.043 | 0.0161 | 0.0115 | 0.008 | 0.0163 | 0.0151 | 0.0223 | 0.0112 |
| Nitrate (N) (mg/L) | 0.017 | 0.037 | 0.0301 | 0.0188 | 0.0065 | <0.025 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0066 | <0.005 | 0.0117 | 0.15 | 0.0172 |
| Nitrate and Nitrite (mg/L) | | | 0.0301 | 0.0188 | 0.0065 | <0.03 | <0.005 | <0.0051 | <0.0051 | <0.0051 | 0.0066 | <0.0051 | 0.0117 | 0.15 | 0.0172 |
| Nitrite (N) (mg/L) | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.005 | <0.001 |
| Sulphate (mg/L) | <0.5 | <2.5 | <0.5 | <0.5 | <0.5 | <2.5 | <0.5 | 3.92 | 3.14 | 2.35 | 1.74 | 1.86 | 2.52 | 4 | <0.5 |
| Total Nitrogen (mg/L) | 0.66 | 0.66 | 0.68 | 0.64 | 0.49 | 0.6 | 0.66 | 0.85 | 0.62 | 0.67 | 0.27 | 0.487 | 0.614 | 0.88 | 0.52 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.185 | 0.187 | 0.197 | 0.192 | 0.183 | 0.17 | 0.156 | 0.28 | 0.209 | 0.18 | 0.138 | 0.204 | 0.173 | 0.282 | 0.214 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00012 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Arsenic (As) (mg/L) | 0.00026 | 0.00029 | 0.00028 | 0.00031 | 0.00034 | 0.00039 | 0.0004 | 0.00048 | 0.00039 | 0.0004 | 0.00034 | 0.00043 | 0.00036 | 0.00043 | 0.00026 |
| Diss-Barium (Ba) (mg/L) | 0.0047 | 0.00497 | 0.00479 | 0.00562 | 0.00691 | 0.00705 | 0.00837 | 0.00931 | 0.00876 | 0.0102 | 0.00876 | 0.0078 | 0.0115 | 0.00753 | 0.00495 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Boron (B) (mg/L) | <0.01 | <0.01 | <0.01 | 0.013 | 0.013 | 0.012 | 0.013 | <0.01 | 0.014 | 0.012 | 0.013 | 0.013 | 0.013 | <0.01 | 0.011 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | 0.000022 | 0.000015 | 0.000022 | 0.000012 | 0.000016 | 0.000026 | 0.000016 | 0.000011 |
| Diss-Calcium (Ca) (mg/L) | 5.96 | 6.6 | 6.51 | 7.84 | 9.08 | 9.61 | 11.5 | 10.1 | 10.9 | 11.1 | 11.1 | 9.6 | 14.8 | 9.87 | 5.44 |
| Diss-Chromium (Cr) (mg/L) | 0.00085 | 0.001 | 0.00095 | 0.00116 | 0.00104 | 0.00114 | 0.00111 | 0.00132 | 0.00125 | 0.0011 | 0.00094 | 0.00125 | 0.00101 | 0.00182 | 0.00106 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.0003 | 0.00026 | 0.00012 | 0.00017 | 0.00016 | <0.0001 |
| Diss-Copper (Cu) (mg/L) | 0.0034 | 0.00363 | 0.00344 | 0.0038 | 0.00409 | 0.004 | 0.00356 | 0.00513 | 0.00461 | 0.00411 | 0.00306 | 0.00392 | 0.00344 | 0.00539 | 0.00323 |
| Diss-Iron (Fe) (mg/L) | 0.184 | 0.202 | 0.188 | 0.201 | 0.231 | 0.244 | 0.102 | 0.529 | 0.239 | 0.186 | 0.13 | 0.242 | 0.175 | 0.379 | 0.184 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.000052 | <0.00005 | <0.00005 | 0.000091 | 0.000057 | 0.00007 | <0.00005 | <0.00005 | <0.00005 | 0.000102 | <0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 1.8 | 2 | 2.04 | 2.28 | 2.73 | 2.85 | 3.58 | 3.04 | 3.29 | 3.65 | 3.55 | 2.97 | 5.19 | 3.08 | 1.71 |
| Diss-Manganese (Mn) (mg/L) | 0.00115 | 0.00149 | 0.0013 | 0.00202 | 0.00255 | 0.00254 | 0.00171 | 0.00428 | 0.00259 | 0.0312 | 0.0238 | 0.00689 | 0.0141 | 0.00549 | 0.00199 |
| Diss-Molybdenum (Mo) (mg/L) | 0.000064 | 0.000087 | 0.000075 | 0.000105 | 0.000115 | 0.000106 | 0.00008 | 0.000112 | 0.000063 | 0.000074 | 0.000066 | 0.000084 | 0.000077 | 0.000112 | 0.000079 |
| Diss-Nickel (Ni) (mg/L) | 0.00124 | 0.00142 | 0.0015 | 0.0015 | 0.00166 | 0.0017 | 0.00176 | 0.00176 | 0.00167 | 0.00176 | 0.00137 | 0.00142 | 0.00135 | 0.00182 | 0.00125 |
| Diss-Potassium (K) (mg/L) | 0.489 | 0.481 | 0.486 | 0.527 | 0.626 | 0.562 | 0.567 | 0.503 | 0.489 | 0.512 | 0.682 | 0.483 | 1.31 | 0.517 | 0.603 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.001 | <0.0005 |
| Diss-Silicon (Si) (mg/L) | 3.91 | 3.79 | 3.8 | 3.79 | 3.74 | 3.43 | 4.08 | 4.99 | 4.93 | 4.94 | 4.78 | 4.73 | 5.87 | 6 | 3.85 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | 0.000012 | <0.00001 | <0.00001 | <0.00002 | 0.000012 | <0.00001 | 0.000028 | 0.000019 | 0.000014 | <0.00001 | 0.000018 | <0.00001 | 0.000015 | <0.00001 |
| Diss-Sodium (Na) (mg/L) | 2.18 | 2.38 | 2.48 | 2.86 | 3.23 | 3.47 | 3.67 | 4.06 | 3.85 | 4.02 | 4.13 | 3.83 | 4.98 | 3.74 | 2.08 |
| Diss-Strontium (Sr) (mg/L) | 0.0751 | 0.0789 | 0.082 | 0.0924 | 0.109 | 0.112 | 0.141 | 0.117 | 0.131 | 0.136 | 0.15 | 0.126 | 0.192 | 0.123 | 0.0639 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00023 | <0.0001 |

| | E223292 : W8z - SW Edney Tributary, Control | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 11-May-11 | 18-May-11 | 26-May-11 | 1-Jun-11 | 9-Jun-11 | 14-Jul-11 | 4-Aug-11 | 1-Feb-12 | 15-Mar-12 | 3-Apr-12 | 26-Apr-12 | 3-May-12 | 10-May-12 | 16-May-12 | 24-May-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | 0.0058 | 0.0059 | 0.016 | 0.015 | 0.0126 | 0.0094 | 0.0225 | 0.0119 | 0.0057 | 0.0092 | <0.0050 | 0.0091 | 0.0075 |
| Chloride (mg/L) | <2.5 | <5 | <2.5 | <5 | <2.5 | <0.5 | <0.5 | <2.5 | <2.5 | <2.5 | <0.50 | <2.5 | <2.5 | <2.5 | <0.50 |
| Diss-Orthophosphate (mg/L) | 0.0011 | <0.001 | <0.001 | <0.001 | 0.0012 | <0.001 | 0.0017 | <0.0010 | 0.0014 | 0.0017 | 0.0016 | 0.0015 | 0.0012 | 0.0015 | <0.0010 |
| Diss-Phosphorus (mg/L) | 0.0104 | 0.0122 | 0.0123 | 0.0117 | 0.0139 | 0.0149 | 0.0151 | 0.022 | 0.021 | 0.0236 | 0.0145 | 0.0135 | 0.0128 | 0.0152 | 0.0132 |
| Nitrate (N) (mg/L) | <0.025 | <0.05 | <0.025 | <0.05 | <0.025 | <0.005 | <0.005 | 0.763 | 0.451 | 0.561 | 0.0108 | <0.025 | <0.025 | <0.025 | <0.0050 |
| Nitrate and Nitrite (mg/L) | <0.025 | <0.051 | <0.025 | <0.051 | <0.025 | <0.0051 | <0.0051 | 0.768 | 0.451 | 0.561 | 0.0108 | <0.025 | <0.025 | <0.025 | <0.0051 |
| Nitrite (N) (mg/L) | <0.005 | <0.01 | <0.005 | <0.01 | <0.005 | <0.001 | <0.001 | 0.0051 | <0.0050 | <0.0050 | <0.0010 | <0.0050 | <0.0050 | 0.0196 | <0.0010 |
| Sulphate (mg/L) | <2.5 | <5 | <2.5 | <5 | <2.5 | <0.5 | <0.5 | 2.6 | <2.5 | <2.5 | <0.50 | <2.5 | <2.5 | <2.5 | <0.50 |
| Total Nitrogen (mg/L) | 0.67 | 0.4 | 0.39 | 0.69 | 0.79 | 0.87 | 0.98 | 1.79 | 1.52 | 1.26 | 0.47 | 0.47 | 0.64 | 0.71 | 0.6 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.197 | 0.208 | 0.205 | 0.201 | 0.221 | 0.211 | 0.193 | 0.22 | 0.238 | 0.275 | 0.23 | 0.209 | 0.213 | 0.207 | 0.182 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00024 | 0.00028 | 0.00034 | 0.00033 | 0.00042 | 0.00047 | 0.0005 | 0.00039 | 0.00041 | 0.00042 | 0.00025 | 0.00029 | 0.00033 | 0.00034 | 0.00034 |
| Diss-Barium (Ba) (mg/L) | 0.00423 | 0.00432 | 0.00515 | 0.0058 | 0.00646 | 0.00749 | 0.00739 | 0.00727 | 0.00645 | 0.0074 | 0.00466 | 0.00474 | 0.00522 | 0.00611 | 0.00611 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.012 | 0.011 | 0.014 | 0.013 | 0.018 | 0.013 | 0.011 | <0.010 | 0.01 | 0.011 | 0.012 | <0.010 | 0.011 | 0.013 | <0.010 |
| Diss-Cadmium (Cd) (mg/L) | 0.000014 | 0.00002 | 0.000015 | 0.000016 | 0.00003 | 0.000016 | 0.000017 | 0.000012 | 0.000012 | 0.000016 | 0.000011 | 0.000012 | 0.000011 | 0.000013 | 0.000011 |
| Diss-Calcium (Ca) (mg/L) | 5.03 | 5.09 | 6.95 | 7.88 | 8.67 | 10.8 | 11.2 | 10.7 | 9.37 | 9.18 | 5.57 | 6.36 | 7.26 | 7.82 | 8.98 |
| Diss-Chromium (Cr) (mg/L) | 0.00091 | 0.00093 | 0.00116 | 0.00122 | 0.00142 | 0.00149 | 0.00133 | 0.00131 | 0.00129 | 0.00127 | 0.00109 | 0.00095 | 0.00113 | 0.00125 | 0.00107 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00013 | 0.00014 | 0.00011 | 0.00011 | 0.00012 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00308 | 0.00317 | 0.00382 | 0.0044 | 0.00454 | 0.00394 | 0.00354 | 0.00444 | 0.00476 | 0.00479 | 0.00338 | 0.00353 | 0.00362 | 0.00412 | 0.0039 |
| Diss-Iron (Fe) (mg/L) | 0.154 | 0.167 | 0.213 | 0.202 | 0.229 | 0.285 | 0.327 | 0.321 | 0.374 | 0.398 | 0.209 | 0.193 | 0.218 | 0.235 | 0.206 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | 0.000056 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | 0.000056 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 1.51 | 1.49 | 2.02 | 2.27 | 2.55 | 3.22 | 3.31 | 3.29 | 2.8 | 2.74 | 1.67 | 1.9 | 2.17 | 2.36 | 2.69 |
| Diss-Manganese (Mn) (mg/L) | 0.000789 | 0.000748 | 0.00157 | 0.0018 | 0.00294 | 0.00377 | 0.00413 | 0.00352 | 0.00217 | 0.00331 | 0.00162 | 0.00122 | 0.0018 | 0.00244 | 0.00233 |
| Diss-Molybdenum (Mo) (mg/L) | 0.000095 | 0.000093 | 0.000099 | 0.000091 | 0.000106 | 0.000104 | 0.000088 | 0.000092 | 0.000103 | 0.000089 | 0.000103 | 0.000082 | 0.000093 | 0.0001 | 0.000078 |
| Diss-Nickel (Ni) (mg/L) | 0.00116 | 0.00123 | 0.00164 | 0.00189 | 0.00216 | 0.00232 | 0.00227 | 0.00166 | 0.00187 | 0.00185 | 0.00127 | 0.00129 | 0.00151 | 0.00165 | 0.00159 |
| Diss-Potassium (K) (mg/L) | 0.517 | 0.484 | 0.524 | 0.554 | 0.571 | 0.403 | 0.346 | 0.429 | 0.403 | 0.728 | 0.524 | 0.508 | 0.515 | 0.562 | 0.537 |
| Diss-Selenium (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Silicon (Si) (mg/L) | 3.83 | 3.46 | 3.6 | 3.8 | 3.73 | 4.26 | 4.72 | 5.82 | 6.5 | 6.22 | 3.74 | 3.59 | 3.56 | 3.49 | 3.61 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | 0.000012 | 0.000014 | 0.000012 | 0.000012 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000012 | 0.00001 | 0.000011 |
| Diss-Sodium (Na) (mg/L) | 1.89 | 1.86 | 2.28 | 2.53 | 2.92 | 3.35 | 3.05 | 4.02 | 3.67 | 3.37 | 2 | 2.13 | 2.43 | 2.67 | 2.95 |
| Diss-Strontium (Sr) (mg/L) | 0.0586 | 0.06 | 0.0824 | 0.094 | 0.106 | 0.14 | 0.144 | 0.121 | 0.111 | 0.11 | 0.0647 | 0.0759 | 0.0806 | 0.0882 | 0.0948 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E223292 : W8z - SW Edney Tributary, Control | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 7-Jun-12 | 5-Jul-12 | 25-Oct-12 | 31-Oct-12 | 5-Nov-12 | 6-Dec-12 | 3-Jan-13 | 7-Feb-13 | 1-May-13 | 7-Nov-13 |
| **Anions and Nutrients** | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0087 | 0.0077 | 0.0057 | 1.58 | 0.292 | 0.0053 | 0.0064 | 0.0071 | <0.0050 | 0.0077 |
| Chloride (mg/L) | <2.5 | <2.5 | 1.91 | 1.74 | 1.2 | 1.35 | <2.5 | 0.93 | <0.50 | 4.23 |
| Diss-Orthophosphate (mg/L) | 0.0019 | 0.0018 | 0.0097 | 0.0015 | 0.0013 | 0.0012 | 0.0015 | 0.0018 | 0.001 | 0.0015 |
| Diss-Phosphorus (mg/L) | 0.0165 | 0.0153 | 0.0189 | 0.0219 | 0.0215 | 0.0199 | 0.0172 | 0.0174 | 0.01 | 0.0184 |
| Nitrate (N) (mg/L) | 0.063 | <0.025 | 0.857 | 1.41 | 0.807 | 0.539 | 0.407 | 0.298 | 0.0256 | 0.153 |
| Nitrate and Nitrite (mg/L) | 0.063 | <0.025 | 0.857 | 1.42 | 0.808 | 0.539 | 0.407 | 0.298 | 0.0262 | 0.153 |
| Nitrite (N) (mg/L) | <0.0050 | <0.0050 | <0.0010 | 0.0048 | 0.0016 | <0.0010 | <0.0050 | <0.0010 | 0.0012 | <0.0010 |
| Sulphate (mg/L) | <2.5 | <2.5 | 4.14 | 15.8 | 4.62 | 4.52 | <2.5 | 2.34 | <0.50 | 6.09 |
| Total Nitrogen (mg/L) | 0.86 | 0.86 | 1.46 | 4.96 | 1.83 | 1.24 | 1.09 | 0.996 | 0.548 | 0.906 |
| **Dissolved Metals** | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.222 | 0.237 | 0.264 | 0.202 | 0.344 | 0.206 | 0.214 | | | |
| Diss-Antimony (Sb) (mg/L) | <0.00010 | <0.00010 | <0.00010 | 0.00011 | 0.00012 | 0.0001 | <0.00010 | | | |
| Diss-Arsenic (As) (mg/L) | 0.00038 | 0.00043 | 0.00044 | 0.0004 | 0.00046 | 0.00035 | 0.00045 | | | |
| Diss-Barium (Ba) (mg/L) | 0.00601 | 0.00685 | 0.00791 | 0.0103 | 0.00676 | 0.00621 | 0.00643 | | | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | |
| Diss-Boron (B) (mg/L) | 0.014 | 0.014 | <0.010 | 0.055 | 0.015 | 0.013 | <0.010 | | | |
| Diss-Cadmium (Cd) (mg/L) | 0.000018 | 0.000015 | 0.000012 | 0.000012 | 0.000011 | <0.000010 | 0.00001 | | | |
| Diss-Calcium (Ca) (mg/L) | 7.76 | 10 | 9.62 | 11.4 | 8.08 | 8.95 | 9.12 | | | |
| Diss-Chromium (Cr) (mg/L) | 0.00122 | 0.00141 | 0.00118 | 0.00105 | 0.00111 | 0.00097 | 0.00108 | | | |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | 0.0001 | 0.00014 | 0.00011 | 0.00014 | <0.00010 | 0.00011 | | | |
| Diss-Copper (Cu) (mg/L) | 0.00432 | 0.00382 | 0.00424 | 0.00408 | 0.00453 | 0.00403 | 0.0042 | | | |
| Diss-Iron (Fe) (mg/L) | 0.262 | 0.305 | 0.429 | 0.401 | 0.55 | 0.475 | 0.382 | | | |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | 0.000085 | 0.000083 | 0.000105 | 0.000086 | 0.000054 | | | |
| Diss-Magnesium (Mg) (mg/L) | 2.25 | 2.98 | 3.11 | 3.67 | 2.46 | 2.75 | 2.8 | | | |
| Diss-Manganese (Mn) (mg/L) | 0.00177 | 0.00337 | 0.0055 | 0.00499 | 0.00555 | 0.00366 | 0.00335 | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.000079 | 0.000071 | 0.000091 | 0.000093 | 0.000104 | 0.000096 | 0.000109 | | | |
| Diss-Nickel (Ni) (mg/L) | 0.00205 | 0.00205 | 0.00148 | 0.00134 | 0.00144 | 0.00136 | 0.00157 | | | |
| Diss-Potassium (K) (mg/L) | 0.504 | 0.308 | 0.482 | 1.02 | 0.651 | 0.411 | 0.427 | | | |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | |
| Diss-Silicon (Si) (mg/L) | 3.6 | 4.53 | 4.81 | 4.65 | 4.85 | 5.29 | 5.66 | | | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000013 | <0.000010 | | | |
| Diss-Sodium (Na) (mg/L) | 2.51 | 2.82 | 3.22 | 3.94 | 2.89 | 3.37 | 3.7 | | | |
| Diss-Strontium (Sr) (mg/L) | 0.0975 | 0.121 | 0.116 | 0.155 | 0.106 | 0.113 | 0.117 | | | |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E223292 : W8z - SW Edney Tributary, Control | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **14-Jan-09** | **9-Feb-09** | **4-Mar-09** | **7-Apr-09** | **21-Apr-09** | **28-Apr-09** | **5-May-09** | **12-May-09** | **20-May-09** | **10-Jun-09** | **14-Jul-09** | **11-Feb-10** | **3-Mar-10** | **7-Apr-10** | **15-Apr-10** |
| Diss-Zinc (Zn) (mg/L) | 0.0013 | 0.001 | 0.0012 | 0.0014 | 0.0023 | 0.0016 | 0.0015 | 0.0014 | <0.002 | 0.0013 | 0.0025 | 0.0013 | 0.0015 | 0.0022 | 0.0021 |
| TDS (mg/L) | 88 | 100 | 87 | 87 | 80 | 66 | 62 | 64 | 74 | 82 | 108 | <3 | <3 | <3 | 7.3 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 36.5 | 36.7 | 37.6 | 36.5 | 17.3 | 15.7 | 13.7 | 25.1 | 17.3 | 39 | 37.1 | 28.6 | 34.9 | 21.2 | 21.9 |
| Hardness (mg/L) | 35.5 | 37.1 | 37.4 | 34.8 | 22.2 | 20.2 | 17.8 | 19 | 21.8 | 36.6 | 38.3 | 31.8 | 29.5 | 23.6 | 24 |
| NTU (ntu) | 1.14 | 1.33 | 1.43 | 2.04 | 1.62 | 1.08 | 2.3 | 3.8 | 0.74 | 0.71 | 10.7 | 1.36 | 1.84 | 0.78 | 0.78 |
| TDS (mg/L) | 88 | 100 | 87 | 87 | 80 | 66 | 62 | 64 | 74 | 82 | 108 | <3 | <3 | <3 | 7.3 |
| TSS (mg/L) | <3 | <3 | <3 | <3 | <3 | <3 | 3.5 | 4.4 | <3 | <3 | 23.8 | 97 | 92 | 76 | 84 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Arsenic (As)-Total ( | 0.00037 | 0.00034 | 0.00034 | 0.00035 | 0.00027 | 0.00023 | 0.00024 | 0.00021 | 0.00026 | 0.00036 | 0.0005 | 0.00041 | 0.00038 | 0.00031 | 0.00027 |
| Barium (Ba)-Total | 0.0067 | 0.0066 | 0.0069 | 0.007 | 0.00619 | 0.00475 | 0.00459 | 0.00541 | 0.00486 | 0.00849 | 0.0089 | 0.00664 | 0.00734 | 0.00521 | 0.00481 |
| Boron (B)-Total (mg/L) | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.011 | 0.015 | 0.011 | 0.013 | 0.01 | 0.012 |
| Calcium (Ca)-Total ( | 9.01 | 9.39 | 9.83 | 8.98 | 5.91 | 5.38 | 4.66 | 5.05 | 5.83 | 9.69 | 10.2 | 8.27 | 7.76 | 6.34 | 6.2 |
| Chromium (Cr)-Total (mg/L) | 0.0013 | 0.00123 | 0.00113 | 0.00137 | 0.00115 | 0.00134 | 0.00115 | 0.00167 | 0.00135 | 0.00185 | 0.00173 | 0.00154 | 0.00168 | 0.00125 | 0.0014 |
| Cobalt (Co)-Total (m | 0.00012 | 0.0001 | 0.00011 | 0.00013 | 0.00013 | <0.0001 | 0.0001 | 0.00014 | <0.0001 | 0.00025 | 0.0002 | 0.00012 | 0.00014 | 0.00011 | <0.0001 |
| Magnesium (Mg)-Total (mg/L) | 2.88 | 2.89 | 3.03 | 2.77 | 1.86 | 1.59 | 1.43 | 1.54 | 1.72 | 2.93 | 2.99 | 2.55 | 2.47 | 1.93 | 1.93 |
| Nickel (Ni)-Total (mg/L) | 0.0018 | 0.00183 | 0.00154 | <0.002 | 0.00142 | 0.00138 | 0.00113 | 0.00138 | 0.00134 | 0.00193 | 0.00226 | 0.00182 | 0.00178 | 0.00142 | 0.00142 |
| Silicon (Si)-Total (mg/L) | 5.66 | 5.68 | 5.8 | 5.31 | 4.13 | 3.86 | 3.55 | 3.47 | 3.71 | 4.33 | 4.25 | 5.65 | 5.53 | 4.3 | 4.06 |
| Silver (Ag)-Total (mg/L) | 0.000011 | <0.00001 | <0.00001 | 0.000011 | 0.000013 | 0.000012 | <0.00001 | 0.00001 | 0.000014 | 0.00002 | 0.00002 | 0.000052 | 0.000012 | <0.00001 | <0.00001 |
| Sodium (Na)-Total (mg/L) | 4.2 | 4.11 | 3.89 | 3.67 | 2.06 | 2.06 | 1.76 | 1.71 | 2.02 | 3.4 | 3.23 | 3.83 | 3.1 | 2.7 | 2.58 |
| Strontium (Sr)-Total (mg/L) | 0.103 | 0.14 | 0.117 | 0.112 | 0.066 | 0.0705 | 0.0466 | 0.0646 | 0.0737 | 0.132 | 0.153 | 0.105 | 0.0949 | 0.0776 | 0.0771 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00044 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Aluminum (mg/L) | 0.229 | 0.269 | 0.247 | 0.26 | 0.288 | 0.234 | 0.228 | 0.347 | 0.232 | 0.203 | 0.37 | 0.293 | 0.329 | 0.261 | 0.237 |
| Total Cadmium (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | 0.000017 | 0.000019 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | 0.000019 | <0.000017 | <0.000017 | <0.000017 | <0.000017 |
| Total Copper (mg/L) | 0.00395 | 0.00329 | 0.00361 | 0.00353 | 0.00337 | 0.00312 | 0.00303 | 0.00327 | 0.00325 | 0.00354 | 0.00695 | 0.00491 | 0.00455 | 0.00389 | 0.00602 |
| Total Iron (mg/L) | 0.327 | 0.305 | 0.322 | 0.317 | 0.281 | 0.177 | 0.21 | 0.324 | 0.191 | 0.142 | 0.526 | 0.375 | 0.425 | 0.228 | 0.213 |
| Total Lead (mg/L) | 0.000068 | 0.000055 | <0.00005 | 0.000064 | 0.000063 | <0.00005 | 0.00005 | 0.000068 | <0.00005 | <0.00005 | 0.000119 | 0.000068 | 0.000074 | <0.00005 | <0.00005 |
| Total Manganese (mg/L) | 0.00311 | 0.0027 | 0.00285 | 0.00377 | 0.00457 | 0.00252 | 0.00315 | 0.00559 | 0.00216 | 0.0205 | 0.00796 | 0.00341 | 0.00487 | 0.00353 | 0.00224 |
| Total Molybdenum (mg/L) | 0.000105 | 0.000107 | 0.000095 | 0.000098 | 0.000066 | 0.00008 | 0.00011 | 0.000085 | 0.000098 | 0.000153 | 0.000131 | 0.000141 | 0.000099 | 0.000081 | 0.000102 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Zinc (Zn)-Total (mg/L) | <0.003 | <0.003 | 0.0019 | <0.003 | 0.003 | 0.002 | 0.0027 | 0.0025 | 0.0017 | <0.004 | <0.005 | 0.0017 | 0.0018 | 0.0018 | 0.0026 |

| | E223292 : W8z - SW Edney Tributary, Control | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **21-Apr-10** | **28-Apr-10** | **4-May-10** | **11-May-10** | **19-May-10** | **3-Jun-10** | **8-Jul-10** | **23-Sep-10** | **30-Sep-10** | **7-Oct-10** | **28-Oct-10** | **4-Nov-10** | **10-Jan-11** | **2-Feb-11** | **4-May-11** |
| Diss-Zinc (Zn) (mg/L) | 0.0017 | <0.002 | 0.0011 | 0.0012 | 0.0014 | 0.0019 | 0.0012 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| TDS (mg/L) | <3 | <3 | 80 | 80 | 94 | 93 | 95 | 99 | 89 | 107 | 85 | 91 | 112 | 105 | 73 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 8.6 | 23.2 | 23 | 27.7 | 33.7 | 44.8 | 42.2 | 30.4 | 38.3 | 43.5 | 43.2 | 34.4 | 58.9 | 30.3 | 20.4 |
| Hardness (mg/L) | 22.3 | 24.7 | 24.6 | 29 | 33.9 | 35.8 | 43.5 | 37.8 | 40.7 | 42.8 | 42.4 | 36.2 | 58.4 | 37.3 | 20.6 |
| NTU (ntu) | 0.86 | 0.71 | 1.36 | 0.99 | 1.26 | 1.74 | 0.51 | 1.3 | 2.66 | 0.8 | 0.82 | 1.05 | 3.06 | 4.33 | 1.61 |
| TDS (mg/L) | <3 | <3 | 80 | 80 | 94 | 93 | 95 | 99 | 89 | 107 | 85 | 91 | 112 | 105 | 73 |
| TSS (mg/L) | 77 | 69 | <3 | <3 | <3 | <3 | <3 | <3 | 5 | <3 | <3 | <3 | 3.5 | <3 | 4 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00012 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00012 | <0.0001 |
| Arsenic (As)-Total ( | 0.00026 | 0.00029 | 0.00029 | 0.00035 | 0.00036 | 0.00036 | 0.00042 | 0.0005 | 0.00042 | 0.00042 | 0.00034 | 0.00039 | 0.00044 | 0.00049 | 0.00028 |
| Barium (Ba)-Total | 0.00519 | 0.00522 | 0.00508 | 0.00607 | 0.00743 | 0.00773 | 0.00966 | 0.00767 | 0.00953 | 0.011 | 0.00933 | 0.00824 | 0.0128 | 0.009 | 0.00534 |
| Boron (B)-Total (mg/L) | <0.01 | <0.01 | <0.01 | 0.014 | 0.016 | 0.015 | 0.014 | 0.015 | 0.016 | 0.014 | 0.014 | 0.014 | 0.014 | 0.013 | 0.013 |
| Calcium (Ca)-Total ( | 6 | 6.55 | 5.95 | 6.84 | 8.74 | 9.65 | 11.2 | 9.78 | 10.6 | 11.5 | 11.4 | 9.75 | 15.2 | 10.2 | 5.52 |
| Chromium (Cr)-Total (mg/L) | 0.00107 | 0.00117 | 0.00115 | 0.00131 | 0.0013 | 0.00154 | 0.00152 | 0.00165 | 0.00157 | 0.00128 | 0.001 | 0.00147 | 0.00149 | 0.00206 | 0.00122 |
| Cobalt (Co)-Total (m | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00011 | 0.00012 | 0.00022 | 0.00014 | 0.00027 | 0.00052 | 0.00028 | 0.00013 | 0.00025 | 0.00023 | <0.0001 |
| Magnesium (Mg)-Total (mg/L) | 1.82 | 1.99 | 1.95 | 2.19 | 2.67 | 2.87 | 3.45 | 2.9 | 3.22 | 3.78 | 3.64 | 3.03 | 5.29 | 3.22 | 1.76 |
| Nickel (Ni)-Total (mg/L) | 0.00123 | 0.00144 | 0.0016 | 0.00151 | 0.00175 | 0.00188 | 0.002 | 0.0018 | 0.00177 | 0.00175 | 0.00147 | 0.0016 | 0.00162 | 0.00199 | 0.0013 |
| Silicon (Si)-Total (mg/L) | 4.01 | 3.82 | 3.66 | 3.66 | 3.66 | 3.5 | 4.07 | 4.79 | 4.85 | 5.1 | 4.92 | 4.81 | 6.28 | 6.35 | 4.01 |
| Silver (Ag)-Total (mg/L) | 0.000011 | 0.000017 | <0.00001 | 0.000011 | <0.00003 | 0.000014 | 0.000011 | 0.000029 | 0.000022 | 0.000017 | <0.00001 | 0.000018 | <0.00001 | 0.000018 | 0.000015 |
| Sodium (Na)-Total (mg/L) | 2.28 | 2.42 | 2.6 | 2.92 | 3.44 | 3.69 | 3.98 | 3.64 | 3.86 | 4.09 | 4.28 | 3.97 | 5.25 | 3.79 | 2.14 |
| Strontium (Sr)-Total (mg/L) | 0.0787 | 0.0796 | 0.0834 | 0.0974 | 0.116 | 0.113 | 0.157 | 0.124 | 0.134 | 0.141 | 0.155 | 0.131 | 0.2 | 0.132 | 0.0657 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00029 | <0.0001 |
| Total Aluminum (mg/L) | 0.218 | 0.215 | 0.228 | 0.22 | 0.226 | 0.239 | 0.225 | 0.309 | 0.271 | 0.217 | 0.171 | 0.233 | 0.294 | 0.374 | 0.244 |
| Total Cadmium (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | 0.000018 | 0.000013 | 0.000028 | 0.000027 | 0.000017 | 0.000015 | 0.00003 | 0.00002 | 0.000015 |
| Total Copper (mg/L) | 0.00353 | 0.00366 | 0.00394 | 0.00424 | 0.00434 | 0.00448 | 0.00417 | 0.00576 | 0.00504 | 0.00435 | 0.00333 | 0.00423 | 0.0045 | 0.0079 | 0.00335 |
| Total Iron (mg/L) | 0.219 | 0.229 | 0.214 | 0.225 | 0.269 | 0.321 | 0.182 | 0.532 | 0.296 | 0.241 | 0.156 | 0.248 | 0.296 | 0.478 | 0.218 |
| Total Lead (mg/L) | <0.00005 | <0.00005 | 0.000063 | <0.00005 | 0.000051 | 0.000067 | <0.00005 | 0.000104 | 0.000086 | 0.000065 | <0.00005 | 0.000053 | 0.000087 | 0.000154 | <0.00005 |
| Total Manganese (mg/L) | 0.00201 | 0.00223 | 0.00203 | 0.00325 | 0.00398 | 0.00385 | 0.0162 | 0.00699 | 0.036 | 0.0755 | 0.0284 | 0.00858 | 0.0201 | 0.0127 | 0.00272 |
| Total Molybdenum (mg/L) | 0.000099 | 0.000102 | 0.000099 | 0.000112 | 0.00013 | 0.000141 | 0.000147 | 0.000125 | 0.000081 | 0.000088 | 0.000083 | 0.000087 | 0.000092 | 0.000182 | 0.000087 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.001 | <0.0005 |
| Zinc (Zn)-Total (mg/L) | 0.0015 | 0.0012 | 0.0011 | 0.0014 | 0.0012 | 0.0015 | 0.0011 | <0.003 | <0.003 | <0.003 | <0.003 | 0.0042 | 0.0036 | 0.0035 | <0.003 |

| | E223292 : W8z - SW Edney Tributary, Control | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **11-May-11** | **18-May-11** | **26-May-11** | **1-Jun-11** | **9-Jun-11** | **14-Jul-11** | **4-Aug-11** | **1-Feb-12** | **15-Mar-12** | **3-Apr-12** | **26-Apr-12** | **3-May-12** | **10-May-12** | **16-May-12** | **24-May-12** |
| Diss-Zinc (Zn) (mg/L) | <0.003 | <0.003 | 0.0032 | <0.003 | 0.0064 | 0.0037 | <0.003 | 0.004 | <0.0030 | 0.0069 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 72 | 69 | 82 | 82 | 89 | 103 | 110 | 103 | 108 | 99 | 78 | 82 | 81 | 87 | 89 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 14.2 | 20.3 | 23.5 | 26.6 | 29.7 | 37.7 | 38.3 | 34 | 32.9 | 31.2 | 16.7 | 21.3 | 25.7 | 29.7 | 33.5 |
| Hardness (mg/L) | 18.8 | 18.8 | 25.7 | 29 | 32.2 | 40.3 | 41.7 | 40.3 | 34.9 | 34.2 | 20.8 | 23.7 | 27.1 | 29.2 | 33.5 |
| NTU (ntu) | 1 | 2.32 | 0.59 | 0.8 | 0.99 | 0.92 | 1.01 | 1.63 | 1.31 | 2.11 | 1.18 | 0.69 | 0.61 | 1.15 | 1.22 |
| TDS (mg/L) | 72 | 69 | 82 | 82 | 89 | 103 | 110 | 103 | 108 | 99 | 78 | 82 | 81 | 87 | 89 |
| TSS (mg/L) | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | 3.2 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00018 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00025 | 0.0004 | 0.00034 | 0.00035 | 0.00041 | 0.00048 | 0.00047 | 0.00041 | 0.00042 | 0.00046 | 0.00028 | 0.00029 | 0.00034 | 0.0004 | 0.00035 |
| Barium (Ba)-Total | 0.00457 | 0.00479 | 0.00539 | 0.00628 | 0.00698 | 0.00774 | 0.00774 | 0.00745 | 0.00645 | 0.00793 | 0.005 | 0.00484 | 0.00548 | 0.00655 | 0.00615 |
| Boron (B)-Total (mg/L) | 0.014 | 0.012 | 0.013 | 0.014 | 0.02 | 0.017 | 0.012 | 0.01 | 0.011 | 0.013 | 0.011 | <0.010 | 0.013 | 0.014 | <0.010 |
| Calcium (Ca)-Total ( | 5.12 | 5.25 | 7.13 | 7.91 | 9 | 11 | 11.2 | 11 | 9.2 | 9.28 | 5.81 | 6.49 | 7.39 | 8 | 8.86 |
| Chromium (Cr)-Total (mg/L) | 0.00118 | 0.00124 | 0.00129 | 0.00134 | 0.0017 | 0.00174 | 0.00168 | 0.00147 | 0.00149 | 0.00153 | 0.0012 | 0.00112 | 0.00125 | 0.00147 | 0.00119 |
| Cobalt (Co)-Total (m | <0.0001 | 0.00011 | <0.0001 | <0.0001 | <0.0001 | 0.00014 | 0.00016 | 0.00014 | 0.00012 | 0.00016 | 0.00011 | 0.00013 | <0.00010 | <0.00010 | <0.00010 |
| Magnesium (Mg)-Total (mg/L) | 1.51 | 1.55 | 2.06 | 2.25 | 2.64 | 3.23 | 3.33 | 3.44 | 2.75 | 2.82 | 1.74 | 1.94 | 2.23 | 2.45 | 2.66 |
| Nickel (Ni)-Total (mg/L) | 0.00123 | 0.00137 | 0.00165 | 0.00188 | 0.00225 | 0.00229 | 0.00226 | 0.00164 | 0.00184 | 0.00199 | 0.00134 | 0.00137 | 0.00153 | 0.00174 | 0.00159 |
| Silicon (Si)-Total (mg/L) | 3.93 | 3.64 | 3.69 | 3.82 | 3.9 | 4.37 | 4.73 | 6.02 | 6.37 | 6.4 | 3.94 | 3.68 | 3.68 | 3.65 | 3.61 |
| Silver (Ag)-Total (mg/L) | 0.000011 | <0.00001 | 0.000011 | 0.000015 | 0.000012 | 0.000014 | 0.000012 | <0.000010 | 0.00001 | 0.000014 | 0.000011 | 0.000012 | 0.000013 | 0.000014 | 0.000012 |
| Sodium (Na)-Total (mg/L) | 1.97 | 1.9 | 2.32 | 2.57 | 3.09 | 3.31 | 3.07 | 4.13 | 3.63 | 3.46 | 1.98 | 2.09 | 2.45 | 2.81 | 2.91 |
| Strontium (Sr)-Total (mg/L) | 0.0611 | 0.0573 | 0.0749 | 0.094 | 0.113 | 0.139 | 0.144 | 0.128 | 0.107 | 0.116 | 0.068 | 0.075 | 0.0882 | 0.0922 | 0.0913 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.228 | 0.261 | 0.23 | 0.23 | 0.245 | 0.238 | 0.241 | 0.248 | 0.27 | 0.351 | 0.279 | 0.225 | 0.241 | 0.243 | 0.195 |
| Total Cadmium (mg/L) | 0.000012 | 0.000051 | 0.000014 | 0.000016 | 0.000017 | 0.000018 | 0.000017 | 0.000012 | 0.000011 | 0.000023 | 0.00001 | 0.000011 | 0.000013 | 0.000012 | 0.000014 |
| Total Copper (mg/L) | 0.0033 | 0.00339 | 0.00395 | 0.00419 | 0.00473 | 0.00395 | 0.00361 | 0.00469 | 0.00478 | 0.00521 | 0.00409 | 0.00368 | 0.00389 | 0.00492 | 0.00394 |
| Total Iron (mg/L) | 0.199 | 0.245 | 0.237 | 0.218 | 0.247 | 0.336 | 0.38 | 0.364 | 0.417 | 0.483 | 0.262 | 0.219 | 0.251 | 0.284 | 0.24 |
| Total Lead (mg/L) | <0.00005 | 0.000068 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | 0.000057 | 0.000068 | <0.000050 | <0.000050 | <0.000050 | 0.000076 | <0.000050 |
| Total Manganese (mg/L) | 0.00205 | 0.00246 | 0.00194 | 0.00221 | 0.00309 | 0.00499 | 0.00686 | 0.00416 | 0.00275 | 0.00477 | 0.0029 | 0.00203 | 0.00254 | 0.00329 | 0.00295 |
| Total Molybdenum (mg/L) | 0.000131 | 0.000117 | 0.000113 | 0.000116 | 0.000144 | 0.000115 | 0.00012 | 0.000102 | 0.00013 | 0.000099 | 0.0001 | 0.000148 | 0.000102 | 0.000112 | 0.000087 |
| Total Selenium (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.003 | 0.0054 | <0.003 | 0.0031 | 0.0035 | <0.003 | <0.003 | <0.0030 | <0.0030 | 0.0052 | <0.0030 | <0.0030 | 0.0041 | 0.0035 | <0.0030 |

| | E223292 : W8z - SW Edney Tributary, Control | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **7-Jun-12** | **5-Jul-12** | **25-Oct-12** | **31-Oct-12** | **5-Nov-12** | **6-Dec-12** | **3-Jan-13** | **7-Feb-13** | **1-May-13** | **7-Nov-13** |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | 0.0036 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | | |
| TDS (mg/L) | 97 | 106 | 94 | 115 | 101 | 101 | 92 | 100 | 90 | 94 |
| **Physical Test** | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 26.3 | 33.7 | 26.6 | 33.5 | 20.2 | 25.8 | 29.5 | 32.9 | 22.3 | 28.3 |
| Hardness (mg/L) | 28.7 | 37.3 | 36.8 | 43.6 | 30.3 | 33.7 | 34.3 | 35 | 21.6 | 34.8 |
| NTU (ntu) | 1.57 | 1.14 | 2.77 | 2.34 | 4.58 | 1.21 | 1.48 | 0.91 | 1.11 | 1.16 |
| TDS (mg/L) | 97 | 106 | 94 | 115 | 101 | 101 | 92 | 100 | 90 | 94 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | 4 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | 0.0001 | 0.00013 | 0.00011 | 0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00045 | 0.0005 | 0.00049 | 0.00044 | 0.0005 | 0.00038 | 0.00045 | 0.00048 | 0.00032 | 0.00046 |
| Barium (Ba)-Total | 0.00679 | 0.00714 | 0.00866 | 0.0106 | 0.00782 | 0.00616 | 0.00635 | 0.00624 | 0.00448 | 0.00714 |
| Boron (B)-Total (mg/L) | 0.015 | 0.012 | <0.010 | 0.054 | 0.015 | 0.014 | <0.010 | <0.010 | <0.010 | 0.010 |
| Calcium (Ca)-Total ( | 7.95 | 9.96 | 9.76 | 11 | 7.93 | 9.55 | 9.1 | 9.22 | 5.75 | 9.28 |
| Chromium (Cr)-Total (mg/L) | 0.00148 | 0.00144 | 0.00141 | 0.00113 | 0.00129 | 0.00111 | 0.00119 | 0.00118 | 0.00111 | 0.00137 |
| Cobalt (Co)-Total (m | 0.00015 | 0.00014 | 0.00028 | 0.00013 | 0.00018 | <0.00010 | 0.00011 | 0.00011 | <0.00010 | 0.00014 |
| Magnesium (Mg)-Total (mg/L) | 2.31 | 3 | 3.1 | 3.62 | 2.46 | 2.95 | 2.81 | 2.91 | 1.77 | 2.82 |
| Nickel (Ni)-Total (mg/L) | 0.00195 | 0.00208 | 0.00163 | 0.00135 | 0.00149 | 0.00137 | 0.00158 | 0.00157 | 0.00128 | 0.00164 |
| Silicon (Si)-Total (mg/L) | 3.83 | 4.51 | 4.93 | 4.54 | 4.87 | 5.65 | 5.65 | 5.89 | 3.86 | 4.76 |
| Silver (Ag)-Total (mg/L) | 0.000016 | 0.000015 | 0.000018 | 0.000014 | 0.000011 | 0.000015 | <0.000010 | <0.000010 | <0.000010 | 0.000018 |
| Sodium (Na)-Total (mg/L) | 2.55 | 2.82 | 3.21 | 4.02 | 2.85 | 3.15 | 3.77 | 3.98 | 2.02 | 3.27 |
| Strontium (Sr)-Total (mg/L) | 0.099 | 0.118 | 0.12 | 0.154 | 0.107 | 0.119 | 0.114 | 0.101 | 0.0692 | 0.111 |
| Tin (Sn)-Total (mg/L) | 0.00056 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.321 | 0.286 | 0.346 | 0.233 | 0.426 | 0.238 | 0.225 | 0.22 | 0.222 | 0.252 |
| Total Cadmium (mg/L) | 0.000019 | 0.000013 | 0.000016 | 0.000015 | 0.000012 | <0.000010 | 0.000012 | <0.000010 | 0.000011 | 0.000011 |
| Total Copper (mg/L) | 0.0061 | 0.00399 | 0.00475 | 0.00471 | 0.00537 | 0.00421 | 0.0057 | 0.00483 | 0.00336 | 0.00478 |
| Total Iron (mg/L) | 0.382 | 0.348 | 0.556 | 0.452 | 0.671 | 0.546 | 0.403 | 0.365 | 0.207 | 0.379 |
| Total Lead (mg/L) | 0.000114 | <0.000050 | 0.000115 | 0.000103 | 0.000132 | 0.000102 | 0.000058 | <0.000050 | <0.000050 | 0.000082 |
| Total Manganese (mg/L) | 0.00571 | 0.00524 | 0.016 | 0.00595 | 0.00709 | 0.00418 | 0.00377 | 0.00338 | 0.00195 | 0.00539 |
| Total Molybdenum (mg/L) | 0.0001 | 0.000083 | 0.000115 | 0.000115 | 0.000131 | 0.000112 | 0.000104 | 0.000229 | 0.000098 | 0.000078 |
| Total Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | 0.0061 | <0.0030 | <0.0030 | <0.0030 | 0.0037 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E223292 : W8z - SW Edney Tributary, Control | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 119 | 48 | 0.00500 | 1.58000 | 0.02465 | 0.02500 | 0.14624 |
| Chloride (mg/L) | 55 | 10 | 0.25000 | 4.23000 | 1.01000 | | 0.76025 |
| Diss-Orthophosphate (mg/L) | 119 | 97 | 0.00050 | 0.03400 | 0.00276 | 0.01200 | 0.00393 |
| Diss-Phosphorus (mg/L) | 117 | 112 | 0.00100 | 0.10000 | 0.01815 | 0.03791 | 0.01090 |
| Nitrate (N) (mg/L) | 106 | 72 | 0.00250 | 1.41000 | 0.17350 | 0.91865 | 0.29210 |
| Nitrate and Nitrite (mg/L) | 42 | 23 | 0.00250 | 1.42000 | 0.17644 | 0.03660 | 0.31700 |
| Nitrite (N) (mg/L) | 112 | 29 | 0.00050 | 0.03900 | 0.00420 | 0.02881 | 0.00729 |
| Sulphate (mg/L) | 119 | 46 | 0.25000 | 17.90000 | 1.86269 | 5.40000 | 2.44008 |
| Total Nitrogen (mg/L) | 112 | 112 | 0.25000 | 4.96000 | 0.85704 | 1.81100 | 0.54933 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 114 | 114 | 0.11300 | 0.34400 | 0.21113 | 0.29300 | 0.04709 |
| Diss-Antimony (Sb) (mg/L) | 114 | 22 | 0.00003 | 0.00015 | 0.00006 | 0.00013 | 0.00003 |
| Diss-Arsenic (As) (mg/L) | 114 | 114 | 0.00019 | 0.00050 | 0.00035 | 0.00047 | 0.00008 |
| Diss-Barium (Ba) (mg/L) | 114 | 114 | 0.00410 | 0.01360 | 0.00662 | 0.01142 | 0.00178 |
| Diss-Beryllium (Be) (mg/L) | 114 | 0 | 0.00003 | 0.00025 | 0.00019 | 0.00025 | 0.00009 |
| Diss-Boron (B) (mg/L) | 110 | 49 | 0.00400 | 0.05500 | 0.00848 | 0.01300 | 0.00581 |
| Diss-Cadmium (Cd) (mg/L) | 114 | 56 | 0.00001 | 0.00011 | 0.00001 | 0.00003 | 0.00001 |
| Diss-Calcium (Ca) (mg/L) | 114 | 114 | 4.76000 | 14.80000 | 8.54939 | 12.71500 | 2.05517 |
| Diss-Chromium (Cr) (mg/L) | 114 | 112 | 0.00010 | 0.00182 | 0.00107 | 0.00150 | 0.00027 |
| Diss-Cobalt (Co) (mg/L) | 114 | 55 | 0.00005 | 0.00096 | 0.00010 | 0.00023 | 0.00010 |
| Diss-Copper (Cu) (mg/L) | 115 | 115 | 0.00221 | 0.01260 | 0.00397 | 0.00581 | 0.00121 |
| Diss-Iron (Fe) (mg/L) | 114 | 114 | 0.10200 | 0.55000 | 0.26875 | 0.48315 | 0.10689 |
| Diss-Lead (Pb) (mg/L) | 114 | 61 | 0.00003 | 0.00063 | 0.00007 | 0.00023 | 0.00009 |
| Diss-Magnesium (Mg) (mg/L) | 114 | 114 | 1.44000 | 5.19000 | 2.61412 | 4.03250 | 0.68617 |
| Diss-Manganese (Mn) (mg/L) | 114 | 114 | 0.00075 | 0.14100 | 0.00560 | 0.02491 | 0.01384 |
| Diss-Molybdenum (Mo) (mg/L) | 115 | 114 | 0.00006 | 0.00123 | 0.00011 | 0.00022 | 0.00011 |
| Diss-Nickel (Ni) (mg/L) | 114 | 114 | 0.00082 | 0.00232 | 0.00154 | 0.00196 | 0.00029 |
| Diss-Potassium (K) (mg/L) | 114 | 113 | 0.30800 | 3.15000 | 0.60475 | 0.89245 | 0.27925 |
| Diss-Selenium (mg/L) | 114 | 0 | 0.00025 | 0.00050 | 0.00042 | 0.00050 | 0.00012 |
| Diss-Silicon (Si) (mg/L) | 114 | 114 | 3.11000 | 6.50000 | 4.56737 | 5.75850 | 0.83531 |
| Diss-Silver (Ag) (mg/L) | 114 | 49 | 0.00001 | 0.00066 | 0.00001 | 0.00002 | 0.00006 |
| Diss-Sodium (Na) (mg/L) | 114 | 114 | 1.64000 | 4.98000 | 3.10342 | 4.07200 | 0.70929 |
| Diss-Strontium (Sr) (mg/L) | 114 | 114 | 0.04740 | 0.19200 | 0.10055 | 0.14265 | 0.02672 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E223292 : W8z - SW Edney Tributary, Control | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 114 | 5 | 0.00003 | 0.00023 | 0.00005 | 0.00005 | 0.00002 |
| Diss-Zinc (Zn) (mg/L) | 114 | 80 | 0.00050 | 0.02320 | 0.00221 | 0.00452 | 0.00228 |
| TDS (mg/L) | 117 | 112 | 1.50000 | 140.00000 | 84.84444 | 113.30000 | 24.21682 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 119 | 119 | 8.60000 | 134.00000 | 30.19328 | 53.60000 | 13.34100 |
| Hardness (mg/L) | 123 | 123 | 17.80000 | 58.40000 | 32.15610 | 48.42000 | 7.93342 |
| NTU (ntu) | 119 | 119 | 0.51000 | 10.70000 | 2.01034 | 5.28000 | 1.52738 |
| TDS (mg/L) | 117 | 112 | 1.50000 | 140.00000 | 84.84444 | 113.30000 | 24.21682 |
| TSS (mg/L) | 119 | 24 | 0.50000 | 97.00000 | 6.44748 | 9.20000 | 18.05481 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 118 | 36 | 0.00003 | 0.00020 | 0.00007 | 0.00017 | 0.00004 |
| Arsenic (As)-Total ( | 119 | 119 | 0.00021 | 0.00070 | 0.00039 | 0.00054 | 0.00009 |
| Barium (Ba)-Total | 118 | 118 | 0.00432 | 0.01520 | 0.00722 | 0.01126 | 0.00204 |
| Boron (B)-Total (mg/L) | 114 | 64 | 0.00400 | 0.05400 | 0.00957 | 0.01225 | 0.00586 |
| Calcium (Ca)-Total ( | 119 | 119 | 4.66000 | 15.20000 | 8.54118 | 12.80000 | 2.14898 |
| Chromium (Cr)-Total (mg/L) | 118 | 116 | 0.00025 | 0.00233 | 0.00132 | 0.00174 | 0.00031 |
| Cobalt (Co)-Total (m | 118 | 94 | 0.00007 | 0.00114 | 0.00017 | 0.00034 | 0.00016 |
| Magnesium (Mg)-Total (mg/L) | 119 | 119 | 1.43000 | 5.29000 | 2.62361 | 4.05000 | 0.70363 |
| Nickel (Ni)-Total (mg/L) | 119 | 117 | 0.00100 | 0.00480 | 0.00167 | 0.00208 | 0.00041 |
| Silicon (Si)-Total (mg/L) | 119 | 119 | 2.48900 | 6.40000 | 4.59915 | 5.78000 | 0.85447 |
| Silver (Ag)-Total (mg/L) | 118 | 85 | 0.00001 | 0.00090 | 0.00002 | 0.00008 | 0.00008 |
| Sodium (Na)-Total (mg/L) | 119 | 119 | 1.71000 | 5.25000 | 3.16563 | 4.18000 | 0.74343 |
| Strontium (Sr)-Total (mg/L) | 119 | 119 | 0.04660 | 0.20000 | 0.10411 | 0.15800 | 0.02821 |
| Tin (Sn)-Total (mg/L) | 118 | 7 | 0.00003 | 0.00056 | 0.00006 | 0.00013 | 0.00007 |
| Total Aluminum (mg/L) | 119 | 119 | 0.13600 | 0.66700 | 0.27633 | 0.49900 | 0.08533 |
| Total Cadmium (mg/L) | 118 | 69 | 0.00001 | 0.00011 | 0.00002 | 0.00005 | 0.00001 |
| Total Copper (mg/L) | 119 | 119 | 0.00262 | 0.01540 | 0.00447 | 0.00697 | 0.00163 |
| Total Iron (mg/L) | 119 | 119 | 0.12300 | 1.16000 | 0.35212 | 0.76100 | 0.17047 |
| Total Lead (mg/L) | 119 | 81 | 0.00005 | 0.00686 | 0.00016 | 0.00027 | 0.00063 |
| Total Manganese (mg/L) | 119 | 119 | 0.00125 | 0.19800 | 0.01202 | 0.07600 | 0.02892 |
| Total Molybdenum (mg/L) | 119 | 116 | 0.00003 | 0.00111 | 0.00014 | 0.00031 | 0.00013 |
| Total Selenium (mg/L) | 118 | 0 | 0.00025 | 0.00050 | 0.00041 | 0.00050 | 0.00012 |
| Zinc (Zn)-Total (mg/L) | 119 | 76 | 0.00050 | 0.04090 | 0.00268 | 0.00590 | 0.00394 |

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W1** | 09/02/09 | 103 | 7.52 | 0.1 |
| | 02/06/09 | 90 | 7.59 | 13.6 |
| | 12/08/09 | 136 | 7.81 | 14.4 |
| | 10/11/09 | 142 | 8.39 | 0.9 |
| | 11/02/10 | 117 | 7.7 | 0.1 |
| | 11/05/10 | 93 | 8.01 | 5.3 |
| | 04/08/10 | 202 | 7.72 | 15.4 |
| | 03/11/10 | 190 | 7.72 | 1.6 |
| | 01/02/11 | 25 | 8.23 | 0.1 |
| | 12/05/11 | 78 | 6.97 | 2.6 |
| | 04/08/11 | 121 | 7.75 | 12.2 |
| | 20/09/11 | 91 | 7.68 | 10.9 |
| | 02/11/11 | 176 | 7.81 | 1.2 |
| | 01/02/12 | 120 | 7.48 | 0.1 |
| | 03/05/12 | 126 | | 5.3 |
| | 01/08/12 | 122 | 7.946 | 15.3 |
| | 05/11/12 | 197.2 | 7.918 | 0.5 |
| | 07/02/13 | 124.7 | 8.069 | 1.5 |
| | 02/05/13 | 84 | 7.74 | 3.7 |
| | 08/08/13 | 111 | 7.45 | 17.1 |
| | 07/11/13 | 195.8 | 8.122 | 0.2 |
| **W3a** | 13/03/09 | 166 | 7.73 | 0.2 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W3a** | 21/05/09 | 85 | 7.52 | 3.7 |
| | 12/08/09 | 231 | 8.16 | 10.2 |
| | 17/11/09 | 156 | 8.26 | 1.3 |
| | 11/02/10 | 161 | 7.98 | 0.7 |
| | 11/05/10 | 125 | 7.81 | 3.5 |
| | 12/08/10 | 197 | 8.05 | 10.5 |
| | 08/03/11 | 190 | 7.96 | |
| | 25/05/11 | 142 | 7.38 | 4.3 |
| | 09/08/11 | 242 | 7.77 | 9.7 |
| | 20/09/11 | 284 | 7.69 | 6.7 |
| | 06/10/11 | 310 | 7.74 | 6.7 |
| | 01/11/11 | 259 | 7.81 | 1.9 |
| | 01/02/12 | 327 | 7.73 | 0.3 |
| | 22/03/12 | 352 | 7.78 | 0.5 |
| | 03/05/12 | 236 | 7.81 | 2.6 |
| | 21/06/12 | 338 | 7.78 | 9.1 |
| | 12/07/12 | 400 | 7.84 | 9.3 |
| | 28/08/12 | 435 | 8.114 | 9.2 |
| | 15/11/12 | 438 | 8.112 | 1.3 |
| | 06/12/12 | 433 | 8.044 | 0.9 |
| | 03/01/13 | 426 | 8.055 | 0.2 |
| | 07/02/13 | 426 | 7.984 | 1.1 |
| | 14/03/13 | 483 | 7.941 | 0.8 |
| | 04/04/13 | 332 | 7.808 | 2.6 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W3a** | 08/04/13 | 297 | 7.992 | 2.1 |
| | 18/04/13 | 359 | 7.81 | 3.2 |
| | 25/04/13 | 338 | 7.764 | 4.3 |
| | 02/05/13 | 360 | 7.76 | 3.9 |
| | 06/06/13 | 314 | 8 | 8.7 |
| | 17/06/13 | 459 | 8.2 | 9.2 |
| | 19/06/13 | 271 | 7.82 | 9.5 |
| | 27/06/13 | 303 | 7.83 | 10.7 |
| | 03/07/13 | 535 | 7.86 | 11.6 |
| | 10/07/13 | 344 | 7.94 | 11.6 |
| | 18/07/13 | 246 | 8.094 | 11.6 |
| | 08/08/13 | 596 | 8.16 | 13.3 |
| | 05/09/13 | 447 | 7.97 | 11.1 |
| | 14/11/13 | 420 | 8.085 | 1.4 |
| | 03/12/13 | 439 | 8.565 | 0 |
| **W4** | 14/01/09 | 289 | 8.18 | 0.1 |
| | 09/02/09 | 768 | 8.28 | 1.1 |
| | 04/03/09 | 1260 | 8.17 | 0.7 |
| | 07/04/09 | 569 | 8.18 | 1 |
| | 21/04/09 | 603 | 7.93 | 1.6 |
| | 28/04/09 | 661 | 7.97 | 2.3 |
| | 05/05/09 | 648 | 8.03 | 2.2 |
| | 12/05/09 | 301 | 7.89 | 2.5 |
| | 20/05/09 | 420 | 7.96 | 2.7 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W4** | 09/06/09 | 1078 | 8.34 | 5.8 |
| | 08/07/09 | 1212 | 8.01 | 6.2 |
| | 22/07/09 | 1309 | 8 | 8 |
| | 05/08/09 | 1375 | 8.51 | 7.7 |
| | 02/09/09 | 1314 | 8.54 | 9.4 |
| | 30/09/09 | 1223 | 8.68 | 5.6 |
| | 14/10/09 | 837 | 8.56 | 1.9 |
| | 22/10/09 | 1206 | 8.6 | 2.2 |
| | 29/10/09 | 893 | 8.52 | 0.7 |
| | 10/11/09 | 473 | 8.45 | 2.3 |
| | 16/12/09 | 1164 | 7.95 | 0 |
| | 13/01/10 | 1277 | 8.03 | 0.2 |
| | 10/02/10 | 1342 | 8.08 | 0.7 |
| | 03/03/10 | 511 | 8.11 | 1.1 |
| | 07/04/10 | 217 | 8.18 | 1.9 |
| | 15/04/10 | 290 | 8.29 | 1.8 |
| | 21/04/10 | 188 | 8.11 | 3.3 |
| | 28/04/10 | 201 | 8.29 | 3 |
| | 04/05/10 | 208 | 8.04 | 2.5 |
| | 12/05/10 | 234 | 8.15 | 3.8 |
| | 19/05/10 | 259 | 7.94 | 5.7 |
| | 03/06/10 | | | 5.9 |
| | 08/07/10 | 315 | 8.09 | 9.1 |
| | 04/08/10 | 350 | 8.27 | 11.4 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W4** | 01/09/10 | 353 | | 8 |
| | 23/09/10 | 325 | 7.91 | 6.2 |
| | 30/09/10 | 340 | 7.72 | 6.9 |
| | 07/10/10 | 354 | 8.04 | 7 |
| | 14/10/10 | 357 | 7.98 | 6.6 |
| | 21/10/10 | 362 | 7.95 | 5.9 |
| | 28/10/10 | 357 | 7.81 | 3.7 |
| | 03/11/10 | 344 | 7.97 | 4 |
| | 10/01/11 | 168 | 8.03 | 0.1 |
| | 03/02/11 | 1014 | 7.68 | 0.2 |
| | 09/02/11 | 616 | 8.12 | 0.3 |
| | 15/02/11 | 559 | 8.15 | 0.6 |
| | 07/03/11 | 457 | 8.3 | 0.1 |
| | 05/04/11 | 416 | 7.73 | 0.6 |
| | 02/05/11 | 166 | 7.83 | 3 |
| | 04/05/11 | 193 | 7.43 | 1.7 |
| | 11/05/11 | 166 | 7.83 | 3 |
| | 18/05/11 | 148 | 7.67 | 2.3 |
| | 26/05/11 | 174 | 7.5 | 3 |
| | 01/06/11 | 194 | 7.88 | 4.5 |
| | 09/06/11 | 234 | 7.84 | 6.3 |
| | 14/07/11 | 289 | 8.42 | 7.7 |
| | 04/08/11 | 295 | 8.07 | 8.2 |
| | 01/09/11 | 320 | 8.02 | 8.2 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W4** | 08/09/11 | 335 | 8.11 | 9.3 |
| | 20/09/11 | 333 | 8.14 | 7.7 |
| | 29/09/11 | 336 | 8.29 | 7.0 |
| | 06/10/11 | 341 | 8.14 | 6.4 |
| | 12/10/11 | 350 | 8.15 | 6.2 |
| | 19/10/11 | 347 | 8.25 | 6.0 |
| | 02/11/11 | 335 | 8.24 | 2.4 |
| | 05/12/11 | 188 | 8.22 | 0.1 |
| | 05/01/12 | 327 | 8.25 | 0.7 |
| | 07/02/12 | 106 | 7.94 | 0.2 |
| | 15/03/12 | 329 | 8 | 0.5 |
| | 03/04/12 | 356 | | 0.8 |
| | 09/04/12 | 303 | 8.01 | 0.8 |
| | 11/04/12 | 303 | 8.01 | 0.8 |
| | 26/04/12 | 436 | 7.97 | 2.5 |
| | 03/05/12 | 431 | 7.98 | 3.2 |
| | 10/05/12 | 361 | 7.94 | 2.9 |
| | 16/05/12 | 246 | 7.94 | 4.4 |
| | 24/05/12 | 259 | 7.95 | 4.9 |
| | 07/06/12 | 338 | 7.83 | 5.6 |
| | 15/06/12 | 433 | 8.08 | 6.5 |
| | 20/06/12 | 394 | 8.29 | 6.9 |
| | 05/07/12 | 355 | 8.03 | 7.7 |
| | 02/08/12 | 361 | 8.127 | 9.4 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W4** | 09/08/12 | 365 | 8.168 | 10.7 |
| | 20/08/12 | 369 | 8.296 | 12.0 |
| | 06/09/12 | 368 | 8.018 | 8.5 |
| | 17/09/12 | 373 | 7.98 | 7.8 |
| | 26/09/12 | 351 | 8.13 | 7 |
| | 03/10/12 | 352 | 8.13 | 4.5 |
| | 11/10/12 | 350 | 8.225 | 4.1 |
| | 18/10/12 | 349 | 8.216 | 4.3 |
| | 25/10/12 | 333 | 8.282 | 0.8 |
| | 31/10/12 | 326 | 8.249 | 0.9 |
| | 05/11/12 | 324 | 8.389 | 3.1 |
| | 06/12/12 | 320 | 8.131 | 0.6 |
| | 03/01/13 | 330 | 8.168 | 0.2 |
| | 07/02/13 | 324 | 8.010 | 0.5 |
| | 19/02/13 | 327 | 7.874 | 1.2 |
| | 10/03/13 | 314 | 8.176 | 4.2 |
| | 04/04/13 | 250 | 7.702 | 1.5 |
| | 09/04/13 | 181 | 8.718 | 2.0 |
| | 18/04/13 | 227 | 7.833 | 1.9 |
| | 25/04/13 | 209 | 7.993 | 2.7 |
| | 02/05/13 | 183 | 7.8 | 2.9 |
| | 09/05/13 | 85 | 7.83 | 5.2 |
| | 16/05/13 | 110 | 7.49 | 5.9 |
| | 06/06/13 | 159 | 7.99 | 8.8 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W4** | 10/07/13 | 208 | 7.96 | 9.6 |
| | 08/08/13 | 383 | 8.208 | 10.9 |
| | 05/09/13 | 340 | 8.101 | 11.2 |
| | 24/09/13 | 325 | 8.134 | 7.3 |
| | 03/10/13 | 314 | 8.176 | 4.2 |
| | 10/10/13 | 181 | 7.97 | 4.7 |
| | 17/10/13 | 190 | 8.23 | 4.4 |
| | 24/10/13 | 333 | 8.076 | 5.7 |
| | 29/10/13 | 330 | 8.129 | 1.9 |
| | 07/11/13 | 317 | 6.659 | 1 |
| | 03/12/13 | 177.5 | 8.238 | 0 |
| **W5** | 09/02/09 | 217 | 7.92 | 0.6 |
| | 02/06/09 | 115 | 7.89 | 10.8 |
| | 11/08/09 | 334 | 8.32 | 11.6 |
| | 26/08/09 | 353 | 8.48 | 9.5 |
| | 19/11/09 | 132 | 8.52 | |
| | 11/02/10 | 233 | 7.61 | 0.4 |
| | 11/05/10 | 128 | 7.39 | 5.8 |
| | 04/08/10 | 331 | 7.79 | 11.4 |
| | 03/11/10 | 271 | 7.9 | 2.5 |
| | 02/02/11 | 90 | 7.73 | 0.1 |
| | 11/05/11 | 48 | 7.06 | 2.4 |
| | 09/06/11 | 105 | 7.66 | 11.8 |
| | 14/07/11 | 144 | 8.1 | 7.7 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W5** | 04/08/11 | 138 | 7.82 | 9.8 |
| | 30/08/11 | 265 | 8.01 | 9.4 |
| | 08/09/11 | 303 | 7.93 | 8.3 |
| | 15/09/11 | 317 | 7.89 | 8.7 |
| | 20/09/11 | 310 | 7.98 | 6.2 |
| | 29/09/11 | 325 | 8.00 | 4.9 |
| | 06/10/11 | 343 | 8.05 | 4.2 |
| | 12/10/11 | 332 | 8.06 | 5.9 |
| | 19/10/11 | 307 | 8.02 | 3.9 |
| | 27/10/11 | 309 | 8.32 | 0.6 |
| | 01/12/11 | 236 | 7.93 | 0.1 |
| | 15/12/11 | 270 | 7.9 | 0.1 |
| | 05/01/12 | 171 | 7.91 | 0.1 |
| | 07/02/12 | 166 | 8.21 | 0.1 |
| | 15/03/12 | 159 | 7.6 | 0.2 |
| | 03/04/12 | 102 | | 0.2 |
| | 26/04/12 | 43 | 7.06 | 1.9 |
| | 03/05/12 | 57 | 7.42 | 3.2 |
| | 10/05/12 | 55 | 7.33 | 4.3 |
| | 16/05/12 | 71 | 7.63 | 8.3 |
| | 24/05/12 | 90 | 7.72 | 7.1 |
| | 07/06/12 | 64 | 7.48 | 7.3 |
| | 15/06/12 | 79 | 7.74 | 9.3 |
| | 20/06/12 | 63 | 7.59 | 10.5 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
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**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W5** | 05/07/12 | 78 | 7.73 | 10.3 |
| | 09/07/12 | 106 | 7.55 | 12.6 |
| | 24/07/12 | 153 | 7.83 | 12.7 |
| | 02/08/12 | 170.1 | 7.547 | 10.2 |
| | 06/09/12 | 230 | 8.494 | 7.5 |
| | 03/10/12 | 220 | 7.76 | 3.2 |
| | 05/11/12 | 91.6 | 8.202 | 1.6 |
| | 06/12/12 | 117.6 | 8.300 | 0 |
| | 03/01/13 | 121.3 | 8.450 | 0.1 |
| | 07/02/13 | 164.2 | 8.463 | 0.3 |
| | 10/03/13 | 243 | 8.179 | 2.2 |
| | 14/03/13 | 150.7 | 7.742 | 0 |
| | 04/04/13 | 61.1 | 8.459 | 0.0 |
| | 18/04/13 | 58.2 | 7.768 | 0.7 |
| | 20/04/13 | 43.8 | 8.088 | 0.1 |
| | 25/04/13 | 47.3 | 8.484 | 1.5 |
| | 26/04/13 | 43.6 | 8.585 | 1.4 |
| | 01/05/13 | 47.1 | 7.86 | 2.2 |
| | 09/05/13 | 32 | 7.37 | 6 |
| | 15/05/13 | 40 | 7.33 | 8.2 |
| | 16/05/13 | 39 | 7.37 | 6.9 |
| | 27/05/13 | 49 | 7.59 | 9.8 |
| | 06/06/13 | 54 | 7.57 | 8 |
| | 10/06/13 | 60 | 7.60 | 10.0 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
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Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

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| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W5** | 25/06/13 | 62 | 7.48 | 12 |
| | 10/07/13 | 121 | 7.68 | 11.7 |
| | 08/08/13 | 256 | 7.763 | 18.2 |
| | 05/09/13 | 273 | 7.888 | 9.6 |
| | 18/09/13 | 228 | 7.764 | 7.7 |
| | 24/09/13 | 229 | 7.878 | 6.9 |
| | 03/10/13 | 243 | 8.179 | 2.2 |
| | 10/10/13 | 82 | 7.55 | 3.9 |
| | 17/10/13 | 94 | 7.45 | 2.6 |
| | 24/10/13 | 178.8 | 8.041 | 2.7 |
| | 29/10/13 | 191.7 | 8.041 | 0.2 |
| | 07/11/13 | 184.9 | 8.077 | 0 |
| | 03/12/13 | 143.5 | 8.1 | 0 |
| **W7** | 06/01/09 | 208 | 7.98 | |
| | 28/01/09 | 215 | 7.9 | 0.1 |
| | 10/02/09 | 216 | 8.1 | 0.2 |
| | 24/02/09 | 143 | 8.06 | 0 |
| | 18/03/09 | 210 | 7.94 | 0.2 |
| | 01/04/09 | 210 | 7.7 | 0.2 |
| | 11/08/09 | 235 | 8.32 | 15.9 |
| | 19/11/09 | 165 | 8.44 | 0.2 |
| | 10/02/10 | 224 | 8.1 | 0.5 |
| | 12/05/10 | 201 | 7.93 | 7.4 |
| | 08/07/10 | 215 | 8.1 | 15.5 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W7** | 05/08/10 | 230 | 8.11 | 15.6 |
| | 23/08/10 | 291 | 8.04 | 10.5 |
| | 01/09/10 | 337 | 7.55 | 9.1 |
| | 23/09/10 | 241 | 7.73 | 7.2 |
| | 07/10/10 | 259 | 7.83 | 5 |
| | 03/11/10 | 280 | 7.98 | 2.1 |
| | 01/12/10 | 247 | 7.67 | 0.1 |
| | 10/01/11 | 135 | 8.05 | 0.1 |
| | 02/02/11 | 152 | 7.47 | 0.1 |
| | 07/03/11 | 230 | 7.55 | 1.4 |
| | 05/04/11 | 216 | 7.69 | 0.6 |
| | 05/05/11 | 240 | 7 | 1.5 |
| | 11/05/11 | 144 | 7.31 | 4.3 |
| | 18/05/11 | 154 | 7.3 | 4.2 |
| | 08/06/11 | 199 | 7.67 | 15.5 |
| | 14/07/11 | 202 | 8.65 | 14.7 |
| | 04/08/11 | 203 | 8.41 | 16.6 |
| | 25/08/11 | 211 | 8.44 | 15.5 |
| | 31/08/11 | 213 | 8.26 | 12.4 |
| | 08/09/11 | 220 | 7.89 | 11.2 |
| | 20/09/11 | 224 | 8.14 | 10.4 |
| | 29/09/11 | 242 | 8.08 | 6.9 |
| | 06/10/11 | 268 | 8.05 | 4.1 |
| | 12/10/11 | 264 | 8.07 | 7.1 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W7** | 18/10/11 | 266 | 7.98 | 5.1 |
| | 19/10/11 | 267 | 7.96 | 5.6 |
| | 27/10/11 | 272 | 8.22 | 1.3 |
| | 02/11/11 | 268 | 8.23 | 1.6 |
| | 05/12/11 | 240 | 7.96 | 0.1 |
| | 05/01/12 | 232 | 7.97 | 0.2 |
| | 01/02/12 | 87 | 7.6 | 0.1 |
| | 15/03/12 | 235 | 7.74 | 0 |
| | 03/04/12 | 212 | | 0.7 |
| | 12/04/12 | 139 | 7.4 | 0.4 |
| | 16/04/12 | 120 | 7.41 | 0.7 |
| | 18/04/12 | 108 | 7.29 | 2.5 |
| | 26/04/12 | 114 | 7.38 | 3.2 |
| | 03/05/12 | 177 | 7.87 | 5 |
| | 10/05/12 | 198 | 7.99 | 5.8 |
| | 16/05/12 | 205 | 8.04 | 9.0 |
| | 22/05/12 | 208 | 8.11 | 9.8 |
| | 24/05/12 | 209 | 8.13 | 10.1 |
| | 25/05/12 | 208 | 8.22 | 13 |
| | 04/06/12 | 213 | 8.11 | 10.4 |
| | 07/06/12 | 151 | 7.73 | 9.1 |
| | 15/06/12 | 190 | 8 | 13.3 |
| | 27/06/12 | 191 | 8.23 | 15.2 |
| | 05/07/12 | 178 | 8.01 | 13.5 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W7** | 11/07/12 | 211 | 8.3 | 20.8 |
| | 17/07/12 | 217 | 8.02 | 18.3 |
| | 02/08/12 | 217 | 8.52 | 17.7 |
| | 14/08/12 | 222 | | 18.1 |
| | 29/08/12 | 232 | 7.89 | 12.6 |
| | 05/09/12 | 240 | 8.185 | 12.3 |
| | 06/09/12 | 239 | 8.162 | 10.8 |
| | 10/09/12 | 245 | 8.6 | 10.8 |
| | 26/09/12 | 249 | 7.94 | 6.3 |
| | 03/10/12 | 258 | 7.91 | 3.4 |
| | 11/10/12 | 274 | 8.270 | 3.1 |
| | 24/10/12 | 260 | 8.329 | 0.4 |
| | 25/10/12 | 259 | 8.353 | 0.7 |
| | 31/10/12 | 237 | 7.883 | 0.5 |
| | 05/11/12 | 178.1 | 8.315 | 1.5 |
| | 06/12/12 | 217 | 7.981 | 0.1 |
| | 03/01/13 | 102.8 | 8.523 | 0.1 |
| | 07/02/13 | 230 | 7.986 | 0 |
| | 14/03/13 | 217 | 8.0 | 0.2 |
| | 04/04/13 | 129.3 | 8.525 | 0.1 |
| | 12/04/13 | 125.1 | 8.188 | 0.9 |
| | 18/04/13 | 146.1 | 8.139 | 2.1 |
| | 22/04/13 | 124.2 | 8.116 | 4 |
| | 25/04/13 | 119.7 | 8.75 | 4.2 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W7** | 01/05/13 | 177.2 | 8.899 | 4.4 |
| | 09/05/13 | 119 | 7.75 | 8.6 |
| | 13/05/13 | 129 | 7.73 | 9.4 |
| | 15/05/13 | 144 | 7.93 | 11.2 |
| | 16/05/13 | 135 | 7.85 | 8.7 |
| | 06/06/13 | 157 | 8.05 | 13.8 |
| | 10/06/13 | 158 | 8.03 | 13.9 |
| | 25/06/13 | 161 | 8.11 | 15.3 |
| | 10/07/13 | 189 | 8.15 | 17.6 |
| | 25/07/13 | 231 | 7.85 | 16.9 |
| | 08/08/13 | 250 | 7.497 | 15.2 |
| | 14/08/13 | 256 | 8.15 | 15.9 |
| | 27/08/13 | 320 | 8.255 | 10.4 |
| | 05/09/13 | 323 | 7.951 | 13.2 |
| | 18/09/13 | 293 | 8.062 | 8.2 |
| | 20/09/13 | 218 | 8.2 | 9.1 |
| | 23/09/13 | 310 | 8.082 | 7.8 |
| | 24/09/13 | 324 | 8.228 | 7.8 |
| | 01/10/13 | 335 | 8.182 | 6.6 |
| | 10/10/13 | 160 | 7.77 | 3.9 |
| | 17/10/13 | 184 | 8.12 | 4 |
| | 22/10/13 | 332 | 8.199 | 3.3 |
| | 24/10/13 | 347 | 8.014 | 2.5 |
| | 29/10/13 | 318 | 8.199 | 0.2 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W7** | 31/10/13 | 309 | 8.087 | 1.7 |
| | 07/11/13 | 289 | 7.97 | 0 |
| | 05/12/13 | 243 | 7.676 | 0 |
| **W8** | 14/01/09 | 325 | 8.16 | 0.8 |
| | 09/02/09 | 345 | 8.19 | 1 |
| | 04/03/09 | 334 | 7.69 | 0.5 |
| | 07/04/09 | 238 | 7.47 | 0.5 |
| | 21/04/09 | 110 | 6.74 | 0.5 |
| | 28/04/09 | 106 | 7.37 | 2.2 |
| | 05/05/09 | 96 | 7.27 | 4.3 |
| | 12/05/09 | 109 | 7.69 | 4.7 |
| | 20/05/09 | 123 | 7.27 | 5.2 |
| | 09/06/09 | 315 | 8.13 | 10.8 |
| | 14/07/09 | 352 | 7.82 | 11.1 |
| | 05/08/09 | 424 | 8.58 | 10.6 |
| | 02/09/09 | 396 | 8.57 | 10.9 |
| | 30/09/09 | 392 | 8.78 | 4.9 |
| | 06/10/09 | 384 | 8.64 | 3.9 |
| | 15/10/09 | 372 | 8.57 | 2.2 |
| | 21/10/09 | 368 | 8.6 | 2.1 |
| | 29/10/09 | 235 | 8.35 | 0 |
| | 19/11/09 | 177 | 8.38 | 1 |
| | 16/12/09 | 346 | 7.87 | 0.1 |
| | 10/02/10 | 278 | 8.05 | 0.8 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W8** | 03/03/10 | 182 | 7.83 | 0.6 |
| | 07/04/10 | 154 | 7.77 | 1.4 |
| | 15/04/10 | 187 | 7.98 | 0.9 |
| | 21/04/10 | 201 | 7.98 | 5.8 |
| | 28/04/10 | 206 | 7.77 | 4.8 |
| | 04/05/10 | 208 | 8.04 | 2.5 |
| | 11/05/10 | 236 | 8.1 | 3.7 |
| | 19/05/10 | 265 | 7.85 | 9.2 |
| | 03/06/10 | | | 6.8 |
| | 08/07/10 | 352 | 8.3 | 9.4 |
| | 04/08/10 | 408 | 8.23 | 11.5 |
| | 01/09/10 | 350 | | 7.5 |
| | 23/09/10 | 350 | 7.45 | 6.1 |
| | 30/09/10 | 379 | 8.06 | 3.9 |
| | 07/10/10 | 388 | 7.93 | 4.6 |
| | 14/10/10 | 391 | 7.92 | 5.1 |
| | 21/10/10 | 388 | 7.97 | 4.1 |
| | 28/10/10 | 368 | 7.56 | 3.3 |
| | 04/11/10 | 359 | 7.71 | 3.1 |
| | 10/01/11 | 275 | 8.02 | -0.01 |
| | 07/03/11 | 303 | 8.06 | 0.25 |
| | 05/04/11 | 107 | 7.14 | 0.2 |
| | 04/05/11 | 98 | 6.86 | 2.7 |
| | 11/05/11 | 107 | 7.15 | 1 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W8** | 18/05/11 | 102 | 7.19 | 4.9 |
| | 26/05/11 | 153 | 7.4 | 2 |
| | 01/06/11 | 176 | 6.9 | 9.6 |
| | 09/06/11 | 232 | 7.95 | 10.1 |
| | 14/07/11 | 290 | 8.36 | 9.2 |
| | 04/08/11 | 299 | 7.6 | 9.4 |
| | 08/09/11 | 376 | 7.36 | 7.4 |
| | 20/09/11 | 382 | 8.25 | 6.6 |
| | 29/09/11 | 358 | 7.68 | 5.5 |
| | 06/10/11 | 397 | 7.93 | 3.9 |
| | 12/10/11 | 382 | 7.17 | 6.1 |
| | 19/10/11 | 385 | 8.22 | 5.3 |
| | 02/11/11 | 362 | 8.22 | 2.2 |
| | 05/12/11 | 324 | 8.29 | 1.0 |
| | 05/01/12 | 312 | 8.2 | 0.7 |
| | 07/02/12 | 374 | 7.82 | 0.8 |
| | 15/03/12 | 292 | 7.72 | 0.9 |
| | 03/04/12 | 179 | | 2.0 |
| | 26/04/12 | 111 | 7.2 | 4.5 |
| | 03/05/12 | 125 | 7.38 | 5 |
| | 10/05/12 | 165 | 7.76 | 4.4 |
| | 16/05/12 | 231 | 7.58 | 6.5 |
| | 24/05/12 | 288 | 8.11 | 6.4 |
| | 07/06/12 | 153 | 7.59 | 7.1 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W8** | 05/07/12 | 196 | 7.25 | 9.2 |
| | 02/08/12 | 411 | 8.243 | 9.0 |
| | 06/09/12 | 407 | 8.357 | 8.8 |
| | 03/10/12 | 401 | 8.22 | 3.1 |
| | 11/10/12 | 409 | 8.293 | 2.8 |
| | 18/10/12 | 405 | 7.963 | 3.9 |
| | 25/10/12 | 365 | 8.203 | 1.7 |
| | 31/10/12 | 305 | 7.556 | 1.1 |
| | 05/11/12 | 243 | 8.144 | 2.2 |
| | 06/12/12 | 273 | 8.184 | 0.5 |
| | 03/01/13 | 172.5 | 8.003 | 0.1 |
| | 07/02/13 | 76.0 | 8.188 | 0 |
| | 10/03/13 | 392 | 7.995 | 2.3 |
| | 14/03/13 | 229 | 7.798 | 0.4 |
| | 04/04/13 | 126.8 | 8.279 | 0.4 |
| | 18/04/13 | 98.6 | 8.391 | 1.6 |
| | 25/04/13 | 92.8 | 8.294 | 3.5 |
| | 01/05/13 | 119.6 | 9.398 | 3.9 |
| | 09/05/13 | 117 | 7.4 | 7 |
| | 16/05/13 | 152 | 7.79 | 6.3 |
| | 06/06/13 | 159 | 8.03 | 8.1 |
| | 10/07/13 | 289 | 8.09 | 10 |
| | 08/08/13 | 431 | 8.035 | 10.3 |
| | 05/09/13 | 429 | 8.203 | 8.9 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W8** | 24/09/13 | 406 | 8.183 | 6.7 |
| | 03/10/13 | 392 | 7.995 | 2.3 |
| | 10/10/13 | 216 | 7.93 | 4.2 |
| | 17/10/13 | 225 | 8.31 | 3.6 |
| | 24/10/13 | 389 | 7.91 | 3.4 |
| | 29/10/13 | 369 | 8.184 | 0.5 |
| | 07/11/13 | 356 | 7.859 | 0.2 |
| | 05/12/13 | 346 | 8.021 | 0.1 |
| **W8z** | 14/01/09 | 924 | 7.5 | 0.1 |
| | 09/02/09 | 79 | 7.36 | 0.3 |
| | 04/03/09 | 79 | 7.25 | 0.2 |
| | 07/04/09 | 72 | 7.27 | 0.1 |
| | 21/04/09 | 42 | 6.05 | 0.1 |
| | 28/04/09 | 39 | 6.7 | 1.4 |
| | 05/05/09 | 34 | 6.83 | 3.4 |
| | 12/05/09 | 35 | 7.15 | 2.4 |
| | 20/05/09 | 41 | 6.97 | 4.8 |
| | 10/06/09 | 75 | 7.54 | 8.7 |
| | 14/07/09 | 71 | 7.14 | 12.9 |
| | 11/02/10 | 67 | 7.57 | 0.1 |
| | 03/03/10 | 62 | 7.79 | 0.1 |
| | 07/04/10 | 46 | 7.29 | 0.4 |
| | 15/04/10 | 45 | 7.8 | 0.9 |
| | 21/04/10 | 44 | 7.38 | 5.3 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W8z** | 28/04/10 | 48 | 7.86 | 4.2 |
| | 04/05/10 | 48 | 7.69 | 3.4 |
| | 11/05/10 | 56 | 7.86 | 4.8 |
| | 19/05/10 | 66 | 7.46 | 9.3 |
| | 03/06/10 | | | 7.6 |
| | 08/07/10 | 86 | 7.56 | 9.6 |
| | 23/09/10 | 74 | 7.01 | 6.0 |
| | 30/09/10 | 83 | 6.51 | 6.2 |
| | 07/10/10 | 91 | 6.93 | 5.7 |
| | 28/10/10 | 91 | 7.15 | 4.3 |
| | 04/11/10 | 77 | 7.04 | 4.1 |
| | 10/01/11 | 122 | 7.59 | 0.1 |
| | 02/02/11 | 24 | 7.47 | 0.1 |
| | 04/05/11 | 39 | 6.24 | 0.1 |
| | 11/05/11 | 37 | 6.78 | 3 |
| | 18/05/11 | 35 | 6.51 | 2.6 |
| | 26/05/11 | 49 | 7.38 | 2 |
| | 01/06/11 | 54 | 6.52 | 8.8 |
| | 09/06/11 | 61 | 6.82 | 10.7 |
| | 14/07/11 | 74 | 7.51 | 11 |
| | 04/08/11 | 77 | 7.17 | 11.2 |
| | 01/02/12 | 82 | 7.67 | 0.1 |
| | 15/03/12 | 75 | 6.93 | 0.3 |
| | 03/04/12 | 72 | | 0.3 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W8z** | 26/04/12 | 39 | 6.85 | 2.4 |
| | 03/05/12 | 43 | 6.97 | 3.6 |
| | 10/05/12 | 51 | 7.14 | 4.2 |
| | 16/05/12 | 58 | 7.24 | 2.1 |
| | 24/05/12 | 63 | 7.56 | 5.8 |
| | 07/06/12 | 50 | 7.12 | 6.9 |
| | 05/07/12 | 66 | 7.21 | 9.8 |
| | 25/10/12 | 78 | 8.265 | 2.3 |
| | 31/10/12 | 121.2 | 7.231 | 1.0 |
| | 05/11/12 | 67.3 | 7.998 | 0.6 |
| | 06/12/12 | 73.6 | 8.298 | 0.1 |
| | 03/01/13 | 71.3 | 8.231 | 0.1 |
| | 07/02/13 | 322 | 8.068 | 0.9 |
| | 01/05/13 | 41 | 7.976 | 0.9 |
| | 07/11/13 | 74.6 | 8.049 | 1.9 |
| **W10** | 14/07/11 | 156 | 8.37 | 12.7 |
| | 04/08/11 | 145 | 8 | 14.2 |
| | 31/08/11 | 275 | 8.1 | 8.1 |
| | 08/09/11 | 305 | 7.89 | 8.7 |
| | 15/09/11 | 325 | 7.94 | 9.3 |
| | 29/09/11 | 344 | 7.96 | 6.5 |
| | 06/10/11 | 356 | 8.02 | 5.1 |
| | 17/10/11 | 359 | 8.26 | 3.2 |
| | 03/11/11 | 304 | 8.23 | 1.6 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W10** | 03/05/12 | 81 | 7.64 | 5.9 |
| | 17/05/12 | 117 | 7.97 | 8.3 |
| | 22/05/12 | 129 | 8.18 | 11.4 |
| | 04/06/12 | 165 | 8.1 | 10.3 |
| | 27/06/12 | 129 | 7.99 | 14 |
| | 17/07/12 | 209 | 8.08 | 15.2 |
| | 19/07/12 | 223 | 8.08 | 13.1 |
| | 09/08/12 | 308 | 8.109 | 12.3 |
| | 28/08/12 | 374 | 8.4 | 10.5 |
| | 17/09/12 | 379 | 7.93 | 6.3 |
| | 24/10/12 | 308 | 8.001 | 0.3 |
| | 05/11/12 | 221 | 8.209 | 1.3 |
| | 08/05/13 | 58 | 7.70 | 10.3 |
| | 06/06/13 | 95 | 7.95 | 11.9 |
| | 19/06/13 | 110 | 8.1 | 14.6 |
| | 10/07/13 | 253 | 8.2 | 13.1 |
| | 14/08/13 | 389 | 7.748 | 13.5 |
| | 10/09/13 | 413 | 8.023 | 11.2 |
| | 12/11/13 | 272 | 8.552 | 1.6 |
| **W11** | 10/06/09 | 192 | 7.94 | 15.6 |
| | 16/11/09 | 173 | 8.47 | 1.1 |
| | 11/05/10 | 143 | 7.36 | 9.2 |
| | 05/08/10 | 264 | 8.18 | 13.6 |
| | 23/08/10 | 299 | 8.02 | 10.7 |

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# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W11** | 03/11/10 | 318 | 7.95 | 3.3 |
| | 15/06/11 | 174 | 7.84 | 11.9 |
| | 04/08/11 | 172 | 7.93 | 14.2 |
| | 25/08/11 | 234 | 8.01 | 11.7 |
| | 03/11/11 | 292 | 8.00 | 2.5 |
| | 03/05/12 | 101 | 7.75 | 5.5 |
| | 02/08/12 | 245 | 8.199 | 13.9 |
| | 05/11/12 | 230 | 8.136 | 2.0 |
| | 06/06/13 | 121 | 8.02 | 11.6 |
| | 14/08/13 | 291 | 8.312 | 16.5 |
| | 12/11/13 | 286 | 8.241 | 1.7 |
| **W12** | 09/02/09 | 117 | 7.39 | 0.1 |
| | 02/06/09 | 139 | 7.47 | 13.1 |
| | 12/08/09 | 238 | 7.69 | 14.1 |
| | 10/11/09 | 170 | 8.06 | 0.8 |
| | 11/02/10 | 70 | 7.83 | 0.1 |
| | 11/05/10 | 120 | 7.66 | 7 |
| | 04/08/10 | 220 | 7.44 | 15.6 |
| | 03/11/10 | 182 | 7.62 | 2 |
| | 01/02/11 | 197 | 7.25 | 0.1 |
| | 12/05/11 | 97 | 6.91 | 2.3 |
| | 04/08/11 | 193 | 7.6 | 13.2 |
| | 20/09/11 | 215 | 7.62 | 6.2 |
| | 02/11/11 | 224 | 7.91 | 1.4 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W12** | 01/02/12 | 132 | | 0 |
| | 03/05/12 | 118 | | 4.3 |
| | 09/05/12 | 130 | 7.58 | 8 |
| | 25/05/12 | 154 | 7.62 | 9.7 |
| | 06/06/12 | 159 | 7.74 | 10.6 |
| | 15/06/12 | 149 | 7.55 | 10.8 |
| | 27/06/12 | 164 | 7.6 | 15.3 |
| | 05/07/12 | 159 | 7.56 | 12.5 |
| | 11/07/12 | 181 | 7.62 | 17.5 |
| | 17/07/12 | 203 | 7.71 | 18.4 |
| | 26/07/12 | 215 | 7.65 | 16.5 |
| | 30/07/12 | 219 | 7.69 | 17.7 |
| | 01/08/12 | 234 | 7.961 | 14.8 |
| | 09/08/12 | 236 | 7.774 | 18.3 |
| | 16/08/12 | 240 | 8.004 | 12.3 |
| | 21/08/12 | 246 | 7.471 | 14.2 |
| | 30/08/12 | 259 | 7.9 | 11.1 |
| | 06/09/12 | 253 | 8.038 | 9.6 |
| | 11/09/12 | 257 | 8.0 | 9.5 |
| | 19/09/12 | 254 | 7.41 | 6.3 |
| | 26/09/12 | 250 | 7.23 | 7.7 |
| | 01/10/12 | 259 | 8.1 | 7.9 |
| | 24/10/12 | 245 | 7.580 | 0.2 |
| | 05/11/12 | 202 | 7.680 | 0.7 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Surface Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **W12** | 07/02/13 | 222 | 7.873 | 0.3 |
| | 16/04/13 | 120.2 | 7.992 | 2.5 |
| | 30/04/13 | 117.7 | 8.363 | 3.7 |
| | 02/05/13 | 119 | 7.38 | 3.8 |
| | 28/05/13 | 117 | 7.49 | 15.0 |
| | 10/06/13 | 126 | 7.68 | 15.2 |
| | 26/06/13 | 140 | 7.61 | 15.1 |
| | 09/07/13 | 174 | 7.33 | 15.7 |
| | 25/07/13 | 230 | 7.763 | 17.6 |
| | 06/08/13 | 236 | 7.5 | 16.1 |
| | 08/08/13 | 209 | 7.27 | 18.2 |
| | 19/08/13 | 241 | 7.67 | 16 |
| | 18/09/13 | 214 | 7.724 | 8.7 |
| | 07/11/13 | 215 | 7.994 | 0.2 |
| **HD-1 us** | 24/09/13 | 209 | 8.069 | 8.7 |
| | 01/10/13 | 216 | 7.916 | 7 |
| | 10/10/13 | 120 | 8.14 | 4.2 |
| | 17/10/13 | 127 | 8.1 | 4.6 |
| | 22/10/13 | 218 | 8.005 | 3.6 |
| | 29/10/13 | 221 | 7.996 | 0.3 |

**Printed Date:** 3/25/2014

# Water Quality Report

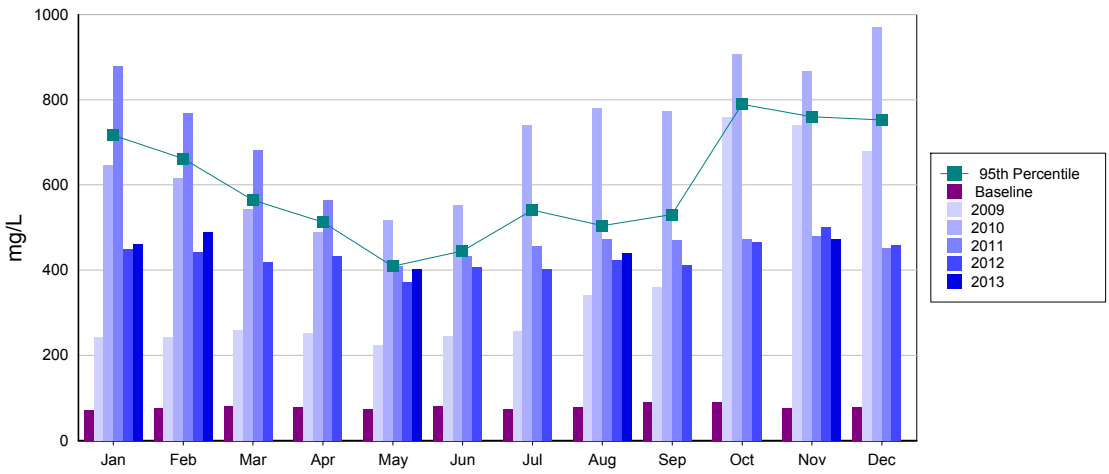
## 2013 Effluent Water Quality Graphs

**Mount Polley**

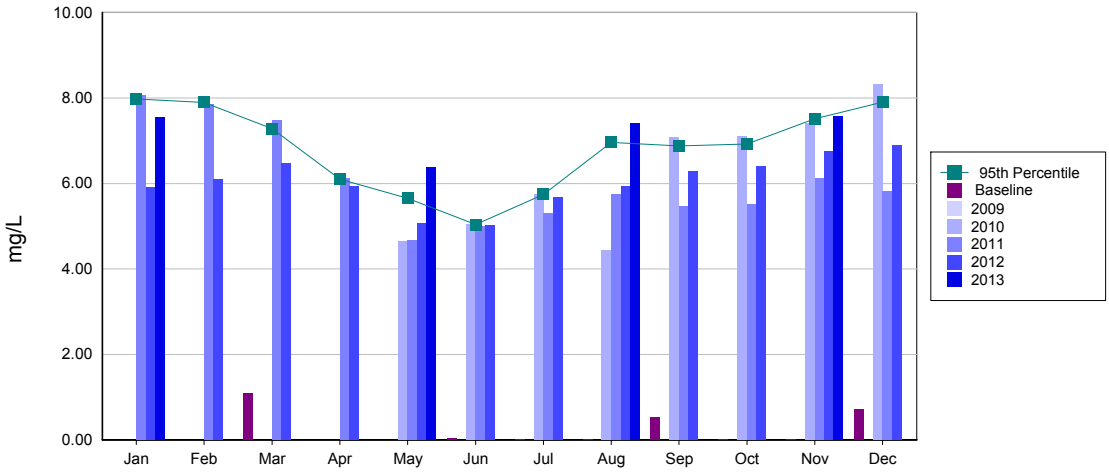
**Mining Corporation**

IMPERIAL METALS CORPORATION

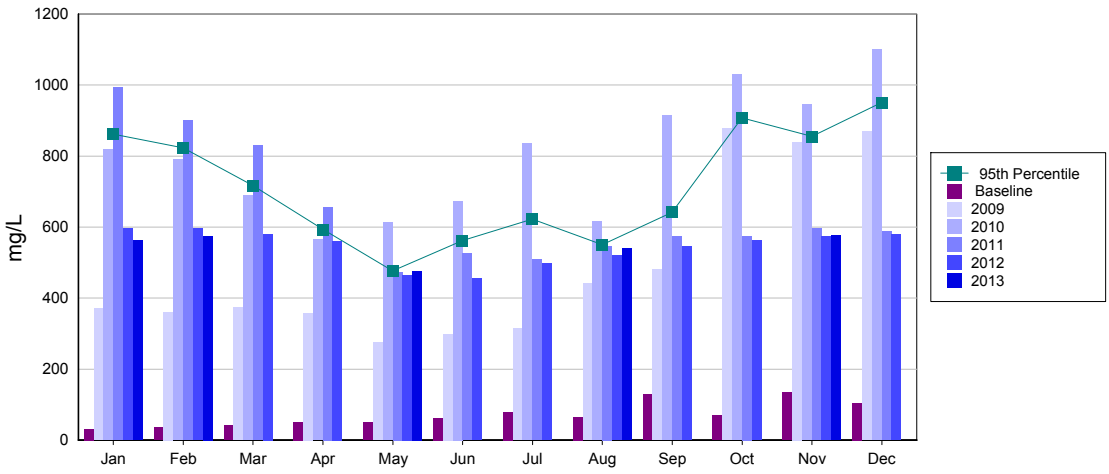
### E1 - Tailings Impoundment Supernatant : Hardness (mg/L)




### E1 - Tailings Impoundment Supernatant : Nitrate and Nitrite (mg/L)




### E1 - Tailings Impoundment Supernatant : Sulphate (mg/L)

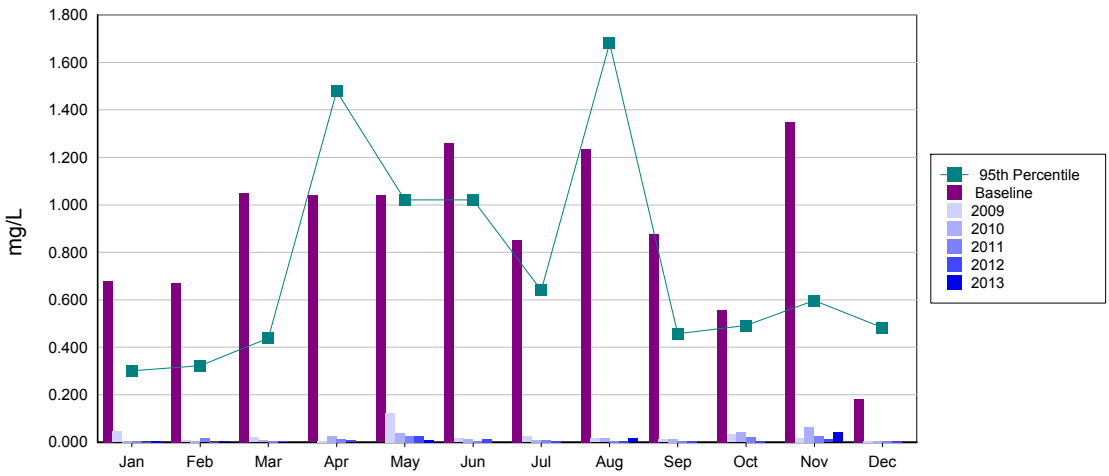


# Water Quality Report

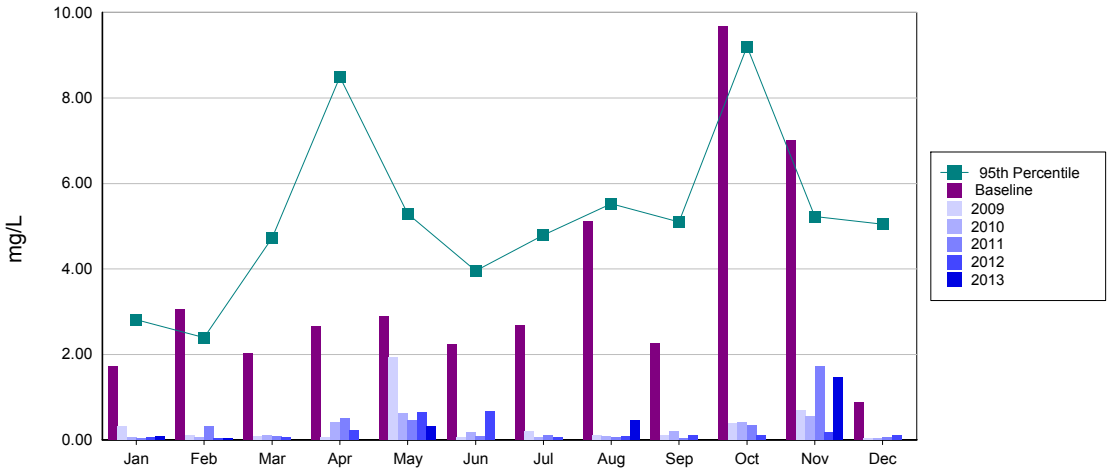
## 2013 Effluent Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

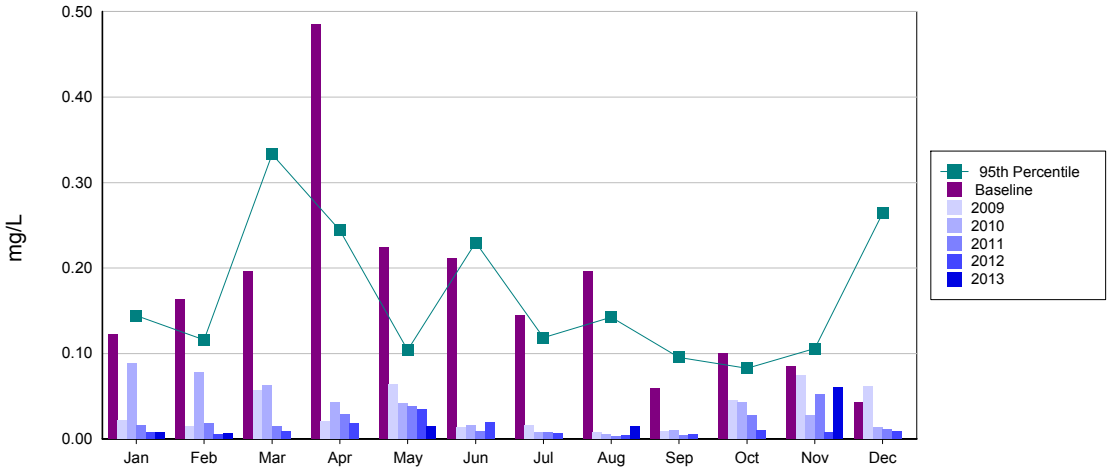
### E1 - Tailings Impoundment Supernatant : Total Copper (mg/L)




### E1 - Tailings Impoundment Supernatant : Total Iron (mg/L)




### E1 - Tailings Impoundment Supernatant : Total Phosphorus (mg/L)



# Water Quality Report

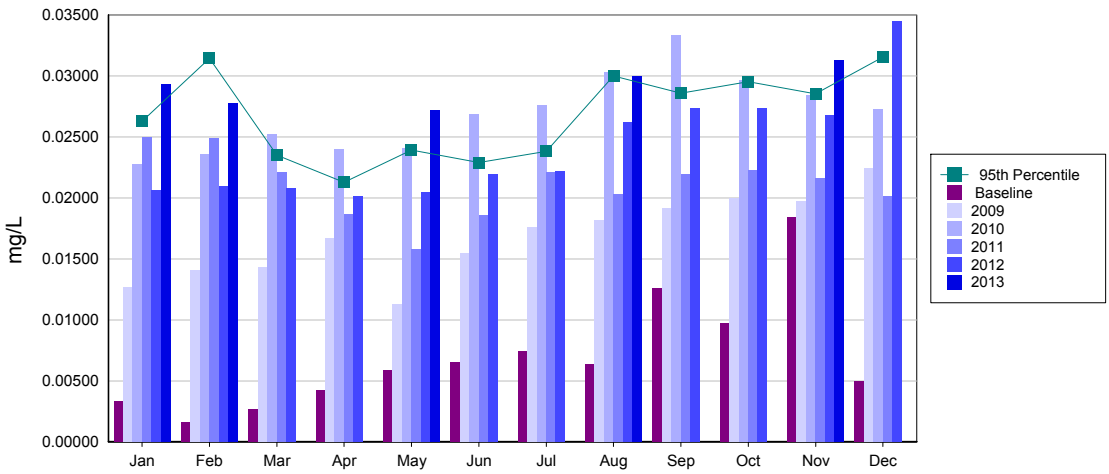
## 2013 Effluent Water Quality Graphs

**Mount Polley**

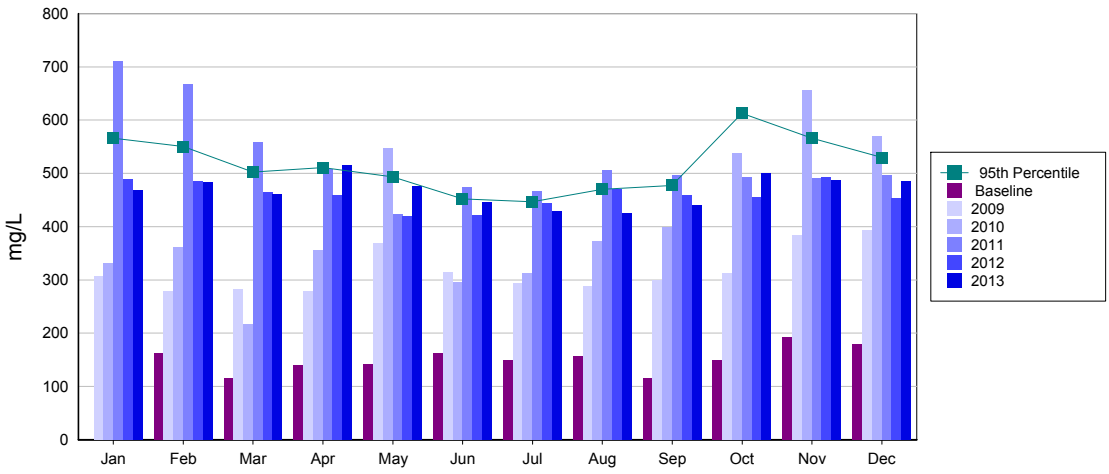
**Mining Corporation**

IMPERIAL METALS CORPORATION

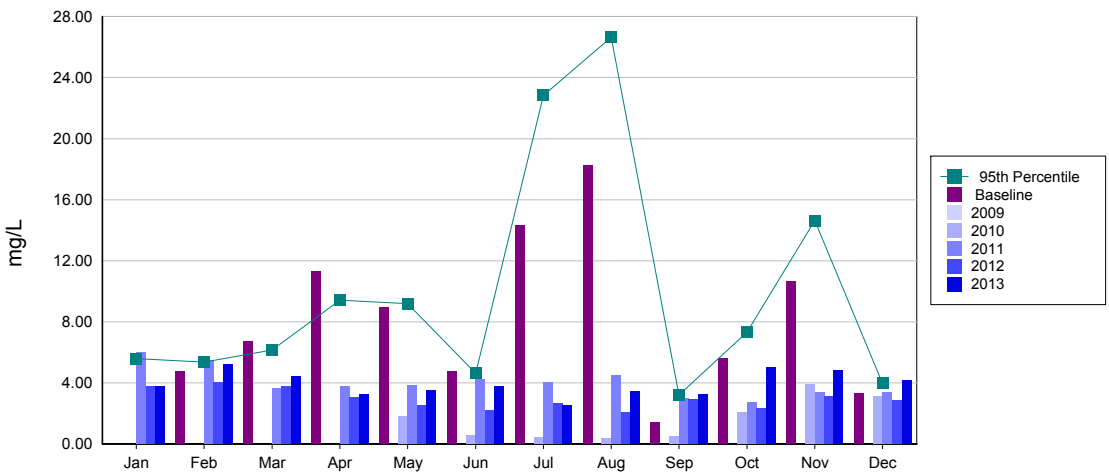
### E1 - Tailings Impoundment Supernatant : Total Selenium (mg/L)




### E4 - Main Embankment Seepage Pond : Hardness (mg/L)




### E4 - Main Embankment Seepage Pond : Nitrate and Nitrite (mg/L)



# Water Quality Report

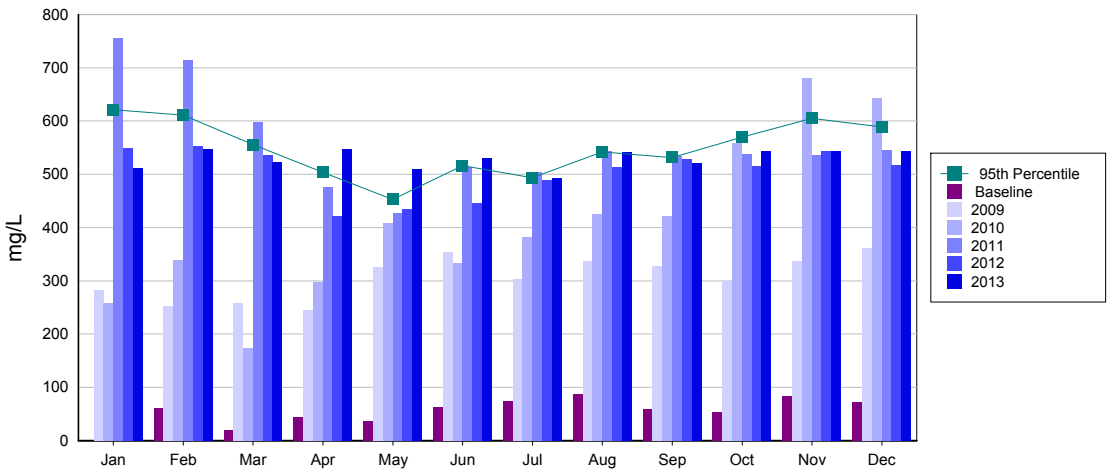
## 2013 Effluent Water Quality Graphs

**Mount Polley**

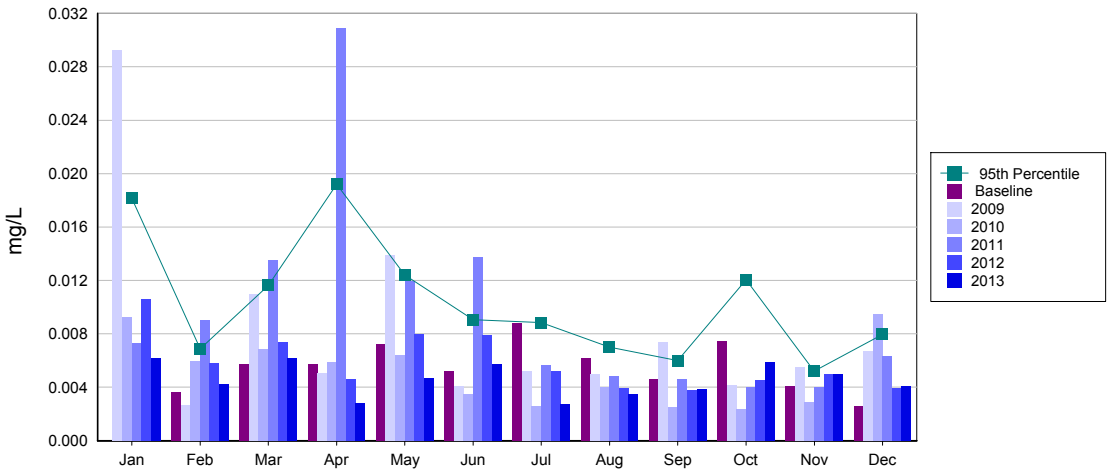
**Mining Corporation**

IMPERIAL METALS CORPORATION

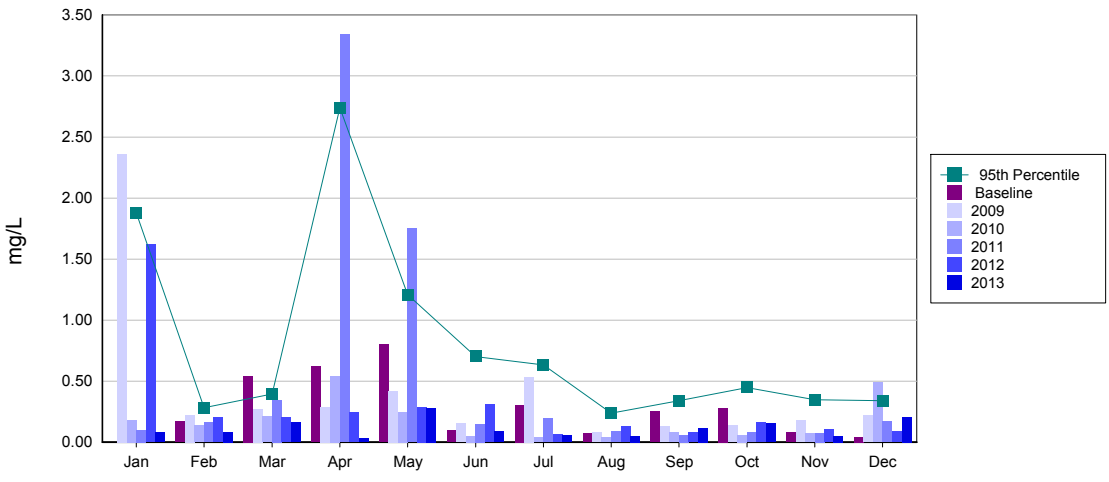
### E4 - Main Embankment Seepage Pond : Sulphate (mg/L)




### E4 - Main Embankment Seepage Pond : Total Copper (mg/L)




### E4 - Main Embankment Seepage Pond : Total Iron (mg/L)



# Water Quality Report

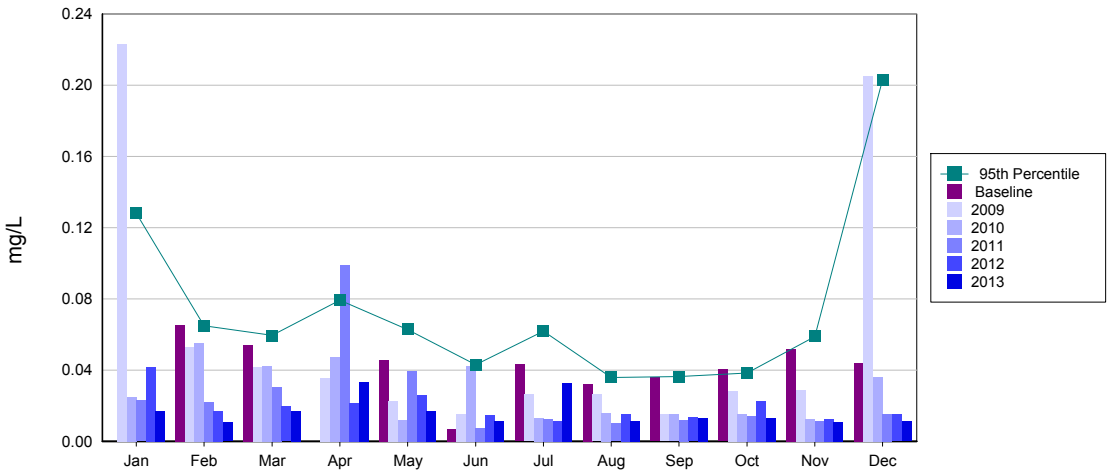
## 2013 Effluent Water Quality Graphs

**Mount Polley**

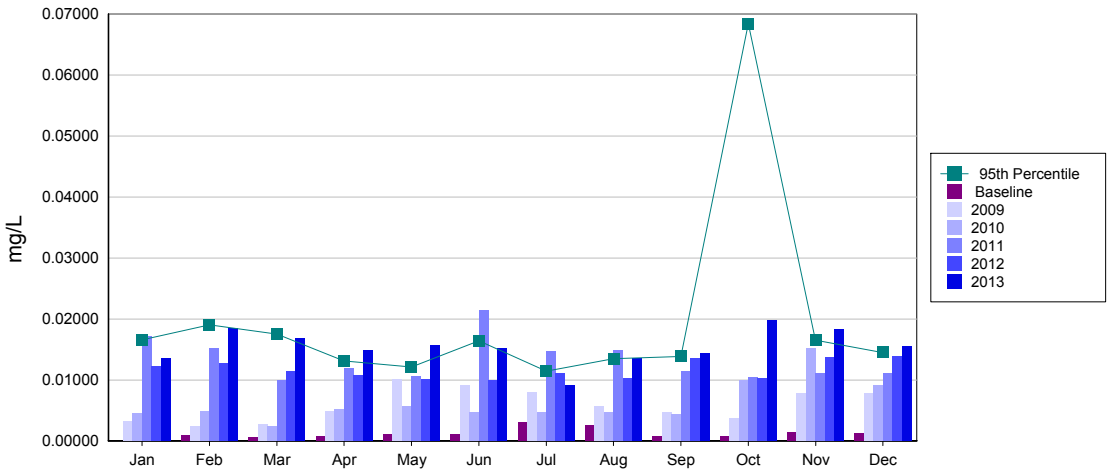
**Mining Corporation**

IMPERIAL METALS CORPORATION

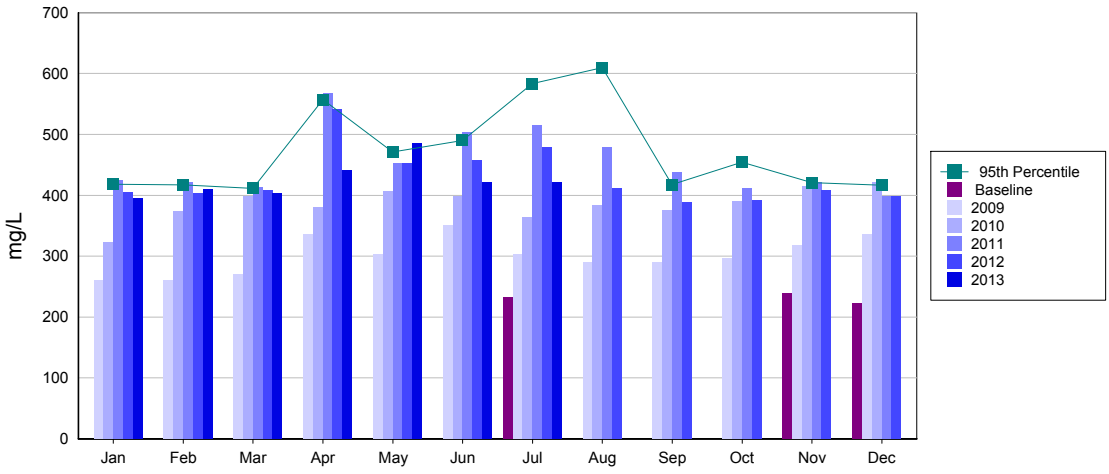
### E4 - Main Embankment Seepage Pond : Total Phosphorus (mg/L)




### E4 - Main Embankment Seepage Pond : Total Selenium (mg/L)




### E5 - Tailings Impoundment Main Embank Drain Comp : Hardness (mg/L)

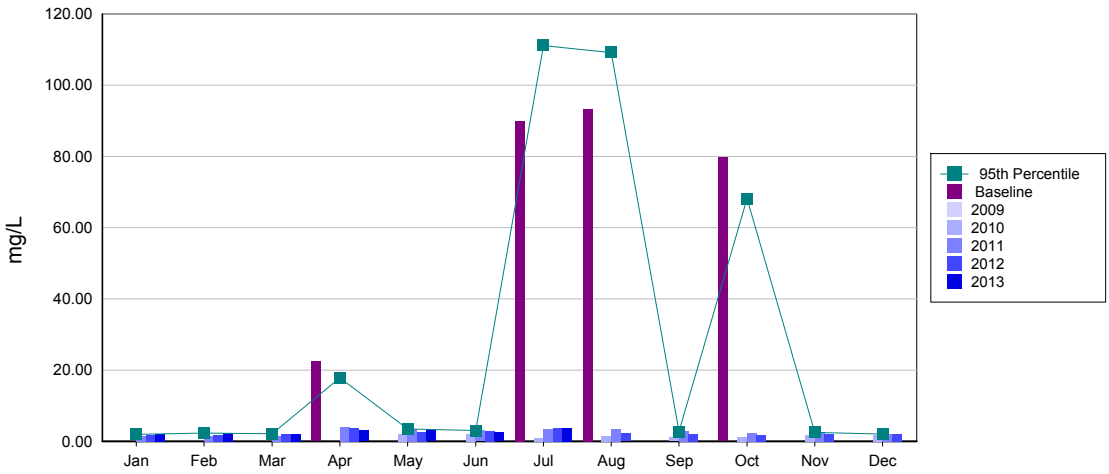


# Water Quality Report

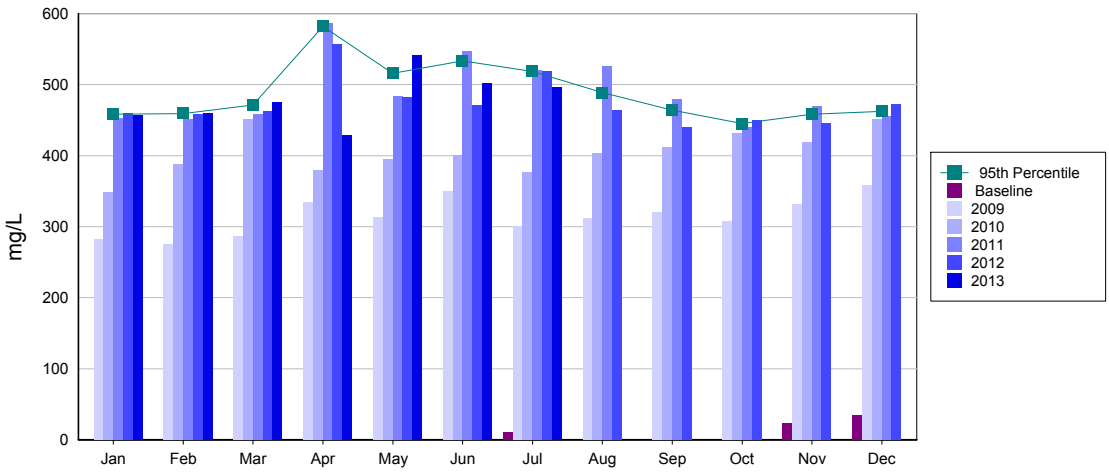
## 2013 Effluent Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

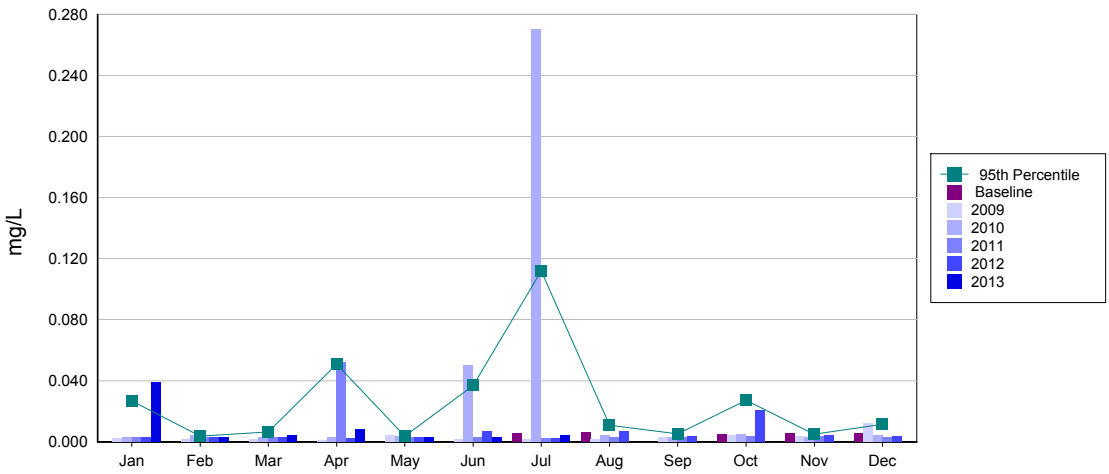
### E5 - Tailings Impoundment Main Embank Drain Comp : Nitrate and Nitrite (mg/L)




### E5 - Tailings Impoundment Main Embank Drain Comp : Sulphate (mg/L)




### E5 - Tailings Impoundment Main Embank Drain Comp : Total Copper (mg/L)



# Water Quality Report

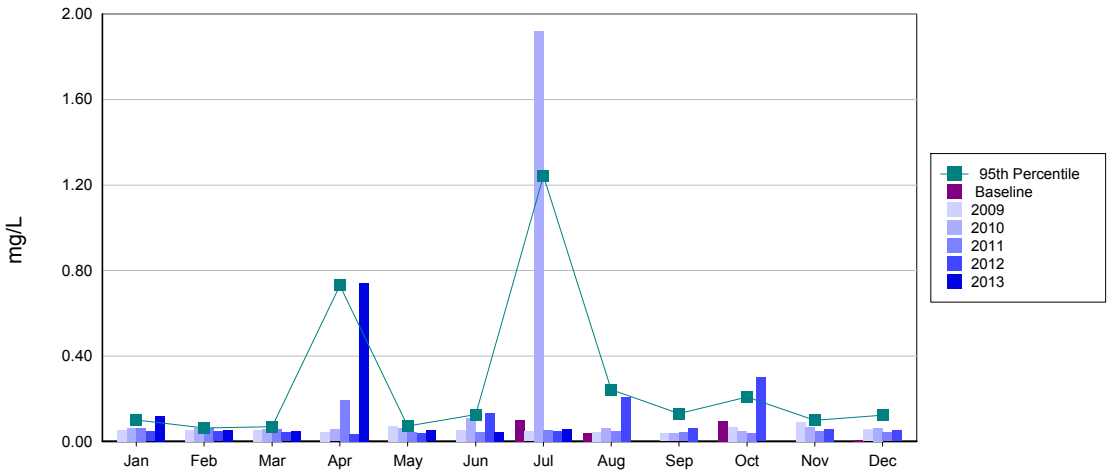
## 2013 Effluent Water Quality Graphs

**Mount Polley**

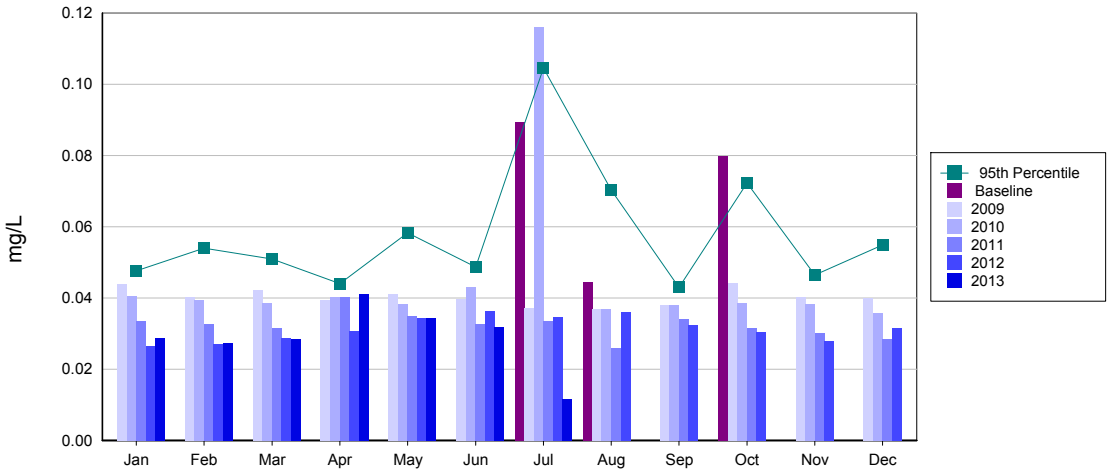
**Mining Corporation**

IMPERIAL METALS CORPORATION

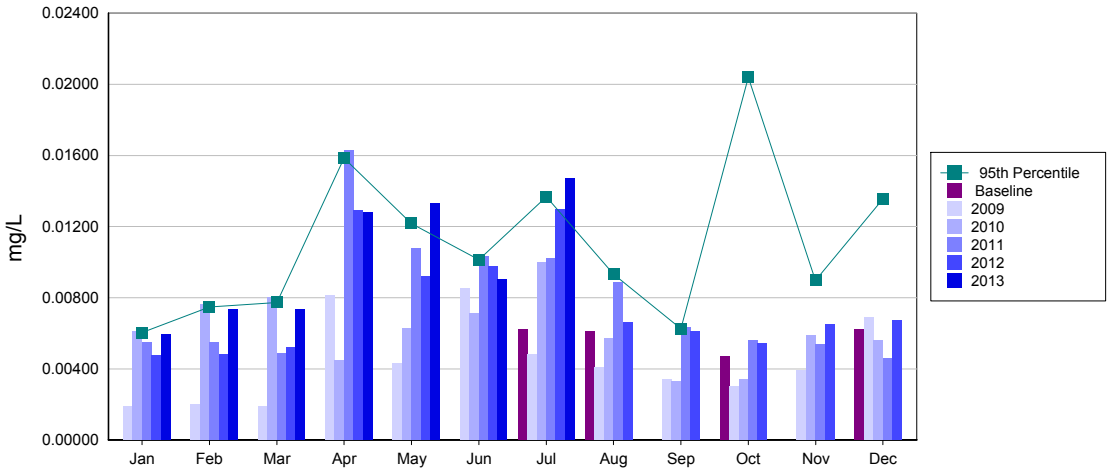
### E5 - Tailings Impoundment Main Embank Drain Comp : Total Iron (mg/L)




### E5 - Tailings Impoundment Main Embank Drain Comp : Total Phosphorus (mg/L)




### E5 - Tailings Impoundment Main Embank Drain Comp : Total Selenium (mg/L)

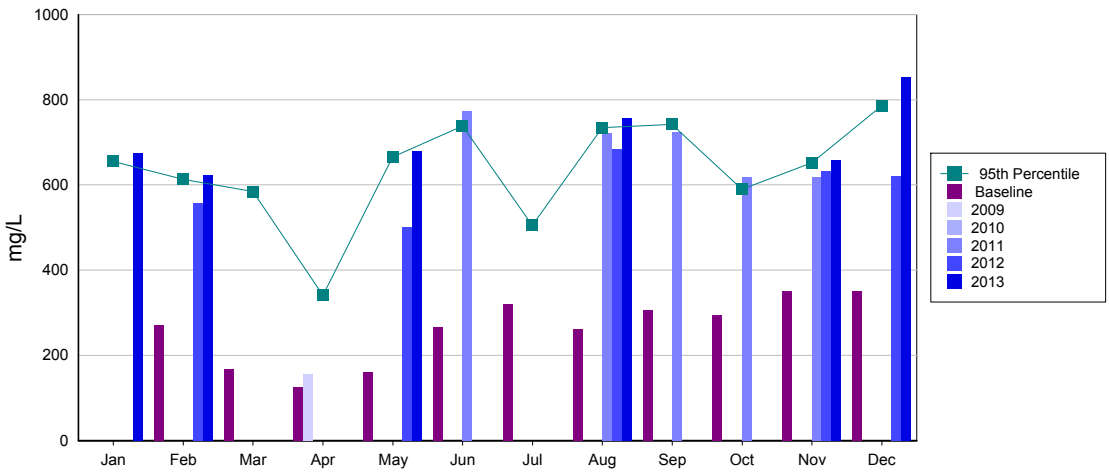


# Water Quality Report

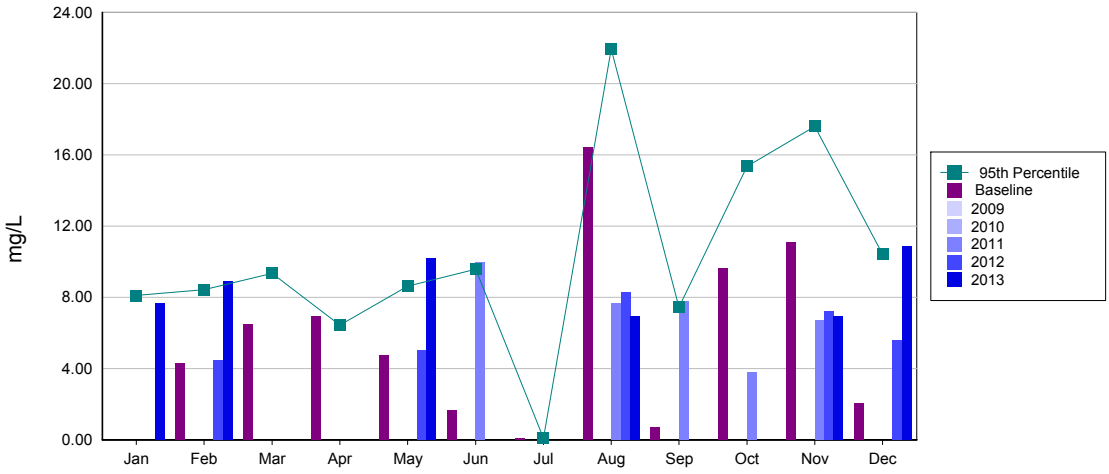
## 2013 Effluent Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

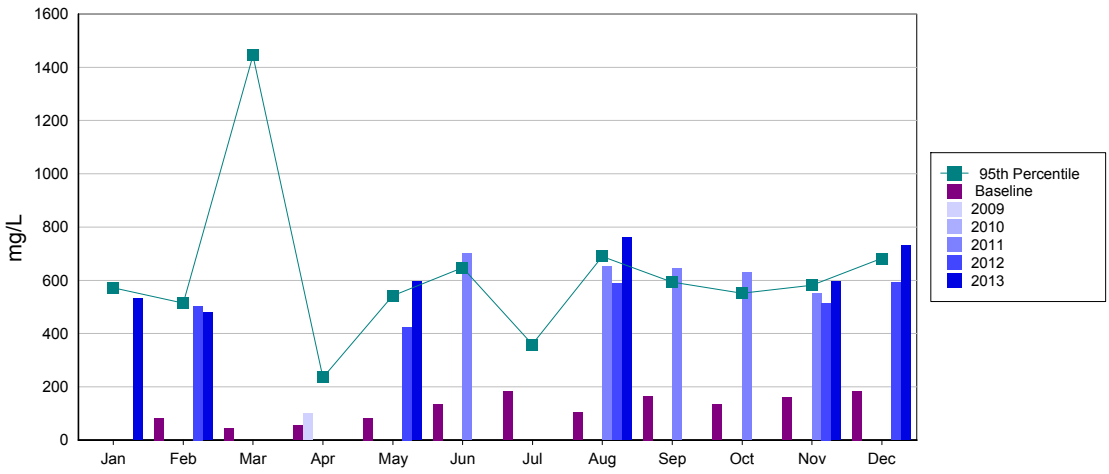
### E7 - Perimeter Pond : Hardness (mg/L)




### E7 - Perimeter Pond : Nitrate and Nitrite (mg/L)




### E7 - Perimeter Pond : Sulphate (mg/L)



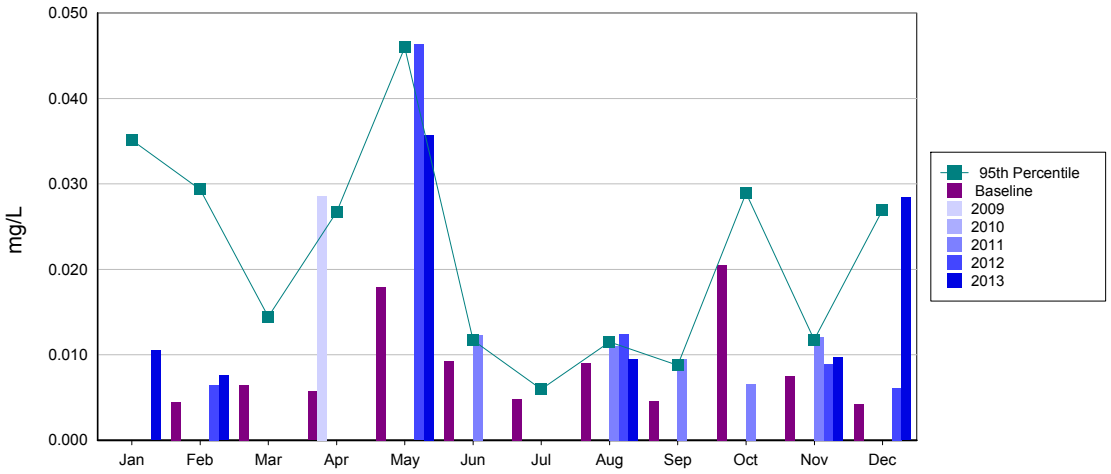
# Water Quality Report

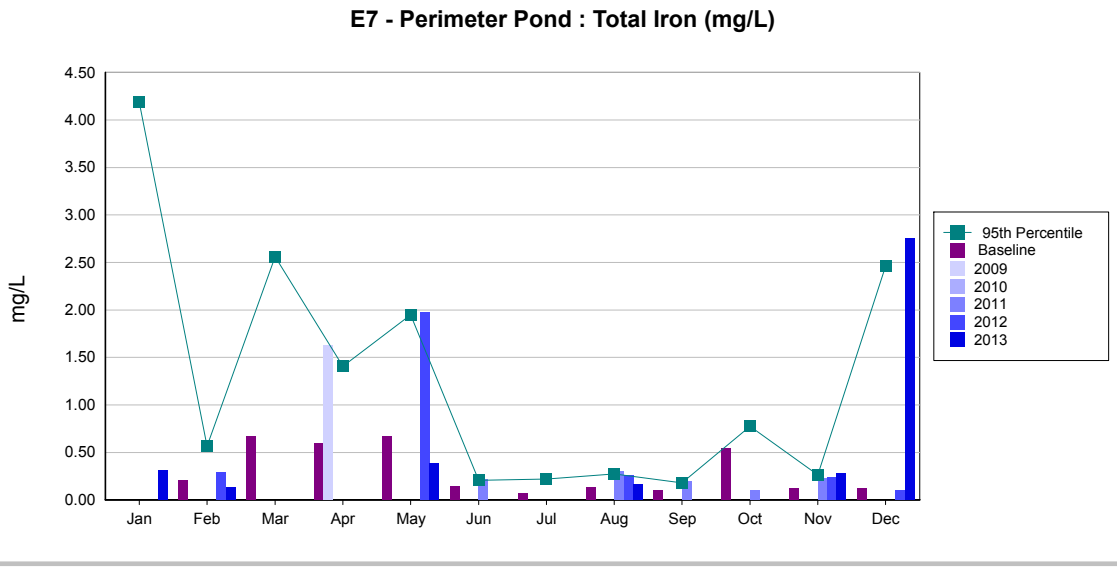
## 2013 Effluent Water Quality Graphs

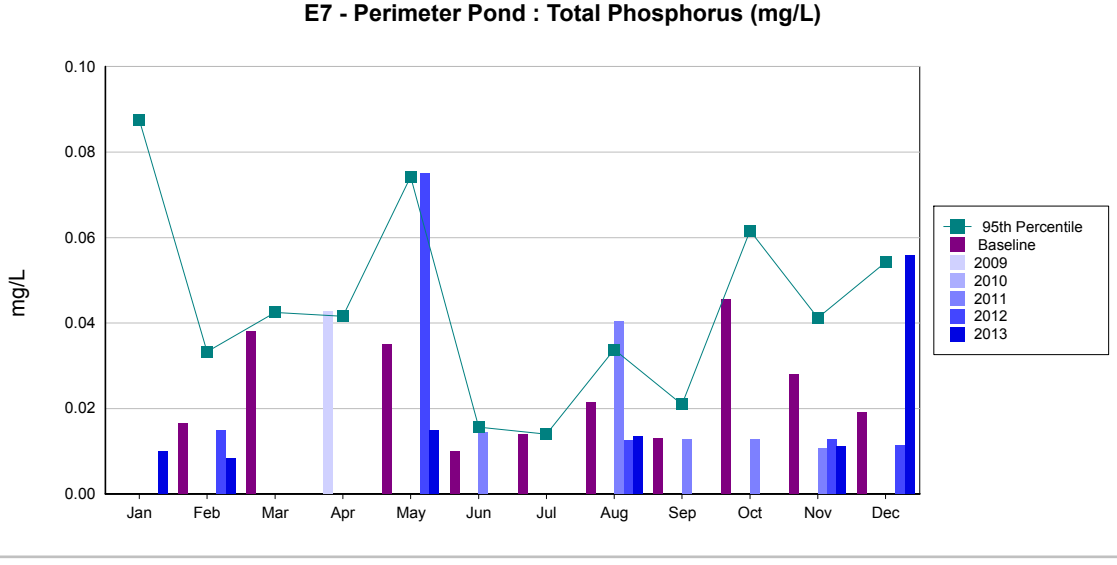
**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION



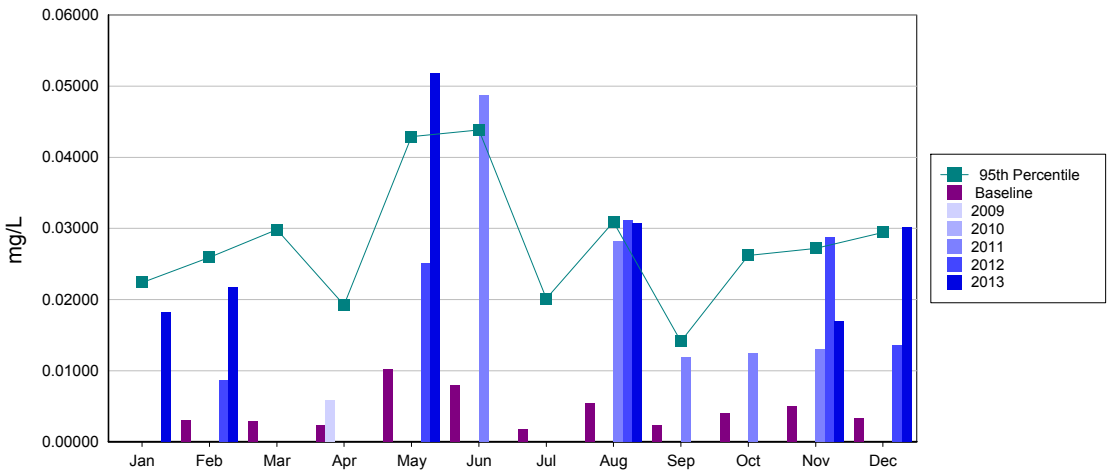



# Water Quality Report

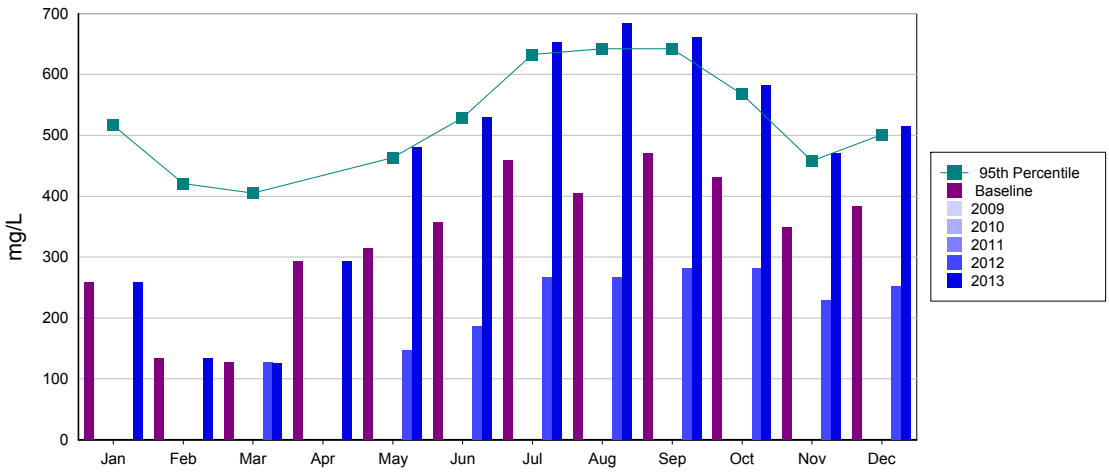
## 2013 Effluent Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

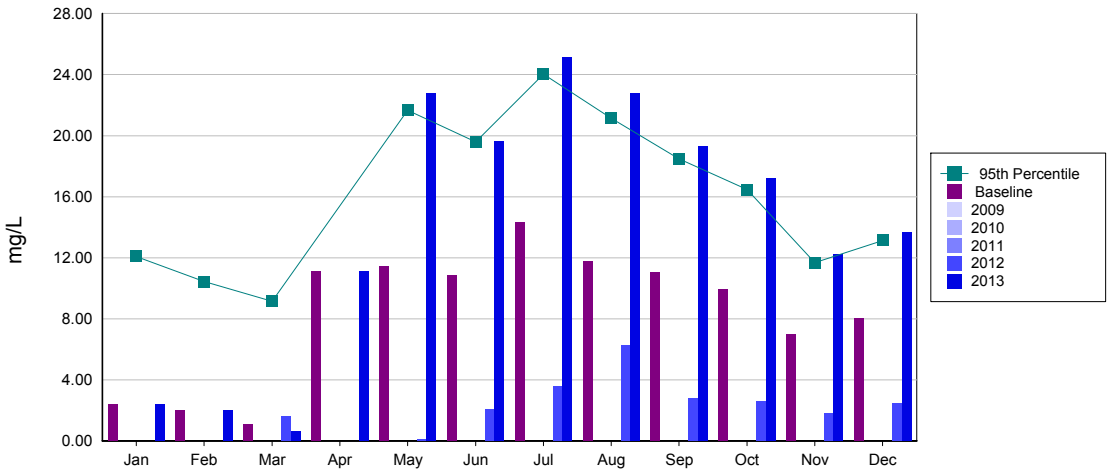
### E7 - Perimeter Pond : Total Selenium (mg/L)




### E13 - NW Sump : Hardness (mg/L)




### E13 - NW Sump : Nitrate and Nitrite (mg/L)



# Water Quality Report

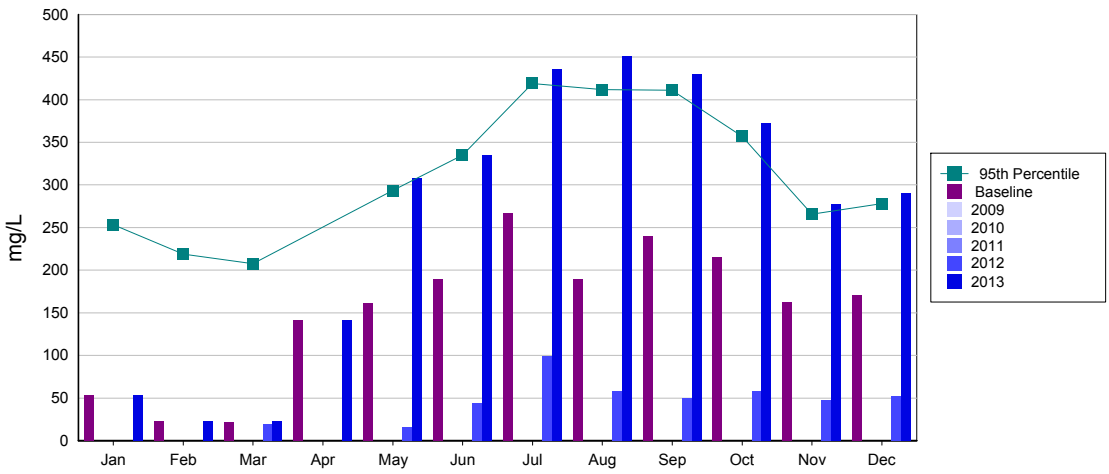
## 2013 Effluent Water Quality Graphs

Mount Polley

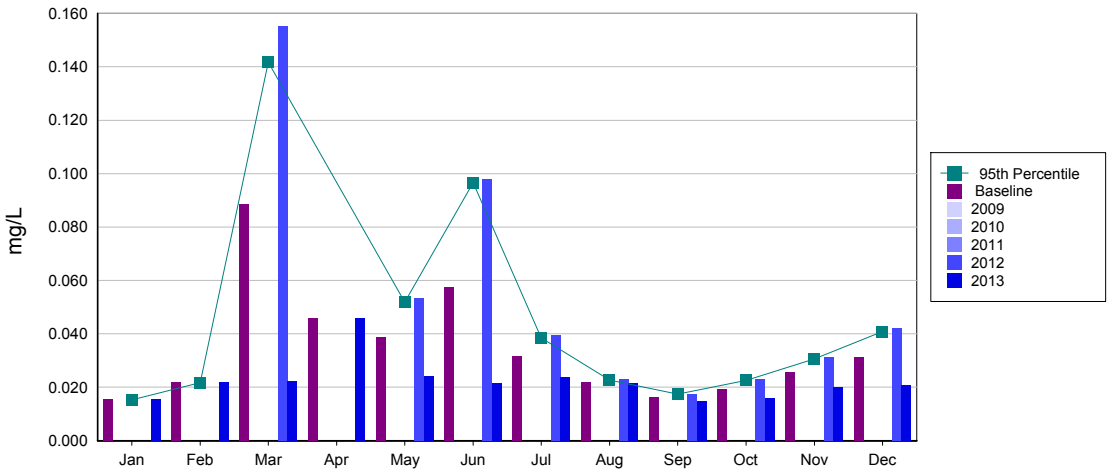
Mining Corporation

IMPERIAL METALS CORPORATION

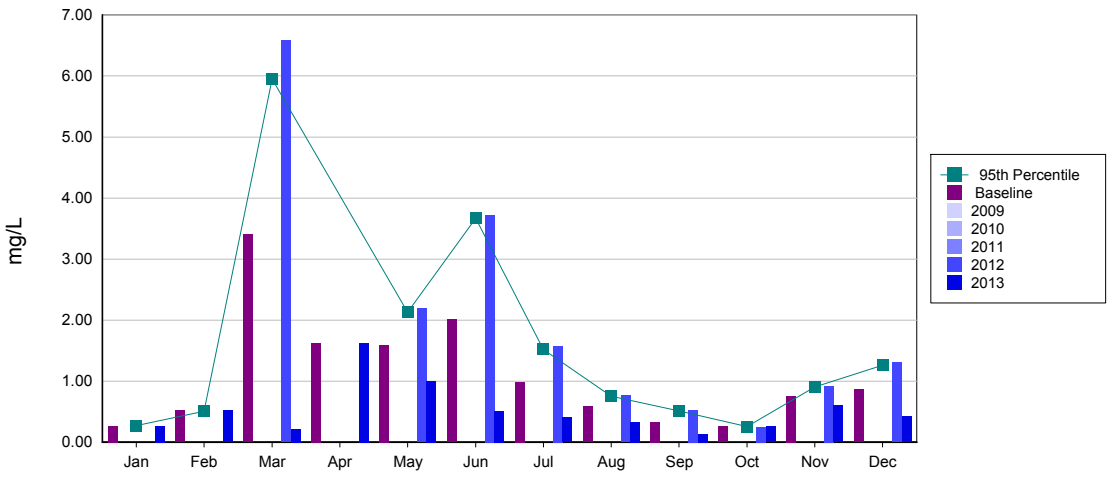
### E13 - NW Sump : Sulphate (mg/L)




### E13 - NW Sump : Total Copper (mg/L)




### E13 - NW Sump : Total Iron (mg/L)

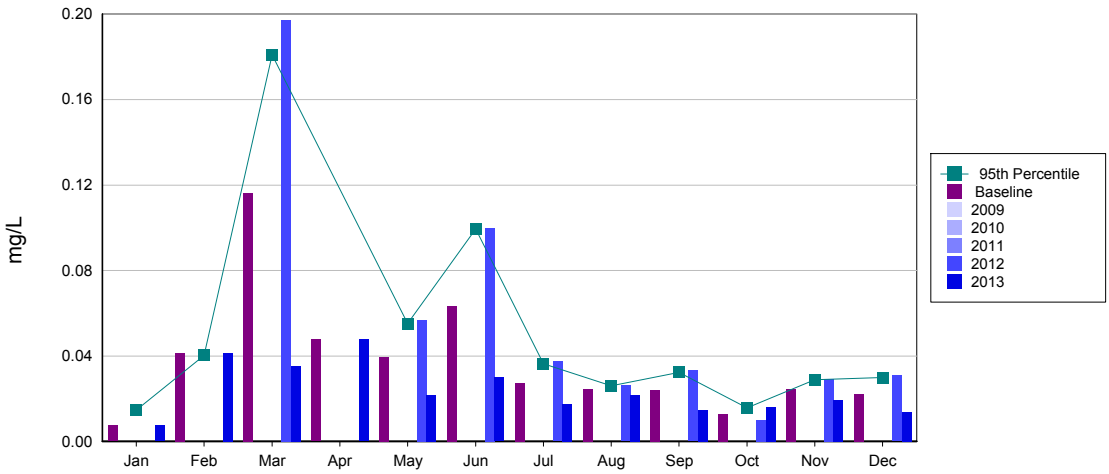


# Water Quality Report

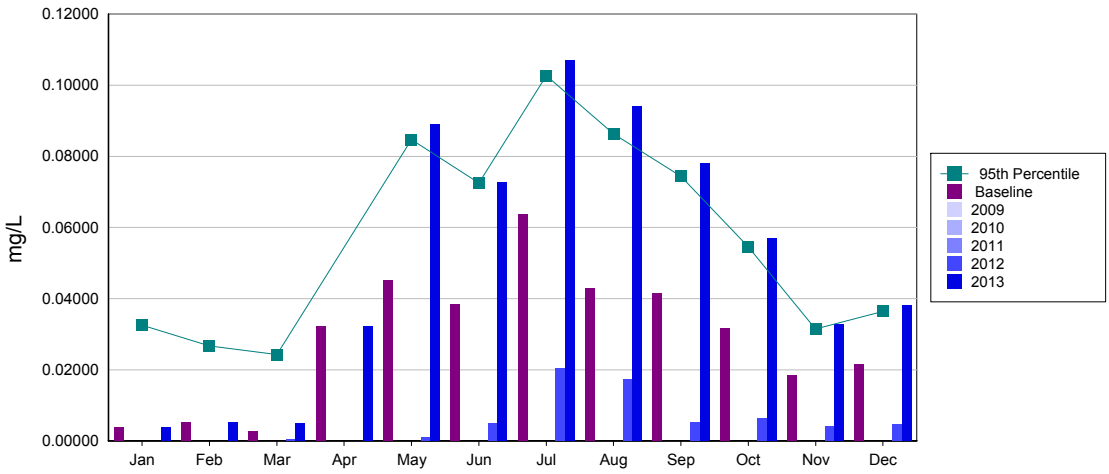
## 2013 Effluent Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

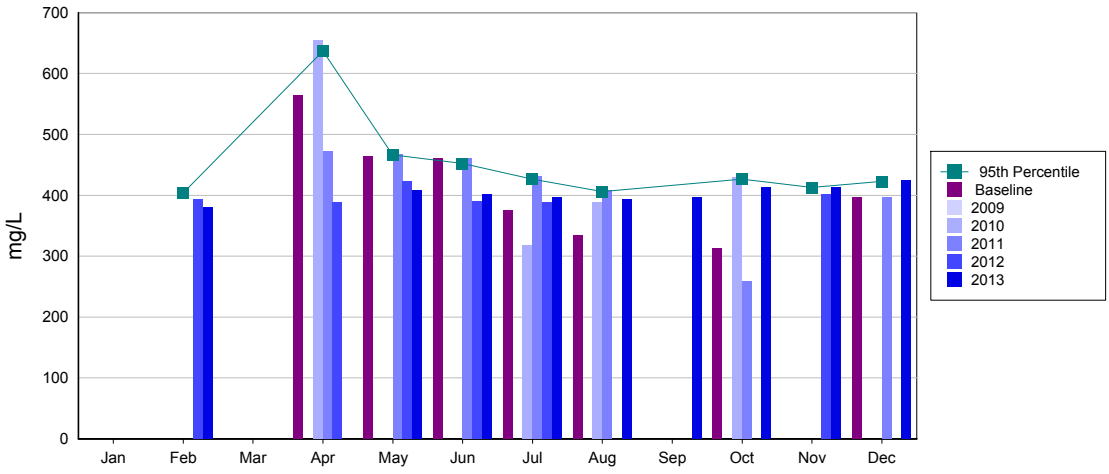
### E13 - NW Sump : Total Phosphorus (mg/L)




### E13 - NW Sump : Total Selenium (mg/L)




### East Main Toe Drain : Hardness (mg/L)



# Water Quality Report

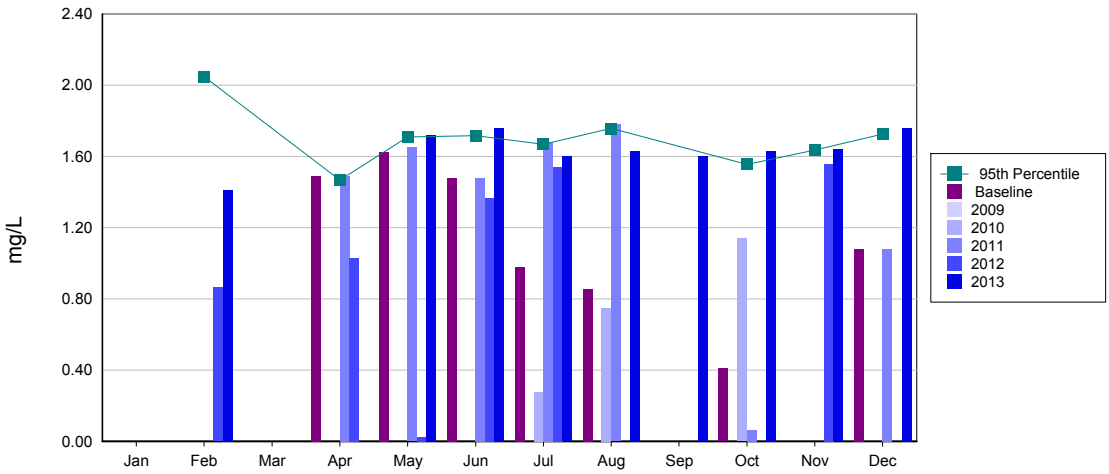
## 2013 Effluent Water Quality Graphs

**Mount Polley**

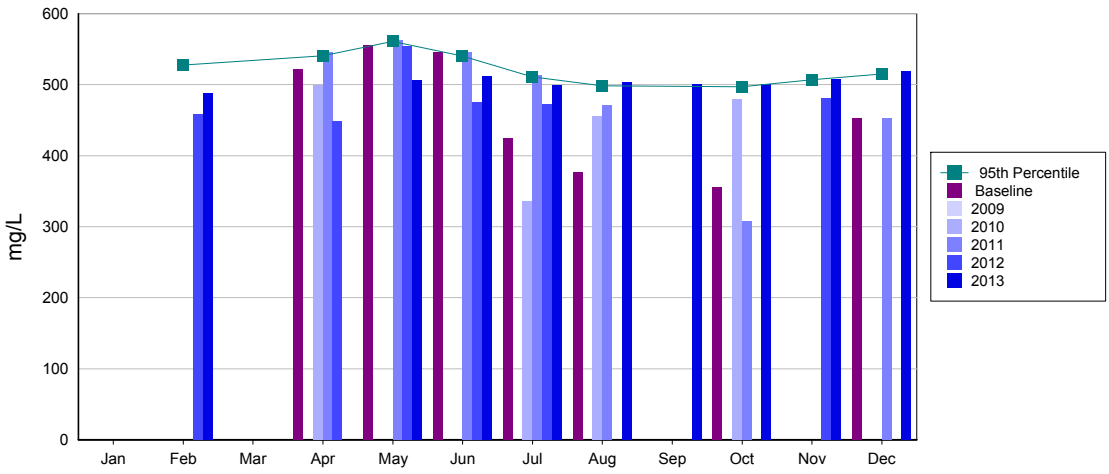
**Mining Corporation**

IMPERIAL METALS CORPORATION

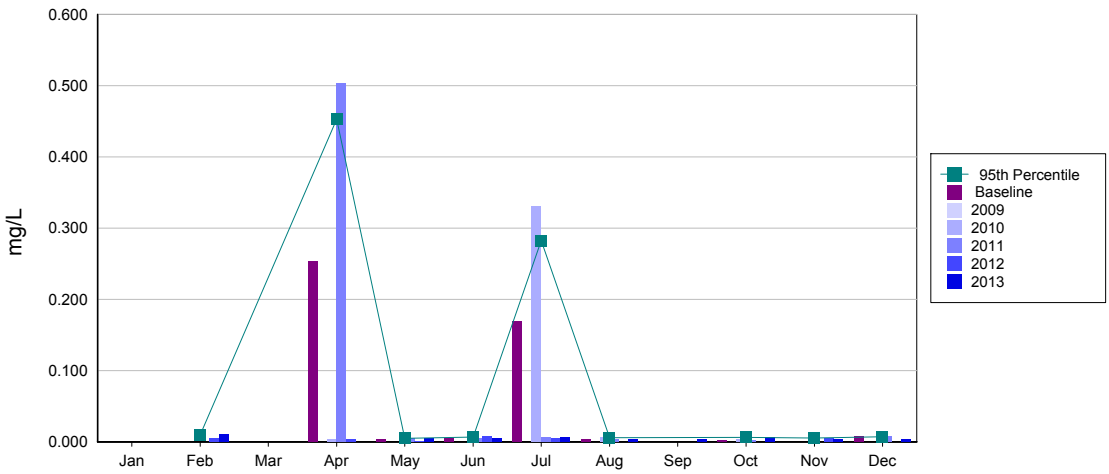
### East Main Toe Drain : Nitrate and Nitrite (mg/L)




### East Main Toe Drain : Sulphate (mg/L)




### East Main Toe Drain : Total Copper (mg/L)



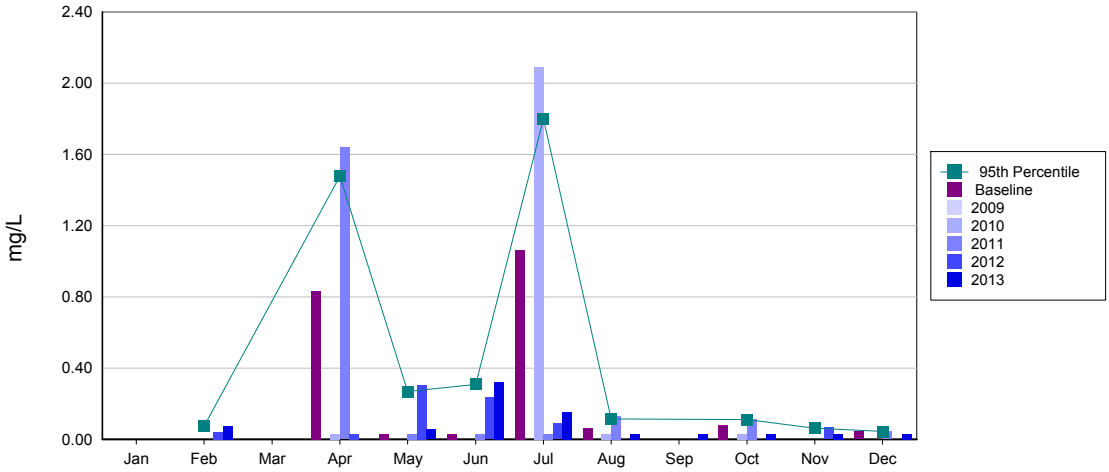
# Water Quality Report

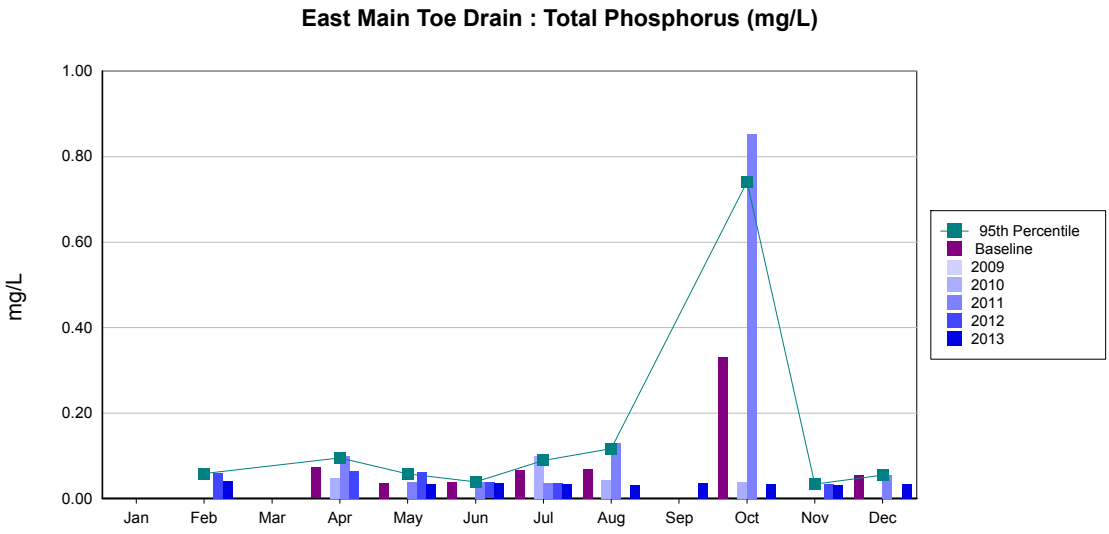
## 2013 Effluent Water Quality Graphs

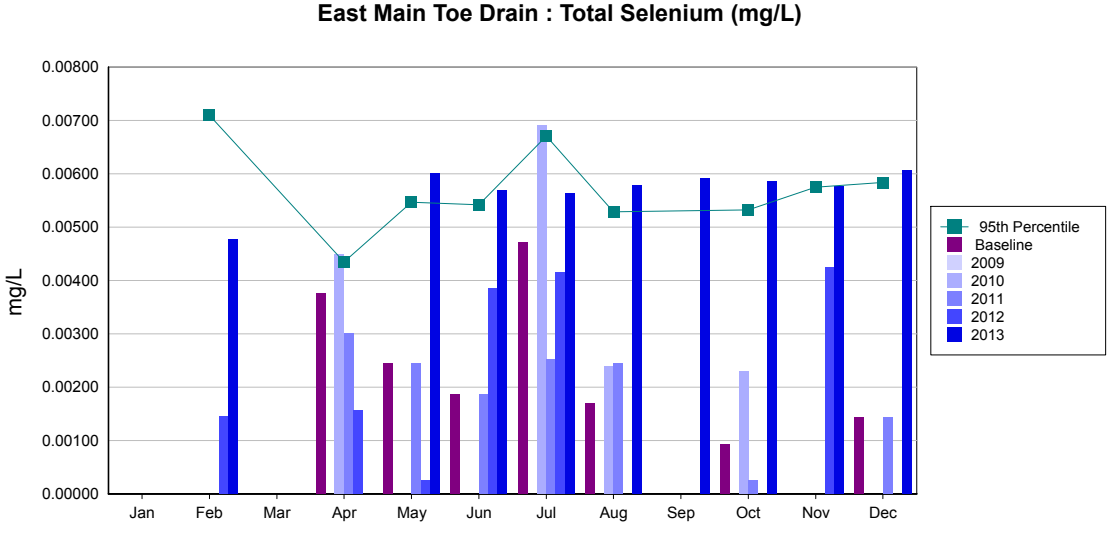
**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION



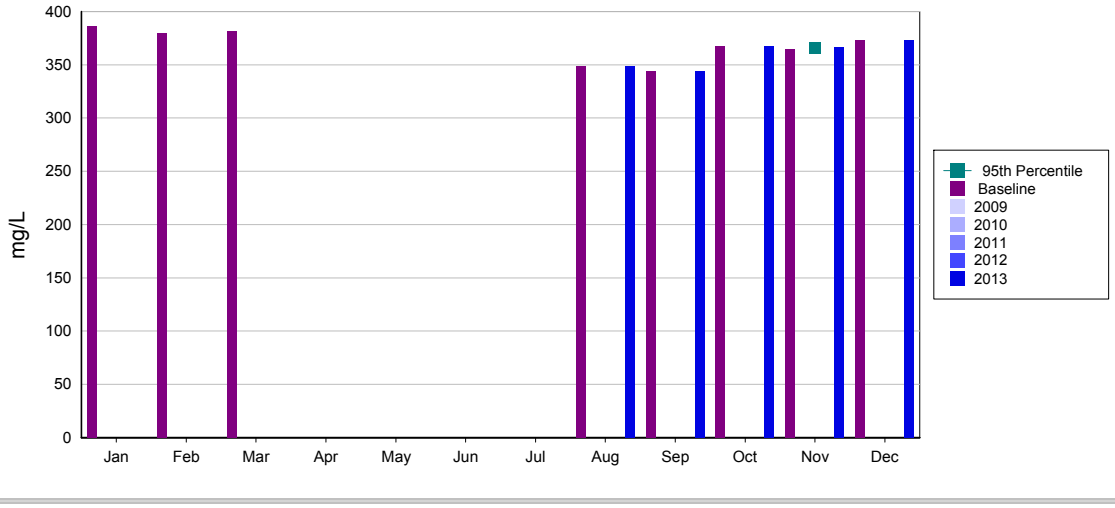
# Water Quality Report

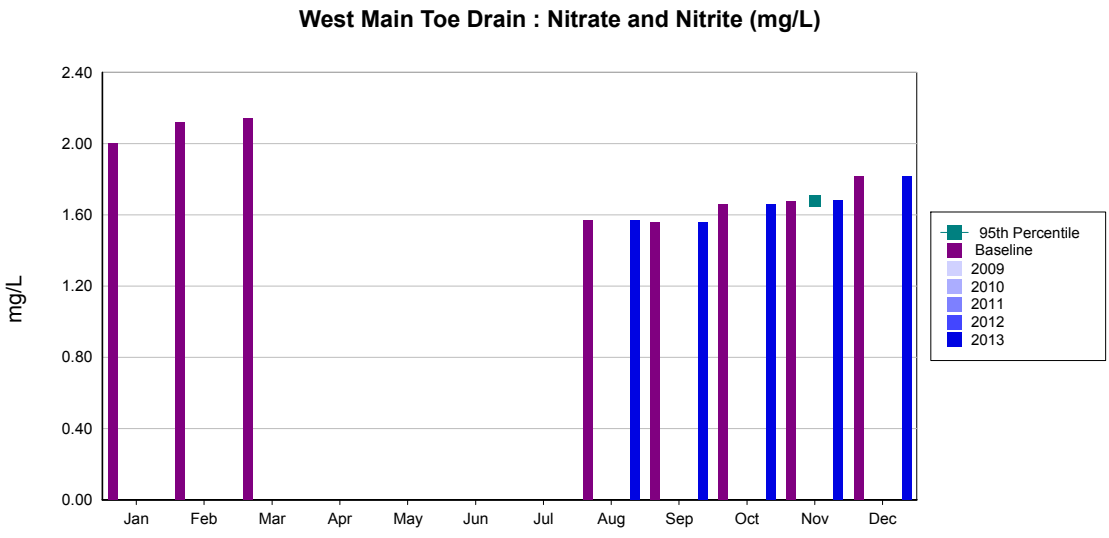
## 2013 Effluent Water Quality Graphs

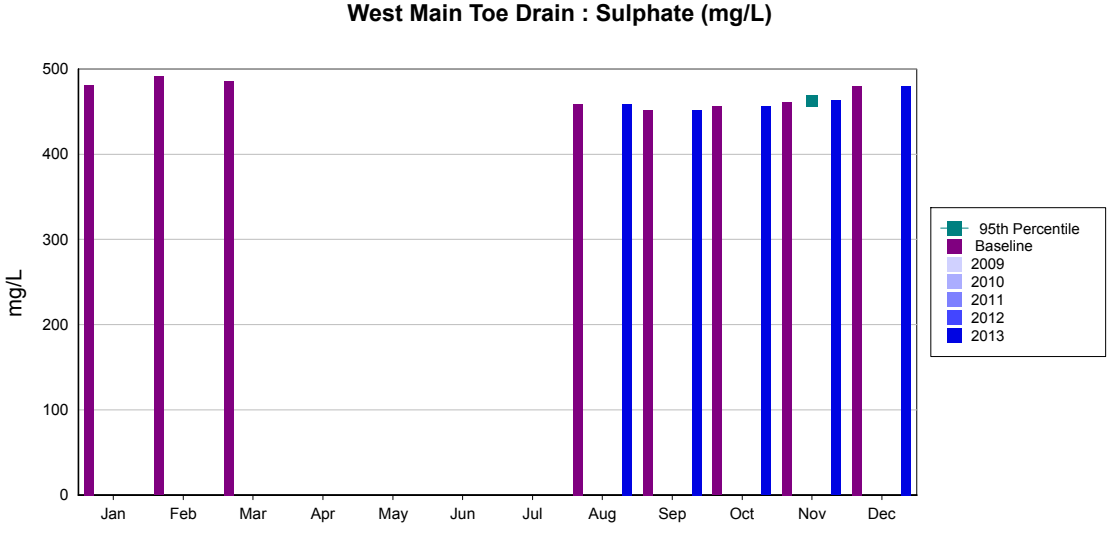
Mount Polley

Mining Corporation

IMPERIAL METALS CORPORATION



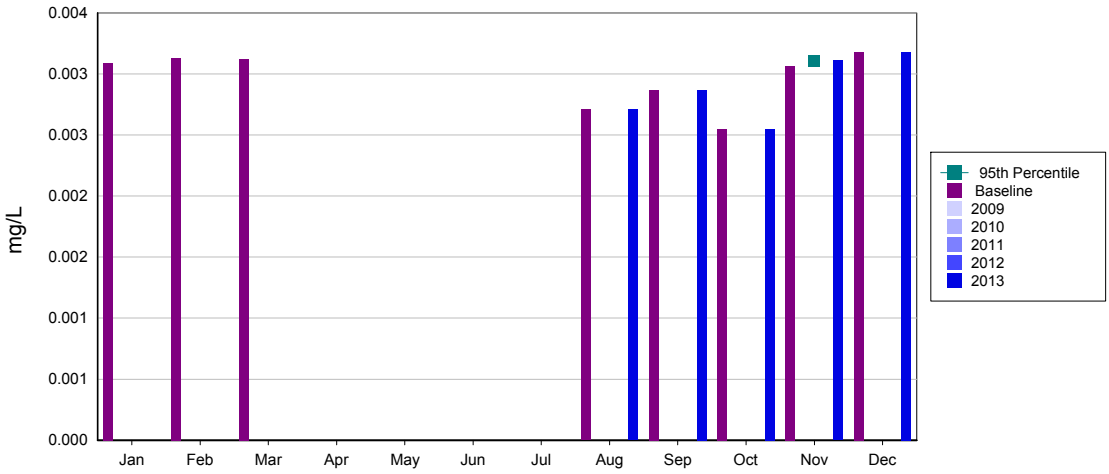



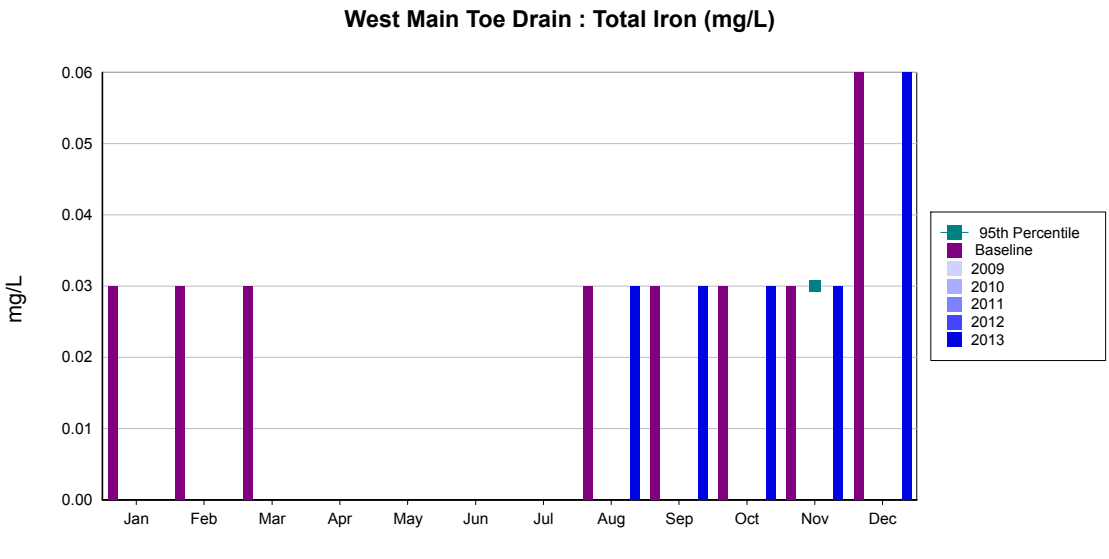



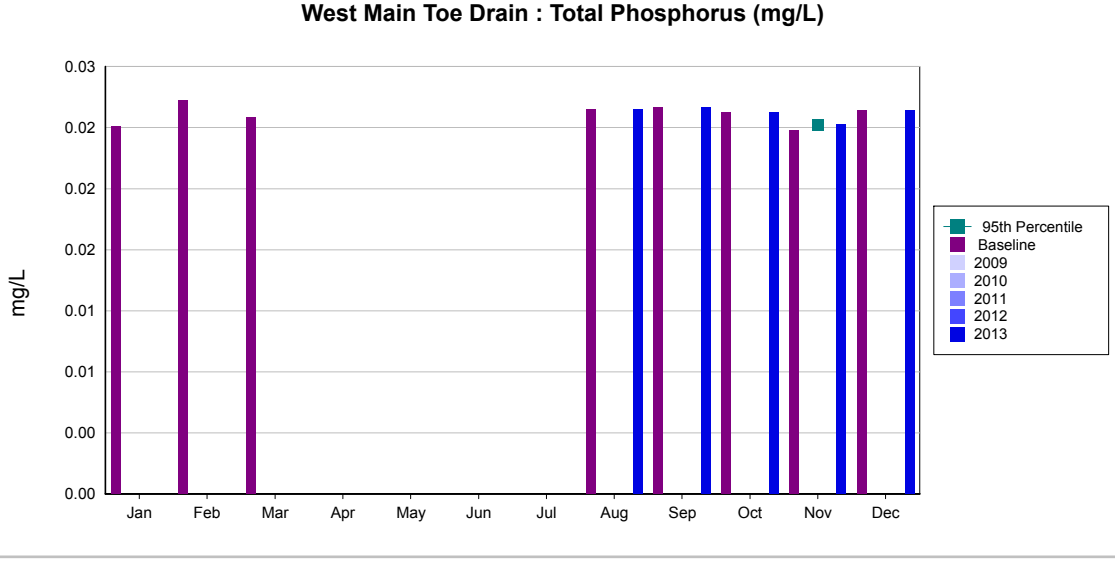
# Water Quality Report

## 2013 Effluent Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION



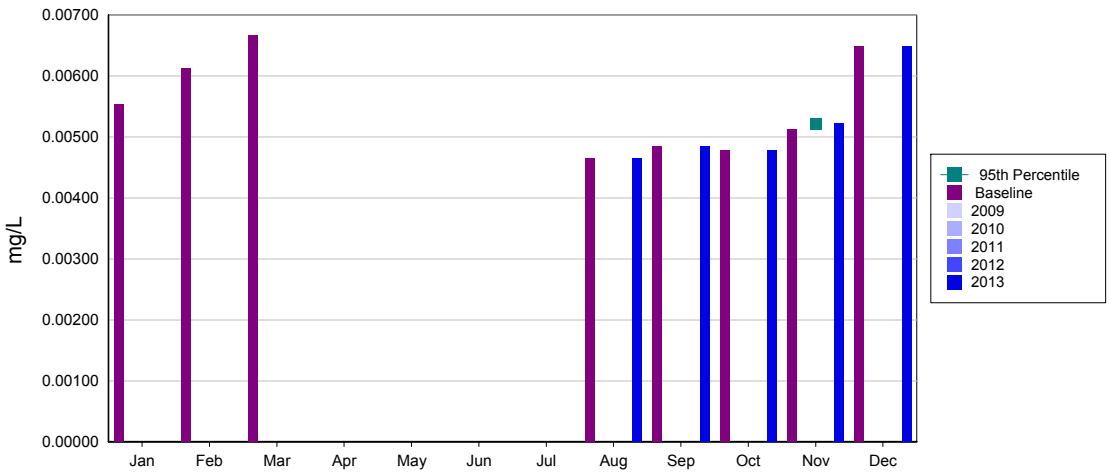



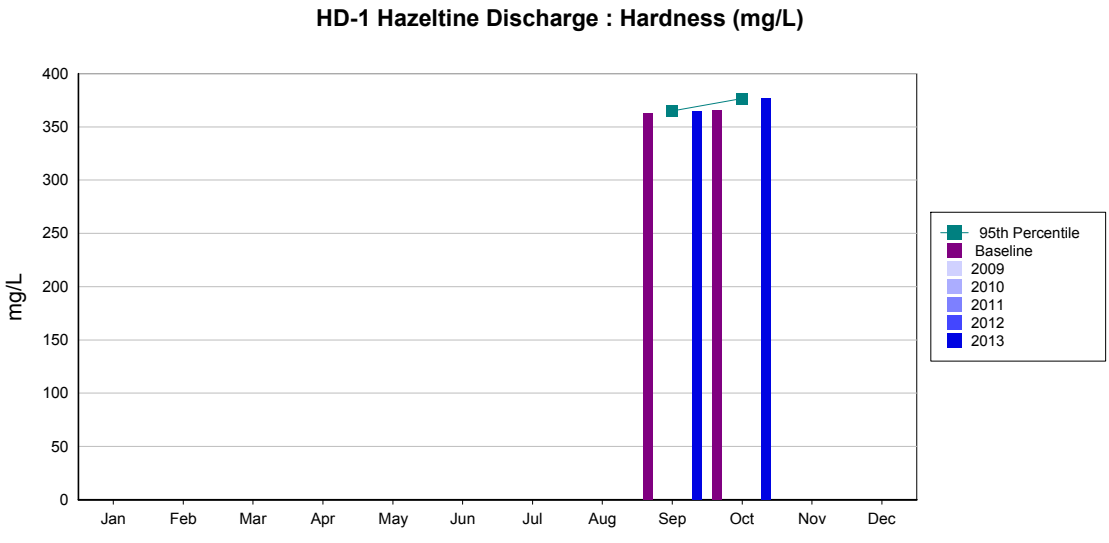



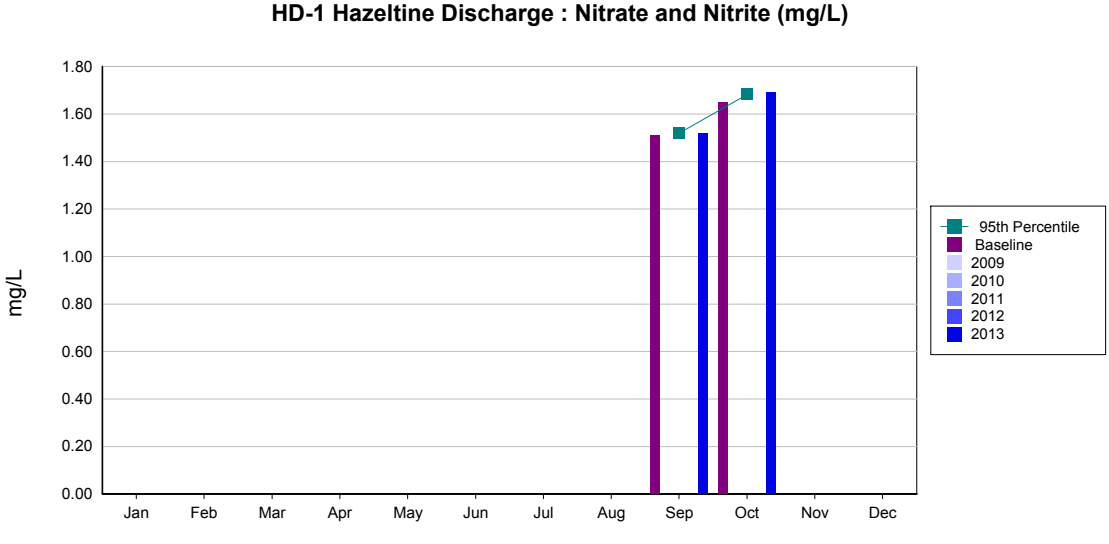
# Water Quality Report

## 2013 Effluent Water Quality Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION



# Water Quality Report

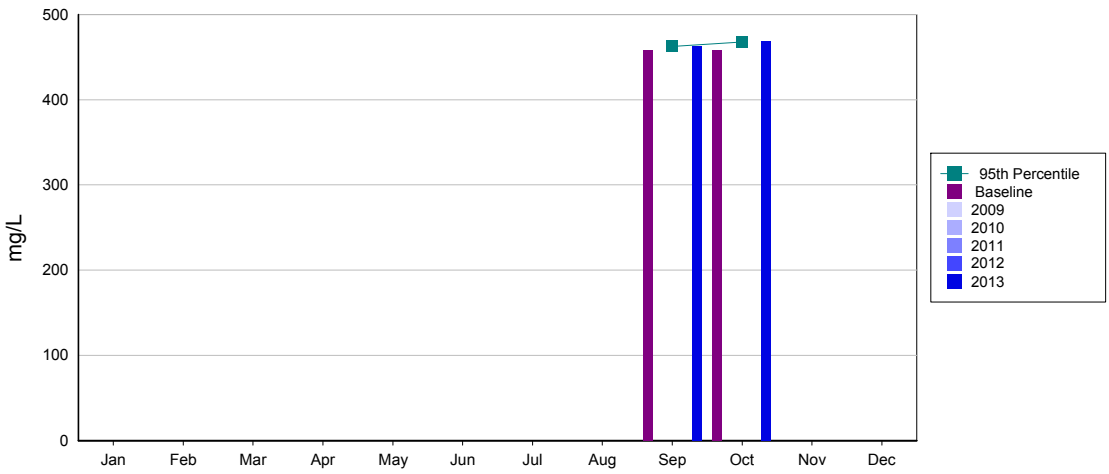
## 2013 Effluent Water Quality Graphs

**Mount Polley**

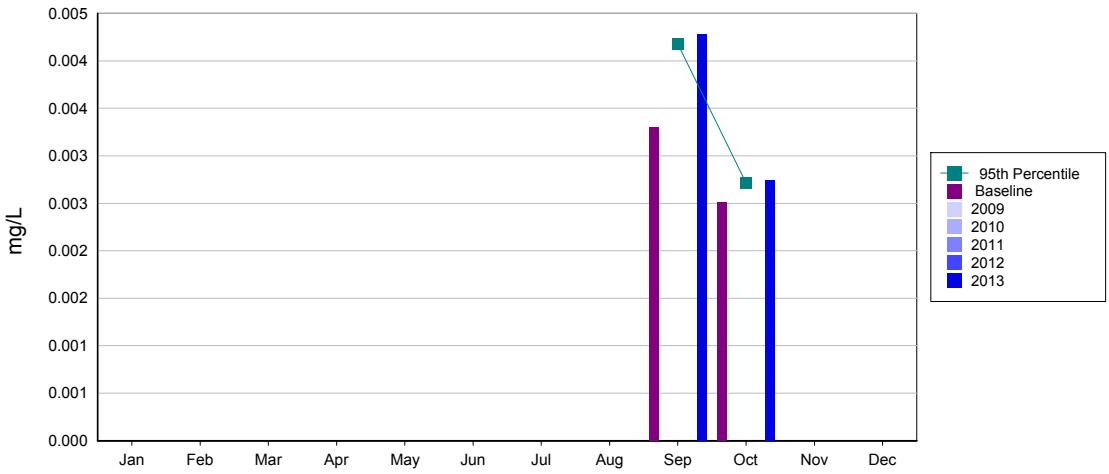
**Mining Corporation**

IMPERIAL METALS CORPORATION

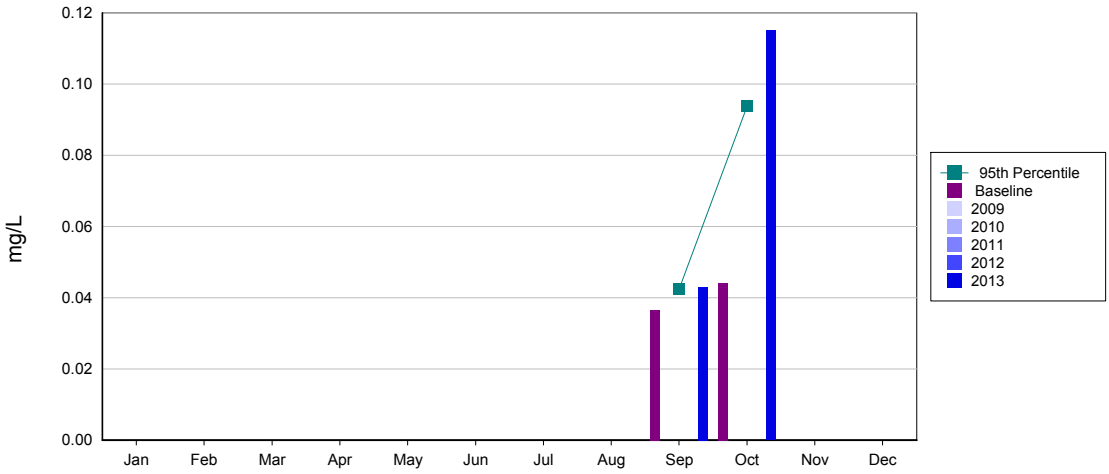
### HD-1 Hazeltine Discharge : Sulphate (mg/L)




### HD-1 Hazeltine Discharge : Total Copper (mg/L)




### HD-1 Hazeltine Discharge : Total Iron (mg/L)



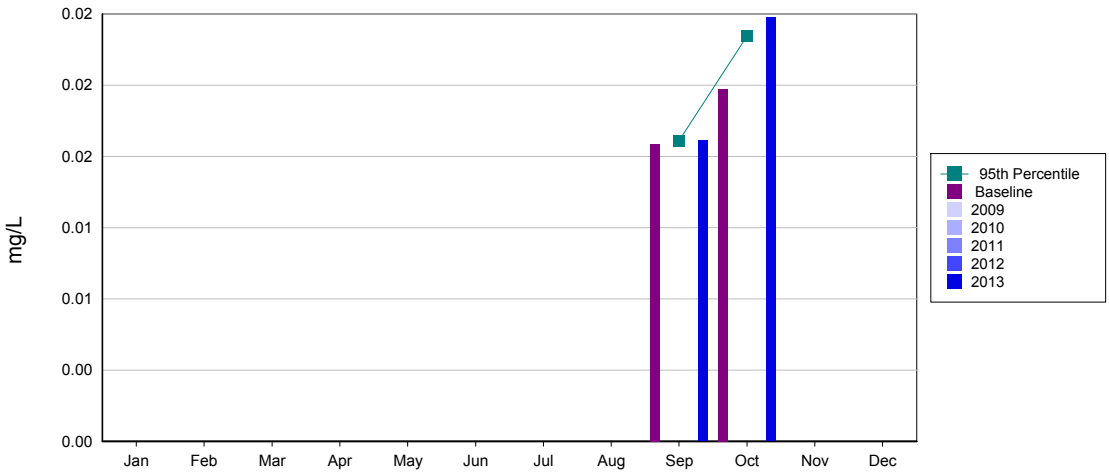
# Water Quality Report

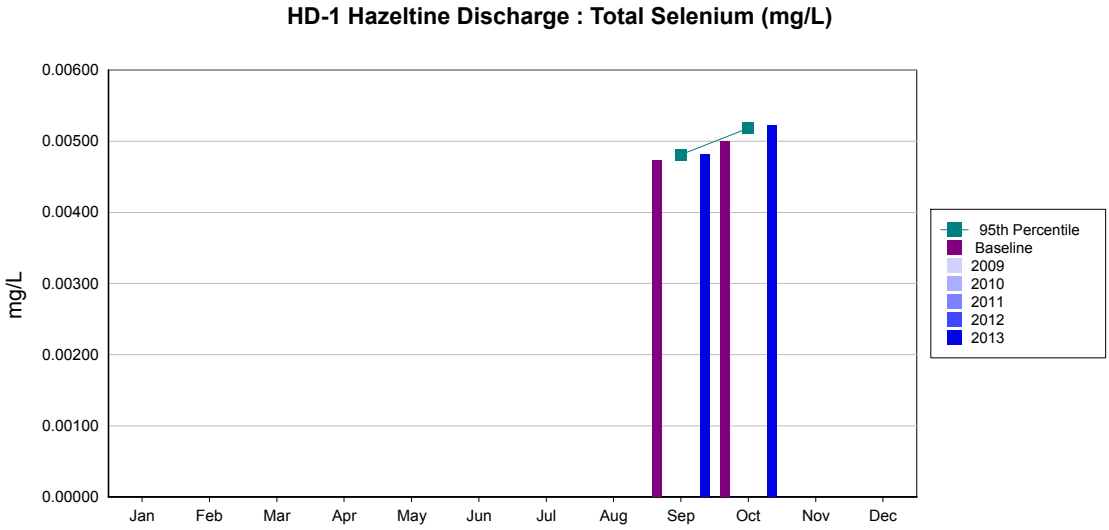
## 2013 Effluent Water Quality Graphs

Mount Polley

Mining Corporation

IMPERIAL METALS CORPORATION



# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225309 : E1 - Tailings Impoundment Supernatant | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 14-Jan-09 | 10-Feb-09 | 4-Mar-09 | 7-Apr-09 | 13-May-09 | 10-Jun-09 | 8-Jul-09 | 5-Aug-09 | 19-Aug-09 | 2-Sep-09 | 6-Oct-09 | 29-Oct-09 | 19-Nov-09 | 9-Dec-09 | 13-Jan-10 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.104 | 0.172 | 0.203 | 0.284 | 0.12 | 0.0387 | 0.0534 | 0.0506 | 0.0465 | 0.0348 | 0.107 | 0.146 | 0.226 | 0.297 | 0.4 |
| Chloride (mg/L) | 24.7 | 26.1 | | 25.9 | 17.5 | 18.8 | 19.9 | 22.5 | 23.4 | 27.6 | 29.6 | 29.8 | 30.4 | 33 | 33.5 |
| Diss-Orthophosphate (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0013 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0052 | <0.001 | <0.001 | <0.001 | <0.001 |
| Diss-Phosphorus (mg/L) | 0.0032 | 0.0069 | 0.0044 | 0.0038 | 0.0045 | 0.0039 | 0.0026 | <0.002 | <0.002 | <0.002 | 0.016 | 0.0215 | 0.0382 | 0.0544 | 0.0987 |
| Nitrate (N) (mg/L) | 3.18 | 3.11 | 2.97 | 2.76 | 2.75 | 3.25 | 3.56 | 3.58 | 3.62 | 3.74 | 3.58 | 3.42 | 3.68 | 3.97 | 4.11 |
| Nitrate and Nitrite (mg/L) | | | | | | | | | | | | | | | |
| Nitrite (N) (mg/L) | 0.136 | 0.14 | 0.213 | 0.241 | 0.222 | 0.151 | 0.11 | 0.0813 | 0.016 | 0.065 | 0.106 | 0.111 | 0.117 | 0.149 | 0.169 |
| Sulphate (mg/L) | 371 | 361 | 373 | 358 | 275 | 299 | 314 | 397 | 442 | 481 | 810 | 877 | 839 | 870 | 818 |
| Total Nitrogen (mg/L) | 4.95 | 3.78 | 4.25 | 3.87 | 3.65 | 5.02 | 3.82 | 5.39 | 4.37 | 3.62 | 4.79 | 3.95 | 4.6 | 5.45 | 6.42 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0148 | 0.0267 | 0.0225 | 0.0381 | 0.551 | 0.0209 | 0.0243 | 0.0547 | 0.0397 | 0.0199 | 0.0284 | 0.0118 | 0.0105 | 0.0129 | 0.0127 |
| Diss-Antimony (Sb) (mg/L) | 0.00188 | 0.00192 | 0.00168 | 0.00187 | 0.00121 | 0.0015 | 0.00167 | 0.00239 | 0.00253 | 0.00252 | 0.00234 | 0.0018 | 0.002 | 0.0021 | 0.00166 |
| Diss-Arsenic (As) (mg/L) | 0.00235 | 0.0023 | 0.00223 | 0.00264 | 0.00266 | 0.00259 | 0.0027 | 0.00296 | 0.00365 | 0.00364 | 0.00208 | 0.00186 | 0.00183 | 0.00215 | 0.00198 |
| Diss-Barium (Ba) (mg/L) | 0.0529 | 0.0649 | 0.0621 | 0.0645 | 0.0865 | 0.0643 | 0.0588 | 0.071 | 0.0639 | 0.0625 | 0.0794 | 0.0814 | 0.0908 | 0.091 | 0.0814 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.001 | <0.001 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | <0.0025 |
| Diss-Boron (B) (mg/L) | 0.174 | 0.169 | 0.161 | 0.185 | 0.096 | 0.122 | 0.122 | 0.134 | 0.144 | 0.145 | 0.138 | 0.116 | 0.092 | 0.096 | 0.079 |
| Diss-Cadmium (Cd) (mg/L) | <0.00061 | <0.0008 | <0.00003 | <0.00051 | <0.0006 | <0.0006 | <0.0005 | <0.00071 | <0.00061 | <0.0008 | <0.001 | <0.000085 | <0.000085 | <0.000085 | <0.000085 |
| Diss-Calcium (Ca) (mg/L) | 86 | 87.9 | 95.3 | 93.5 | 80.4 | 85.8 | 91.5 | 109 | 118 | 128 | 245 | 271 | 260 | 242 | 232 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.001 | <0.0005 | <0.0005 | 0.00055 | 0.00061 | <0.0005 | <0.0005 | <0.001 | <0.001 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | <0.0025 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0002 | <0.0001 | <0.0001 | 0.00029 | <0.0001 | <0.0001 | <0.0001 | <0.0002 | <0.0002 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Copper (Cu) (mg/L) | 0.00141 | 0.0015 | <0.002 | <0.005 | 0.124 | 0.00526 | 0.0051 | 0.00364 | 0.00243 | 0.00265 | 0.00352 | 0.00339 | 0.00087 | 0.00104 | 0.00149 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | 0.307 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.0001 | <0.00005 | <0.00005 | 0.000258 | <0.00005 | <0.00005 | <0.00005 | <0.0001 | <0.0001 | <0.00025 | <0.00025 | <0.00025 | <0.00025 | <0.00025 |
| Diss-Magnesium (Mg) (mg/L) | 6.86 | 5.65 | 5.1 | 4.2 | 5.95 | 7.54 | 7.13 | 9.81 | 10.9 | 9.92 | 20.8 | 20.4 | 22 | 18 | 16.5 |
| Diss-Manganese (Mn) (mg/L) | 0.0112 | 0.00889 | 0.0199 | 0.0216 | 0.0189 | 0.00467 | 0.00857 | 0.0204 | 0.0309 | 0.00218 | 0.0535 | 0.0282 | 0.0202 | 0.0126 | 0.0263 |
| Diss-Mercury (Hg) (mg/L) | | | | <0.00001 | <0.00001 | | | | | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.215 | 0.224 | 0.234 | 0.22 | 0.147 | 0.175 | 0.186 | 0.214 | 0.221 | 0.24 | 0.251 | 0.241 | 0.231 | 0.24 | 0.231 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.001 | <0.0005 | <0.0005 | 0.0007 | 0.00077 | <0.0005 | 0.0011 | <0.001 | <0.001 | <0.0025 | <0.0025 | <0.0025 | 0.0028 | <0.0025 |
| Diss-Potassium (K) (mg/L) | 24.9 | 21.9 | 21.2 | 25.4 | 12.7 | 17.4 | 17.8 | 20.9 | 25.5 | 24.4 | 28.4 | 26 | 22.1 | 24.5 | 22.4 |
| Diss-Selenium (mg/L) | 0.0137 | 0.0138 | 0.0149 | 0.0186 | 0.0124 | 0.0154 | 0.0165 | 0.0172 | 0.018 | 0.0182 | 0.0192 | 0.0203 | 0.0198 | 0.0238 | 0.0228 |
| Diss-Silicon (Si) (mg/L) | 5.76 | 6.33 | 7.23 | 7.24 | 6.91 | 6.47 | 6.64 | 5.67 | 5.18 | 5.54 | 4.15 | 3.62 | 4.06 | 4.94 | 5.61 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00002 | <0.00002 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Diss-Sodium (Na) (mg/L) | 85.3 | 83.1 | 79 | 84.5 | 48.8 | 60.5 | 64.5 | 76.6 | 82.4 | 80.6 | 94.9 | 98.9 | 92 | 103 | 108 |
| Diss-Strontium (Sr) (mg/L) | 2.13 | 2.55 | 2.24 | 1.99 | 0.876 | 1.1 | 1.2 | 1.12 | 2.77 | 2.69 | 2.73 | 2.26 | 1.89 | 2.15 | 1.84 |

| | E225309 : E1 - Tailings Impoundment Supernatant | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10-Feb-10 | 3-Mar-10 | 7-Apr-10 | 12-May-10 | 3-Jun-10 | 8-Jul-10 | 5-Aug-10 | 1-Sep-10 | 7-Oct-10 | 4-Nov-10 | 1-Dec-10 | 10-Jan-11 | 3-Feb-11 | 7-Mar-11 | 6-Apr-11 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.565 | 0.715 | 0.479 | 0.207 | 0.073 | 0.143 | 0.083 | 0.172 | 0.286 | 0.353 | 0.408 | 0.46 | 0.654 | 0.612 | 0.719 |
| Chloride (mg/L) | 36 | 33.9 | 30.8 | 36 | 35.3 | 38 | 28.8 | 44 | 38 | 33.2 | 38.8 | 37.6 | 35.5 | 33 | 28.2 |
| Diss-Orthophosphate (mg/L) | <0.001 | 0.0588 | 0.0022 | 0.0013 | <0.001 | <0.001 | 0.0013 | <0.001 | 0.0054 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Diss-Phosphorus (mg/L) | 0.0692 | 0.0482 | 0.0345 | 0.0167 | 0.004 | 0.0047 | 0.0028 | 0.0021 | 0.0084 | 0.0037 | 0.0069 | 0.0096 | 0.0073 | 0.0057 | 0.0072 |
| Nitrate (N) (mg/L) | 4.02 | 4.12 | 3.88 | 4.46 | 4.91 | 5.67 | 4.36 | 6.99 | 6.93 | 7.29 | 8.15 | 7.9 | 7.7 | 7.33 | 5.94 |
| Nitrate and Nitrite (mg/L) | | | | 4.65 | 5.04 | 5.76 | 4.44 | 7.08 | 7.1 | 7.42 | 8.33 | 8.05 | 7.85 | 7.48 | 6.13 |
| Nitrite (N) (mg/L) | 0.917 | 0.31 | 0.248 | 0.189 | 0.131 | 0.097 | 0.08 | 0.098 | 0.175 | 0.134 | 0.178 | 0.15 | 0.151 | 0.155 | 0.185 |
| Sulphate (mg/L) | 790 | 689 | 566 | 613 | 674 | 835 | 616 | 915 | 1030 | 945 | 1100 | 994 | 899 | 829 | 657 |
| Total Nitrogen (mg/L) | 4.52 | 6.04 | 4.82 | 6.62 | 7.36 | 6.26 | 7.62 | 10.1 | 7.42 | 7.38 | 9.15 | 8.5 | 10.1 | 7.97 | 6.51 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0167 | 0.015 | 0.017 | 0.0123 | 0.0218 | 0.0197 | 0.0095 | 0.0109 | 0.0166 | 0.012 | 0.0083 | 0.0082 | 0.0093 | 0.0109 | 0.0132 |
| Diss-Antimony (Sb) (mg/L) | 0.00157 | 0.00192 | 0.00204 | 0.00287 | 0.00301 | 0.00386 | 0.0038 | 0.00351 | 0.00346 | 0.00401 | 0.00519 | 0.00454 | 0.00322 | 0.0019 | 0.00131 |
| Diss-Arsenic (As) (mg/L) | 0.00186 | 0.00226 | 0.00262 | 0.00271 | 0.00272 | 0.00261 | 0.00283 | 0.00289 | 0.00211 | 0.00235 | 0.0024 | 0.00209 | 0.00157 | 0.00132 | 0.00118 |
| Diss-Barium (Ba) (mg/L) | 0.0716 | 0.0732 | 0.0655 | 0.0669 | 0.0747 | 0.0729 | 0.0756 | 0.0798 | 0.0702 | 0.0859 | 0.0849 | 0.0734 | 0.0902 | 0.0909 | 0.0616 |
| Diss-Beryllium (Be) (mg/L) | <0.0025 | <0.0025 | <0.001 | <0.001 | <0.001 | <0.0025 | <0.0025 | <0.0005 | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.001 |
| Diss-Boron (B) (mg/L) | 0.061 | 0.081 | 0.072 | 0.069 | 0.076 | 0.11 | 0.126 | 0.118 | 0.133 | 0.119 | 0.112 | 0.112 | 0.089 | 0.08 | 0.073 |
| Diss-Cadmium (Cd) (mg/L) | <0.001 | <0.000085 | <0.00051 | <0.00051 | <0.0008 | <0.000085 | 0.000117 | <0.00006 | <0.00006 | <0.00007 | <0.0001 | <0.00005 | 0.000037 | <0.00005 | <0.00005 |
| Diss-Calcium (Ca) (mg/L) | 229 | 204 | 185 | 190 | 196 | 248 | 272 | 272 | 313 | 307 | 341 | 305 | 272 | 242 | 195 |
| Diss-Chromium (Cr) (mg/L) | <0.0025 | <0.0025 | <0.001 | <0.001 | <0.001 | <0.0025 | <0.0025 | <0.0005 | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.001 |
| Diss-Cobalt (Co) (mg/L) | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0005 | <0.0005 | <0.0001 | 0.00014 | 0.00018 | <0.0002 | 0.00011 | <0.0001 | <0.0002 | <0.0002 |
| Diss-Copper (Cu) (mg/L) | 0.00128 | 0.00264 | 0.00358 | 0.00238 | 0.00268 | 0.00481 | <0.005 | 0.00394 | 0.00507 | 0.00352 | 0.0022 | 0.0017 | 0.00154 | <0.001 | 0.0018 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Diss-Lead (Pb) (mg/L) | <0.00025 | <0.00025 | <0.0001 | <0.0001 | <0.0001 | <0.00025 | <0.00025 | <0.00005 | <0.00005 | <0.00005 | <0.0001 | <0.00005 | <0.00005 | <0.0001 | <0.0001 |
| Diss-Magnesium (Mg) (mg/L) | 10.7 | 8.3 | 6.74 | 10.3 | 15.1 | 29.3 | 24.9 | 23.1 | 30.5 | 24.7 | 28.8 | 28.7 | 21.9 | 18.7 | 19 |
| Diss-Manganese (Mn) (mg/L) | 0.0104 | 0.00894 | 0.00719 | 0.0132 | 0.0389 | 0.0829 | 0.0231 | 0.0252 | 0.0969 | 0.0693 | 0.0435 | 0.0504 | 0.0265 | 0.0154 | 0.0691 |
| Diss-Mercury (Hg) (mg/L) | | | | | | | | | <0.00005 | | <0.00005 | | | | <0.00005 |
| Diss-Molybdenum (Mo) (mg/L) | 0.213 | 0.217 | 0.191 | 0.212 | 0.225 | 0.245 | 0.267 | 0.282 | 0.228 | 0.239 | 0.255 | 0.24 | 0.223 | 0.228 | 0.167 |
| Diss-Nickel (Ni) (mg/L) | <0.0025 | <0.0025 | <0.001 | <0.001 | <0.001 | <0.0025 | <0.0025 | <0.0005 | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.001 |
| Diss-Potassium (K) (mg/L) | 20.9 | 20.6 | 16.4 | 16.8 | 17.5 | 24.1 | 22.9 | 23.2 | 23.5 | 23.9 | 22.5 | 24.4 | 21 | 19.1 | 16.7 |
| Diss-Selenium (mg/L) | 0.0216 | 0.0249 | 0.0272 | 0.0243 | 0.0279 | 0.0267 | 0.0323 | 0.0333 | 0.0308 | 0.0283 | 0.0278 | 0.0266 | 0.0232 | 0.0222 | 0.018 |
| Diss-Silicon (Si) (mg/L) | 6.72 | 6.59 | 7.12 | 6.57 | 6.14 | 5.71 | 6.23 | 5.94 | 4.17 | 5.36 | 5.58 | 5.63 | 5.87 | 5.88 | 5.38 |
| Diss-Silver (Ag) (mg/L) | <0.00005 | <0.00005 | <0.00002 | <0.00002 | <0.00002 | <0.00005 | <0.00005 | <0.00001 | <0.00001 | <0.00001 | <0.00002 | <0.00001 | <0.00001 | <0.00002 | <0.00002 |
| Diss-Sodium (Na) (mg/L) | 98.1 | 102 | 87.7 | 89.3 | 97.4 | 103 | 116 | 115 | 107 | 102 | 103 | 103 | 93.3 | 101 | 78.1 |
| Diss-Strontium (Sr) (mg/L) | 1.45 | 1.4 | 1.15 | 1.07 | 1.23 | 1.87 | 2.2 | 2.35 | 2.34 | 2.26 | 2.69 | 2.32 | 1.97 | 2.08 | 1.56 |

| | E225309 : E1 - Tailings Impoundment Supernatant | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12-May-11 | 9-Jun-11 | 14-Jul-11 | 4-Aug-11 | 8-Sep-11 | 5-Oct-11 | 1-Nov-11 | 5-Dec-11 | 4-Jan-12 | 8-Feb-12 | 14-Mar-12 | 3-Apr-12 | 2-May-12 | 7-Jun-12 | 5-Jul-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.407 | 0.196 | 0.0619 | 0.125 | 0.0869 | 0.126 | 0.179 | 0.348 | 0.323 | 0.484 | 0.478 | 0.497 | 0.401 | 0.126 | 0.105 |
| Chloride (mg/L) | 19.7 | 17.7 | 17.7 | 20.3 | 21 | 22.3 | 23.3 | 24.5 | 28 | 28 | 27.9 | 27.3 | 20.7 | 21.2 | 22.2 |
| Diss-Orthophosphate (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0055 | <0.0010 | <0.0010 |
| Diss-Phosphorus (mg/L) | 0.0048 | 0.0027 | <0.002 | <0.002 | | <0.0020 | <0.0020 | 0.0044 | <0.0020 | 0.0031 | <0.0020 | 0.003 | 0.0109 | 0.002 | 0.0027 |
| Nitrate (N) (mg/L) | 4.59 | 4.95 | 5.21 | 5.68 | 5.38 | 5.4 | 6.02 | 5.69 | 5.76 | 5.89 | 6.27 | 5.75 | 4.93 | 4.96 | 5.6 |
| Nitrate and Nitrite (mg/L) | 4.68 | 4.99 | 5.31 | 5.76 | 5.47 | 5.5 | 6.12 | 5.81 | 5.9 | 6.09 | 6.48 | 5.92 | 5.06 | 5.03 | 5.68 |
| Nitrite (N) (mg/L) | 0.092 | 0.04 | 0.093 | 0.073 | 0.087 | 0.1 | 0.097 | 0.126 | 0.145 | 0.201 | 0.215 | 0.172 | 0.127 | 0.075 | 0.075 |
| Sulphate (mg/L) | 474 | 525 | 508 | 547 | 573 | 575 | 596 | 587 | 596 | 596 | 580 | 560 | 465 | 456 | 497 |
| Total Nitrogen (mg/L) | 6.33 | 7.12 | 7.52 | 7.14 | 8.16 | 6.79 | 8.95 | 8.77 | 9.08 | 10.5 | 8.69 | 7.21 | 6.52 | 6.59 | 6.36 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.015 | 0.0229 | 0.0203 | 0.0428 | 0.0255 | 0.0154 | 0.0155 | 0.0155 | 0.0148 | 0.0117 | 0.0175 | 0.02 | 0.0163 | 0.0521 | 0.0271 |
| Diss-Antimony (Sb) (mg/L) | 0.00088 | 0.00102 | 0.00116 | 0.00119 | 0.00148 | 0.00165 | 0.00163 | 0.00163 | 0.00164 | 0.0017 | 0.00177 | 0.00178 | 0.00145 | 0.00172 | 0.0015 |
| Diss-Arsenic (As) (mg/L) | 0.00101 | 0.00131 | 0.00151 | 0.00158 | 0.00191 | 0.002 | 0.00201 | 0.00194 | 0.00207 | 0.00194 | 0.0018 | 0.00178 | 0.00164 | 0.00172 | 0.00183 |
| Diss-Barium (Ba) (mg/L) | 0.0585 | 0.0697 | 0.0814 | 0.0778 | 0.0804 | 0.0794 | 0.0777 | 0.0717 | 0.075 | 0.0777 | 0.0734 | 0.0748 | 0.0694 | 0.0678 | 0.0771 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.074 | 0.093 | 0.089 | 0.103 | 0.115 | 0.116 | 0.142 | 0.12 | 0.137 | 0.127 | 0.12 | 0.119 | 0.104 | 0.109 | 0.086 |
| Diss-Cadmium (Cd) (mg/L) | <0.00005 | <0.00005 | <0.00004 | <0.00008 | <0.00020 | <0.000050 | <0.000050 | <0.000060 | | <0.000060 | <0.000060 | <0.00016 | <0.00020 | <0.00015 | <0.000050 |
| Diss-Calcium (Ca) (mg/L) | 136 | 147 | 159 | 163 | 165 | 168 | 171 | 164 | 160 | 154 | 147 | 149 | 124 | 135 | 132 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00323 | 0.00262 | 0.00264 | 0.00254 | 0.00164 | 0.00189 | 0.00154 | 0.00091 | 0.00121 | 0.00065 | 0.00065 | 0.00157 | 0.00339 | 0.00212 | 0.00232 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 17.1 | 16 | 14.1 | 16.1 | 14 | 12.4 | 13 | 10.6 | 11.9 | 13.8 | 12.8 | 15.2 | 14.7 | 16.5 | 17.9 |
| Diss-Manganese (Mn) (mg/L) | 0.0361 | 0.000078 | 0.0123 | 0.032 | 0.000167 | 0.00818 | 0.0166 | 0.00709 | 0.0114 | 0.0134 | 0.00803 | 0.0189 | 0.0151 | 0.00357 | 0.0185 |
| Diss-Mercury (Hg) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | | | <0.000050 | | | | | | <0.000050 | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.127 | 0.141 | 0.16 | 0.17 | 0.185 | 0.19 | 0.198 | 0.206 | 0.201 | 0.199 | 0.191 | 0.189 | 0.16 | 0.168 | 0.136 |
| Diss-Nickel (Ni) (mg/L) | 0.00051 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00052 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 11.5 | 15 | 17.7 | 19.9 | 24.4 | 23.4 | 25.2 | 31 | 29.7 | 26.9 | 24.4 | 25.1 | 17.5 | 19.3 | 19.5 |
| Diss-Selenium (mg/L) | 0.0166 | 0.0204 | 0.0212 | 0.021 | 0.0231 | 0.0226 | 0.0217 | 0.022 | 0.021 | 0.0215 | 0.021 | 0.0196 | 0.0204 | 0.0143 | 0.0224 |
| Diss-Silicon (Si) (mg/L) | 4.33 | 5.13 | 5.99 | 5.51 | 6.75 | 7.33 | 6.91 | 7.51 | 6.49 | 6.18 | 5.43 | 5.44 | 4.77 | 4.62 | 4.87 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 55.2 | 58.5 | 65.3 | 64 | 77.3 | 77.3 | 87 | 96.4 | 98 | 99.6 | 94.8 | 93.6 | 71.2 | 72.5 | 73.9 |
| Diss-Strontium (Sr) (mg/L) | 1.35 | 1.47 | 1.42 | 1.45 | 1.4 | 1.42 | 1.49 | 1.49 | 1.58 | 1.4 | 1.23 | 1.35 | 1.3 | 1.27 | 1.01 |

| | E225309 : E1 - Tailings Impoundment Supernatant | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1-Aug-12 | 6-Sep-12 | 3-Oct-12 | 15-Nov-12 | 6-Dec-12 | 2-Jan-13 | 6-Feb-13 | 1-May-13 | 8-Aug-13 | 5-Nov-13 |
| **Anions and Nutrients** | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.106 | 0.182 | 0.129 | 0.278 | 0.332 | 0.353 | 0.395 | 0.25 | 0.219 | 0.168 |
| Chloride (mg/L) | 21.9 | 23.7 | 28 | 25 | 24 | 23.4 | 24.1 | 19.5 | 21.4 | 25.6 |
| Diss-Orthophosphate (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0017 | <0.0010 | <0.0010 | <0.0010 |
| Diss-Phosphorus (mg/L) | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0044 | 0.0023 | <0.0020 | <0.0020 |
| Nitrate (N) (mg/L) | 5.85 | 6.2 | 6.32 | 6.66 | 6.81 | 7.42 | 7.66 | 6.26 | 7.32 | 7.48 |
| Nitrate and Nitrite (mg/L) | 5.92 | 6.27 | 6.4 | 6.76 | 6.9 | 7.55 | | 6.38 | 7.41 | 7.57 |
| Nitrite (N) (mg/L) | 0.063 | 0.075 | 0.079 | 0.094 | 0.097 | 0.125 | 0.138 | 0.125 | 0.091 | 0.088 |
| Sulphate (mg/L) | 521 | 545 | 562 | 574 | 579 | 563 | 575 | 477 | 540 | 576 |
| Total Nitrogen (mg/L) | 7.26 | 8.21 | 7.7 | 7.56 | 7.28 | 7.23 | 7.22 | 6.62 | 7.76 | 7.53 |
| **Dissolved Metals** | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0264 | 0.0203 | 0.0391 | 0.012 | 0.0124 | 0.0108 | | | | |
| Diss-Antimony (Sb) (mg/L) | 0.0023 | 0.00225 | 0.00235 | 0.00211 | 0.00227 | 0.00203 | | | | |
| Diss-Arsenic (As) (mg/L) | 0.00211 | 0.00212 | 0.00195 | 0.00183 | 0.00182 | 0.00206 | | | | |
| Diss-Barium (Ba) (mg/L) | 0.0744 | 0.08 | 0.0662 | 0.0749 | 0.0747 | 0.0537 | | | | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | |
| Diss-Boron (B) (mg/L) | 0.114 | 0.135 | 0.131 | 0.124 | 0.114 | 0.116 | | | | |
| Diss-Cadmium (Cd) (mg/L) | <0.00010 | <0.000070 | <0.000050 | <0.000040 | <0.00010 | <0.000050 | | | | |
| Diss-Calcium (Ca) (mg/L) | 143 | 133 | 152 | 167 | 151 | 154 | | | | |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | | |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | 0.00014 | <0.00010 | <0.00010 | <0.00010 | | | | |
| Diss-Copper (Cu) (mg/L) | 0.00169 | 0.00146 | 0.00152 | 0.00095 | 0.00129 | 0.00093 | | | | |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | | | | |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | | | |
| Diss-Magnesium (Mg) (mg/L) | 16.4 | 19 | 20.5 | 20 | 20 | 18.1 | | | | |
| Diss-Manganese (Mn) (mg/L) | 0.00345 | 0.0148 | 0.0369 | 0.0162 | 0.0157 | 0.0123 | | | | |
| Diss-Mercury (Hg) (mg/L) | <0.000010 | | | <0.000010 | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.179 | 0.179 | 0.188 | 0.183 | 0.199 | 0.183 | | | | |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | 0.00073 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | | |
| Diss-Potassium (K) (mg/L) | 21.2 | 24.6 | 20.7 | 20.2 | 19.6 | 14 | | | | |
| Diss-Selenium (mg/L) | 0.0251 | 0.0263 | 0.0256 | 0.0276 | 0.0295 | 0.027 | | | | |
| Diss-Silicon (Si) (mg/L) | 6.1 | 6.05 | 5.93 | 6.1 | 5.61 | 5.5 | | | | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | | |
| Diss-Sodium (Na) (mg/L) | 79.9 | 91.4 | 87.4 | 97.5 | 90.5 | 85.8 | | | | |
| Diss-Strontium (Sr) (mg/L) | 1.32 | 1.38 | 1.33 | 1.37 | 1.58 | 1.4 | | | | |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225309 : E1 - Tailings Impoundment Supernatant | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 14-Jan-09 | 10-Feb-09 | 4-Mar-09 | 7-Apr-09 | 13-May-09 | 10-Jun-09 | 8-Jul-09 | 5-Aug-09 | 19-Aug-09 | 2-Sep-09 | 6-Oct-09 | 29-Oct-09 | 19-Nov-09 | 9-Dec-09 | 13-Jan-10 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0002 | <0.0002 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.002 | <0.001 | <0.001 | 0.0011 | <0.001 | 0.0097 | <0.001 | <0.002 | <0.002 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| TDS (mg/L) | 663 | 652 | 644 | 651 | 508 | 551 | 590 | 730 | 782 | 789 | 1300 | 1320 | 1380 | 1380 | 1320 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 22.3 | 20.2 | 25.3 | 29.3 | 35.5 | 42.5 | 37.7 | 45.3 | 38.8 | 37.9 | 45.1 | 39.6 | 39.4 | 40.6 | 35 |
| Hardness (mg/L) | 243 | 243 | 259 | 251 | 225 | 245 | 258 | 313 | 340 | 360 | 698 | 760 | 741 | 680 | 647 |
| NTU (ntu) | 16.4 | 7.69 | 4.17 | 2 | 98.7 | 4.65 | 8.14 | 6.41 | 3.71 | 5.96 | 5.44 | 15.2 | 22.2 | 4.24 | 2.94 |
| TDS (mg/L) | 663 | 652 | 644 | 651 | 508 | 551 | 590 | 730 | 782 | 789 | 1300 | 1320 | 1380 | 1380 | 1320 |
| TSS (mg/L) | 14.8 | 7.1 | 4.3 | <3 | 114 | 4.2 | 8.5 | 7.3 | 4.7 | 9.3 | 6.4 | 18.9 | 32 | 3.6 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00172 | 0.00184 | 0.00171 | 0.00178 | 0.00127 | 0.00153 | 0.00168 | 0.00233 | 0.00244 | 0.00263 | 0.00247 | 0.00187 | 0.002 | 0.00216 | 0.00167 |
| Arsenic (As)-Total ( | 0.00234 | 0.00241 | 0.00226 | 0.00248 | 0.00305 | 0.00263 | 0.0028 | 0.00303 | 0.00371 | 0.00377 | 0.00229 | 0.00205 | 0.0023 | 0.00214 | 0.00201 |
| Barium (Ba)-Total | 0.0548 | 0.0667 | 0.0656 | 0.0757 | 0.144 | 0.0669 | 0.0621 | 0.0715 | 0.0638 | 0.0667 | 0.0848 | 0.0893 | 0.108 | 0.0897 | 0.0828 |
| Boron (B)-Total (mg/L) | 0.163 | 0.174 | 0.17 | 0.163 | 0.098 | 0.126 | 0.117 | 0.13 | 0.138 | 0.146 | 0.143 | 0.114 | 0.098 | 0.094 | 0.082 |
| Calcium (Ca)-Total ( | 83.7 | 91.7 | 97.5 | 97.6 | 79.7 | 83.1 | 93 | 110 | 119 | 123 | 241 | 260 | 256 | 250 | 227 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | <0.001 | <0.0005 | 0.00052 | 0.00102 | 0.00068 | <0.0005 | <0.001 | <0.001 | <0.001 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | <0.0025 |
| Cobalt (Co)-Total (m | 0.00035 | <0.0002 | <0.0001 | 0.00011 | 0.00199 | <0.0001 | 0.00019 | <0.0002 | <0.0002 | <0.0002 | <0.0005 | <0.0005 | 0.00068 | <0.0005 | <0.0005 |
| Magnesium (Mg)-Total (mg/L) | 6.63 | 5.88 | 5.05 | 4.25 | 7.04 | 7.33 | 7.33 | 10.1 | 11.1 | 9.75 | 20.8 | 20.2 | 22.3 | 18.1 | 16.1 |
| Mercury (Hg)-Total (mg/L) | | | <0.00001 | <0.00001 | <0.00001 | | | | | | | | | | |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.001 | <0.0005 | 0.00077 | 0.00115 | 0.00088 | <0.0005 | 0.0014 | <0.001 | <0.001 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | <0.0025 |
| Silicon (Si)-Total (mg/L) | 6.34 | 6.69 | 7.41 | 7.54 | 14.6 | 6.56 | 7.25 | 6.02 | 5.43 | 5.71 | 4.59 | 4.49 | 6.18 | 5.11 | 5.62 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00002 | <0.00001 | <0.00001 | 0.000014 | <0.00001 | <0.00001 | <0.00002 | <0.00002 | <0.00002 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Sodium (Na)-Total (mg/L) | 82.2 | 84.8 | 82.2 | 85.3 | 49.8 | 63.3 | 65.7 | 71.8 | 79.8 | 83.5 | 97.5 | 99.5 | 94.9 | 100 | 110 |
| Strontium (Sr)-Total (mg/L) | 1.99 | 2.52 | 2.24 | 2.17 | 0.89 | 1.13 | 1.16 | 1.08 | 2.77 | 2.71 | 2.84 | 2.26 | 1.96 | 2.08 | 1.82 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0002 | <0.0001 | <0.0001 | 0.0003 | <0.0001 | <0.0001 | <0.0002 | <0.0002 | <0.0002 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Total Aluminum (mg/L) | 0.405 | 0.147 | 0.122 | 0.0927 | 3.6 | 0.147 | 0.3 | 0.155 | 0.126 | 0.176 | 0.254 | 0.511 | 0.821 | 0.0597 | 0.0922 |
| Total Cadmium (mg/L) | 0.000125 | 0.000215 | 0.000136 | 0.000045 | <0.00002 | 0.000157 | 0.000188 | 0.000189 | <0.00061 | 0.000159 | <0.001 | 0.000246 | <0.000085 | <0.000085 | <0.001 |
| Total Copper (mg/L) | 0.045 | 0.00734 | <0.02 | <0.005 | 0.125 | 0.015 | 0.023 | 0.0162 | 0.00714 | 0.0117 | 0.0193 | 0.0325 | 0.0183 | 0.00517 | 0.00588 |
| Total Iron (mg/L) | 0.313 | 0.108 | 0.083 | 0.062 | 1.93 | 0.074 | 0.198 | 0.101 | 0.084 | 0.109 | 0.192 | 0.403 | 0.69 | 0.035 | 0.057 |
| Total Lead (mg/L) | 0.000136 | <0.0001 | 0.000065 | 0.00006 | 0.000359 | 0.000057 | 0.000138 | 0.00034 | <0.0001 | <0.0001 | <0.00025 | 0.0006 | <0.00025 | <0.00025 | <0.00025 |
| Total Manganese (mg/L) | 0.0245 | 0.0161 | 0.0291 | 0.021 | 0.0616 | 0.0198 | 0.0162 | 0.0316 | 0.0382 | 0.0201 | 0.0636 | 0.0482 | 0.0442 | 0.0157 | 0.0296 |
| Total Molybdenum (mg/L) | 0.203 | 0.218 | 0.232 | 0.227 | 0.149 | 0.182 | 0.178 | 0.21 | 0.216 | 0.243 | 0.258 | 0.24 | 0.235 | 0.233 | 0.23 |
| Total Selenium (mg/L) | 0.0127 | 0.0141 | 0.0143 | 0.0167 | 0.0113 | 0.0155 | 0.0176 | 0.0166 | 0.0182 | 0.0192 | 0.02 | 0.0193 | 0.0197 | 0.0224 | 0.0228 |
| Zinc (Zn)-Total (mg/L) | <0.004 | <0.002 | <0.001 | 0.0011 | 0.0066 | <0.003 | 0.0158 | <0.002 | <0.002 | <0.002 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |

| | E225309 : E1 - Tailings Impoundment Supernatant | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10-Feb-10 | 3-Mar-10 | 7-Apr-10 | 12-May-10 | 3-Jun-10 | 8-Jul-10 | 5-Aug-10 | 1-Sep-10 | 7-Oct-10 | 4-Nov-10 | 1-Dec-10 | 10-Jan-11 | 3-Feb-11 | 7-Mar-11 | 6-Apr-11 |
| Diss-Tin (Sn) (mg/L) | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0002 |
| Diss-Zinc (Zn) (mg/L) | <0.005 | <0.005 | <0.002 | <0.002 | <0.004 | <0.005 | <0.005 | <0.001 | <0.003 | <0.003 | <0.006 | <0.003 | <0.003 | <0.006 | <0.006 |
| TDS (mg/L) | 1280 | 1170 | 969 | 766 | 1130 | 1360 | 1450 | 1500 | 2450 | 1150 | 1680 | 1600 | 1450 | 1340 | 1100 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 26.9 | 31.8 | 27.1 | 24.3 | 39 | 38.6 | 34.4 | 33.8 | 38.3 | 31 | 31.7 | 28.4 | 21 | 16.4 | 36.9 |
| Hardness (mg/L) | 616 | 544 | 490 | 517 | 552 | 740 | 781 | 773 | 908 | 868 | 970 | 879 | 769 | 681 | 565 |
| NTU (ntu) | 2.71 | 5.7 | 10 | 19 | 6.36 | 1.29 | 2.8 | 5.19 | 10.1 | 19.6 | 1.71 | 1.82 | 10.4 | 3.73 | 6.93 |
| TDS (mg/L) | 1280 | 1170 | 969 | 766 | 1130 | 1360 | 1450 | 1500 | 2450 | 1150 | 1680 | 1600 | 1450 | 1340 | 1100 |
| TSS (mg/L) | 3.8 | <5.0 | 11 | 22 | 8 | <3 | <3 | 5.5 | 14.2 | 21.1 | 3.3 | <3 | 13.3 | 6.8 | 9.6 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.0018 | 0.00193 | 0.00196 | 0.00286 | 0.00303 | 0.00379 | 0.00377 | 0.00349 | 0.00344 | 0.00391 | 0.00516 | 0.00506 | 0.00325 | 0.00152 | 0.00138 |
| Arsenic (As)-Total ( | 0.00215 | 0.00239 | 0.00295 | 0.00307 | 0.00287 | 0.00271 | 0.00293 | 0.00289 | 0.00228 | 0.00258 | 0.00259 | 0.00215 | 0.00189 | 0.00155 | 0.00153 |
| Barium (Ba)-Total | 0.0821 | 0.0763 | 0.075 | 0.0785 | 0.0804 | 0.0751 | 0.0783 | 0.0816 | 0.0761 | 0.104 | 0.0885 | 0.0788 | 0.107 | 0.0982 | 0.0705 |
| Boron (B)-Total (mg/L) | 0.069 | 0.084 | 0.076 | 0.074 | 0.079 | 0.109 | 0.127 | 0.131 | 0.131 | 0.123 | 0.117 | 0.126 | 0.091 | 0.066 | 0.076 |
| Calcium (Ca)-Total ( | 223 | 209 | 185 | 183 | 197 | 235 | 275 | 270 | 307 | 300 | 342 | 310 | 276 | 244 | 202 |
| Chromium (Cr)-Total (mg/L) | <0.0025 | <0.0025 | <0.001 | <0.001 | <0.001 | <0.0025 | <0.0025 | <0.0005 | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.001 |
| Cobalt (Co)-Total (m | <0.0005 | <0.0005 | 0.00038 | 0.00053 | 0.00025 | <0.0005 | <0.0005 | 0.00021 | 0.00054 | 0.00069 | <0.0002 | 0.00016 | 0.00048 | <0.0002 | 0.00047 |
| Magnesium (Mg)-Total (mg/L) | 10.6 | 8.57 | 6.9 | 10.5 | 15.5 | 27.9 | 25.3 | 23 | 30 | 25 | 28.1 | 29.1 | 22.4 | 18.8 | 19.8 |
| Mercury (Hg)-Total (mg/L) | | | | | | | | | <0.00005 | | <0.00005 | | | | <0.00005 |
| Nickel (Ni)-Total (mg/L) | <0.0025 | <0.0025 | <0.001 | <0.001 | <0.001 | <0.0025 | <0.0025 | 0.00054 | <0.0005 | <0.0007 | <0.001 | <0.0005 | <0.0005 | <0.001 | 0.0011 |
| Silicon (Si)-Total (mg/L) | 6.7 | 6.97 | 8.47 | 8.32 | 6.91 | 5.64 | 6.55 | 6.41 | 5.13 | 7.03 | 5.58 | 5.87 | 7.49 | 6.15 | 7.33 |
| Silver (Ag)-Total (mg/L) | <0.00005 | <0.00005 | <0.00002 | <0.00002 | 0.000033 | <0.00005 | <0.00005 | <0.00001 | 0.000011 | 0.000012 | <0.00002 | <0.00001 | <0.00001 | <0.00002 | 0.000049 |
| Sodium (Na)-Total (mg/L) | 110 | 94.4 | 87.3 | 93.6 | 103 | 104 | 119 | 116 | 105 | 102 | 106 | 106 | 104 | 108 | 79.5 |
| Strontium (Sr)-Total (mg/L) | 1.6 | 1.41 | 1.16 | 1.12 | 1.29 | 1.92 | 2.25 | 2.37 | 2.36 | 2.31 | 2.75 | 2.63 | 2.03 | 1.57 | 1.67 |
| Tin (Sn)-Total (mg/L) | <0.0005 | <0.0005 | <0.0002 | <0.0002 | <0.0002 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0002 |
| Total Aluminum (mg/L) | 0.0995 | 0.134 | 0.636 | 0.788 | 0.281 | 0.1 | 0.119 | 0.248 | 0.493 | 0.771 | 0.0575 | 0.0658 | 0.597 | 0.133 | 0.586 |
| Total Cadmium (mg/L) | 0.000093 | <0.000085 | <0.00051 | <0.00061 | <0.0009 | <0.000085 | 0.000093 | <0.00007 | <0.00007 | 0.000035 | <0.0001 | <0.00006 | <0.00002 | 0.000023 | 0.000027 |
| Total Copper (mg/L) | 0.00548 | 0.00715 | 0.0265 | 0.04 | 0.0123 | 0.0101 | <0.015 | 0.0125 | 0.0411 | 0.0641 | 0.0067 | 0.00681 | 0.0158 | 0.0052 | 0.0139 |
| Total Iron (mg/L) | 0.068 | 0.098 | 0.42 | 0.627 | 0.179 | 0.057 | 0.078 | 0.195 | 0.42 | 0.547 | 0.033 | 0.043 | 0.318 | 0.08 | 0.504 |
| Total Lead (mg/L) | <0.00025 | <0.00025 | 0.00078 | 0.00067 | 0.00012 | <0.00025 | <0.00025 | 0.000099 | 0.000545 | 0.00024 | <0.0001 | <0.00005 | 0.000172 | <0.0001 | 0.00115 |
| Total Manganese (mg/L) | 0.0167 | 0.0172 | 0.0215 | 0.0438 | 0.0492 | 0.102 | 0.0328 | 0.0319 | 0.116 | 0.0968 | 0.0475 | 0.0551 | 0.042 | 0.0195 | 0.0824 |
| Total Molybdenum (mg/L) | 0.24 | 0.218 | 0.191 | 0.22 | 0.233 | 0.25 | 0.273 | 0.287 | 0.228 | 0.243 | 0.261 | 0.274 | 0.233 | 0.174 | 0.178 |
| Total Selenium (mg/L) | 0.0236 | 0.0252 | 0.024 | 0.0241 | 0.0269 | 0.0276 | 0.0303 | 0.0334 | 0.0297 | 0.0284 | 0.0273 | 0.025 | 0.0249 | 0.0221 | 0.0187 |
| Zinc (Zn)-Total (mg/L) | <0.005 | <0.005 | <0.002 | 0.0048 | <0.004 | <0.005 | <0.005 | 0.0024 | 0.0038 | 0.0048 | <0.006 | <0.003 | <0.003 | <0.006 | <0.006 |

| | E225309 : E1 - Tailings Impoundment Supernatant | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12-May-11 | 9-Jun-11 | 14-Jul-11 | 4-Aug-11 | 8-Sep-11 | 5-Oct-11 | 1-Nov-11 | 5-Dec-11 | 4-Jan-12 | 8-Feb-12 | 14-Mar-12 | 3-Apr-12 | 2-May-12 | 7-Jun-12 | 5-Jul-12 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Zinc (Zn) (mg/L) | <0.003 | <0.003 | <0.003 | 0.0059 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.004 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 784 | 815 | 841 | 913 | 943 | 988 | 987 | 996 | 971 | 975 | 955 | 918 | 763 | 852 | 897 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 35.6 | 34.3 | 35.9 | 36 | 31.2 | 31.5 | 34.9 | 27.7 | 22.8 | 24 | 16.7 | 31.1 | 32.3 | 34.3 | 39 |
| Hardness (mg/L) | 409 | 433 | 456 | 474 | 470 | 472 | 479 | 452 | 449 | 442 | 419 | 434 | 371 | 406 | 402 |
| NTU (ntu) | 16.1 | 2.81 | 3.32 | 1.85 | 2.04 | 18.5 | 30.1 | 5.17 | 2.19 | 2.73 | 4.07 | 8.64 | 15.5 | 5.72 | 2.93 |
| TDS (mg/L) | 784 | 815 | 841 | 913 | 943 | 988 | 987 | 996 | 971 | 975 | 955 | 918 | 763 | 852 | 897 |
| TSS (mg/L) | 13.8 | 8.7 | 3.5 | <3 | 3.7 | 24.2 | 16.9 | 5.3 | <3.0 | <3.0 | 3.3 | 7.7 | 19.9 | 15.2 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00087 | 0.001 | 0.00124 | 0.00117 | 0.00142 | 0.00158 | 0.00165 | 0.00154 | 0.00167 | 0.00168 | 0.00179 | 0.0018 | 0.00147 | 0.00183 | 0.00153 |
| Arsenic (As)-Total ( | 0.00125 | 0.00125 | 0.00165 | 0.00154 | 0.00189 | 0.00221 | 0.00259 | 0.0019 | 0.002 | 0.00195 | 0.0018 | 0.00194 | 0.00199 | 0.00212 | 0.00187 |
| Barium (Ba)-Total | 0.0669 | 0.0741 | 0.089 | 0.0805 | 0.0788 | 0.0927 | 0.107 | 0.07 | 0.0791 | 0.0807 | 0.0737 | 0.0824 | 0.0793 | 0.0774 | 0.079 |
| Boron (B)-Total (mg/L) | 0.073 | 0.096 | 0.102 | 0.11 | 0.118 | 0.115 | 0.146 | 0.12 | 0.142 | 0.129 | 0.126 | 0.128 | 0.105 | 0.118 | 0.091 |
| Calcium (Ca)-Total ( | 134 | 149 | 168 | 165 | 164 | 165 | 175 | 156 | 164 | 154 | 150 | 151 | 123 | 139 | 132 |
| Chromium (Cr)-Total (mg/L) | 0.00053 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | 0.00209 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00088 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00062 | 0.00011 | 0.00018 | 0.00015 | <0.00010 | 0.00037 | 0.00118 | 0.0001 | 0.0001 | <0.00010 | 0.00016 | 0.00034 | 0.0007 | 0.00052 | 0.00014 |
| Magnesium (Mg)-Total (mg/L) | 17.1 | 16.2 | 14.9 | 16.6 | 14 | 12.4 | 14 | 10.2 | 12.4 | 14 | 13.2 | 15.7 | 14.9 | 17.3 | 17.9 |
| Mercury (Hg)-Total (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | | | <0.000050 | | | | | | <0.000050 | | |
| Nickel (Ni)-Total (mg/L) | 0.00079 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | 0.00165 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00075 | 0.00113 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 5.62 | 5.47 | 6.69 | 5.9 | 6.89 | 8.21 | 11.4 | 7.37 | 6.87 | 6.45 | 5.94 | 6.48 | 6.57 | 6.46 | 5.09 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | <0.00001 | 0.000018 | <0.000010 | <0.000010 | 0.000011 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.00001 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 55.9 | 60.4 | 69.6 | 66.3 | 75.8 | 79 | 91.1 | 93 | 103 | 102 | 97.8 | 95.6 | 71.1 | 74.5 | 75.2 |
| Strontium (Sr)-Total (mg/L) | 1.34 | 1.57 | 1.51 | 1.49 | 1.43 | 1.42 | 1.55 | 1.48 | 1.69 | 1.43 | 1.26 | 1.41 | 1.3 | 1.33 | 1.04 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | 0.00023 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.695 | 0.14 | 0.219 | 0.137 | 0.0833 | 0.515 | 1.97 | 0.134 | 0.0963 | 0.0769 | 0.151 | 0.385 | 0.874 | 0.718 | 0.12 |
| Total Cadmium (mg/L) | <0.00002 | <0.00002 | <0.00002 | <0.00002 | 0.000031 | 0.000023 | 0.00005 | 0.000027 | <0.000020 | <0.000020 | <0.000070 | 0.000022 | 0.000029 | <0.000030 | <0.000050 |
| Total Copper (mg/L) | 0.0275 | 0.00627 | 0.0102 | 0.00572 | 0.00554 | 0.0224 | 0.0275 | 0.00462 | 0.0024 | 0.00272 | 0.00326 | 0.00766 | 0.0252 | 0.0143 | 0.0067 |
| Total Iron (mg/L) | 0.462 | 0.075 | 0.119 | 0.066 | 0.041 | 0.331 | 1.73 | 0.069 | 0.061 | 0.04 | 0.073 | 0.224 | 0.655 | 0.662 | 0.059 |
| Total Lead (mg/L) | 0.000126 | <0.00005 | 0.000094 | <0.00005 | 0.000071 | 0.000203 | 0.00056 | <0.000050 | 0.00006 | <0.000050 | <0.000050 | 0.000054 | 0.000205 | 0.000262 | <0.000050 |
| Total Manganese (mg/L) | 0.0543 | 0.0078 | 0.0181 | 0.0374 | 0.00634 | 0.0219 | 0.0598 | 0.0103 | 0.0141 | 0.015 | 0.0105 | 0.0265 | 0.0373 | 0.0366 | 0.0243 |
| Total Molybdenum (mg/L) | 0.125 | 0.152 | 0.167 | 0.176 | 0.186 | 0.188 | 0.204 | 0.202 | 0.213 | 0.204 | 0.194 | 0.199 | 0.159 | 0.177 | 0.141 |
| Total Selenium (mg/L) | 0.0158 | 0.0186 | 0.0221 | 0.0203 | 0.0219 | 0.0223 | 0.0216 | 0.0201 | 0.0206 | 0.021 | 0.0208 | 0.0201 | 0.0205 | 0.0219 | 0.0222 |
| Zinc (Zn)-Total (mg/L) | <0.003 | 0.0037 | 0.0044 | <0.003 | <0.0030 | <0.0030 | 0.0063 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0034 | 0.0041 | 0.005 | <0.0030 |

| | E225309 : E1 - Tailings Impoundment Supernatant | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1-Aug-12 | 6-Sep-12 | 3-Oct-12 | 15-Nov-12 | 6-Dec-12 | 2-Jan-13 | 6-Feb-13 | 1-May-13 | 8-Aug-13 | 5-Nov-13 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | | | |
| TDS (mg/L) | 922 | 930 | 990 | 976 | 960 | 969 | 939 | 783 | 918 | 945 |
| **Physical Test** | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 36.2 | 37.9 | 40.6 | 35.5 | 34.5 | 28.8 | 26.9 | 31.2 | 36.4 | 37.8 |
| Hardness (mg/L) | 424 | 411 | 465 | 500 | 458 | 460 | 489 | 403 | 440 | 474 |
| NTU (ntu) | 2.5 | 2.96 | 5.98 | 4.17 | 3.68 | 3.33 | 2.75 | 3.64 | 10.4 | 45.4 |
| TDS (mg/L) | 922 | 930 | 990 | 976 | 960 | 969 | 939 | 783 | 918 | 945 |
| TSS (mg/L) | 3.6 | 3.1 | 8.3 | 7.9 | 6.4 | 5.6 | <3.0 | 11.3 | 19.6 | 54.9 |
| **Total Metals** | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00244 | 0.00233 | 0.00238 | 0.00215 | 0.00219 | 0.00205 | 0.00193 | 0.00182 | 0.00205 | 0.00218 |
| Arsenic (As)-Total ( | 0.00223 | 0.00225 | 0.00207 | 0.00195 | 0.002 | 0.00197 | 0.00207 | 0.00184 | 0.00238 | 0.00304 |
| Barium (Ba)-Total | 0.0789 | 0.084 | 0.0685 | 0.0741 | 0.0759 | 0.053 | 0.056 | 0.0552 | 0.088 | 0.0746 |
| Boron (B)-Total (mg/L) | 0.122 | 0.141 | 0.138 | 0.114 | 0.123 | 0.115 | 0.124 | 0.099 | 0.101 | 0.096 |
| Calcium (Ca)-Total ( | 144 | 136 | 152 | 156 | 153 | 153 | 163 | 133 | 145 | 158 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | 0.00058 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00068 |
| Cobalt (Co)-Total (m | 0.0001 | 0.00017 | 0.00024 | 0.00021 | 0.00017 | 0.00014 | 0.00011 | 0.0003 | 0.00051 | 0.00169 |
| Magnesium (Mg)-Total (mg/L) | 16.4 | 19.4 | 20.6 | 18.9 | 20 | 18.3 | 19.9 | 16.9 | 18.7 | 19 |
| Mercury (Hg)-Total (mg/L) | <0.000010 | | | <0.000010 | | | | <0.000010 | <0.000010 | <0.000010 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | 0.00051 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00057 | 0.00081 | 0.00085 |
| Silicon (Si)-Total (mg/L) | 6.44 | 6.68 | 6.48 | 6.38 | 6 | 5.96 | 5.62 | 6.31 | 8.38 | 10.3 |
| Silver (Ag)-Total (mg/L) | 0.000028 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000024 | <0.000010 | 0.000022 |
| Sodium (Na)-Total (mg/L) | 81.9 | 95.7 | 90.3 | 84.8 | 94.9 | 82.6 | 88.7 | 66.7 | 75.8 | 81.6 |
| Strontium (Sr)-Total (mg/L) | 1.4 | 1.4 | 1.39 | 1.39 | 1.55 | 1.42 | 1.64 | 1.36 | 1.53 | 1.57 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00012 |
| Total Aluminum (mg/L) | 0.15 | 0.203 | 0.273 | 0.273 | 0.13 | 0.201 | 0.0777 | 0.521 | 0.877 | 2.05 |
| Total Cadmium (mg/L) | <0.00010 | <0.000070 | 0.000041 | <0.000050 | <0.00010 | <0.000050 | <0.000050 | <0.000050 | <0.000060 | <0.00010 |
| Total Copper (mg/L) | 0.00548 | 0.0055 | 0.006 | 0.0111 | 0.00466 | 0.00476 | 0.00307 | 0.00828 | 0.0149 | 0.0409 |
| Total Iron (mg/L) | 0.082 | 0.11 | 0.115 | 0.19 | 0.098 | 0.096 | 0.047 | 0.327 | 0.462 | 1.47 |
| Total Lead (mg/L) | 0.000062 | <0.000050 | 0.000059 | <0.000050 | <0.000050 | 0.000052 | <0.000050 | 0.000115 | 0.000078 | 0.000541 |
| Total Manganese (mg/L) | 0.0101 | 0.0209 | 0.0426 | 0.0187 | 0.0184 | 0.0148 | 0.0148 | 0.0238 | 0.0231 | 0.0638 |
| Total Molybdenum (mg/L) | 0.188 | 0.185 | 0.188 | 0.182 | 0.195 | 0.189 | 0.197 | 0.159 | 0.181 | 0.2 |
| Total Selenium (mg/L) | 0.0262 | 0.0274 | 0.0274 | 0.0268 | 0.0345 | 0.0293 | 0.0278 | 0.0272 | 0.03 | 0.0313 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0031 | 0.0059 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225309 : E1 - Tailings Impoundment Supernatant | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 203 | 160 | 0.00500 | 0.71900 | 0.10735 | 0.17355 | 0.15594 |
| Chloride (mg/L) | 66 | 66 | 17.50000 | 44.00000 | 26.74091 | 24.07500 | 6.06435 |
| Diss-Orthophosphate (mg/L) | 201 | 91 | 0.00050 | 0.23900 | 0.00957 | 0.05320 | 0.02500 |
| Diss-Phosphorus (mg/L) | 164 | 125 | 0.00100 | 0.73400 | 0.02653 | 0.13340 | 0.07718 |
| Nitrate (N) (mg/L) | 106 | 106 | 0.00400 | 8.15000 | 3.67258 | 2.85200 | 2.27533 |
| Nitrate and Nitrite (mg/L) | 73 | 63 | 0.01000 | 8.33000 | 3.42986 | 1.08000 | 3.12252 |
| Nitrite (N) (mg/L) | 163 | 133 | 0.00050 | 1.19000 | 0.08826 | 0.18310 | 0.15339 |
| Sulphate (mg/L) | 198 | 198 | 2.50000 | 1,100.00000 | 292.25354 | 340.20000 | 249.41089 |
| Total Nitrogen (mg/L) | 99 | 99 | 1.01000 | 10.50000 | 5.11808 | 4.10300 | 2.49060 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 184 | 183 | 0.00820 | 3.59000 | 0.06007 | 0.10800 | 0.26696 |
| Diss-Antimony (Sb) (mg/L) | 184 | 183 | 0.00015 | 0.00519 | 0.00187 | 0.00309 | 0.00092 |
| Diss-Arsenic (As) (mg/L) | 184 | 183 | 0.00100 | 0.00600 | 0.00274 | 0.00547 | 0.00108 |
| Diss-Barium (Ba) (mg/L) | 184 | 184 | 0.02610 | 0.20000 | 0.05484 | 0.05978 | 0.01908 |
| Diss-Beryllium (Be) (mg/L) | 183 | 1 | 0.00003 | 0.00750 | 0.00024 | 0.00025 | 0.00062 |
| Diss-Boron (B) (mg/L) | 107 | 106 | 0.05600 | 0.41300 | 0.13991 | 0.25190 | 0.05461 |
| Diss-Cadmium (Cd) (mg/L) | 183 | 93 | 0.00001 | 0.00050 | 0.00012 | 0.00034 | 0.00011 |
| Diss-Calcium (Ca) (mg/L) | 186 | 186 | 17.90000 | 341.00000 | 81.70591 | 74.64000 | 74.97358 |
| Diss-Chromium (Cr) (mg/L) | 183 | 36 | 0.00010 | 0.00750 | 0.00052 | 0.00240 | 0.00088 |
| Diss-Cobalt (Co) (mg/L) | 184 | 75 | 0.00001 | 0.01060 | 0.00015 | 0.00032 | 0.00079 |
| Diss-Copper (Cu) (mg/L) | 197 | 183 | 0.00018 | 0.60100 | 0.02068 | 0.14600 | 0.07061 |
| Diss-Iron (Fe) (mg/L) | 184 | 60 | 0.00100 | 0.99200 | 0.03323 | 0.09870 | 0.09559 |
| Diss-Lead (Pb) (mg/L) | 184 | 75 | 0.00001 | 0.00150 | 0.00011 | 0.00059 | 0.00019 |
| Diss-Magnesium (Mg) (mg/L) | 187 | 187 | 2.73000 | 30.50000 | 9.11390 | 10.01450 | 5.78831 |
| Diss-Manganese (Mn) (mg/L) | 184 | 184 | 0.00008 | 0.36000 | 0.02804 | 0.06700 | 0.03504 |
| Diss-Mercury (Hg) (mg/L) | 85 | 1 | 0.00001 | 0.00010 | 0.00002 | 0.00003 | 0.00001 |
| Diss-Molybdenum (Mo) (mg/L) | 197 | 197 | 0.00760 | 0.56500 | 0.13003 | 0.21105 | 0.07993 |
| Diss-Nickel (Ni) (mg/L) | 184 | 38 | 0.00003 | 0.00750 | 0.00048 | 0.00120 | 0.00064 |
| Diss-Potassium (K) (mg/L) | 184 | 184 | 8.69000 | 38.30000 | 20.15288 | 32.48000 | 6.44436 |
| Diss-Selenium (mg/L) | 184 | 183 | 0.00070 | 0.03330 | 0.01189 | 0.01431 | 0.00838 |
| Diss-Silicon (Si) (mg/L) | 186 | 186 | 0.26000 | 8.76000 | 3.96995 | 5.60600 | 2.03575 |
| Diss-Silver (Ag) (mg/L) | 183 | 8 | 0.00001 | 0.00015 | 0.00001 | 0.00001 | 0.00001 |
| Diss-Sodium (Na) (mg/L) | 185 | 185 | 32.20000 | 116.00000 | 72.23568 | 89.96500 | 19.69547 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E225309 : E1 - Tailings Impoundment Supernatant | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Strontium (Sr) (mg/L) | 184 | 184 | 0.14400 | 6.60000 | 1.25352 | 3.93700 | 1.23312 |
| Diss-Tin (Sn) (mg/L) | 173 | 41 | 0.00003 | 0.00150 | 0.00009 | 0.00021 | 0.00013 |
| Diss-Zinc (Zn) (mg/L) | 183 | 85 | 0.00003 | 0.01500 | 0.00147 | 0.00308 | 0.00165 |
| TDS (mg/L) | 158 | 158 | 31.00000 | 2,450.00000 | 620.03797 | 613.20000 | 400.67026 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 201 | 192 | 0.50000 | 163.00000 | 66.87264 | 151.05000 | 39.22876 |
| Hardness (mg/L) | 203 | 203 | 71.30000 | 970.00000 | 239.01872 | 221.90000 | 203.66808 |
| NTU (ntu) | 204 | 204 | 0.27000 | 1,150.00000 | 131.16142 | 716.40000 | 217.14153 |
| TDS (mg/L) | 158 | 158 | 31.00000 | 2,450.00000 | 620.03797 | 613.20000 | 400.67026 |
| TSS (mg/L) | 189 | 151 | 1.50000 | 856.00000 | 62.92011 | 340.30000 | 121.29212 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 190 | 189 | 0.00047 | 0.00516 | 0.00183 | 0.00311 | 0.00089 |
| Arsenic (As)-Total ( | 201 | 200 | 0.00120 | 0.17000 | 0.00435 | 0.00740 | 0.01187 |
| Barium (Ba)-Total | 190 | 190 | 0.03760 | 0.45000 | 0.10531 | 0.33200 | 0.08697 |
| Boron (B)-Total (mg/L) | 111 | 110 | 0.06100 | 0.43900 | 0.14078 | 0.26395 | 0.05551 |
| Calcium (Ca)-Total ( | 204 | 204 | 21.00000 | 342.00000 | 80.17402 | 75.02000 | 72.64769 |
| Chromium (Cr)-Total (mg/L) | 190 | 76 | 0.00010 | 0.00750 | 0.00097 | 0.00410 | 0.00127 |
| Cobalt (Co)-Total (m | 190 | 155 | 0.00002 | 0.00991 | 0.00112 | 0.00606 | 0.00177 |
| Magnesium (Mg)-Total (mg/L) | 204 | 204 | 4.05000 | 30.00000 | 9.88657 | 10.70000 | 5.42796 |
| Mercury (Hg)-Total (mg/L) | 85 | 7 | 0.00001 | 0.00015 | 0.00003 | 0.00006 | 0.00002 |
| Nickel (Ni)-Total (mg/L) | 201 | 103 | 0.00025 | 0.08590 | 0.00215 | 0.00490 | 0.00874 |
| Silicon (Si)-Total (mg/L) | 204 | 204 | 0.33000 | 47.20000 | 9.74281 | 36.22000 | 10.01393 |
| Silver (Ag)-Total (mg/L) | 189 | 69 | 0.00001 | 0.00015 | 0.00002 | 0.00007 | 0.00002 |
| Sodium (Na)-Total (mg/L) | 204 | 204 | 0.00240 | 119.00000 | 71.09413 | 89.80000 | 21.18358 |
| Strontium (Sr)-Total (mg/L) | 208 | 208 | 0.21700 | 6.64000 | 1.23068 | 3.77000 | 1.19529 |
| Tin (Sn)-Total (mg/L) | 176 | 54 | 0.00003 | 0.00209 | 0.00014 | 0.00063 | 0.00026 |
| Total Aluminum (mg/L) | 201 | 201 | 0.05340 | 20.40000 | 2.60980 | 14.44500 | 4.30720 |
| Total Cadmium (mg/L) | 198 | 115 | 0.00001 | 0.00641 | 0.00019 | 0.00063 | 0.00049 |
| Total Copper (mg/L) | 201 | 194 | 0.00225 | 2.50000 | 0.16224 | 1.05500 | 0.34767 |
| Total Iron (mg/L) | 201 | 201 | 0.03300 | 17.40000 | 1.46074 | 7.03600 | 2.31949 |
| Total Lead (mg/L) | 201 | 171 | 0.00005 | 0.04810 | 0.00144 | 0.00405 | 0.00473 |
| Total Manganese (mg/L) | 201 | 201 | 0.00604 | 0.39000 | 0.06805 | 0.21205 | 0.06557 |
| Total Molybdenum (mg/L) | 201 | 198 | 0.00003 | 0.28700 | 0.12794 | 0.21400 | 0.07573 |
| Total Selenium (mg/L) | 208 | 207 | 0.00060 | 0.03450 | 0.01166 | 2.37100 | 0.00875 |
| Zinc (Zn)-Total (mg/L) | 201 | 140 | 0.00025 | 0.06870 | 0.00678 | 0.02862 | 0.00960 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E224221 : E4 - Main Embankment Seepage Pond | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 14-Jan-09 | 10-Feb-09 | 4-Mar-09 | 7-Apr-09 | 12-May-09 | 9-Jun-09 | 7-Jul-09 | 5-Aug-09 | 19-Aug-09 | 2-Sep-09 | 6-Oct-09 | 29-Oct-09 | 19-Nov-09 | 16-Dec-09 | 13-Jan-10 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.168 | 0.0967 | 0.0883 | 0.0569 | <0.005 | 0.0139 | <0.005 | 0.022 | 0.0292 | 0.0487 | 0.0381 | 0.05 | 0.012 | 0.062 | 0.027 |
| Chloride (mg/L) | 19.5 | 19.2 | | 15.1 | 12.9 | 18.2 | 16.8 | 19.3 | 22 | 20.3 | 19.1 | 18.6 | 15.5 | 19.9 | 13 |
| Diss-Orthophosphate (mg/L) | <0.001 | 0.0095 | <0.001 | <0.001 | <0.001 | 0.0015 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0687 | <0.001 |
| Diss-Phosphorus (mg/L) | 0.0124 | 0.0248 | 0.013 | 0.0116 | 0.0062 | 0.0067 | 0.0068 | 0.0068 | 0.0065 | 0.0063 | 0.0082 | 0.0102 | 0.0095 | 0.113 | 0.0063 |
| Nitrate (N) (mg/L) | 0.854 | 0.284 | 0.449 | 1.27 | 3.66 | 1.82 | 1.12 | 0.692 | 0.545 | 0.567 | 0.683 | 0.848 | 2.21 | 1.04 | 1.41 |
| Nitrate and Nitrite (mg/L) | | | | | | | | | | | | | | | |
| Nitrite (N) (mg/L) | 0.0816 | 0.117 | 0.101 | 0.0452 | 0.0235 | 0.0154 | 0.0183 | 0.0131 | <0.01 | 0.016 | 0.0193 | 0.0109 | 0.0278 | 0.176 | 0.0273 |
| Sulphate (mg/L) | 282 | 253 | 257 | 245 | 325 | 354 | 304 | 337 | 327 | 327 | 299 | 286 | 337 | 362 | 258 |
| Total Nitrogen (mg/L) | 1.35 | 0.52 | 0.78 | 1.73 | 5.03 | 2.73 | 1.24 | 0.72 | 0.88 | 0.55 | 0.8 | 0.92 | 2.99 | 1.92 | 2.24 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0079 | 0.0055 | 0.0041 | 0.0026 | 0.0035 | 0.002 | 0.0034 | 0.0014 | 0.0027 | 0.0012 | <0.002 | 0.0017 | <0.002 | <0.002 | 0.0022 |
| Diss-Antimony (Sb) (mg/L) | 0.00032 | 0.00027 | 0.00031 | 0.00023 | 0.00029 | 0.00026 | 0.00021 | 0.00025 | 0.00025 | 0.00022 | 0.0002 | 0.00017 | <0.0002 | 0.00027 | <0.0002 |
| Diss-Arsenic (As) (mg/L) | 0.00185 | 0.00247 | 0.00222 | 0.00172 | 0.00155 | 0.00185 | 0.0019 | 0.00213 | 0.00229 | 0.00218 | 0.00198 | 0.00207 | 0.00152 | 0.00179 | 0.00124 |
| Diss-Barium (Ba) (mg/L) | 0.0581 | 0.0688 | 0.0583 | 0.0544 | 0.0645 | 0.0487 | 0.0475 | 0.0491 | 0.052 | 0.0532 | 0.065 | 0.0612 | 0.0677 | 0.0792 | 0.0475 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.001 | <0.001 | <0.001 |
| Diss-Boron (B) (mg/L) | 0.144 | 0.143 | 0.135 | 0.116 | 0.116 | 0.14 | 0.13 | 0.149 | 0.145 | 0.144 | 0.149 | 0.142 | 0.125 | 0.126 | 0.115 |
| Diss-Cadmium (Cd) (mg/L) | <0.00041 | <0.0004 | <0.000017 | <0.00031 | <0.0008 | <0.0006 | <0.0004 | <0.00041 | <0.00043 | <0.0004 | <0.001 | <0.0005 | <0.000034 | <0.0003 | 0.000051 |
| Diss-Calcium (Ca) (mg/L) | 96.2 | 87.2 | 90.4 | 87.9 | 117 | 93 | 87.6 | 83.3 | 86.2 | 92.3 | 97.1 | 93.2 | 122 | 124 | 104 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.001 | <0.0005 | 0.00116 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00064 | <0.001 | 0.00142 | <0.001 | <0.001 | <0.001 |
| Diss-Cobalt (Co) (mg/L) | 0.0004 | 0.00029 | 0.00021 | 0.00018 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0002 | <0.0002 |
| Diss-Copper (Cu) (mg/L) | <0.0001 | 0.00038 | <0.0009 | 0.00108 | 0.00368 | 0.00217 | 0.00254 | 0.00201 | <0.004 | <0.003 | 0.00197 | 0.00124 | 0.00181 | 0.0026 | 0.006 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Diss-Lead (Pb) (mg/L) | 0.000052 | <0.0001 | <0.00005 | <0.00005 | <0.0001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.00013 | <0.00005 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Magnesium (Mg) (mg/L) | 16.1 | 14.6 | 13.8 | 14.4 | 18.6 | 20.1 | 17.9 | 17.9 | 17.8 | 16.9 | 16.8 | 15.8 | 19.6 | 20.4 | 17.5 |
| Diss-Manganese (Mn) (mg/L) | 0.835 | 0.858 | 0.36 | 0.274 | 0.0297 | 0.0585 | 0.0141 | 0.00127 | 0.0271 | 0.000728 | 0.0591 | 0.0806 | 0.149 | 0.00857 | 0.428 |
| Diss-Mercury (Hg) (mg/L) | | | | <0.00001 | | | | | | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.115 | 0.106 | 0.109 | 0.106 | 0.191 | 0.15 | 0.132 | 0.133 | 0.128 | 0.116 | 0.116 | 0.119 | 0.16 | 0.106 | 0.0866 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.001 | <0.0005 | 0.0006 | 0.0012 | <0.0005 | <0.0005 | 0.00089 | 0.0006 | <0.0005 | <0.001 | <0.0005 | <0.001 | <0.001 | <0.001 |
| Diss-Potassium (K) (mg/L) | 11.3 | 10.4 | 10.4 | 9.8 | 8.2 | 10.4 | 9.89 | 11.7 | 13.5 | 11.4 | 11.7 | 10.7 | 9.59 | 14.1 | 5.34 |
| Diss-Selenium (mg/L) | 0.0035 | 0.0024 | 0.0027 | 0.0055 | 0.0112 | 0.0088 | 0.0068 | 0.0055 | 0.0052 | 0.0045 | 0.0035 | 0.0037 | 0.008 | 0.0067 | 0.0046 |
| Diss-Silicon (Si) (mg/L) | 7.18 | 6.79 | 6.97 | 5.74 | 3.36 | 2.8 | 3.85 | 1.52 | 1.33 | 1.75 | 3.5 | 4.62 | 5.41 | 8.09 | 6.23 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00002 | <0.00001 | <0.00001 | <0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00002 | <0.00001 | <0.00002 | <0.00002 | <0.00002 |
| Diss-Sodium (Na) (mg/L) | 68 | 68.1 | 62.5 | 55.4 | 45.4 | 65 | 62.9 | 72.3 | 72.4 | 68 | 69.5 | 64.2 | 56 | 60.6 | 46.4 |
| Diss-Strontium (Sr) (mg/L) | 0.923 | 1.12 | 1.01 | 1.03 | 1.62 | 1.28 | 1.32 | 1.22 | 1.25 | 1.14 | 1.26 | 1.18 | 1.49 | 1.28 | 1.14 |

| | E224221 : E4 - Main Embankment Seepage Pond | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10-Feb-10 | 3-Mar-10 | 7-Apr-10 | 11-May-10 | 3-Jun-10 | 8-Jul-10 | 5-Aug-10 | 1-Sep-10 | 7-Oct-10 | 4-Nov-10 | 1-Dec-10 | 10-Jan-11 | 3-Feb-11 | 8-Mar-11 | 5-Apr-11 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0412 | <0.005 | 0.0098 | 0.006 | 0.012 | 0.0141 | 0.0398 | 0.0269 | 0.0445 | 0.1 | 0.0371 | 0.0612 | 0.0399 | 0.0616 | 0.0119 |
| Chloride (mg/L) | 18.8 | 7.17 | 15.7 | 17.4 | 16.9 | 20.1 | 24.8 | 24.6 | 26.8 | 28.7 | 30.3 | 31.9 | 30.2 | 27 | 16 |
| Diss-Orthophosphate (mg/L) | 0.0035 | 0.0013 | 0.0018 | <0.001 | <0.001 | <0.001 | 0.0017 | <0.001 | <0.001 | 0.0021 | 0.0014 | <0.001 | 0.0044 | 0.0039 | 0.0041 |
| Diss-Phosphorus (mg/L) | 0.0142 | 0.0089 | 0.0112 | 0.0047 | 0.0089 | 0.0078 | 0.0087 | 0.0072 | 0.007 | 0.0072 | 0.0107 | 0.009 | 0.0121 | 0.0125 | 0.0108 |
| Nitrate (N) (mg/L) | 0.749 | 0.765 | 1.04 | 1.82 | 0.563 | 0.418 | 0.376 | 0.497 | 2.05 | 3.83 | 3.11 | 5.97 | 5.45 | 3.61 | 3.77 |
| Nitrate and Nitrite (mg/L) | | | | 1.82 | 0.568 | 0.426 | 0.395 | 0.513 | 2.11 | 3.91 | 3.14 | 6.02 | 5.47 | 3.64 | 3.77 |
| Nitrite (N) (mg/L) | 0.227 | 0.0155 | 0.0154 | <0.01 | 0.0054 | 0.0087 | 0.019 | 0.016 | 0.055 | 0.08 | 0.027 | 0.049 | 0.022 | 0.027 | <0.01 |
| Sulphate (mg/L) | 339 | 173 | 297 | 409 | 333 | 382 | 425 | 421 | 558 | 680 | 642 | 756 | 715 | 597 | 475 |
| Total Nitrogen (mg/L) | 1.18 | 1.47 | 1.63 | 2.21 | 0.97 | 0.68 | 0.55 | 0.78 | 2.8 | 4.34 | 3.77 | 6.17 | 6.7 | 3.73 | 4.14 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.002 | <0.005 | <0.002 | 0.0035 | 0.0023 | 0.0014 | <0.002 | <0.001 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | 0.0045 |
| Diss-Antimony (Sb) (mg/L) | 0.00028 | 0.00013 | 0.00029 | <0.0002 | 0.00026 | 0.00033 | 0.00032 | 0.00038 | 0.00068 | 0.00118 | 0.00086 | 0.00172 | 0.0016 | 0.00083 | 0.00064 |
| Diss-Arsenic (As) (mg/L) | 0.00201 | 0.00077 | 0.0018 | 0.00076 | 0.00188 | 0.00204 | 0.00213 | 0.00202 | 0.00183 | 0.00179 | 0.00154 | 0.00168 | 0.00163 | 0.00173 | 0.001 |
| Diss-Barium (Ba) (mg/L) | 0.0718 | 0.036 | 0.0611 | 0.0466 | 0.0184 | 0.0326 | 0.0488 | 0.0423 | 0.0455 | 0.0561 | 0.0572 | 0.0478 | 0.0495 | 0.0528 | 0.0504 |
| Diss-Beryllium (Be) (mg/L) | <0.001 | <0.0005 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Boron (B) (mg/L) | 0.121 | 0.063 | 0.128 | 0.113 | 0.104 | 0.116 | 0.137 | 0.147 | 0.14 | 0.131 | 0.132 | 0.142 | 0.107 | 0.108 | 0.085 |
| Diss-Cadmium (Cd) (mg/L) | | <0.000017 | <0.00031 | 0.000048 | <0.0004 | <0.00041 | <0.0004 | <0.00003 | <0.00005 | <0.00015 | <0.00015 | <0.0002 | 0.000177 | <0.00015 | <0.0002 |
| Diss-Calcium (Ca) (mg/L) | 114 | 68.6 | 112 | 178 | 86 | 89.8 | 113 | 125 | 174 | 219 | 184 | 236 | 220 | 181 | 163 |
| Diss-Chromium (Cr) (mg/L) | <0.001 | <0.0005 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Cobalt (Co) (mg/L) | 0.00034 | <0.0001 | <0.0002 | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | 0.00011 | 0.00014 | 0.00015 | 0.00026 | 0.00024 | 0.00024 | 0.00015 |
| Diss-Copper (Cu) (mg/L) | 0.00167 | 0.00472 | 0.00172 | 0.00403 | 0.00233 | 0.00197 | <0.002 | 0.0013 | 0.00158 | 0.00168 | 0.00388 | 0.00457 | 0.00571 | 0.00374 | 0.00639 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Diss-Lead (Pb) (mg/L) | <0.0001 | <0.00005 | <0.0001 | <0.0001 | <0.00005 | <0.00005 | <0.0001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 18.6 | 11.1 | 18.7 | 24.7 | 19.8 | 21.2 | 21.9 | 21.3 | 24.8 | 26.3 | 27.2 | 29.6 | 29 | 25.5 | 24.5 |
| Diss-Manganese (Mn) (mg/L) | 0.575 | 0.0901 | 0.0954 | 0.0514 | 0.0431 | 0.00218 | 0.00087 | 0.152 | 0.155 | 0.129 | 0.119 | 0.243 | 0.244 | 0.406 | 0.21 |
| Diss-Mercury (Hg) (mg/L) | | | | | | | | | <0.00005 | | <0.00005 | | | <0.00005 | <0.00005 |
| Diss-Molybdenum (Mo) (mg/L) | 0.112 | 0.0522 | 0.118 | 0.135 | 0.101 | 0.109 | 0.11 | 0.125 | 0.156 | 0.171 | 0.139 | 0.221 | 0.173 | 0.15 | 0.145 |
| Diss-Nickel (Ni) (mg/L) | <0.001 | <0.0005 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | 0.00052 | <0.0005 | <0.0005 | 0.0006 | 0.00059 |
| Diss-Potassium (K) (mg/L) | 10.5 | 4.34 | 9.14 | 2.5 | 8.86 | 10.7 | 13 | 13.5 | 13.6 | 15 | 14.9 | 15.2 | 14.6 | 12.9 | 8.19 |
| Diss-Selenium (mg/L) | 0.0051 | 0.0021 | 0.0058 | 0.0054 | 0.0052 | 0.0052 | 0.0045 | 0.0043 | 0.0095 | 0.0149 | 0.0094 | 0.0174 | 0.0151 | 0.00952 | 0.0123 |
| Diss-Silicon (Si) (mg/L) | 6.58 | 4.26 | 4.56 | 5.83 | 2.92 | 1.27 | 0.402 | 2.43 | 5.05 | 5.52 | 4.34 | 5.88 | 6.03 | 6.27 | 5.26 |
| Diss-Silver (Ag) (mg/L) | <0.00002 | <0.00001 | <0.00002 | <0.00002 | <0.00001 | <0.00001 | <0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Diss-Sodium (Na) (mg/L) | 59.5 | 26 | 57.1 | 47.5 | 55.6 | 71.5 | 76.9 | 74.7 | 83.6 | 88.8 | 83.6 | 88.8 | 85.3 | 82.3 | 47.1 |
| Diss-Strontium (Sr) (mg/L) | 1.3 | 0.746 | 1.37 | 1.79 | 1.15 | 1.53 | 1.67 | 1.74 | 2.09 | 2.4 | 1.97 | 2.62 | 1.98 | 1.86 | 1.86 |

| | E224221 : E4 - Main Embankment Seepage Pond | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12-May-11 | 9-Jun-11 | 13-Jul-11 | 4-Aug-11 | 8-Sep-11 | 5-Oct-11 | 1-Nov-11 | 5-Dec-11 | 4-Jan-12 | 8-Feb-12 | 14-Mar-12 | 3-Apr-12 | 2-May-12 | 7-Jun-12 | 5-Jul-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0075 | 0.0137 | 0.0128 | 0.0172 | 0.031 | 0.0417 | 0.0228 | 0.032 | 0.0469 | 0.0333 | 0.041 | 0.017 | 0.0163 | 0.0184 | 0.0204 |
| Chloride (mg/L) | 18.7 | 18 | 18.3 | 21.4 | 21.7 | 22.6 | 22.8 | 22.7 | 24.9 | 25.9 | 24.6 | 17.5 | 19.6 | 21.8 | 19 |
| Diss-Orthophosphate (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.0010 | <0.0010 | 0.0025 | 0.003 | 0.002 | 0.0043 | 0.003 | 0.0053 | <0.0010 | <0.0010 | <0.0010 |
| Diss-Phosphorus (mg/L) | 0.0054 | 0.0041 | 0.004 | 0.0048 | | 0.0054 | 0.0073 | 0.0074 | 0.0064 | 0.0098 | 0.0096 | 0.0111 | 0.0074 | 0.0061 | 0.0062 |
| Nitrate (N) (mg/L) | 3.82 | 4.23 | 3.99 | 4.43 | 2.9 | 2.64 | 3.29 | 3.3 | 3.72 | 3.99 | 3.71 | 2.99 | 2.48 | 2.11 | 2.56 |
| Nitrate and Nitrite (mg/L) | 3.84 | 4.26 | 4.06 | 4.5 | 2.99 | 2.71 | 3.36 | 3.35 | 3.78 | 4.06 | 3.77 | 3.04 | 2.53 | 2.18 | 2.64 |
| Nitrite (N) (mg/L) | 0.016 | 0.028 | 0.07 | 0.069 | 0.095 | 0.066 | 0.075 | 0.053 | 0.057 | 0.062 | 0.057 | 0.047 | 0.053 | 0.078 | 0.083 |
| Sulphate (mg/L) | 427 | 513 | 503 | 544 | 535 | 537 | 536 | 545 | 549 | 553 | 536 | 422 | 434 | 446 | 490 |
| Total Nitrogen (mg/L) | 5.03 | 6.55 | 5.66 | 5.44 | 4.27 | 3.12 | 4.68 | 4.92 | 5.05 | 7.14 | 5.03 | 3.92 | 3.43 | 2.66 | 3.02 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.009 | 0.0152 | 0.0037 | <0.003 | 0.0032 | <0.0030 | <0.0030 | 0.0146 | 0.0038 | 0.0041 | 0.0069 | 0.0049 | <0.0030 | 0.0037 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.0007 | 0.00102 | 0.00097 | 0.00082 | 0.00071 | 0.00051 | 0.00058 | 0.00063 | 0.00073 | 0.0007 | 0.00069 | 0.0005 | 0.00057 | 0.0007 | 0.00067 |
| Diss-Arsenic (As) (mg/L) | 0.00111 | 0.00155 | 0.00166 | 0.00157 | 0.00185 | 0.00141 | 0.00164 | 0.00145 | 0.00153 | 0.0017 | 0.00157 | 0.0014 | 0.00148 | 0.00161 | 0.00147 |
| Diss-Barium (Ba) (mg/L) | 0.0425 | 0.0352 | 0.0382 | 0.0411 | 0.0424 | 0.0533 | 0.0458 | 0.0403 | 0.0424 | 0.0401 | 0.0417 | 0.0432 | 0.0365 | 0.0322 | 0.0345 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.078 | 0.098 | 0.099 | 0.107 | 0.119 | 0.11 | 0.131 | 0.11 | 0.123 | 0.121 | 0.116 | 0.095 | 0.103 | 0.115 | 0.097 |
| Diss-Cadmium (Cd) (mg/L) | <0.00008 | <0.00008 | <0.00007 | <0.00007 | <0.00015 | <0.000060 | <0.000080 | <0.00020 | | <0.00013 | <0.00015 | <0.00017 | <0.00020 | <0.00015 | <0.00010 |
| Diss-Calcium (Ca) (mg/L) | 137 | 152 | 151 | 164 | 160 | 159 | 160 | 163 | 162 | 159 | 154 | 149 | 137 | 138 | 141 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00015 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | 0.00012 | 0.00016 | 0.00016 | 0.00015 | 0.00013 | 0.00018 | 0.00015 | 0.00011 | 0.00011 |
| Diss-Copper (Cu) (mg/L) | 0.00359 | 0.00507 | 0.00352 | 0.00334 | 0.00244 | 0.00213 | 0.00242 | 0.00373 | 0.00267 | 0.00319 | 0.00318 | 0.00251 | 0.00431 | 0.00374 | 0.00362 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000152 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 19.8 | 23 | 21.8 | 23.3 | 23.5 | 23 | 22 | 21.8 | 20.4 | 21.5 | 19.4 | 20.9 | 18.9 | 18.8 | 22 |
| Diss-Manganese (Mn) (mg/L) | 0.182 | 0.0532 | 0.0523 | 0.0609 | 0.000392 | 0.0753 | 0.121 | 0.148 | 0.197 | 0.188 | 0.183 | 0.233 | 0.149 | 0.143 | 0.158 |
| Diss-Mercury (Hg) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | | | <0.000050 | | | <0.000050 | | | <0.000050 | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.136 | 0.153 | 0.15 | 0.167 | 0.159 | 0.139 | 0.165 | 0.161 | 0.16 | 0.169 | 0.155 | 0.145 | 0.165 | 0.164 | 0.164 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 8.25 | 9.29 | 10.2 | 11.1 | 12.3 | 11.3 | 12.2 | 12.3 | 12.3 | 13 | 11.2 | 10.2 | 9.94 | 10.2 | 9.63 |
| Diss-Selenium (mg/L) | 0.0111 | 0.0172 | 0.015 | 0.0147 | 0.0126 | 0.0106 | 0.0115 | 0.0122 | 0.0124 | 0.0133 | 0.0116 | 0.0106 | 0.00999 | 0.00942 | 0.011 |
| Diss-Silicon (Si) (mg/L) | 4.66 | 3.72 | 4.88 | 5.09 | 3.81 | 5.06 | 5.29 | 5.78 | 5.82 | 5.9 | 5.64 | 5.22 | 3.58 | 3.09 | 3.71 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 51.9 | 62.4 | 64 | 63.8 | 74.8 | 74.5 | 78.6 | 81.8 | 84.2 | 85.9 | 80 | 64.4 | 62.3 | 66.7 | 67 |
| Diss-Strontium (Sr) (mg/L) | 1.52 | 1.6 | 1.57 | 1.75 | 1.67 | 1.59 | 1.66 | 1.74 | 1.7 | 1.62 | 1.55 | 1.6 | 1.67 | 1.7 | 1.92 |

| | E224221 : E4 - Main Embankment Seepage Pond | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1-Aug-12 | 6-Sep-12 | 3-Oct-12 | 15-Nov-12 | 6-Dec-12 | 2-Jan-13 | 6-Feb-13 | 13-Mar-13 | 4-Apr-13 | 1-May-13 | 6-Jun-13 | 10-Jul-13 | 8-Aug-13 | 5-Sep-13 | 3-Oct-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.117 | 0.0127 | 0.0112 | 0.0184 | 0.0196 | 0.0169 | 0.147 | 0.128 | 0.0446 | 0.0162 | 0.0448 | 0.0409 | 0.0488 | 0.0308 | 0.0463 |
| Chloride (mg/L) | 21.8 | 23.3 | 27 | 24.2 | 23.2 | 23.2 | 23.9 | 23.4 | 22 | 19 | 21.3 | 23.5 | 22.9 | 25.6 | 23.3 |
| Diss-Orthophosphate (mg/L) | 0.0014 | 0.0014 | 0.0013 | 0.0026 | 0.0029 | 0.0028 | 0.0041 | 0.005 | 0.0189 | 0.0019 | <0.0010 | 0.0186 | <0.0010 | 0.0018 | 0.0057 |
| Diss-Phosphorus (mg/L) | 0.0085 | 0.0083 | 0.0137 | 0.0059 | 0.009 | 0.0086 | 0.0073 | 0.0114 | 0.0311 | 0.007 | 0.006 | 0.0268 | 0.0061 | 0.0058 | 0.0083 |
| Nitrate (N) (mg/L) | 2.02 | 2.84 | 2.26 | 3.04 | 2.75 | 3.69 | 5.11 | 4.35 | 3.09 | 3.43 | 3.59 | 2.32 | 3.24 | 3.08 | 4.78 |
| Nitrate and Nitrite (mg/L) | 2.09 | 2.94 | 2.36 | 3.11 | 2.83 | 3.78 | 5.2 | 4.45 | 3.27 | 3.51 | 3.79 | 2.54 | 3.45 | 3.26 | 4.99 |
| Nitrite (N) (mg/L) | 0.078 | 0.1 | 0.104 | 0.076 | 0.073 | 0.088 | 0.093 | 0.095 | 0.174 | 0.081 | 0.2 | 0.217 | 0.212 | 0.173 | 0.209 |
| Sulphate (mg/L) | 513 | 528 | 515 | 544 | 517 | 512 | 547 | 522 | 547 | 509 | 530 | 492 | 542 | 521 | 543 |
| Total Nitrogen (mg/L) | 2.28 | 3.58 | 2.71 | 2.79 | 2.81 | 3.3 | 937 | 4.39 | 3.14 | 3.36 | | 2.55 | 4.74 | 13.6 | 4.82 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | | | | | | | | |
| Diss-Antimony (Sb) (mg/L) | 0.00077 | 0.00094 | 0.00063 | 0.00066 | 0.00059 | 0.00073 | | | | | | | | | |
| Diss-Arsenic (As) (mg/L) | 0.00174 | 0.00179 | 0.00172 | 0.00175 | 0.00169 | 0.0017 | | | | | | | | | |
| Diss-Barium (Ba) (mg/L) | 0.0491 | 0.0487 | 0.0476 | 0.0462 | 0.0459 | 0.0416 | | | | | | | | | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | | | | |
| Diss-Boron (B) (mg/L) | 0.117 | 0.134 | 0.135 | 0.117 | 0.12 | 0.106 | | | | | | | | | |
| Diss-Cadmium (Cd) (mg/L) | <0.00010 | <0.00010 | <0.000060 | <0.00010 | <0.00012 | <0.00010 | | | | | | | | | |
| Diss-Calcium (Ca) (mg/L) | 152 | 149 | 149 | 162 | 146 | 153 | | | | | | | | | |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | | | | | | | |
| Diss-Cobalt (Co) (mg/L) | 0.00015 | <0.00010 | <0.00010 | 0.00012 | 0.00012 | 0.00021 | | | | | | | | | |
| Diss-Copper (Cu) (mg/L) | 0.00213 | 0.00194 | 0.00155 | 0.002 | 0.00208 | 0.00284 | | | | | | | | | |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | | | | | | | | | |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | | | | | | | | |
| Diss-Magnesium (Mg) (mg/L) | 21.9 | 20.9 | 20.2 | 21.2 | 21.5 | 20.9 | | | | | | | | | |
| Diss-Manganese (Mn) (mg/L) | 0.269 | 0.0706 | 0.0929 | 0.109 | 0.139 | 0.239 | | | | | | | | | |
| Diss-Mercury (Hg) (mg/L) | <0.000010 | | | <0.000010 | | | | | | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.17 | 0.192 | 0.188 | 0.187 | 0.164 | 0.183 | | | | | | | | | |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | | | | | | | |
| Diss-Potassium (K) (mg/L) | 11.6 | 15 | 13.6 | 12.1 | 12.7 | 12 | | | | | | | | | |
| Diss-Selenium (mg/L) | 0.00971 | 0.0132 | 0.0098 | 0.0133 | 0.0118 | 0.0138 | | | | | | | | | |
| Diss-Silicon (Si) (mg/L) | 4.82 | 5.95 | 6.48 | 6.02 | 6.02 | 6.2 | | | | | | | | | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | | | | | | | |
| Diss-Sodium (Na) (mg/L) | 77.3 | 92.2 | 87.6 | 81 | 79.5 | 84.8 | | | | | | | | | |
| Diss-Strontium (Sr) (mg/L) | 2.27 | 1.75 | 1.7 | 1.82 | 1.77 | 1.84 | | | | | | | | | |

| | E224221 : E4 - | |
|---|---|---|
| | 5-Nov-13 | 5-Dec-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | 0.0132 | 0.0156 |
| Chloride (mg/L) | 23 | 25.8 |
| Diss-Orthophosphate (mg/L) | 0.0026 | <0.0010 |
| Diss-Phosphorus (mg/L) | 0.005 | 0.0063 |
| Nitrate (N) (mg/L) | 4.68 | 4.06 |
| Nitrate and Nitrite (mg/L) | 4.81 | 4.18 |
| Nitrite (N) (mg/L) | 0.137 | 0.123 |
| Sulphate (mg/L) | 544 | 543 |
| Total Nitrogen (mg/L) | 4.47 | 4.04 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | | 0.00060 |
| Diss-Arsenic (As) (mg/L) | | 0.00160 |
| Diss-Barium (Ba) (mg/L) | | 0.0466 |
| Diss-Beryllium (Be) (mg/L) | | <0.00010 |
| Diss-Boron (B) (mg/L) | | 0.108 |
| Diss-Cadmium (Cd) (mg/L) | | <0.00011 |
| Diss-Calcium (Ca) (mg/L) | | 159 |
| Diss-Chromium (Cr) (mg/L) | | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | | 0.00014 |
| Diss-Copper (Cu) (mg/L) | | 0.00239 |
| Diss-Iron (Fe) (mg/L) | | <0.030 |
| Diss-Lead (Pb) (mg/L) | | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | | 21.6 |
| Diss-Manganese (Mn) (mg/L) | | 0.192 |
| Diss-Mercury (Hg) (mg/L) | | |
| Diss-Molybdenum (Mo) (mg/L) | | 0.172 |
| Diss-Nickel (Ni) (mg/L) | | <0.00050 |
| Diss-Potassium (K) (mg/L) | | 11.9 |
| Diss-Selenium (mg/L) | | 0.0152 |
| Diss-Silicon (Si) (mg/L) | | 6.49 |
| Diss-Silver (Ag) (mg/L) | | <0.000010 |
| Diss-Sodium (Na) (mg/L) | | 79.1 |
| Diss-Strontium (Sr) (mg/L) | | 1.72 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E224221 : E4 - Main Embankment Seepage Pond | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **14-Jan-09** | **10-Feb-09** | **4-Mar-09** | **7-Apr-09** | **12-May-09** | **9-Jun-09** | **7-Jul-09** | **5-Aug-09** | **19-Aug-09** | **2-Sep-09** | **6-Oct-09** | **29-Oct-09** | **19-Nov-09** | **16-Dec-09** | **13-Jan-10** |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0002 | <0.0002 |
| Diss-Zinc (Zn) (mg/L) | 0.02 | 0.0035 | <0.001 | 0.004 | <0.002 | <0.001 | <0.001 | <0.001 | 0.0012 | <0.001 | <0.002 | <0.001 | <0.002 | <0.002 | 0.0036 |
| TDS (mg/L) | 610 | 581 | 552 | 529 | 638 | 856 | 596 | 612 | 614 | 594 | 612 | 602 | 520 | 718 | 570 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 146 | 135 | 133 | 120 | 115 | 66.6 | 66.2 | 71.9 | 81.9 | 99 | 120 | 126 | 146 | 158 | 159 |
| Hardness (mg/L) | 307 | 278 | 283 | 279 | 368 | 315 | 293 | 282 | 289 | 300 | 312 | 298 | 384 | 394 | 332 |
| NTU (ntu) | 62.1 | 5.54 | 7.58 | 6.92 | 5.52 | 3.19 | 24.5 | 1.98 | 2.98 | 3.91 | 3.16 | 4.08 | 3.67 | 4.19 | 3.84 |
| TDS (mg/L) | 610 | 581 | 552 | 529 | 638 | 856 | 596 | 612 | 614 | 594 | 612 | 602 | 520 | 718 | 570 |
| TSS (mg/L) | 133 | 5.8 | 8.8 | <3 | 11.2 | <3 | 18.5 | <3 | 4 | 4 | 3.8 | 4.7 | 5 | 13 | 4 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00039 | 0.00026 | 0.00031 | 0.00022 | 0.00028 | 0.00026 | 0.00021 | 0.00024 | 0.00026 | 0.00024 | 0.00022 | 0.00019 | 0.00021 | 0.00029 | <0.0002 |
| Arsenic (As)-Total ( | 0.00327 | 0.00289 | 0.00253 | 0.00192 | 0.00174 | 0.00202 | 0.0022 | 0.00217 | 0.00232 | 0.00235 | 0.00219 | 0.00215 | 0.00162 | 0.00203 | 0.00135 |
| Barium (Ba)-Total | 0.0702 | 0.0728 | 0.0599 | 0.0543 | 0.0687 | 0.0521 | 0.0544 | 0.0499 | 0.0522 | 0.0558 | 0.0707 | 0.0655 | 0.0715 | 0.0864 | 0.0498 |
| Boron (B)-Total (mg/L) | 0.143 | 0.15 | 0.137 | 0.11 | 0.118 | 0.146 | 0.129 | 0.139 | 0.144 | 0.157 | 0.158 | 0.147 | 0.128 | 0.125 | 0.115 |
| Calcium (Ca)-Total ( | 95.3 | 88 | 88.8 | 82.6 | 114 | 93.8 | 88.9 | 84.4 | 85.6 | 91.1 | 97.2 | 91.9 | 120 | 124 | 102 |
| Chromium (Cr)-Total (mg/L) | 0.00848 | <0.001 | <0.0005 | 0.00076 | 0.0015 | 0.0007 | 0.00126 | <0.0005 | <0.0005 | <0.0005 | <0.001 | 0.00144 | <0.001 | <0.001 | <0.001 |
| Cobalt (Co)-Total (m | 0.0017 | 0.00036 | 0.00034 | 0.00036 | 0.00032 | 0.00011 | 0.00035 | <0.0001 | 0.00011 | 0.00015 | <0.0002 | 0.00019 | 0.00021 | 0.0002 | 0.00029 |
| Magnesium (Mg)-Total (mg/L) | 16.1 | 14.6 | 13.6 | 13.9 | 18.4 | 20.4 | 18.3 | 18 | 17.6 | 16.8 | 16.8 | 15.8 | 19.6 | 20.1 | 17.3 |
| Mercury (Hg)-Total (mg/L) | | | <0.00001 | <0.00001 | | | | | | | | | | | |
| Nickel (Ni)-Total (mg/L) | 0.00371 | <0.001 | <0.0005 | <0.001 | 0.0026 | 0.00062 | 0.00084 | 0.001 | <0.0005 | 0.00137 | <0.001 | 0.00068 | <0.001 | <0.001 | <0.001 |
| Silicon (Si)-Total (mg/L) | 10 | 7.05 | 7.21 | 5.99 | 4.06 | 3.05 | 4.77 | 1.58 | 1.47 | 1.87 | 3.69 | 4.77 | 5.7 | 8.43 | 6.33 |
| Silver (Ag)-Total (mg/L) | 0.00003 | <0.00002 | <0.00001 | <0.00001 | <0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00002 | <0.00001 | <0.00002 | <0.00002 | <0.00002 |
| Sodium (Na)-Total (mg/L) | 66.7 | 68.3 | 63.2 | 52.4 | 45.4 | 67.3 | 63 | 68 | 74 | 70.3 | 72.9 | 65.9 | 57.1 | 62.3 | 47.4 |
| Strontium (Sr)-Total (mg/L) | 0.908 | 1.13 | 1.01 | 0.975 | 1.62 | 1.36 | 1.3 | 1.18 | 1.17 | 1.18 | 1.35 | 1.22 | 1.52 | 1.43 | 1.17 |
| Tin (Sn)-Total (mg/L) | 0.00013 | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0002 | 0.00066 | <0.0002 |
| Total Aluminum (mg/L) | 1.58 | 0.139 | 0.197 | 0.243 | 0.343 | 0.111 | 0.525 | 0.0173 | 0.0513 | 0.086 | 0.0902 | 0.0977 | 0.13 | 0.174 | 0.126 |
| Total Cadmium (mg/L) | 0.000118 | 0.000117 | | 0.000027 | 0.000087 | 0.000121 | 0.000147 | 0.000096 | <0.00051 | 0.000046 | <0.001 | 0.000193 | <0.000034 | <0.0003 | 0.000091 |
| Total Copper (mg/L) | 0.0292 | 0.00262 | 0.011 | 0.00503 | 0.0139 | 0.00406 | 0.00524 | 0.0029 | <0.005 | 0.00737 | 0.00377 | 0.00415 | 0.00546 | 0.00671 | 0.00928 |
| Total Iron (mg/L) | 2.36 | 0.223 | 0.273 | 0.291 | 0.422 | 0.152 | 0.536 | 0.035 | 0.082 | 0.133 | 0.119 | 0.136 | <0.18 | 0.219 | 0.182 |
| Total Lead (mg/L) | 0.00146 | <0.0001 | 0.000134 | 0.000112 | 0.00051 | 0.000082 | 0.000242 | <0.00005 | 0.000074 | 0.000106 | <0.0001 | 0.00011 | 0.00019 | 0.00014 | <0.0001 |
| Total Manganese (mg/L) | 0.919 | 0.89 | 0.381 | 0.285 | 0.132 | 0.0786 | 0.0913 | 0.0387 | 0.0578 | 0.12 | 0.095 | 0.217 | 0.189 | 0.315 | 0.473 |
| Total Molybdenum (mg/L) | 0.111 | 0.109 | 0.11 | 0.101 | 0.189 | 0.16 | 0.128 | 0.129 | 0.119 | 0.119 | 0.127 | 0.123 | 0.163 | 0.112 | 0.0875 |
| Total Selenium (mg/L) | 0.0032 | 0.0023 | 0.0028 | 0.0049 | 0.0101 | 0.0091 | 0.008 | 0.0056 | 0.0052 | 0.0047 | 0.0038 | 0.0036 | 0.0078 | 0.0078 | 0.0045 |
| Zinc (Zn)-Total (mg/L) | 0.0517 | <0.006 | 0.0058 | <0.007 | 0.0137 | <0.003 | 0.0023 | <0.001 | 0.0037 | <0.002 | <0.002 | <0.001 | 0.0023 | 0.0051 | 0.0049 |

| | E224221 : E4 - Main Embankment Seepage Pond | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10-Feb-10 | 3-Mar-10 | 7-Apr-10 | 11-May-10 | 3-Jun-10 | 8-Jul-10 | 5-Aug-10 | 1-Sep-10 | 7-Oct-10 | 4-Nov-10 | 1-Dec-10 | 10-Jan-11 | 3-Feb-11 | 8-Mar-11 | 5-Apr-11 |
| Diss-Tin (Sn) (mg/L) | <0.0002 | <0.0001 | <0.0002 | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Zinc (Zn) (mg/L) | 0.0022 | 0.0011 | <0.002 | <0.002 | <0.001 | <0.001 | <0.002 | <0.001 | <0.003 | <0.003 | 0.0076 | <0.003 | <0.003 | <0.003 | 0.0161 |
| TDS (mg/L) | 688 | 347 | 605 | 780 | 574 | 648 | 743 | 770 | 992 | 1190 | 1060 | 1280 | 1230 | 1070 | 859 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 143 | 125 | 129 | 173 | 68.1 | 41.7 | 84.9 | 102 | 104 | 92.9 | 94.2 | 76.5 | 76.9 | 101 | 105 |
| Hardness (mg/L) | 361 | 217 | 356 | 546 | 296 | 312 | 372 | 399 | 537 | 656 | 570 | 711 | 668 | 558 | 508 |
| NTU (ntu) | 2.52 | 4.11 | 11.3 | 4.12 | 0.73 | 0.86 | 0.78 | 0.93 | 0.92 | 1.35 | 7.09 | 2.26 | 2.77 | 6.96 | 45.8 |
| TDS (mg/L) | 688 | 347 | 605 | 780 | 574 | 648 | 743 | 770 | 992 | 1190 | 1060 | 1280 | 1230 | 1070 | 859 |
| TSS (mg/L) | 5.8 | 6.3 | 5 | 7 | 4 | <3 | <3 | <3 | <3 | <3 | 7.3 | <3 | 5.3 | 10.1 | 64.2 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00034 | 0.00014 | 0.00029 | <0.0002 | 0.00026 | 0.00033 | 0.00036 | 0.00038 | 0.0007 | 0.00118 | 0.00086 | 0.00185 | 0.00158 | 0.00087 | 0.00075 |
| Arsenic (As)-Total ( | 0.00225 | 0.00086 | 0.00195 | 0.0008 | 0.00182 | 0.00195 | 0.00221 | 0.00207 | 0.00192 | 0.00187 | 0.00166 | 0.00185 | 0.00179 | 0.00206 | 0.00222 |
| Barium (Ba)-Total | 0.0774 | 0.037 | 0.0667 | 0.0494 | 0.0204 | 0.0337 | 0.0518 | 0.0442 | 0.048 | 0.0586 | 0.0568 | 0.0497 | 0.049 | 0.0578 | 0.0707 |
| Boron (B)-Total (mg/L) | 0.128 | 0.056 | 0.128 | 0.117 | 0.111 | 0.118 | 0.145 | 0.153 | 0.156 | 0.138 | 0.13 | 0.127 | 0.11 | 0.112 | 0.085 |
| Calcium (Ca)-Total ( | 108 | 67.9 | 111 | 166 | 86.1 | 86.3 | 114 | 126 | 179 | 222 | 174 | 240 | 221 | 185 | 162 |
| Chromium (Cr)-Total (mg/L) | <0.001 | <0.0005 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00054 | 0.00516 |
| Cobalt (Co)-Total (m | 0.00047 | 0.00025 | 0.00043 | <0.0002 | <0.0001 | 0.00015 | <0.0002 | 0.00012 | 0.00013 | 0.00018 | 0.00029 | 0.00033 | 0.0003 | 0.00043 | 0.00161 |
| Magnesium (Mg)-Total (mg/L) | 18.3 | 11 | 18.7 | 24.2 | 19.9 | 20.3 | 22.5 | 21.5 | 25.8 | 26.7 | 26 | 30 | 29.3 | 26.3 | 24.8 |
| Mercury (Hg)-Total (mg/L) | | | | | | | | | <0.00005 | | <0.00005 | | | <0.00005 | <0.00005 |
| Nickel (Ni)-Total (mg/L) | <0.001 | 0.00058 | 0.0011 | <0.001 | 0.00067 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0006 | 0.00077 | 0.00059 | 0.00054 | 0.00095 | 0.00464 |
| Silicon (Si)-Total (mg/L) | 6.51 | 4.52 | 5.54 | 6.1 | 2.99 | 1.27 | 0.492 | 2.55 | 5.31 | 5.67 | 4.51 | 6.18 | 6.29 | 7.15 | 9.83 |
| Silver (Ag)-Total (mg/L) | <0.00002 | <0.00001 | <0.00002 | <0.00002 | <0.00001 | <0.00001 | <0.00002 | <0.00001 | <0.00001 | 0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | 0.000015 |
| Sodium (Na)-Total (mg/L) | 64.1 | 23.8 | 57.6 | 49 | 63.8 | 72.7 | 81.8 | 77.4 | 84.4 | 92.6 | 81 | 88.9 | 84.3 | 86.2 | 48.6 |
| Strontium (Sr)-Total (mg/L) | 1.4 | 0.693 | 1.36 | 1.83 | 1.21 | 1.61 | 1.75 | 1.75 | 2.19 | 2.49 | 1.9 | 2.31 | 1.99 | 1.94 | 1.92 |
| Tin (Sn)-Total (mg/L) | <0.0002 | <0.0001 | <0.0002 | <0.0002 | <0.0001 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00049 |
| Total Aluminum (mg/L) | 0.0759 | 0.129 | 0.49 | 0.176 | 0.0292 | 0.02 | 0.0169 | 0.036 | 0.0269 | 0.0463 | 0.175 | 0.0845 | 0.109 | 0.345 | 2.21 |
| Total Cadmium (mg/L) | 0.000038 | <0.0002 | 0.00005 | 0.000069 | <0.0004 | <0.00002 | <0.0006 | <0.00003 | <0.00006 | 0.000085 | <0.00015 | <0.0002 | 0.000178 | <0.00015 | 0.000133 |
| Total Copper (mg/L) | 0.00597 | 0.00681 | 0.00587 | 0.00637 | 0.00348 | 0.00257 | <0.004 | 0.00253 | 0.00236 | 0.00287 | 0.00949 | 0.00726 | 0.00901 | 0.0135 | 0.0309 |
| Total Iron (mg/L) | 0.139 | 0.214 | 0.543 | 0.249 | 0.051 | 0.04 | 0.04 | 0.081 | 0.059 | 0.071 | 0.491 | 0.102 | 0.162 | 0.347 | 3.34 |
| Total Lead (mg/L) | 0.00014 | 0.000094 | 0.00019 | <0.0001 | <0.00005 | <0.00005 | <0.0001 | <0.00005 | <0.00005 | <0.00005 | 0.000247 | 0.000074 | 0.000051 | 0.000151 | 0.00151 |
| Total Manganese (mg/L) | 0.648 | 0.194 | 0.192 | 0.086 | 0.0647 | 0.0408 | 0.103 | 0.166 | 0.165 | 0.141 | 0.137 | 0.249 | 0.247 | 0.439 | 0.508 |
| Total Molybdenum (mg/L) | 0.119 | 0.0453 | 0.118 | 0.137 | 0.107 | 0.113 | 0.114 | 0.125 | 0.164 | 0.18 | 0.134 | 0.197 | 0.177 | 0.154 | 0.15 |
| Total Selenium (mg/L) | 0.0049 | 0.0023 | 0.0052 | 0.0056 | 0.0047 | 0.0047 | 0.0047 | 0.0043 | 0.01 | 0.0151 | 0.0091 | 0.0171 | 0.0152 | 0.01 | 0.0119 |
| Zinc (Zn)-Total (mg/L) | 0.0059 | 0.0022 | 0.0021 | 0.0021 | <0.001 | 0.0013 | <0.002 | 0.0021 | 0.004 | 0.0037 | 0.01 | 0.0049 | 0.0034 | 0.0045 | 0.0435 |

| | E224221 : E4 - Main Embankment Seepage Pond | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12-May-11 | 9-Jun-11 | 13-Jul-11 | 4-Aug-11 | 8-Sep-11 | 5-Oct-11 | 1-Nov-11 | 5-Dec-11 | 4-Jan-12 | 8-Feb-12 | 14-Mar-12 | 3-Apr-12 | 2-May-12 | 7-Jun-12 | 5-Jul-12 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Zinc (Zn) (mg/L) | <0.003 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | 0.0037 | 0.0271 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 752 | 786 | 847 | 912 | 916 | 914 | 911 | 903 | 907 | 939 | 918 | 786 | 737 | 796 | 908 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 90.3 | 51.8 | 50.8 | 63.5 | 81.9 | 90.2 | 86.6 | 79.1 | 78.4 | 75.9 | 80.8 | 103 | 90.3 | 72.2 | 77.3 |
| Hardness (mg/L) | 423 | 473 | 466 | 506 | 496 | 493 | 491 | 497 | 488 | 485 | 464 | 458 | 420 | 422 | 443 |
| NTU (ntu) | 27.8 | 1.19 | 3.17 | 1.61 | 1.11 | 1.81 | 1.43 | 3.31 | 23.3 | 2.66 | 4.04 | 5.52 | 6.14 | 4.01 | 1.53 |
| TDS (mg/L) | 752 | 786 | 847 | 912 | 916 | 914 | 911 | 903 | 907 | 939 | 918 | 786 | 737 | 796 | 908 |
| TSS (mg/L) | 37.2 | 4 | 3.5 | <3 | <3.0 | <3.0 | <3.0 | 4.7 | 37.3 | <3.0 | <3.0 | 3.7 | 8.5 | 5.2 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.0007 | 0.00102 | 0.00096 | 0.0008 | 0.00069 | 0.00054 | 0.00057 | 0.00058 | 0.00072 | 0.00073 | 0.00065 | 0.00052 | 0.00056 | 0.00072 | 0.00059 |
| Arsenic (As)-Total ( | 0.00166 | 0.00165 | 0.00176 | 0.00172 | 0.0019 | 0.0014 | 0.00171 | 0.0016 | 0.00201 | 0.0019 | 0.00168 | 0.00156 | 0.00164 | 0.00154 | 0.00158 |
| Barium (Ba)-Total | 0.0559 | 0.0404 | 0.0394 | 0.0419 | 0.0438 | 0.0542 | 0.0461 | 0.0415 | 0.0515 | 0.0418 | 0.0427 | 0.0468 | 0.0382 | 0.0304 | 0.0327 |
| Boron (B)-Total (mg/L) | 0.081 | 0.115 | 0.106 | 0.113 | 0.123 | 0.112 | 0.131 | 0.107 | 0.126 | 0.128 | 0.118 | 0.103 | 0.106 | 0.115 | 0.099 |
| Calcium (Ca)-Total ( | 139 | 159 | 154 | 169 | 160 | 161 | 157 | 162 | 166 | 162 | 152 | 152 | 136 | 141 | 142 |
| Chromium (Cr)-Total (mg/L) | 0.00345 | 0.00057 | 0.00053 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.0027 | <0.00050 | <0.00050 | <0.0010 | 0.00058 | 0.00055 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00087 | 0.00019 | 0.00018 | 0.00012 | 0.00014 | 0.00014 | 0.00016 | 0.00023 | 0.00085 | 0.00022 | 0.00024 | 0.00028 | 0.00028 | 0.00021 | 0.00014 |
| Magnesium (Mg)-Total (mg/L) | 20.5 | 24.4 | 22.1 | 24.1 | 23.7 | 23.3 | 21.7 | 21.6 | 21.3 | 21.5 | 19.1 | 21.5 | 18.8 | 19.7 | 22.6 |
| Mercury (Hg)-Total (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | | | <0.000050 | | | <0.000050 | | | <0.000050 | | |
| Nickel (Ni)-Total (mg/L) | 0.00283 | 0.00052 | 0.00057 | <0.0005 | <0.00050 | 0.00052 | <0.00050 | <0.00050 | 0.00238 | <0.00050 | 0.00059 | 0.00062 | 0.00074 | 0.00057 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 7.31 | 4.23 | 5.2 | 5.41 | 3.92 | 5.29 | 5.29 | 5.92 | 8.18 | 6.12 | 5.85 | 5.8 | 4.24 | 3.83 | 3.87 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 52.6 | 71.1 | 65.1 | 72.7 | 75.1 | 74.9 | 78.5 | 84 | 89.3 | 88.2 | 79.4 | 65.8 | 62.1 | 59.4 | 69.3 |
| Strontium (Sr)-Total (mg/L) | 1.58 | 1.75 | 1.59 | 1.77 | 1.69 | 1.65 | 1.63 | 1.7 | 1.8 | 1.67 | 1.54 | 1.67 | 1.66 | 1.73 | 1.75 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | 0.00017 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 1.76 | 0.174 | 0.189 | 0.0705 | 0.0417 | 0.0693 | 0.0634 | 0.136 | 1.3 | 0.121 | 0.182 | 0.233 | 0.209 | 0.224 | 0.0437 |
| Total Cadmium (mg/L) | 0.000064 | 0.000036 | 0.000053 | 0.000047 | 0.000062 | 0.000027 | 0.00005 | 0.000085 | 0.000107 | 0.000075 | 0.000066 | 0.000062 | 0.000052 | <0.000040 | <0.00010 |
| Total Copper (mg/L) | 0.0119 | 0.0137 | 0.00562 | 0.00485 | 0.00457 | 0.00404 | <0.0040 | 0.00629 | 0.0106 | 0.00578 | 0.00738 | 0.00461 | 0.00796 | 0.00791 | 0.00519 |
| Total Iron (mg/L) | 1.75 | 0.15 | 0.195 | 0.089 | 0.062 | 0.083 | 0.078 | 0.171 | 1.62 | 0.203 | 0.205 | 0.245 | 0.289 | 0.31 | 0.067 |
| Total Lead (mg/L) | 0.000489 | 0.000064 | 0.000072 | <0.00005 | 0.000086 | 0.000059 | <0.000050 | 0.000068 | 0.000443 | 0.000076 | 0.000196 | 0.000076 | 0.00011 | 0.000125 | <0.000050 |
| Total Manganese (mg/L) | 0.232 | 0.0883 | 0.0741 | 0.076 | 0.156 | 0.108 | 0.125 | 0.164 | 0.24 | 0.203 | 0.2 | 0.243 | 0.175 | 0.165 | 0.168 |
| Total Molybdenum (mg/L) | 0.14 | 0.166 | 0.153 | 0.165 | 0.16 | 0.144 | 0.161 | 0.157 | 0.168 | 0.176 | 0.155 | 0.153 | 0.164 | 0.169 | 0.146 |
| Total Selenium (mg/L) | 0.0106 | 0.0214 | 0.0147 | 0.0149 | 0.0115 | 0.0104 | 0.011 | 0.0111 | 0.0122 | 0.0127 | 0.0114 | 0.0108 | 0.0102 | 0.00999 | 0.0111 |
| Zinc (Zn)-Total (mg/L) | 0.0065 | 0.0041 | 0.0073 | 0.0055 | 0.004 | <0.0030 | <0.0030 | 0.0048 | 1.58 | 0.0036 | 0.0044 | 0.004 | <0.0030 | 0.0031 | <0.0030 |

| | E224221 : E4 - Main Embankment Seepage Pond | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1-Aug-12 | 6-Sep-12 | 3-Oct-12 | 15-Nov-12 | 6-Dec-12 | 2-Jan-13 | 6-Feb-13 | 13-Mar-13 | 4-Apr-13 | 1-May-13 | 6-Jun-13 | 10-Jul-13 | 8-Aug-13 | 5-Sep-13 | 3-Oct-13 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | | | | |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0039 | | | | | | | | | |
| TDS (mg/L) | 956 | 938 | 930 | 936 | 893 | 920 | 915 | 902 | 916 | 822 | 787 | 862 | 910 | 920 | 921 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 81.3 | 72.1 | 92.3 | 79.4 | 87.1 | 82.3 | 64.9 | 76.8 | 90 | 83.9 | 74.3 | 94.1 | 69.2 | 73.3 | 70.3 |
| Hardness (mg/L) | 470 | 459 | 456 | 492 | 453 | 468 | 484 | 461 | 515 | 476 | 447 | 429 | 425 | 440 | 500 |
| NTU (ntu) | 1.97 | 1.67 | 2.56 | 2.11 | 1.39 | 1.42 | 2.26 | 2.88 | 0.21 | 3.85 | 1.57 | 0.39 | 0.89 | 2.41 | 2.02 |
| TDS (mg/L) | 956 | 938 | 930 | 936 | 893 | 920 | 915 | 902 | 916 | 822 | 787 | 862 | 910 | 920 | 921 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | 3.2 | <3.0 | 6.2 | <3.0 | <3.0 | <3.0 | 4.6 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.0008 | 0.00091 | 0.00063 | 0.00064 | 0.00062 | 0.00077 | 0.00107 | 0.0011 | 0.00043 | 0.00074 | 0.00087 | 0.0004 | 0.00092 | 0.00088 | 0.0011 |
| Arsenic (As)-Total ( | 0.00186 | 0.00193 | 0.00187 | 0.00179 | 0.0018 | 0.00178 | 0.00184 | 0.00196 | 0.00196 | 0.00167 | 0.00185 | 0.0017 | 0.00165 | 0.00185 | 0.00204 |
| Barium (Ba)-Total | 0.0515 | 0.0497 | 0.0492 | 0.0447 | 0.0458 | 0.0405 | 0.048 | 0.0537 | 0.0648 | 0.045 | 0.0379 | 0.0638 | 0.0408 | 0.0487 | 0.0379 |
| Boron (B)-Total (mg/L) | 0.123 | 0.141 | 0.141 | 0.117 | 0.127 | 0.104 | 0.127 | 0.119 | 0.125 | 0.101 | 0.119 | 0.124 | 0.113 | 0.129 | 0.122 |
| Calcium (Ca)-Total ( | 156 | 148 | 155 | 156 | 143 | 146 | 159 | 152 | 165 | 155 | 143 | 137 | 138 | 142 | 165 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00056 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.0002 | 0.00012 | 0.00016 | 0.00018 | 0.00019 | 0.00022 | 0.00021 | 0.00026 | 0.00029 | 0.0003 | 0.00022 | 0.00035 | 0.00016 | 0.00016 | 0.00018 |
| Magnesium (Mg)-Total (mg/L) | 22.6 | 20.8 | 20.9 | 20.6 | 21.6 | 20.1 | 20.8 | 19.5 | 25.2 | 21.8 | 21.6 | 20.9 | 19.6 | 20.8 | 21.5 |
| Mercury (Hg)-Total (mg/L) | <0.000010 | | | <0.000010 | | | <0.000010 | | | <0.000010 | | | <0.000010 | | |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00065 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 5.12 | 6.06 | 6.97 | 5.99 | 6.12 | 5.99 | 6.15 | 5.84 | 6.2 | 5.43 | 4.12 | 6.2 | 6.09 | 6.37 | 7.56 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000013 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000012 |
| Sodium (Na)-Total (mg/L) | 77.8 | 93.9 | 90 | 80.4 | 79.1 | 84.2 | 87 | 87.7 | 74 | 73.3 | 75.4 | 84.2 | 79.5 | 82.9 | 83 |
| Strontium (Sr)-Total (mg/L) | 2.33 | 1.79 | 1.79 | 1.83 | 1.85 | 1.85 | 1.78 | 1.78 | 2.53 | 1.81 | 1.67 | 2.05 | 1.57 | 1.59 | 1.54 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0805 | 0.0703 | 0.116 | 0.0722 | 0.0541 | 0.0389 | 0.0692 | 0.146 | 0.0107 | 0.25 | 0.0696 | 0.0055 | 0.0353 | 0.0923 | 0.124 |
| Total Cadmium (mg/L) | <0.00010 | 0.000034 | 0.000034 | <0.00010 | <0.00012 | <0.00010 | <0.00010 | <0.00010 | 0.000508 | <0.00010 | 0.00007 | 0.000054 | 0.000023 | <0.00010 | 0.000072 |
| Total Copper (mg/L) | 0.00394 | 0.00376 | 0.0045 | 0.005 | 0.00392 | 0.00617 | 0.00421 | 0.00614 | 0.00282 | 0.0047 | 0.00569 | 0.00273 | 0.00346 | 0.00386 | 0.00584 |
| Total Iron (mg/L) | 0.132 | 0.08 | 0.161 | 0.105 | 0.091 | 0.082 | 0.084 | 0.163 | 0.031 | 0.282 | 0.088 | 0.056 | 0.053 | 0.12 | 0.154 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | 0.000058 | 0.000096 | 0.000052 | 0.000051 | <0.000050 | <0.000050 | <0.000050 | 0.000081 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000056 |
| Total Manganese (mg/L) | 0.286 | 0.096 | 0.11 | 0.119 | 0.181 | 0.25 | 0.155 | 0.233 | 0.296 | 0.177 | 0.257 | 0.398 | 0.147 | 0.116 | 0.0951 |
| Total Molybdenum (mg/L) | 0.176 | 0.195 | 0.192 | 0.183 | 0.17 | 0.181 | 0.197 | 0.178 | 0.216 | 0.183 | 0.193 | 0.177 | 0.192 | 0.193 | 0.199 |
| Total Selenium (mg/L) | 0.0103 | 0.0135 | 0.0103 | 0.0137 | 0.0139 | 0.0135 | 0.0184 | 0.0169 | 0.0149 | 0.0157 | 0.0152 | 0.00919 | 0.0135 | 0.0143 | 0.0198 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0046 | 0.0039 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

| | E224221 : E4 - | |
|---|---|---|
| | 5-Nov-13 | 5-Dec-13 |
| Diss-Tin (Sn) (mg/L) | | <0.00010 |
| Diss-Zinc (Zn) (mg/L) | | <0.0030 |
| TDS (mg/L) | 905 | 918 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 81.2 | 87.0 |
| Hardness (mg/L) | 486 | 485 |
| NTU (ntu) | 0.93 | 1.26 |
| TDS (mg/L) | 905 | 918 |
| TSS (mg/L) | <3.0 | <3.0 |
| **Total Metals** | | |
| Antimony (Sb)-Total (mg/L) | 0.00099 | 0.00067 |
| Arsenic (As)-Total ( | 0.00204 | 0.00179 |
| Barium (Ba)-Total | 0.038 | 0.0483 |
| Boron (B)-Total (mg/L) | 0.102 | 0.113 |
| Calcium (Ca)-Total ( | 159 | 157 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00013 | 0.00020 |
| Magnesium (Mg)-Total (mg/L) | 21.5 | 22.0 |
| Mercury (Hg)-Total (mg/L) | | |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 6.61 | 6.68 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 81 | 81.8 |
| Strontium (Sr)-Total (mg/L) | 1.61 | 1.81 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0373 | 0.0794 |
| Total Cadmium (mg/L) | <0.00015 | <0.00011 |
| Total Copper (mg/L) | 0.00499 | 0.00405 |
| Total Iron (mg/L) | 0.052 | 0.209 |
| Total Lead (mg/L) | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.087 | 0.220 |
| Total Molybdenum (mg/L) | 0.207 | 0.181 |
| Total Selenium (mg/L) | 0.0183 | 0.0156 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | 0.0053 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E224221 : E4 - Main Embankment Seepage Pond | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 176 | 149 | 0.00500 | 0.31900 | 0.03804 | 0.12680 | 0.04319 |
| Chloride (mg/L) | 68 | 68 | 7.17000 | 31.90000 | 21.23191 | 20.37500 | 4.28293 |
| Diss-Orthophosphate (mg/L) | 176 | 93 | 0.00050 | 0.06870 | 0.00481 | 0.02080 | 0.00823 |
| Diss-Phosphorus (mg/L) | 179 | 177 | 0.00100 | 0.11300 | 0.01599 | 0.05126 | 0.01509 |
| Nitrate (N) (mg/L) | 114 | 111 | 0.00250 | 5.97000 | 2.13068 | 2.99500 | 1.41462 |
| Nitrate and Nitrite (mg/L) | 84 | 81 | 0.00100 | 28.90000 | 4.67685 | 24.68000 | 5.83041 |
| Nitrite (N) (mg/L) | 137 | 124 | 0.00050 | 0.22700 | 0.04364 | 0.05580 | 0.04939 |
| Sulphate (mg/L) | 175 | 175 | 19.80000 | 756.00000 | 254.70971 | 285.05000 | 185.23310 |
| Total Nitrogen (mg/L) | 127 | 126 | 0.21400 | 937.00000 | 18.62287 | 20.76000 | 116.35397 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 166 | 128 | 0.00050 | 0.13500 | 0.00741 | 0.02536 | 0.01597 |
| Diss-Antimony (Sb) (mg/L) | 166 | 162 | 0.00009 | 0.00172 | 0.00034 | 0.00042 | 0.00026 |
| Diss-Arsenic (As) (mg/L) | 166 | 165 | 0.00060 | 0.00630 | 0.00189 | 0.00300 | 0.00066 |
| Diss-Barium (Ba) (mg/L) | 166 | 166 | 0.01840 | 0.09190 | 0.05212 | 0.07621 | 0.01420 |
| Diss-Beryllium (Be) (mg/L) | 166 | 0 | 0.00003 | 0.00500 | 0.00019 | 0.00050 | 0.00040 |
| Diss-Boron (B) (mg/L) | 119 | 118 | 0.01900 | 0.15600 | 0.11183 | 0.13400 | 0.02293 |
| Diss-Cadmium (Cd) (mg/L) | 164 | 78 | 0.00001 | 0.00050 | 0.00010 | 0.00025 | 0.00009 |
| Diss-Calcium (Ca) (mg/L) | 165 | 165 | 17.60000 | 237.00000 | 85.06182 | 98.04000 | 46.04576 |
| Diss-Chromium (Cr) (mg/L) | 166 | 30 | 0.00010 | 0.00500 | 0.00045 | 0.00243 | 0.00077 |
| Diss-Cobalt (Co) (mg/L) | 166 | 101 | 0.00001 | 0.00100 | 0.00014 | 0.00032 | 0.00012 |
| Diss-Copper (Cu) (mg/L) | 166 | 153 | 0.00005 | 0.01330 | 0.00272 | 0.00624 | 0.00177 |
| Diss-Iron (Fe) (mg/L) | 166 | 42 | 0.00250 | 0.19800 | 0.02030 | 0.07700 | 0.02677 |
| Diss-Lead (Pb) (mg/L) | 166 | 48 | 0.00001 | 0.00050 | 0.00005 | 0.00019 | 0.00007 |
| Diss-Magnesium (Mg) (mg/L) | 165 | 165 | 7.30000 | 39.40000 | 15.10242 | 17.34000 | 5.35159 |
| Diss-Manganese (Mn) (mg/L) | 166 | 165 | 0.00015 | 0.85800 | 0.15063 | 0.49570 | 0.18103 |
| Diss-Mercury (Hg) (mg/L) | 66 | 0 | 0.00001 | 0.00003 | 0.00002 | 0.00003 | 0.00001 |
| Diss-Molybdenum (Mo) (mg/L) | 166 | 166 | 0.00737 | 0.22100 | 0.10083 | 0.13200 | 0.04795 |
| Diss-Nickel (Ni) (mg/L) | 166 | 17 | 0.00025 | 0.00500 | 0.00034 | 0.00060 | 0.00039 |
| Diss-Potassium (K) (mg/L) | 166 | 166 | 2.00000 | 15.20000 | 7.75386 | 10.20000 | 3.34035 |
| Diss-Selenium (mg/L) | 166 | 156 | 0.00025 | 0.18100 | 0.00640 | 0.01100 | 0.01436 |
| Diss-Silicon (Si) (mg/L) | 165 | 165 | 0.14000 | 8.09000 | 4.53432 | 6.86600 | 1.70550 |
| Diss-Silver (Ag) (mg/L) | 166 | 4 | 0.00001 | 0.00010 | 0.00001 | 0.00001 | 0.00001 |
| Diss-Sodium (Na) (mg/L) | 164 | 164 | 5.93000 | 92.20000 | 51.13311 | 63.43500 | 19.68088 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E224221 : E4 - Main Embankment Seepage Pond | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Strontium (Sr) (mg/L) | 166 | 166 | 0.27900 | 2.62000 | 0.95286 | 1.13350 | 0.52961 |
| Diss-Tin (Sn) (mg/L) | 166 | 32 | 0.00003 | 0.00100 | 0.00008 | 0.00025 | 0.00010 |
| Diss-Zinc (Zn) (mg/L) | 166 | 85 | 0.00025 | 0.08630 | 0.00288 | 0.00918 | 0.00736 |
| TDS (mg/L) | 165 | 165 | 174.00000 | 1,280.00000 | 548.86061 | 590.00000 | 261.16000 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 176 | 161 | 1.00000 | 196.00000 | 100.99602 | 158.80000 | 43.05412 |
| Hardness (mg/L) | 176 | 176 | 86.40000 | 754.00000 | 286.14034 | 312.00000 | 140.25289 |
| NTU (ntu) | 174 | 173 | 0.05000 | 62.10000 | 6.30678 | 18.95000 | 8.93494 |
| TDS (mg/L) | 165 | 165 | 174.00000 | 1,280.00000 | 548.86061 | 590.00000 | 261.16000 |
| TSS (mg/L) | 172 | 94 | 1.00000 | 133.00000 | 6.65698 | 19.64000 | 12.45246 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 176 | 173 | 0.00010 | 0.00185 | 0.00039 | 0.00043 | 0.00029 |
| Arsenic (As)-Total ( | 176 | 175 | 0.00060 | 0.00610 | 0.00205 | 0.00334 | 0.00067 |
| Barium (Ba)-Total | 176 | 176 | 0.02040 | 0.10400 | 0.05557 | 0.08466 | 0.01535 |
| Boron (B)-Total (mg/L) | 130 | 128 | 0.00400 | 0.15800 | 0.11395 | 0.13710 | 0.02356 |
| Calcium (Ca)-Total ( | 176 | 176 | 18.20000 | 240.00000 | 88.84375 | 99.56000 | 47.88767 |
| Chromium (Cr)-Total (mg/L) | 176 | 67 | 0.00010 | 0.00848 | 0.00073 | 0.00306 | 0.00109 |
| Cobalt (Co)-Total (m | 176 | 159 | 0.00002 | 0.00200 | 0.00030 | 0.00082 | 0.00028 |
| Magnesium (Mg)-Total (mg/L) | 176 | 176 | 7.25000 | 40.20000 | 15.46403 | 17.36000 | 5.52658 |
| Mercury (Hg)-Total (mg/L) | 70 | 0 | 0.00001 | 0.00003 | 0.00002 | 0.00003 | 0.00001 |
| Nickel (Ni)-Total (mg/L) | 176 | 60 | 0.00025 | 0.00950 | 0.00064 | 0.00155 | 0.00099 |
| Silicon (Si)-Total (mg/L) | 176 | 176 | 0.22000 | 10.00000 | 4.96882 | 7.14800 | 1.82098 |
| Silver (Ag)-Total (mg/L) | 176 | 18 | 0.00001 | 0.00010 | 0.00001 | 0.00002 | 0.00001 |
| Sodium (Na)-Total (mg/L) | 174 | 174 | 5.56000 | 93.90000 | 53.22115 | 62.00000 | 21.08774 |
| Strontium (Sr)-Total (mg/L) | 181 | 181 | 0.26700 | 2.53000 | 1.01450 | 1.13800 | 0.55552 |
| Tin (Sn)-Total (mg/L) | 176 | 29 | 0.00003 | 0.00187 | 0.00009 | 0.00025 | 0.00022 |
| Total Aluminum (mg/L) | 176 | 176 | 0.00290 | 2.21000 | 0.20668 | 0.66180 | 0.31619 |
| Total Cadmium (mg/L) | 187 | 111 | 0.00001 | 0.00100 | 0.00013 | 0.00040 | 0.00014 |
| Total Copper (mg/L) | 176 | 171 | 0.00070 | 0.03090 | 0.00512 | 0.00968 | 0.00381 |
| Total Iron (mg/L) | 176 | 173 | 0.00500 | 3.34000 | 0.28280 | 0.83140 | 0.42471 |
| Total Lead (mg/L) | 176 | 129 | 0.00002 | 0.01410 | 0.00025 | 0.00057 | 0.00110 |
| Total Manganese (mg/L) | 176 | 176 | 0.00409 | 0.91900 | 0.19765 | 0.55660 | 0.18515 |
| Total Molybdenum (mg/L) | 176 | 176 | 0.00696 | 0.21600 | 0.10746 | 0.13640 | 0.05217 |
| Total Selenium (mg/L) | 181 | 170 | 0.00025 | 0.18200 | 0.00691 | 1.01200 | 0.01407 |
| Zinc (Zn)-Total (mg/L) | 176 | 128 | 0.00025 | 1.58000 | 0.01334 | 0.01116 | 0.11914 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E232862 : E5 - Tailings Impoundment Main Embank Drain Comp | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 14-Jan-09 | 10-Feb-09 | 4-Mar-09 | 7-Apr-09 | 12-May-09 | 9-Jun-09 | 7-Jul-09 | 5-Aug-09 | 2-Sep-09 | 6-Oct-09 | 29-Oct-09 | 19-Nov-09 | 9-Dec-09 | 13-Jan-10 | 10-Feb-10 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.103 | 0.117 | 0.108 | 0.0525 | 0.109 | 0.0865 | 0.102 | 0.086 | 0.0952 | 0.0941 | 0.0999 | 0.0946 | 0.0951 | 0.082 | 0.0848 |
| Chloride (mg/L) | | | | 19.4 | 21.7 | 21 | 21.4 | 21.8 | 24.4 | 22 | 22.3 | 23.1 | 22.5 | 21.1 | 21.6 |
| Diss-Orthophosphate (mg/L) | 0.0213 | 0.0224 | 0.0226 | 0.0248 | 0.0231 | 0.0112 | 0.0224 | 0.0213 | 0.022 | 0.0231 | 0.0213 | 0.0205 | 0.0211 | 0.0196 | 0.0177 |
| Diss-Phosphorus (mg/L) | 0.0402 | 0.0393 | 0.039 | 0.031 | 0.04 | 0.0354 | 0.0336 | 0.0347 | 0.0349 | 0.0399 | 0.0351 | 0.0384 | 0.0349 | 0.0316 | 0.0318 |
| Nitrate (N) (mg/L) | 0.748 | 0.562 | 0.54 | 2.57 | 1.56 | 2.68 | 1.04 | 0.93 | 0.931 | 0.828 | 0.891 | 1.09 | 1.79 | 1.67 | 2 |
| Nitrate and Nitrite (mg/L) | | | | | | | | | | | | | | | |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.0013 | <0.001 | 0.0017 | <0.01 | 0.0078 | <0.005 | <0.005 | <0.01 | 0.0016 | <0.001 |
| Sulphate (mg/L) | 283 | 275 | 287 | 335 | 314 | 350 | 301 | 312 | 320 | 308 | 306 | 331 | 359 | 349 | 388 |
| Total Nitrogen (mg/L) | 1.14 | 0.66 | 0.68 | 3.37 | 2.15 | 4.14 | 1.29 | 0.82 | 0.78 | 0.9 | 0.98 | 1.48 | 2.53 | 2.42 | 2.33 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0035 | 0.0077 | 0.0046 | 0.0033 | 0.0033 | 0.0028 | 0.0029 | 0.0028 | 0.0027 | 0.0032 | 0.004 | 0.0028 | 0.0022 | 0.0023 | 0.0021 |
| Diss-Antimony (Sb) (mg/L) | 0.00029 | 0.00027 | 0.00026 | 0.00023 | 0.00021 | 0.00024 | 0.00027 | 0.00033 | 0.00028 | 0.00028 | 0.00023 | 0.00025 | 0.00038 | 0.00038 | 0.00038 |
| Diss-Arsenic (As) (mg/L) | 0.00186 | 0.00196 | 0.00193 | 0.00169 | 0.00187 | 0.00159 | 0.00192 | 0.0019 | 0.00187 | 0.0019 | 0.00187 | 0.00179 | 0.00176 | 0.00177 | 0.00155 |
| Diss-Barium (Ba) (mg/L) | 0.0597 | 0.0738 | 0.0689 | 0.0764 | 0.0824 | 0.0681 | 0.0796 | 0.0756 | 0.0708 | 0.0767 | 0.0724 | 0.0772 | 0.0773 | 0.0737 | 0.0718 |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.001 | <0.0005 | <0.001 | <0.0005 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.001 | <0.0005 | <0.001 | <0.001 | <0.001 | <0.001 |
| Diss-Boron (B) (mg/L) | 0.161 | 0.162 | 0.152 | 0.152 | 0.154 | 0.139 | 0.153 | 0.154 | 0.156 | 0.151 | 0.156 | 0.157 | 0.168 | 0.164 | 0.136 |
| Diss-Cadmium (Cd) (mg/L) | <0.00041 | <0.0004 | <0.00003 | <0.00051 | 0.000024 | 0.000065 | 0.000036 | 0.000083 | <0.0004 | <0.000034 | <0.0004 | <0.000034 | <0.00056 | <0.000034 | <0.0004 |
| Diss-Calcium (Ca) (mg/L) | 82.3 | 83.1 | 85.9 | 108 | 96.5 | 112 | 96.3 | 92.7 | 93 | 94.7 | 90.9 | 102 | 107 | 102 | 119 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.001 | <0.0005 | <0.001 | 0.00062 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.001 | 0.00062 | <0.001 | <0.001 | <0.001 | <0.001 |
| Diss-Cobalt (Co) (mg/L) | 0.00031 | 0.00026 | 0.00027 | 0.00025 | 0.00022 | 0.00026 | 0.00025 | 0.00028 | 0.00027 | 0.00027 | 0.00026 | 0.00026 | 0.00031 | 0.00031 | 0.0003 |
| Diss-Copper (Cu) (mg/L) | 0.00015 | 0.00073 | <0.0005 | 0.00065 | <0.003 | 0.00095 | 0.00109 | 0.00096 | <0.003 | 0.0011 | 0.00101 | 0.00125 | 0.00181 | 0.00153 | <0.004 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.0001 | <0.00005 | <0.0001 | <0.00005 | <0.0001 | <0.0001 | <0.0001 | <0.00005 | <0.0001 | <0.00005 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Diss-Magnesium (Mg) (mg/L) | 13.2 | 13 | 13.3 | 15.9 | 14.8 | 17.6 | 15 | 14.3 | 14 | 14.5 | 14.3 | 15.7 | 16.6 | 16.3 | 18.2 |
| Diss-Manganese (Mn) (mg/L) | 0.34 | 0.377 | 0.332 | 0.298 | 0.349 | 0.331 | 0.397 | 0.363 | 0.362 | 0.372 | 0.357 | 0.349 | 0.437 | 0.332 | 0.336 |
| Diss-Molybdenum (Mo) (mg/L) | 0.133 | 0.131 | 0.139 | 0.166 | 0.139 | 0.136 | 0.141 | 0.136 | 0.131 | 0.136 | 0.14 | 0.15 | 0.15 | 0.133 | 0.13 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.001 | <0.0005 | <0.001 | <0.0005 | 0.0011 | <0.001 | <0.001 | <0.0005 | <0.001 | <0.0005 | <0.001 | 0.001 | <0.001 | <0.001 |
| Diss-Potassium (K) (mg/L) | 14.8 | 13.2 | 13.1 | 13.1 | 12.2 | 12.4 | 13.5 | 13.3 | 13.3 | 13.5 | 13 | 13.5 | 13.6 | 12.8 | 12.6 |
| Diss-Selenium (mg/L) | 0.0022 | <0.002 | 0.0018 | 0.0079 | 0.0046 | 0.0079 | 0.0044 | 0.0038 | 0.0032 | 0.003 | 0.0029 | 0.004 | 0.007 | 0.0066 | 0.0069 |
| Diss-Silicon (Si) (mg/L) | 6.51 | 6.53 | 6.74 | 6.3 | 6.38 | 6.54 | 6.51 | 6.37 | 6.3 | 6.46 | 6.16 | 6.53 | 6.46 | 6.65 | 6.58 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00002 | <0.00001 | <0.00002 | <0.00001 | <0.00002 | <0.00002 | <0.00002 | <0.00001 | <0.00002 | <0.00001 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Diss-Sodium (Na) (mg/L) | 80 | 77.2 | 74.3 | 71.5 | 80.3 | 69.6 | 80.9 | 78.1 | 76.7 | 76.8 | 74.7 | 74.6 | 71.5 | 76.4 | 70 |
| Diss-Strontium (Sr) (mg/L) | 0.885 | 1.12 | 0.936 | 1.19 | 1.26 | 1.2 | 1.31 | 1.18 | 1.13 | 1.16 | 1.18 | 1.22 | 1.5 | 1.35 | 1.37 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0002 | <0.0002 | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |

| | E232862 : E5 - Tailings Impoundment Main Embank Drain Comp | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3-Mar-10 | 7-Apr-10 | 11-May-10 | 3-Jun-10 | 8-Jul-10 | 5-Aug-10 | 1-Sep-10 | 7-Oct-10 | 4-Nov-10 | 1-Dec-10 | 10-Jan-11 | 3-Feb-11 | 7-Mar-11 | 5-Apr-11 | 12-May-11 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0902 | 0.0929 | 0.0896 | 0.0799 | 0.0706 | 0.0378 | 0.0929 | 0.0931 | 0.0795 | 0.074 | 0.072 | 0.0715 | 0.0778 | 0.0694 | 0.0495 |
| Chloride (mg/L) | 22.1 | 23.6 | 24.3 | 21 | 24.4 | 25.5 | 25.9 | 27 | 24.8 | 26.7 | 26.5 | 26 | 25.9 | 20.9 | 22.9 |
| Diss-Orthophosphate (mg/L) | 0.0214 | 0.0234 | 0.0191 | 0.0192 | 0.0242 | 0.0198 | 0.0236 | 0.0238 | 0.0203 | 0.0193 | 0.0147 | 0.0165 | 0.0158 | 0.023 | 0.0223 |
| Diss-Phosphorus (mg/L) | 0.0321 | 0.0352 | 0.0334 | 0.031 | 0.0379 | 0.0308 | 0.0352 | 0.036 | 0.0285 | 0.0294 | 0.0278 | 0.0275 | 0.0255 | 0.0305 | 0.0318 |
| Nitrate (N) (mg/L) | 2.69 | 1.45 | 2.01 | 2.17 | 1.04 | 1.65 | 1.05 | 1.16 | 1.74 | 1.83 | 1.63 | 1.64 | 1.59 | 4.1 | 3.54 |
| Nitrate and Nitrite (mg/L) | | | 2.04 | 2.19 | 1.06 | 1.68 | 1.08 | 1.22 | 1.79 | 1.89 | 1.7 | 1.7 | 1.65 | 4.16 | 3.6 |
| Nitrite (N) (mg/L) | 0.019 | 0.0218 | 0.028 | 0.0167 | 0.026 | 0.037 | 0.031 | 0.067 | 0.059 | 0.059 | 0.076 | 0.0653 | 0.06 | 0.07 | 0.054 |
| Sulphate (mg/L) | 451 | 379 | 395 | 401 | 377 | 404 | 412 | 432 | 418 | 451 | 453 | 451 | 458 | 587 | 484 |
| Total Nitrogen (mg/L) | 3.92 | 1.67 | 2.45 | 3.25 | 1.25 | 1.9 | 1.59 | 1.58 | 1.89 | 2.11 | 1.66 | 1.92 | 1.63 | 7.24 | 4.73 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.003 | 0.0025 | 0.0023 | 0.0021 | 0.0027 | <0.002 | 0.002 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| Diss-Antimony (Sb) (mg/L) | 0.00042 | 0.00036 | 0.00034 | 0.00057 | 0.00083 | 0.00041 | 0.00045 | 0.00047 | 0.00038 | 0.00039 | 0.00038 | 0.00038 | 0.00038 | 0.00053 | 0.00033 |
| Diss-Arsenic (As) (mg/L) | 0.0015 | 0.0016 | 0.00156 | 0.00146 | 0.0016 | 0.00152 | 0.0017 | 0.00177 | 0.00162 | 0.00165 | 0.00161 | 0.00164 | 0.00175 | 0.00146 | 0.00145 |
| Diss-Barium (Ba) (mg/L) | 0.0716 | 0.0768 | 0.0741 | 0.0744 | 0.0902 | 0.0753 | 0.0756 | 0.0732 | 0.081 | 0.0767 | 0.0727 | 0.0798 | 0.0766 | 0.0734 | 0.07 |
| Diss-Beryllium (Be) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Boron (B) (mg/L) | 0.139 | 0.161 | 0.144 | 0.122 | 0.139 | 0.138 | 0.155 | 0.168 | 0.143 | 0.146 | 0.15 | 0.143 | 0.139 | 0.125 | 0.125 |
| Diss-Cadmium (Cd) (mg/L) | <0.000034 | <0.00041 | <0.000034 | 0.0001 | <0.00071 | <0.0006 | <0.00008 | <0.00008 | <0.00006 | <0.0001 | <0.00006 | <0.00007 | <0.00008 | 0.000113 | <0.00009 |
| Diss-Calcium (Ca) (mg/L) | 129 | 122 | 132 | 128 | 115 | 123 | 119 | 123 | 133 | 136 | 136 | 135 | 132 | 182 | 144 |
| Diss-Chromium (Cr) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Diss-Cobalt (Co) (mg/L) | 0.00027 | 0.00034 | 0.00024 | 0.0003 | 0.00044 | 0.00033 | 0.00038 | 0.00039 | 0.00039 | 0.0004 | 0.00041 | 0.00043 | 0.00046 | 0.00037 | 0.00031 |
| Diss-Copper (Cu) (mg/L) | 0.00186 | 0.0019 | 0.00202 | 0.00346 | 0.00875 | <0.0018 | 0.00137 | 0.00245 | 0.00117 | 0.00161 | 0.00102 | 0.00175 | 0.00155 | 0.00615 | 0.00157 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 |
| Diss-Lead (Pb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Diss-Magnesium (Mg) (mg/L) | 18.7 | 18.6 | 18.6 | 19.2 | 18.7 | 18.8 | 18.9 | 20.4 | 19.9 | 19.9 | 20.5 | 20.3 | 20.2 | 27 | 22.2 |
| Diss-Manganese (Mn) (mg/L) | 0.325 | 0.345 | 0.25 | 0.271 | 0.76 | 0.299 | 0.443 | 0.494 | 0.35 | 0.352 | 0.357 | 0.38 | 0.396 | 0.398 | 0.293 |
| Diss-Molybdenum (Mo) (mg/L) | 0.146 | 0.138 | 0.137 | 0.131 | 0.144 | 0.13 | 0.149 | 0.155 | 0.148 | 0.153 | 0.152 | 0.145 | 0.154 | 0.216 | 0.185 |
| Diss-Nickel (Ni) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | 0.00057 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00097 | <0.0005 | <0.0005 |
| Diss-Potassium (K) (mg/L) | 12.6 | 13.2 | 12.3 | 12.3 | 13.1 | 13.3 | 14.8 | 15.1 | 13.8 | 14.1 | 14.6 | 14.7 | 15.5 | 12.9 | 11.7 |
| Diss-Selenium (mg/L) | 0.0077 | 0.005 | 0.0064 | 0.0077 | 0.0096 | 0.0057 | 0.0034 | 0.0033 | 0.0057 | 0.0056 | 0.0054 | 0.0055 | 0.00476 | 0.0158 | 0.0114 |
| Diss-Silicon (Si) (mg/L) | 6.32 | 6.55 | 6.96 | 6.56 | 6.62 | 6.29 | 6.48 | 6.54 | 6.91 | 6.62 | 6.9 | 6.76 | 6.74 | 6.27 | 6.22 |
| Diss-Silver (Ag) (mg/L) | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Diss-Sodium (Na) (mg/L) | 68.8 | 78.9 | 73.1 | 69.3 | 76.6 | 72.6 | 79.8 | 83.5 | 80.8 | 77.9 | 78.7 | 81.5 | 85.3 | 65.1 | 66.6 |
| Diss-Strontium (Sr) (mg/L) | 1.47 | 1.46 | 1.45 | 1.4 | 1.54 | 1.52 | 1.63 | 1.72 | 1.78 | 1.74 | 1.88 | 1.79 | 1.81 | 2.49 | 2 |
| Diss-Tin (Sn) (mg/L) | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |

| | E232862 : E5 - Tailings Impoundment Main Embank Drain Comp | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9-Jun-11 | 13-Jul-11 | 3-Aug-11 | 8-Sep-11 | 5-Oct-11 | 1-Nov-11 | 5-Dec-11 | 4-Jan-12 | 8-Feb-12 | 14-Mar-12 | 3-Apr-12 | 2-May-12 | 7-Jun-12 | 5-Jul-12 | 1-Aug-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0611 | 0.0194 | 0.0651 | 0.0568 | 0.0561 | 0.0608 | 0.0571 | 0.0591 | 0.0598 | 0.0654 | 0.0424 | 0.051 | 0.0555 | 0.0355 | 0.0505 |
| Chloride (mg/L) | 24 | 22 | 24.8 | 23.7 | 23.1 | 23.4 | 23.4 | 24.9 | 23.7 | 23.9 | 20.9 | 23.1 | 22.5 | 20.1 | 23.8 |
| Diss-Orthophosphate (mg/L) | 0.0179 | 0.0187 | 0.0143 | 0.0183 | 0.0177 | 0.0158 | 0.0152 | 0.0137 | 0.0132 | 0.0137 | 0.0183 | 0.02 | 0.0213 | 0.0201 | 0.021 |
| Diss-Phosphorus (mg/L) | 0.0278 | 0.0284 | 0.0231 | | 0.0276 | 0.0253 | 0.0258 | 0.0236 | 0.0244 | 0.0256 | 0.0275 | 0.0301 | 0.0309 | 0.029 | 0.0324 |
| Nitrate (N) (mg/L) | 3.03 | 3.34 | 3.44 | 2.74 | 2.29 | 2.46 | 1.89 | 1.73 | 1.67 | 1.83 | 3.8 | 2.62 | 2.84 | 3.68 | 2.18 |
| Nitrate and Nitrite (mg/L) | 3.07 | 3.43 | 3.55 | 2.88 | 2.44 | 2.62 | 2.06 | 1.9 | 1.84 | 2 | 3.93 | 2.76 | 2.95 | 3.8 | 2.32 |
| Nitrite (N) (mg/L) | 0.048 | 0.098 | 0.111 | 0.142 | 0.147 | 0.153 | 0.173 | 0.171 | 0.174 | 0.17 | 0.134 | 0.145 | 0.103 | 0.118 | 0.141 |
| Sulphate (mg/L) | 547 | 520 | 526 | 480 | 440 | 469 | 456 | 459 | 458 | 462 | 557 | 482 | 471 | 518 | 464 |
| Total Nitrogen (mg/L) | 5.32 | 4.92 | 4.03 | 3.48 | 2.91 | 3.32 | 2.68 | 2.37 | 2.83 | 2.57 | 4.84 | 3.83 | 3.64 | 4.32 | 2.53 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | 0.003 | 0.0035 | 0.003 | 0.0036 | 0.0032 | <0.0030 | 0.0035 | 0.0035 | <0.0030 | 0.0036 |
| Diss-Antimony (Sb) (mg/L) | 0.00035 | 0.00035 | 0.00044 | 0.00041 | 0.00042 | 0.00043 | 0.00044 | 0.00044 | 0.00043 | 0.00042 | 0.00038 | 0.00039 | 0.00037 | 0.00031 | 0.00041 |
| Diss-Arsenic (As) (mg/L) | 0.0016 | 0.00148 | 0.00153 | 0.00154 | 0.00161 | 0.00161 | 0.00162 | 0.00163 | 0.00158 | 0.00153 | 0.00138 | 0.00156 | 0.00137 | 0.00139 | 0.00161 |
| Diss-Barium (Ba) (mg/L) | 0.0774 | 0.0735 | 0.0646 | 0.0654 | 0.0607 | 0.0614 | 0.06 | 0.0603 | 0.0604 | 0.0615 | 0.0682 | 0.0652 | 0.0617 | 0.0647 | 0.0654 |
| Diss-Beryllium (Be) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.135 | 0.12 | 0.137 | 0.13 | 0.127 | 0.146 | 0.131 | 0.144 | 0.141 | 0.139 | 0.126 | 0.124 | 0.129 | 0.115 | 0.132 |
| Diss-Cadmium (Cd) (mg/L) | <0.00009 | <0.00006 | <0.00008 | <0.00020 | <0.000070 | <0.000070 | <0.000090 | <0.000080 | <0.000080 | <0.00010 | <0.00019 | <0.00025 | <0.00020 | <0.00011 | <0.00010 |
| Diss-Calcium (Ca) (mg/L) | 163 | 167 | 152 | 138 | 131 | 134 | 126 | 130 | 128 | 131 | 174 | 145 | 149 | 151 | 131 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00039 | 0.00038 | 0.00038 | 0.00033 | 0.00036 | 0.00038 | 0.00035 | 0.00036 | 0.00034 | 0.00035 | 0.00032 | 0.00034 | 0.00028 | 0.00028 | 0.00032 |
| Diss-Copper (Cu) (mg/L) | 0.0017 | 0.00154 | 0.00184 | 0.00203 | 0.00185 | 0.00089 | 0.00128 | 0.00198 | 0.00175 | 0.00186 | 0.00104 | 0.00137 | 0.00156 | 0.00132 | 0.00184 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 23.9 | 23.5 | 23.8 | 22.2 | 20.6 | 21 | 20.2 | 19.7 | 20.7 | 19.8 | 26.1 | 22.1 | 21 | 24.7 | 20.8 |
| Diss-Manganese (Mn) (mg/L) | 0.363 | 0.327 | 0.435 | 0.44 | 0.46 | 0.452 | 0.377 | 0.381 | 0.374 | 0.355 | 0.323 | 0.442 | 0.274 | 0.284 | 0.4 |
| Diss-Molybdenum (Mo) (mg/L) | 0.179 | 0.176 | 0.191 | 0.173 | 0.17 | 0.174 | 0.172 | 0.173 | 0.172 | 0.17 | 0.202 | 0.193 | 0.188 | 0.186 | 0.195 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | 0.00059 | <0.00050 | <0.00050 | <0.00050 | 0.00051 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 13.5 | 13.1 | 13.2 | 13.6 | 13.5 | 14 | 15.9 | 15.3 | 15.1 | 13.3 | 13.2 | 13.3 | 11.5 | 12.2 | 13 |
| Diss-Selenium (mg/L) | 0.0109 | 0.0106 | 0.00912 | 0.00678 | 0.00574 | 0.00564 | 0.005 | 0.00494 | 0.00493 | 0.00562 | 0.0128 | 0.00895 | 0.00935 | 0.0121 | 0.00646 |
| Diss-Silicon (Si) (mg/L) | 6.59 | 6.6 | 6.36 | 6.39 | 6.36 | 6.34 | 6.48 | 6.46 | 6.42 | 6.41 | 6.49 | 6.15 | 6.08 | 6.32 | 6.24 |
| Diss-Silver (Ag) (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 79.8 | 77 | 73.2 | 82 | 82.1 | 82.1 | 89.9 | 88.3 | 84.7 | 81.5 | 72.8 | 74.5 | 66.3 | 70.9 | 81.5 |
| Diss-Strontium (Sr) (mg/L) | 2.1 | 2.05 | 2.08 | 1.85 | 1.79 | 1.82 | 1.92 | 1.97 | 1.9 | 1.86 | 2.29 | 2.01 | 1.99 | 2.04 | 2.04 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

| | E232862 : E5 - Tailings Impoundment Main Embank Drain Comp | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6-Sep-12 | 3-Oct-12 | 15-Nov-12 | 6-Dec-12 | 2-Jan-13 | 6-Feb-13 | 13-Mar-13 | 4-Apr-13 | 1-May-13 | 6-Jun-13 | 10-Jul-13 |
| **Anions and Nutrients** | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0573 | 0.0572 | 0.047 | 0.0506 | 0.0244 | 0.0542 | 0.0528 | 0.0488 | 0.0409 | 0.048 | 0.0282 |
| Chloride (mg/L) | 24 | 31.2 | 23 | 24.3 | 23.8 | 23.6 | 24.3 | 19.7 | 21.8 | 24.7 | 21.7 |
| Diss-Orthophosphate (mg/L) | 0.0189 | 0.0165 | 0.0162 | 0.0174 | 0.0128 | 0.0153 | 0.0152 | 0.0051 | 0.0207 | 0.0173 | <0.0010 |
| Diss-Phosphorus (mg/L) | 0.0286 | 0.0297 | 0.0227 | 0.0281 | 0.0205 | 0.0234 | 0.0237 | 0.0136 | 0.0289 | 0.029 | 0.0055 |
| Nitrate (N) (mg/L) | 1.81 | 1.71 | 1.91 | 1.87 | 1.85 | 2.19 | 2 | 3.03 | 3.16 | 2.36 | 3.51 |
| Nitrate and Nitrite (mg/L) | 1.98 | 1.9 | 2.09 | 2.06 | 2.05 | 2.39 | 2.2 | 3.1 | 3.33 | 2.55 | 3.73 |
| Nitrite (N) (mg/L) | 0.169 | 0.193 | 0.171 | 0.19 | 0.202 | 0.199 | 0.205 | 0.07 | 0.175 | 0.198 | 0.223 |
| Sulphate (mg/L) | 440 | 450 | 445 | 472 | 457 | 460 | 476 | 428 | 542 | 502 | 496 |
| Total Nitrogen (mg/L) | 2.37 | 2.02 | 1.8 | 1.92 | 1.89 | 947 | 2.1 | 4.08 | 3.32 | 2.45 | 3.86 |
| **Dissolved Metals** | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | | | | | |
| Diss-Antimony (Sb) (mg/L) | 0.00039 | 0.0004 | 0.00037 | 0.00048 | 0.00046 | | | | | | |
| Diss-Arsenic (As) (mg/L) | 0.00166 | 0.00164 | 0.00157 | 0.00157 | 0.00171 | | | | | | |
| Diss-Barium (Ba) (mg/L) | 0.0671 | 0.067 | 0.0684 | 0.0623 | 0.059 | | | | | | |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | |
| Diss-Boron (B) (mg/L) | 0.143 | 0.137 | 0.128 | 0.131 | 0.105 | | | | | | |
| Diss-Cadmium (Cd) (mg/L) | <0.00012 | <0.000090 | <0.00010 | <0.00010 | <0.00010 | | | | | | |
| Diss-Calcium (Ca) (mg/L) | 124 | 125 | 131 | 126 | 126 | | | | | | |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | | | | |
| Diss-Cobalt (Co) (mg/L) | 0.00035 | 0.00035 | 0.00034 | 0.00029 | 0.00035 | | | | | | |
| Diss-Copper (Cu) (mg/L) | 0.0019 | 0.00194 | 0.00091 | 0.00201 | 0.00088 | | | | | | |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | | | | | | |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | | | | | |
| Diss-Magnesium (Mg) (mg/L) | 19.3 | 19.2 | 19.6 | 20.8 | 19.6 | | | | | | |
| Diss-Manganese (Mn) (mg/L) | 0.435 | 0.432 | 0.361 | 0.436 | 0.482 | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.18 | 0.181 | 0.188 | 0.184 | 0.181 | | | | | | |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | | | | |
| Diss-Potassium (K) (mg/L) | 14.4 | 14.1 | 13.2 | 13.9 | 14.5 | | | | | | |
| Diss-Selenium (mg/L) | 0.00631 | 0.00517 | 0.00624 | 0.00619 | 0.00619 | | | | | | |
| Diss-Silicon (Si) (mg/L) | 6.21 | 6.58 | 6.41 | 6.39 | 6.34 | | | | | | |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | | | | |
| Diss-Sodium (Na) (mg/L) | 90.4 | 87.1 | 79.1 | 83.8 | 88.2 | | | | | | |
| Diss-Strontium (Sr) (mg/L) | 1.86 | 1.73 | 1.99 | 1.98 | 1.86 | | | | | | |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | | | | |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E232862 : E5 - Tailings Impoundment Main Embank Drain Comp | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **14-Jan-09** | **10-Feb-09** | **4-Mar-09** | **7-Apr-09** | **12-May-09** | **9-Jun-09** | **7-Jul-09** | **5-Aug-09** | **2-Sep-09** | **6-Oct-09** | **29-Oct-09** | **19-Nov-09** | **9-Dec-09** | **13-Jan-10** | **10-Feb-10** |
| Diss-Zinc (Zn) (mg/L) | 0.0031 | <0.002 | <0.001 | <0.002 | <0.001 | <0.002 | <0.002 | <0.002 | <0.001 | <0.002 | <0.001 | <0.002 | <0.002 | <0.002 | <0.002 |
| TDS (mg/L) | 578 | 597 | 571 | 677 | 650 | 704 | 627 | 646 | 613 | 623 | 627 | 658 | 705 | 674 | 778 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 117 | 115 | 118 | 110 | 126 | 119 | 117 | 120 | 112 | 115 | 115 | 125 | 135 | 126 | 123 |
| Hardness (mg/L) | 260 | 261 | 270 | 335 | 302 | 351 | 302 | 290 | 290 | 296 | 286 | 318 | 336 | 323 | 373 |
| NTU (ntu) | 0.34 | 0.42 | 0.29 | 0.38 | 1.11 | 0.54 | 0.33 | 0.35 | 0.18 | 0.49 | 0.26 | 0.3 | 0.35 | 0.3 | 0.24 |
| TDS (mg/L) | 578 | 597 | 571 | 677 | 650 | 704 | 627 | 646 | 613 | 623 | 627 | 658 | 705 | 674 | 778 |
| TSS (mg/L) | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00028 | 0.00026 | 0.00026 | 0.00023 | 0.00022 | 0.00026 | 0.00024 | 0.00032 | 0.00028 | 0.0003 | 0.00025 | 0.00034 | 0.0004 | 0.00038 | 0.0004 |
| Arsenic (As)-Total ( | 0.0018 | 0.00203 | 0.00201 | 0.00179 | 0.0018 | 0.00173 | 0.00203 | 0.00199 | 0.00191 | 0.00197 | 0.00182 | 0.00181 | 0.00195 | 0.00185 | 0.0018 |
| Barium (Ba)-Total | 0.0571 | 0.0762 | 0.0667 | 0.0761 | 0.082 | 0.0724 | 0.0778 | 0.0759 | 0.0704 | 0.0785 | 0.0736 | 0.0788 | 0.0774 | 0.0744 | 0.0777 |
| Boron (B)-Total (mg/L) | 0.156 | 0.163 | 0.148 | 0.157 | 0.157 | 0.148 | 0.147 | 0.157 | 0.162 | 0.154 | 0.157 | 0.162 | 0.171 | 0.167 | 0.143 |
| Calcium (Ca)-Total ( | 77.7 | 85 | 87 | 111 | 95.8 | 114 | 96.6 | 92.9 | 91.3 | 93.7 | 89.5 | 100 | 109 | 100 | 114 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | <0.001 | <0.0005 | <0.001 | 0.00052 | <0.001 | 0.00063 | 0.0013 | <0.0005 | <0.001 | <0.0005 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt (Co)-Total (m | 0.00033 | 0.00029 | 0.00027 | 0.00027 | 0.00024 | 0.00027 | 0.00024 | 0.00027 | 0.00027 | 0.00031 | 0.00025 | 0.00028 | 0.0003 | 0.00033 | 0.00034 |
| Magnesium (Mg)-Total (mg/L) | 12.4 | 13.3 | 13.4 | 16.2 | 14.6 | 18.3 | 14.9 | 14.4 | 13.7 | 14.5 | 14.2 | 15.4 | 17 | 16.2 | 17.9 |
| Mercury (Hg)-Total (mg/L) | | | | | | | | | | | | | | | |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.001 | <0.0005 | <0.001 | 0.00095 | 0.0013 | <0.001 | 0.0013 | <0.0005 | <0.001 | <0.0005 | <0.001 | 0.001 | <0.001 | <0.001 |
| Silicon (Si)-Total (mg/L) | 6.16 | 6.72 | 6.82 | 6.46 | 6.32 | 6.77 | 6.56 | 6.4 | 6.15 | 6.47 | 6.13 | 6.41 | 6.63 | 6.53 | 6.39 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00002 | <0.00001 | <0.00002 | <0.00001 | <0.00002 | <0.00002 | <0.00002 | <0.00001 | <0.00002 | <0.00001 | <0.00002 | <0.00002 | <0.00002 | <0.00002 |
| Sodium (Na)-Total (mg/L) | 74.9 | 77.4 | 72.1 | 71.3 | 68.9 | 74.3 | 80 | 78 | 78.4 | 79.7 | 75.8 | 77.4 | 74.5 | 77.5 | 83.6 |
| Strontium (Sr)-Total (mg/L) | 0.846 | 1.13 | 0.905 | 1.18 | 1.28 | 1.26 | 1.24 | 1.18 | 1.15 | 1.2 | 1.2 | 1.29 | 1.5 | 1.36 | 1.49 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0002 | <0.0002 | <0.0001 | <0.0002 | <0.0001 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Total Aluminum (mg/L) | 0.0079 | 0.0096 | 0.004 | 0.0064 | 0.0061 | 0.0064 | 0.0055 | 0.0043 | <0.007 | 0.0334 | 0.0099 | <0.008 | 0.004 | <0.007 | <0.008 |
| Total Cadmium (mg/L) | <0.00041 | <0.0004 | <0.00003 | <0.00051 | 0.000027 | 0.000076 | <0.0004 | 0.000099 | <0.0004 | 0.000036 | <0.0004 | <0.000034 | <0.00056 | <0.000034 | <0.0004 |
| Total Copper (mg/L) | 0.00204 | 0.0016 | <0.0015 | 0.00101 | <0.004 | 0.00185 | 0.00162 | 0.0017 | <0.003 | 0.00399 | 0.0031 | 0.00371 | 0.0122 | 0.00282 | <0.004 |
| Total Iron (mg/L) | 0.054 | 0.054 | 0.055 | 0.044 | 0.072 | 0.054 | 0.047 | 0.044 | 0.038 | 0.07 | 0.054 | <0.09 | 0.056 | 0.063 | 0.064 |
| Total Lead (mg/L) | <0.00005 | <0.0001 | <0.00005 | <0.0001 | 0.00012 | <0.0001 | 0.000076 | 0.00013 | 0.000093 | <0.0001 | 0.00008 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Manganese (mg/L) | 0.329 | 0.384 | 0.322 | 0.298 | 0.38 | 0.359 | 0.375 | 0.368 | 0.373 | 0.388 | 0.366 | 0.367 | 0.448 | 0.359 | 0.37 |
| Total Molybdenum (mg/L) | 0.127 | 0.134 | 0.133 | 0.166 | 0.141 | 0.146 | 0.135 | 0.134 | 0.132 | 0.143 | 0.139 | 0.15 | 0.149 | 0.134 | 0.138 |
| Total Selenium (mg/L) | 0.0019 | 0.002 | 0.0019 | 0.0081 | 0.0043 | 0.0085 | 0.0048 | 0.0041 | 0.0034 | 0.003 | 0.0027 | 0.0039 | 0.0069 | 0.0061 | 0.0076 |
| Zinc (Zn)-Total (mg/L) | <0.002 | <0.002 | <0.001 | <0.002 | <0.001 | <0.002 | <0.002 | <0.002 | <0.001 | <0.002 | <0.001 | <0.002 | <0.002 | <0.002 | <0.002 |

| | E232862 : E5 - Tailings Impoundment Main Embank Drain Comp | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **3-Mar-10** | **7-Apr-10** | **11-May-10** | **3-Jun-10** | **8-Jul-10** | **5-Aug-10** | **1-Sep-10** | **7-Oct-10** | **4-Nov-10** | **1-Dec-10** | **10-Jan-11** | **3-Feb-11** | **7-Mar-11** | **5-Apr-11** | **12-May-11** |
| Diss-Zinc (Zn) (mg/L) | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.001 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |
| TDS (mg/L) | 745 | 734 | 749 | 1040 | 751 | 760 | 767 | 816 | 805 | 787 | 839 | 835 | 851 | 982 | 846 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 128 | 118 | 120 | 123 | 118 | 115 | 104 | 104 | 118 | 115 | 111 | 110 | 112 | 89.5 | 97.5 |
| Hardness (mg/L) | 399 | 381 | 406 | 398 | 364 | 384 | 375 | 391 | 414 | 422 | 425 | 421 | 413 | 567 | 452 |
| NTU (ntu) | 0.24 | 0.22 | 0.3 | 0.52 | 6.56 | 0.25 | 0.25 | 0.31 | 0.3 | 0.4 | 0.4 | 10 | 0.26 | 0.55 | 0.4 |
| TDS (mg/L) | 745 | 734 | 749 | 1040 | 751 | 760 | 767 | 816 | 805 | 787 | 839 | 835 | 851 | 982 | 846 |
| TSS (mg/L) | <3 | <3 | <3 | <3 | 56.7 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 | <3 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00043 | 0.00036 | 0.00034 | 0.00071 | 0.00136 | 0.0004 | 0.00045 | 0.00047 | 0.0004 | 0.0004 | 0.00042 | 0.00039 | 0.00037 | 0.00056 | 0.00033 |
| Arsenic (As)-Total ( | 0.00161 | 0.0018 | 0.00163 | 0.00162 | 0.00348 | 0.00166 | 0.00174 | 0.00181 | 0.00182 | 0.0019 | 0.00169 | 0.00185 | 0.00198 | 0.00161 | 0.00145 |
| Barium (Ba)-Total | 0.075 | 0.08 | 0.0746 | 0.0785 | 0.138 | 0.0795 | 0.0767 | 0.0755 | 0.086 | 0.0793 | 0.0718 | 0.0819 | 0.0788 | 0.0751 | 0.0692 |
| Boron (B)-Total (mg/L) | 0.15 | 0.174 | 0.145 | 0.131 | 0.139 | 0.141 | 0.158 | 0.166 | 0.151 | 0.151 | 0.168 | 0.151 | 0.143 | 0.128 | 0.124 |
| Calcium (Ca)-Total ( | 126 | 124 | 118 | 124 | 112 | 124 | 118 | 125 | 135 | 137 | 137 | 138 | 137 | 188 | 143 |
| Chromium (Cr)-Total (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | 0.0016 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Cobalt (Co)-Total (m | 0.00031 | 0.00035 | 0.00029 | 0.00032 | 0.00175 | 0.00038 | 0.00038 | 0.00041 | 0.00042 | 0.00041 | 0.00039 | 0.00044 | 0.0005 | 0.0004 | 0.00033 |
| Magnesium (Mg)-Total (mg/L) | 18.6 | 18.8 | 17.7 | 18.8 | 18.7 | 19.1 | 18.9 | 20.7 | 20.4 | 20.2 | 21.1 | 20.9 | 21.1 | 28.2 | 22 |
| Mercury (Hg)-Total (mg/L) | | | | | | | | | | | | | | | |
| Nickel (Ni)-Total (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | 0.0016 | <0.001 | <0.0005 | 0.00055 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | 0.00054 | <0.0005 |
| Silicon (Si)-Total (mg/L) | 6.26 | 6.61 | 6.61 | 6.41 | 10.3 | 6.39 | 6.47 | 6.62 | 7.07 | 6.71 | 7.01 | 6.93 | 7 | 6.46 | 6.2 |
| Silver (Ag)-Total (mg/L) | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 |
| Sodium (Na)-Total (mg/L) | 73.6 | 82.7 | 71.9 | 71.9 | 76.5 | 76.9 | 80.3 | 84.3 | 86.4 | 80.9 | 77 | 84.2 | 89.6 | 68 | 67.1 |
| Strontium (Sr)-Total (mg/L) | 1.53 | 1.52 | 1.48 | 1.43 | 1.59 | 1.62 | 1.65 | 1.75 | 1.88 | 1.78 | 2.12 | 1.86 | 1.88 | 2.6 | 1.98 |
| Tin (Sn)-Total (mg/L) | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Total Aluminum (mg/L) | 0.0047 | 0.0057 | 0.0125 | 0.0083 | 1.53 | 0.0053 | 0.0158 | 0.02 | 0.0053 | 0.0066 | 0.0044 | 0.0068 | 0.0061 | 0.0243 | 0.0104 |
| Total Cadmium (mg/L) | <0.000034 | <0.00041 | 0.000063 | 0.000102 | <0.00087 | <0.0006 | <0.00007 | <0.00015 | <0.00008 | <0.0001 | <0.00006 | <0.00008 | <0.00009 | 0.000133 | <0.00009 |
| Total Copper (mg/L) | 0.00279 | 0.00276 | 0.00318 | 0.0497 | 0.27 | <0.004 | 0.00299 | 0.00508 | 0.00288 | 0.00387 | 0.00263 | 0.00311 | 0.0029 | 0.052 | 0.00293 |
| Total Iron (mg/L) | 0.059 | 0.056 | 0.065 | 0.111 | 1.92 | 0.062 | 0.038 | 0.05 | 0.07 | 0.063 | 0.063 | 0.062 | 0.06 | 0.193 | 0.045 |
| Total Lead (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00062 | <0.0001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | 0.000053 | <0.00005 | 0.000229 | <0.00005 |
| Total Manganese (mg/L) | 0.352 | 0.356 | 0.294 | 0.281 | 0.843 | 0.323 | 0.452 | 0.509 | 0.379 | 0.371 | 0.355 | 0.396 | 0.415 | 0.421 | 0.298 |
| Total Molybdenum (mg/L) | 0.151 | 0.144 | 0.136 | 0.133 | 0.144 | 0.137 | 0.151 | 0.16 | 0.157 | 0.158 | 0.176 | 0.154 | 0.16 | 0.232 | 0.187 |
| Total Selenium (mg/L) | 0.008 | 0.0045 | 0.0063 | 0.0071 | 0.01 | 0.0057 | 0.0033 | 0.0034 | 0.0059 | 0.0056 | 0.00549 | 0.0055 | 0.00488 | 0.0163 | 0.0108 |
| Zinc (Zn)-Total (mg/L) | <0.002 | <0.002 | <0.002 | <0.002 | 0.0044 | <0.002 | <0.001 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 |

| | E232862 : E5 - Tailings Impoundment Main Embank Drain Comp | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **9-Jun-11** | **13-Jul-11** | **3-Aug-11** | **8-Sep-11** | **5-Oct-11** | **1-Nov-11** | **5-Dec-11** | **4-Jan-12** | **8-Feb-12** | **14-Mar-12** | **3-Apr-12** | **2-May-12** | **7-Jun-12** | **5-Jul-12** | **1-Aug-12** |
| Diss-Zinc (Zn) (mg/L) | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 945 | 917 | 930 | 863 | 842 | 840 | 787 | 808 | 805 | 829 | 962 | 835 | 834 | 974 | 903 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 100 | 102 | 93 | 98 | 97.4 | 100 | 98 | 96.4 | 98.1 | 98.7 | 99.2 | 95.7 | 94.3 | 93.8 | 87.9 |
| Hardness (mg/L) | 504 | 514 | 479 | 437 | 411 | 422 | 399 | 405 | 404 | 408 | 541 | 453 | 458 | 478 | 412 |
| NTU (ntu) | 0.19 | 0.41 | 0.26 | 0.29 | 0.28 | 0.61 | 0.31 | 0.94 | 0.4 | 0.19 | 0.26 | 0.45 | 1.46 | 0.18 | 3.95 |
| TDS (mg/L) | 945 | 917 | 930 | 863 | 842 | 840 | 787 | 808 | 805 | 829 | 962 | 835 | 834 | 974 | 903 |
| TSS (mg/L) | <3 | <3 | <3 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | 3 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00036 | 0.00035 | 0.00045 | 0.00042 | 0.00041 | 0.00043 | 0.00042 | 0.00044 | 0.00044 | 0.0004 | 0.00039 | 0.00041 | 0.00037 | 0.00034 | 0.00042 |
| Arsenic (As)-Total ( | 0.00168 | 0.0016 | 0.00161 | 0.00161 | 0.00164 | 0.00167 | 0.0016 | 0.0017 | 0.00179 | 0.00159 | 0.0015 | 0.00171 | 0.00158 | 0.00157 | 0.00177 |
| Barium (Ba)-Total | 0.0789 | 0.0749 | 0.066 | 0.0641 | 0.0607 | 0.0624 | 0.0567 | 0.0615 | 0.0613 | 0.0586 | 0.0701 | 0.067 | 0.0626 | 0.0727 | 0.0688 |
| Boron (B)-Total (mg/L) | 0.142 | 0.129 | 0.141 | 0.136 | 0.13 | 0.148 | 0.118 | 0.146 | 0.144 | 0.138 | 0.131 | 0.141 | 0.131 | 0.126 | 0.137 |
| Calcium (Ca)-Total ( | 163 | 168 | 155 | 137 | 131 | 136 | 123 | 129 | 129 | 126 | 172 | 147 | 152 | 154 | 131 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00041 | 0.00036 | 0.00038 | 0.00038 | 0.00038 | 0.0004 | 0.00035 | 0.00037 | 0.00036 | 0.00033 | 0.0003 | 0.00035 | 0.00036 | 0.00031 | 0.00042 |
| Magnesium (Mg)-Total (mg/L) | 24.1 | 23.6 | 24.5 | 21.2 | 20.7 | 21.2 | 19.5 | 20.3 | 21.2 | 19 | 25.9 | 22.5 | 21.6 | 25.3 | 20.8 |
| Mercury (Hg)-Total (mg/L) | | | | | | | | | | | | | | | |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00053 |
| Silicon (Si)-Total (mg/L) | 6.62 | 6.62 | 6.55 | 6.25 | 6.4 | 6.37 | 6.22 | 6.5 | 6.55 | 6.15 | 6.44 | 6.24 | 6.45 | 6.48 | 6.78 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.000010 | 0.000024 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000012 |
| Sodium (Na)-Total (mg/L) | 84.6 | 77.9 | 75 | 81.5 | 82.3 | 84.2 | 85.5 | 90.7 | 89.1 | 80.1 | 74.2 | 75.8 | 69.1 | 73.1 | 84.8 |
| Strontium (Sr)-Total (mg/L) | 2.17 | 2.11 | 2.12 | 1.86 | 1.86 | 1.84 | 1.8 | 2.07 | 1.95 | 1.83 | 2.35 | 2.19 | 1.99 | 2.05 | 2.08 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0046 | 0.0052 | 0.007 | 0.0067 | 0.006 | 0.0085 | 0.0051 | 0.0058 | 0.0055 | <0.012 | 0.0047 | 0.0176 | 0.101 | 0.0049 | 0.216 |
| Total Cadmium (mg/L) | <0.0001 | <0.00007 | <0.00009 | <0.00020 | <0.000070 | <0.000080 | <0.000080 | <0.000080 | <0.000090 | <0.00010 | <0.00020 | <0.00025 | <0.00020 | <0.00010 | <0.00010 |
| Total Copper (mg/L) | 0.00275 | 0.00236 | 0.00302 | 0.00315 | 0.00327 | <0.0035 | 0.0029 | 0.00295 | 0.00282 | 0.00257 | 0.0024 | 0.00274 | 0.00689 | 0.00235 | 0.00698 |
| Total Iron (mg/L) | 0.046 | 0.053 | 0.05 | 0.042 | 0.039 | 0.05 | 0.043 | 0.047 | 0.047 | 0.042 | 0.034 | 0.04 | 0.132 | 0.05 | 0.207 |
| Total Lead (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.000050 | 0.000055 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000058 | <0.000050 | <0.00010 |
| Total Manganese (mg/L) | 0.384 | 0.331 | 0.452 | 0.454 | 0.465 | 0.467 | 0.363 | 0.397 | 0.395 | 0.356 | 0.333 | 0.452 | 0.289 | 0.318 | 0.414 |
| Total Molybdenum (mg/L) | 0.187 | 0.181 | 0.192 | 0.173 | 0.176 | 0.178 | 0.161 | 0.182 | 0.181 | 0.17 | 0.207 | 0.209 | 0.188 | 0.191 | 0.198 |
| Total Selenium (mg/L) | 0.0103 | 0.0102 | 0.00888 | 0.00635 | 0.00558 | 0.00536 | 0.00459 | 0.00474 | 0.00481 | 0.00518 | 0.0129 | 0.00921 | 0.00974 | 0.013 | 0.00661 |
| Zinc (Zn)-Total (mg/L) | <0.003 | <0.003 | 0.0035 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.004 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

| | E232862 : E5 - Tailings Impoundment Main Embank Drain Comp | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6-Sep-12 | 3-Oct-12 | 15-Nov-12 | 6-Dec-12 | 2-Jan-13 | 6-Feb-13 | 13-Mar-13 | 4-Apr-13 | 1-May-13 | 6-Jun-13 | 10-Jul-13 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | | | | | | |
| TDS (mg/L) | 819 | 831 | 800 | 828 | 830 | 810 | 857 | 748 | 936 | 781 | 845 |
| **Physical Test** | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 93.3 | 97.9 | 97.4 | 93.1 | 95.2 | 92.7 | 101 | 97.8 | 90.1 | 90.2 | 62.7 |
| Hardness (mg/L) | 388 | 392 | 408 | 399 | 395 | 410 | 404 | 440 | 486 | 421 | 422 |
| NTU (ntu) | 0.29 | 3.03 | 0.54 | 0.22 | 0.25 | 0.26 | 0.35 | 9.21 | 0.28 | 0.4 | 1.59 |
| TDS (mg/L) | 819 | 831 | 800 | 828 | 830 | 810 | 857 | 748 | 936 | 781 | 845 |
| TSS (mg/L) | <3.0 | 5.9 | <3.0 | 3.1 | <3.0 | <3.0 | 3.7 | 15.6 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.0004 | 0.00042 | 0.00041 | 0.00049 | 0.0005 | 0.0005 | 0.00044 | 0.00072 | 0.00042 | 0.00038 | 0.00086 |
| Arsenic (As)-Total ( | 0.0018 | 0.00189 | 0.00184 | 0.00161 | 0.00202 | 0.00181 | 0.00184 | 0.0021 | 0.00164 | 0.00178 | 0.00181 |
| Barium (Ba)-Total | 0.067 | 0.0679 | 0.0699 | 0.0551 | 0.0562 | 0.0612 | 0.0594 | 0.0517 | 0.0645 | 0.0619 | 0.0314 |
| Boron (B)-Total (mg/L) | 0.15 | 0.145 | 0.132 | 0.141 | 0.102 | 0.137 | 0.138 | 0.09 | 0.126 | 0.133 | 0.114 |
| Calcium (Ca)-Total ( | 120 | 127 | 131 | 124 | 123 | 131 | 130 | 141 | 155 | 133 | 137 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00125 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00038 | 0.00049 | 0.00036 | 0.00032 | 0.00037 | 0.00036 | 0.00035 | 0.00055 | 0.00032 | 0.00035 | 0.00016 |
| Magnesium (Mg)-Total (mg/L) | 19.6 | 19.7 | 19.7 | 20.4 | 19.4 | 20 | 19.3 | 21.1 | 24.1 | 21.8 | 19.7 |
| Mercury (Hg)-Total (mg/L) | | | | | | <0.000010 | | | | | |
| Nickel (Ni)-Total (mg/L) | <0.00050 | 0.00065 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00129 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 6.26 | 7.04 | 6.48 | 6.28 | 6.26 | 6.65 | 6.33 | 6.71 | 6.34 | 6.49 | 4.42 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 93.1 | 90.3 | 81.8 | 77.4 | 87.5 | 87.5 | 88.1 | 59.1 | 78.4 | 83.2 | 74.8 |
| Strontium (Sr)-Total (mg/L) | 1.86 | 1.79 | 1.98 | 1.97 | 1.92 | 2.09 | 2.02 | 1.71 | 2.31 | 2.17 | 1.6 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0316 | 0.192 | 0.0077 | 0.0043 | 0.0256 | 0.0084 | 0.0053 | 0.599 | 0.0078 | 0.0075 | 0.0407 |
| Total Cadmium (mg/L) | <0.00012 | <0.00010 | <0.00010 | <0.00010 | <0.00050 | <0.00015 | <0.00010 | <0.00010 | <0.00010 | <0.00020 | <0.00010 |
| Total Copper (mg/L) | 0.00349 | 0.0205 | 0.00417 | 0.0033 | 0.0391 | 0.0029 | 0.00426 | 0.00786 | 0.00276 | 0.00277 | 0.00437 |
| Total Iron (mg/L) | 0.063 | 0.299 | 0.06 | 0.051 | 0.121 | 0.054 | 0.05 | 0.743 | 0.051 | 0.046 | 0.061 |
| Total Lead (mg/L) | <0.000050 | 0.000119 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000195 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.437 | 0.441 | 0.371 | 0.425 | 0.459 | 0.367 | 0.367 | 0.3 | 0.373 | 0.378 | 0.185 |
| Total Molybdenum (mg/L) | 0.182 | 0.184 | 0.191 | 0.183 | 0.185 | 0.187 | 0.176 | 0.159 | 0.194 | 0.185 | 0.181 |
| Total Selenium (mg/L) | 0.00614 | 0.00542 | 0.00651 | 0.00674 | 0.00594 | 0.00732 | 0.00734 | 0.0128 | 0.0133 | 0.00903 | 0.0147 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0045 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E232862 : E5 - Tailings Impoundment Main Embank Drain Comp | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 123 | 105 | 0.00500 | 0.24700 | 0.05645 | 0.12430 | 0.04109 |
| Chloride (mg/L) | 57 | 57 | 18.80000 | 31.20000 | 23.19123 | | 2.16005 |
| Diss-Orthophosphate (mg/L) | 123 | 120 | 0.00050 | 0.12700 | 0.02038 | 0.05130 | 0.01499 |
| Diss-Phosphorus (mg/L) | 117 | 117 | 0.00550 | 0.14100 | 0.03452 | 0.06780 | 0.01580 |
| Nitrate (N) (mg/L) | 92 | 92 | 0.11900 | 9.07000 | 2.04641 | 6.40700 | 1.44170 |
| Nitrate and Nitrite (mg/L) | 52 | 52 | 0.61700 | 127.00000 | 16.31531 | 119.00000 | 33.06986 |
| Nitrite (N) (mg/L) | 104 | 87 | 0.00050 | 0.74600 | 0.06698 | 0.25075 | 0.11138 |
| Sulphate (mg/L) | 123 | 123 | 10.90000 | 587.00000 | 294.76341 | 298.80000 | 151.66854 |
| Total Nitrogen (mg/L) | 103 | 103 | 0.33000 | 947.00000 | 18.62670 | 103.74000 | 95.54344 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 116 | 86 | 0.00050 | 0.34800 | 0.00604 | 0.00653 | 0.03207 |
| Diss-Antimony (Sb) (mg/L) | 115 | 111 | 0.00003 | 0.00206 | 0.00036 | 0.00063 | 0.00023 |
| Diss-Arsenic (As) (mg/L) | 116 | 116 | 0.00040 | 0.00510 | 0.00173 | 0.00240 | 0.00056 |
| Diss-Barium (Ba) (mg/L) | 115 | 115 | 0.02140 | 0.21600 | 0.07960 | 0.15295 | 0.02805 |
| Diss-Beryllium (Be) (mg/L) | 115 | 0 | 0.00003 | 0.00500 | 0.00025 | 0.00050 | 0.00048 |
| Diss-Boron (B) (mg/L) | 97 | 96 | 0.09700 | 0.16800 | 0.13153 | 0.14685 | 0.01818 |
| Diss-Cadmium (Cd) (mg/L) | 115 | 40 | 0.00001 | 0.00039 | 0.00011 | 0.00031 | 0.00010 |
| Diss-Calcium (Ca) (mg/L) | 116 | 116 | 46.00000 | 221.00000 | 104.04741 | 181.30000 | 39.09518 |
| Diss-Chromium (Cr) (mg/L) | 115 | 21 | 0.00010 | 0.00570 | 0.00049 | 0.00170 | 0.00072 |
| Diss-Cobalt (Co) (mg/L) | 115 | 110 | 0.00001 | 0.00183 | 0.00041 | 0.00163 | 0.00032 |
| Diss-Copper (Cu) (mg/L) | 116 | 108 | 0.00015 | 0.02820 | 0.00260 | 0.00989 | 0.00344 |
| Diss-Iron (Fe) (mg/L) | 116 | 21 | 0.00100 | 0.40500 | 0.02131 | 0.06390 | 0.03880 |
| Diss-Lead (Pb) (mg/L) | 116 | 17 | 0.00001 | 0.00070 | 0.00004 | 0.00010 | 0.00008 |
| Diss-Magnesium (Mg) (mg/L) | 116 | 116 | 7.48000 | 35.80000 | 16.78310 | 28.06000 | 5.64728 |
| Diss-Manganese (Mn) (mg/L) | 116 | 116 | 0.00240 | 0.76000 | 0.31333 | 0.38490 | 0.12076 |
| Diss-Molybdenum (Mo) (mg/L) | 116 | 116 | 0.00141 | 0.21600 | 0.12549 | 0.14690 | 0.05474 |
| Diss-Nickel (Ni) (mg/L) | 116 | 11 | 0.00003 | 0.00500 | 0.00038 | 0.00060 | 0.00047 |
| Diss-Potassium (K) (mg/L) | 116 | 115 | 0.02500 | 15.90000 | 10.46102 | 13.16000 | 3.92828 |
| Diss-Selenium (mg/L) | 116 | 114 | 0.00010 | 0.02910 | 0.00574 | 0.01158 | 0.00408 |
| Diss-Silicon (Si) (mg/L) | 116 | 116 | 2.90000 | 11.80000 | 6.72957 | 8.99100 | 1.06425 |
| Diss-Silver (Ag) (mg/L) | 115 | 1 | 0.00001 | 0.00010 | 0.00001 | 0.00001 | 0.00001 |
| Diss-Sodium (Na) (mg/L) | 115 | 115 | 8.03000 | 90.40000 | 62.80374 | 74.99500 | 21.31417 |
| Diss-Strontium (Sr) (mg/L) | 116 | 116 | 0.27800 | 2.49000 | 1.23400 | 1.68500 | 0.54871 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E232862 : E5 - Tailings Impoundment Main Embank Drain Comp | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 114 | 10 | 0.00003 | 0.00100 | 0.00007 | 0.00020 | 0.00010 |
| Diss-Zinc (Zn) (mg/L) | 116 | 28 | 0.00005 | 0.01680 | 0.00160 | 0.00953 | 0.00272 |
| TDS (mg/L) | 106 | 106 | 298.00000 | 1,040.00000 | 654.78302 | 622.00000 | 186.72960 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 124 | 123 | 1.00000 | 226.00000 | 121.46290 | 190.85000 | 30.13457 |
| Hardness (mg/L) | 123 | 123 | 150.00000 | 645.00000 | 334.72358 | 569.90000 | 118.20525 |
| NTU (ntu) | 123 | 123 | 0.18000 | 19.10000 | 1.12748 | 3.68000 | 2.58460 |
| TDS (mg/L) | 106 | 106 | 298.00000 | 1,040.00000 | 654.78302 | 622.00000 | 186.72960 |
| TSS (mg/L) | 122 | 18 | 0.50000 | 56.70000 | 2.95246 | 4.09500 | 7.04283 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 115 | 113 | 0.00003 | 0.00214 | 0.00040 | 0.00065 | 0.00024 |
| Arsenic (As)-Total ( | 115 | 115 | 0.00060 | 0.00348 | 0.00185 | 0.00247 | 0.00045 |
| Barium (Ba)-Total | 115 | 115 | 0.03140 | 0.21800 | 0.08082 | 0.15280 | 0.02563 |
| Boron (B)-Total (mg/L) | 104 | 103 | 0.08600 | 0.17400 | 0.13298 | 0.14370 | 0.01943 |
| Calcium (Ca)-Total ( | 114 | 114 | 46.80000 | 210.00000 | 107.44474 | 181.70000 | 38.58651 |
| Chromium (Cr)-Total (mg/L) | 115 | 24 | 0.00010 | 0.00570 | 0.00048 | 0.00112 | 0.00071 |
| Cobalt (Co)-Total (m | 115 | 112 | 0.00002 | 0.00200 | 0.00043 | 0.00151 | 0.00033 |
| Magnesium (Mg)-Total (mg/L) | 114 | 114 | 7.69000 | 31.80000 | 17.07553 | 29.20000 | 5.48129 |
| Mercury (Hg)-Total (mg/L) | 11 | 0 | 0.00001 | 0.00003 | 0.00002 | 0.00003 | 0.00001 |
| Nickel (Ni)-Total (mg/L) | 115 | 18 | 0.00025 | 0.00500 | 0.00044 | 0.00099 | 0.00052 |
| Silicon (Si)-Total (mg/L) | 114 | 114 | 3.32000 | 10.30000 | 6.56868 | 7.90000 | 0.72779 |
| Silver (Ag)-Total (mg/L) | 115 | 8 | 0.00001 | 0.00010 | 0.00001 | 0.00002 | 0.00001 |
| Sodium (Na)-Total (mg/L) | 113 | 113 | 15.20000 | 93.10000 | 67.51150 | 76.04000 | 17.97292 |
| Strontium (Sr)-Total (mg/L) | 117 | 117 | 0.29300 | 2.60000 | 1.32996 | 1.71600 | 0.55431 |
| Tin (Sn)-Total (mg/L) | 115 | 10 | 0.00003 | 0.00100 | 0.00008 | 0.00045 | 0.00013 |
| Total Aluminum (mg/L) | 115 | 110 | 0.00180 | 1.53000 | 0.04707 | 0.08077 | 0.17019 |
| Total Cadmium (mg/L) | 115 | 39 | 0.00002 | 0.00087 | 0.00018 | 0.00050 | 0.00018 |
| Total Copper (mg/L) | 116 | 108 | 0.00101 | 0.27000 | 0.00809 | 0.01070 | 0.02617 |
| Total Iron (mg/L) | 115 | 113 | 0.00500 | 1.92000 | 0.10424 | 0.15920 | 0.20751 |
| Total Lead (mg/L) | 115 | 37 | 0.00002 | 0.00100 | 0.00009 | 0.00018 | 0.00011 |
| Total Manganese (mg/L) | 115 | 115 | 0.00509 | 0.84300 | 0.33528 | 0.39360 | 0.11099 |
| Total Molybdenum (mg/L) | 116 | 116 | 0.00174 | 0.23200 | 0.13738 | 0.15650 | 0.04948 |
| Total Selenium (mg/L) | 117 | 116 | 0.00080 | 0.02990 | 0.00608 | 1.04000 | 0.00429 |
| Zinc (Zn)-Total (mg/L) | 115 | 23 | 0.00025 | 0.01000 | 0.00135 | 0.00350 | 0.00124 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E247301 : E7 - Perimeter Pond | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 22-Apr-09 | 8-Jun-11 | 3-Aug-11 | 8-Sep-11 | 5-Oct-11 | 1-Nov-11 | 8-Feb-12 | 2-May-12 | 1-Aug-12 | 6-Sep-12 | 3-Oct-12 | 15-Nov-12 | 6-Dec-12 | 2-Jan-13 | 6-Feb-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | 0.0061 | <0.005 | 0.0173 | 0.005 | 0.005 | 0.0544 | 0.0215 | 0.022 | | | 0.0095 | 0.0113 | <0.0050 | 0.0071 |
| Chloride (mg/L) | 0.6 | 6 | 7.7 | 6.1 | 17.7 | 8.6 | 11.1 | <5.0 | 6.7 | | | 7.4 | 9.2 | <5.0 | <5.0 |
| Diss-Orthophosphate (mg/L) | 0.0053 | 0.0012 | 0.0018 | <0.0010 | 0.0025 | 0.0024 | 0.0045 | 0.0038 | <0.0010 | | | 0.0026 | 0.0044 | 0.0026 | 0.0028 |
| Diss-Phosphorus (mg/L) | 0.0109 | 0.0031 | 0.0049 | | 0.006 | 0.005 | 0.0083 | 0.0085 | 0.0045 | | | 0.0026 | 0.0085 | 0.0049 | 0.0047 |
| Nitrate (N) (mg/L) | 2.99 | 10 | 7.69 | 7.76 | 3.77 | 6.68 | 4.42 | 5.01 | 8.3 | | | 7.23 | 5.58 | 7.68 | 8.88 |
| Nitrate and Nitrite (mg/L) | | 10 | 7.69 | 7.8 | 3.78 | 6.69 | 4.45 | 5.01 | 8.32 | | | 7.24 | 5.59 | 7.69 | 8.88 |
| Nitrite (N) (mg/L) | 0.0046 | 0.014 | <0.01 | 0.043 | 0.01 | 0.015 | 0.026 | <0.010 | 0.026 | | | 0.011 | 0.014 | 0.011 | <0.010 |
| Sulphate (mg/L) | 99.1 | 701 | 652 | 644 | 629 | 552 | 504 | 425 | 589 | | | 515 | 591 | 531 | 479 |
| Total Nitrogen (mg/L) | 5.06 | 14.8 | 8.07 | 11.9 | 5.41 | 9.52 | 8.21 | 6.87 | 10.7 | | | 8.06 | 5.55 | 7.15 | 8.15 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0946 | 0.0063 | 0.024 | <0.0060 | <0.0060 | 0.0052 | <0.0030 | 0.0287 | 0.0065 | | | <0.0030 | <0.0030 | <0.0030 | |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | 0.00057 | 0.00051 | 0.00103 | 0.00057 | 0.00055 | 0.00086 | 0.00039 | 0.00072 | | | 0.00031 | 0.0008 | 0.00077 | |
| Diss-Arsenic (As) (mg/L) | 0.00035 | 0.00063 | 0.00053 | 0.00083 | 0.00092 | 0.00073 | 0.0009 | 0.00051 | 0.00067 | | | 0.00046 | 0.00078 | 0.0007 | |
| Diss-Barium (Ba) (mg/L) | 0.0219 | 0.0549 | 0.0593 | 0.0455 | 0.0428 | 0.0423 | 0.0392 | 0.0352 | 0.0558 | | | 0.0445 | 0.0405 | 0.038 | |
| Diss-Beryllium (Be) (mg/L) | <0.0005 | <0.0005 | <0.0002 | <0.00020 | <0.00020 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | |
| Diss-Boron (B) (mg/L) | 0.013 | 0.142 | 0.166 | 0.381 | 0.154 | 0.191 | 0.242 | 0.107 | 0.17 | | | 0.071 | 0.251 | 0.249 | |
| Diss-Cadmium (Cd) (mg/L) | 0.000056 | <0.0001 | <0.00007 | <0.00020 | <0.000080 | <0.00010 | <0.00013 | <0.00020 | <0.00010 | | | <0.000060 | <0.00025 | <0.00025 | |
| Diss-Calcium (Ca) (mg/L) | 47.5 | 242 | 224 | 230 | 198 | 192 | 178 | 156 | 214 | | | 193 | 199 | 216 | |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.001 | <0.0010 | <0.0010 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | | <0.00050 | <0.00050 | <0.00050 | |
| Diss-Cobalt (Co) (mg/L) | 0.00014 | 0.00015 | <0.0002 | 0.00054 | <0.00020 | 0.00031 | 0.00029 | 0.00016 | 0.00025 | | | 0.00011 | 0.0006 | 0.00084 | |
| Diss-Copper (Cu) (mg/L) | 0.0151 | 0.0077 | 0.007 | 0.0044 | 0.0037 | 0.00654 | 0.00379 | 0.00951 | 0.00707 | | | 0.00545 | 0.00473 | 0.0072 | |
| Diss-Iron (Fe) (mg/L) | 0.085 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | | | <0.030 | <0.030 | <0.030 | |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.0001 | <0.00010 | <0.00010 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | | <0.000050 | <0.000050 | <0.000050 | |
| Diss-Magnesium (Mg) (mg/L) | 9.4 | 40.9 | 39.3 | 36.6 | 30.1 | 33.6 | 27.2 | 27.2 | 36.4 | | | 36.4 | 29.8 | 33 | |
| Diss-Manganese (Mn) (mg/L) | 0.0289 | 0.0479 | 0.032 | 0.139 | 0.0199 | 0.0966 | 0.101 | 0.0432 | 0.0794 | | | 0.0332 | 0.177 | 0.22 | |
| Diss-Mercury (Hg) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.0209 | 0.213 | 0.162 | 0.176 | 0.166 | 0.122 | 0.135 | 0.112 | 0.143 | | | 0.0836 | 0.149 | 0.125 | |
| Diss-Nickel (Ni) (mg/L) | 0.00089 | 0.0007 | <0.001 | <0.0010 | <0.0010 | 0.00065 | <0.00050 | 0.00075 | 0.00067 | | | 0.00051 | 0.00056 | 0.00066 | |
| Diss-Potassium (K) (mg/L) | 1.24 | 5.54 | 6 | 5.28 | 15.1 | 7.71 | 8.35 | 3.62 | 4.91 | | | 3.89 | 6.35 | 2.09 | |
| Diss-Selenium (mg/L) | 0.0058 | 0.0532 | 0.029 | 0.0122 | 0.012 | 0.0139 | 0.0089 | 0.0246 | 0.0308 | | | 0.0281 | 0.0124 | 0.0182 | |
| Diss-Silicon (Si) (mg/L) | 3.98 | 5.05 | 5 | 6.54 | 4.95 | 5.57 | 6.41 | 5.12 | 5.39 | | | 5.21 | 6.64 | 7.46 | |
| Diss-Silver (Ag) (mg/L) | 0.000011 | <0.00001 | <0.00002 | <0.000020 | <0.000020 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | | <0.000010 | <0.000010 | <0.000010 | |
| Diss-Sodium (Na) (mg/L) | 4.02 | 30.3 | 31.3 | 37.8 | 68.1 | 38.6 | 45.2 | 19.5 | 32.1 | | | 22.2 | 44.4 | 23.8 | |
| Diss-Strontium (Sr) (mg/L) | 0.355 | 4.48 | 4.35 | 5.16 | 4.68 | 3.58 | 4.16 | 2.65 | 4.03 | | | 2.56 | 5 | 4.59 | |

| | E247301 : E7 - Perimeter Pond | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1-May-13 | 8-Aug-13 | 5-Nov-13 | 5-Dec-13 | 10-Dec-13 | 12-Dec-13 | 16-Dec-13 | 19-Dec-13 |
| **Anions and Nutrients** | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | 0.0065 | 0.079 | 0.279 | 0.309 | 0.211 | 0.329 | 0.0845 |
| Chloride (mg/L) | 5.5 | 13.5 | 10.9 | 13.3 | 7.6 | 8.1 | 10.8 | 11.6 |
| Diss-Orthophosphate (mg/L) | 0.003 | <0.0010 | 0.0022 | 0.0036 | 0.0025 | 0.0029 | <0.0010 | 0.0038 |
| Diss-Phosphorus (mg/L) | 0.0058 | 0.0041 | 0.0041 | 0.0072 | 0.0065 | 0.0070 | 0.0057 | 0.0065 |
| Nitrate (N) (mg/L) | 10.2 | 6.91 | 6.91 | 10.8 | 9.37 | 8.72 | 8.67 | 6.49 |
| Nitrate and Nitrite (mg/L) | 10.2 | 6.94 | 6.97 | 10.9 | 9.54 | 8.89 | 8.93 | 6.63 |
| Nitrite (N) (mg/L) | <0.010 | 0.028 | 0.06 | 0.178 | 0.177 | 0.171 | 0.262 | 0.142 |
| Sulphate (mg/L) | 595 | 761 | 595 | 731 | 493 | 514 | 448 | 585 |
| Total Nitrogen (mg/L) | 9.94 | 6.66 | 6.58 | 10.1 | 9.65 | 8.92 | 8.81 | 6.50 |
| **Dissolved Metals** | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | | | 0.003 | 0.0047 | 0.0035 | <0.0030 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | | | 0.00076 | 0.00140 | 0.00173 | 0.00131 | 0.00136 | 0.00084 |
| Diss-Arsenic (As) (mg/L) | | | 0.00075 | 0.00113 | 0.00093 | 0.00090 | 0.00103 | 0.00112 |
| Diss-Barium (Ba) (mg/L) | | | 0.0492 | 0.0576 | 0.0437 | 0.0437 | 0.0437 | 0.0404 |
| Diss-Beryllium (Be) (mg/L) | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | | | 0.222 | 0.305 | 0.253 | 0.235 | 0.174 | 0.248 |
| Diss-Cadmium (Cd) (mg/L) | | | <0.00030 | <0.00027 | <0.00016 | <0.00017 | <0.00010 | <0.00023 |
| Diss-Calcium (Ca) (mg/L) | | | 211 | 272 | 181 | 188 | 159 | 216 |
| Diss-Chromium (Cr) (mg/L) | | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | | | 0.00056 | 0.00088 | 0.00060 | 0.00054 | 0.00041 | 0.00080 |
| Diss-Copper (Cu) (mg/L) | | | 0.00441 | 0.00714 | 0.00561 | 0.00733 | 0.00601 | 0.00579 |
| Diss-Iron (Fe) (mg/L) | | | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | | | <0.000050 | <0.000050 | 0.000107 | 0.000098 | <0.000050 | 0.000058 |
| Diss-Magnesium (Mg) (mg/L) | | | 32.3 | 42.1 | 31.1 | 31.0 | 27.7 | 30.3 |
| Diss-Manganese (Mn) (mg/L) | | | 0.188 | 0.385 | 0.269 | 0.243 | 0.274 | 0.362 |
| Diss-Mercury (Hg) (mg/L) | | | | | <0.000010 | | | |
| Diss-Molybdenum (Mo) (mg/L) | | | 0.16 | 0.189 | 0.124 | 0.122 | 0.122 | 0.143 |
| Diss-Nickel (Ni) (mg/L) | | | 0.00069 | 0.00086 | 0.00057 | 0.00051 | 0.00051 | 0.00070 |
| Diss-Potassium (K) (mg/L) | | | 5.67 | 7.09 | 4.33 | 4.70 | 5.48 | 5.94 |
| Diss-Selenium (mg/L) | | | 0.0162 | 0.0291 | 0.0313 | 0.0286 | 0.0248 | 0.0165 |
| Diss-Silicon (Si) (mg/L) | | | 6.82 | 9.99 | 7.05 | 7.22 | 6.86 | 7.18 |
| Diss-Silver (Ag) (mg/L) | | | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | | | 43 | 51.1 | 34.8 | 36.0 | 38.2 | 40.6 |
| Diss-Strontium (Sr) (mg/L) | | | 4.83 | 5.04 | 3.12 | 3.21 | 2.33 | 4.15 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E247301 : E7 - Perimeter Pond | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 22-Apr-09 | 8-Jun-11 | 3-Aug-11 | 8-Sep-11 | 5-Oct-11 | 1-Nov-11 | 8-Feb-12 | 2-May-12 | 1-Aug-12 | 6-Sep-12 | 3-Oct-12 | 15-Nov-12 | 6-Dec-12 | 2-Jan-13 | 6-Feb-13 |
| Diss-Tin (Sn) (mg/L) | <0.0001 | <0.0001 | <0.0002 | <0.00020 | <0.00020 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | |
| Diss-Zinc (Zn) (mg/L) | 0.0012 | <0.003 | <0.006 | <0.0060 | <0.0060 | 0.0053 | 0.009 | 0.003 | <0.0030 | | | 0.0039 | 0.0075 | 0.007 | |
| TDS (mg/L) | 252 | 1170 | 1160 | 1130 | 1100 | 955 | 901 | 730 | 1140 | | | 886 | 1030 | 976 | 851 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 47.6 | 95.4 | 100 | 130 | 91.9 | 109 | 121 | 84.1 | 102 | | | 92.2 | 120 | 139 | 109 |
| Hardness (mg/L) | 157 | 772 | 722 | 725 | 618 | 618 | 557 | 500 | 684 | | | 632 | 620 | 675 | 622 |
| NTU (ntu) | 28.7 | 4.34 | 7.35 | 4.95 | 2.64 | 4.24 | 5.12 | 36.9 | 4.41 | | | 4.43 | 1.73 | 3.75 | 3.04 |
| TDS (mg/L) | 252 | 1170 | 1160 | 1130 | 1100 | 955 | 901 | 730 | 1140 | | | 886 | 1030 | 976 | 851 |
| TSS (mg/L) | 16.5 | 12 | 14 | 8.3 | 4.2 | <3.0 | 4.7 | 49.2 | 5.4 | 10.5 | 10.1 | 4 | 3.1 | 3.9 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00011 | 0.00054 | 0.00049 | 0.00104 | 0.00053 | 0.00052 | 0.00088 | 0.00043 | 0.0008 | | | 0.0003 | 0.00086 | 0.00081 | 0.00047 |
| Arsenic (As)-Total ( | 0.00082 | 0.00064 | 0.00064 | 0.0009 | 0.00089 | 0.00076 | 0.00104 | 0.00124 | 0.00081 | | | 0.00059 | 0.00075 | 0.00077 | 0.00059 |
| Barium (Ba)-Total | 0.0364 | 0.0589 | 0.0625 | 0.0498 | 0.0421 | 0.0446 | 0.0426 | 0.057 | 0.0587 | | | 0.0456 | 0.0368 | 0.0374 | 0.0422 |
| Boron (B)-Total (mg/L) | 0.014 | 0.143 | 0.151 | 0.405 | 0.152 | 0.187 | 0.257 | 0.112 | 0.179 | | | 0.07 | 0.251 | 0.256 | 0.119 |
| Calcium (Ca)-Total ( | 47 | 245 | 228 | 232 | 193 | 188 | 182 | 155 | 221 | | | 188 | 204 | 220 | 188 |
| Chromium (Cr)-Total (mg/L) | 0.00313 | 0.00051 | <0.001 | <0.0010 | <0.0010 | 0.00057 | 0.00064 | 0.00281 | 0.00053 | | | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00095 | 0.00029 | 0.00027 | 0.00087 | <0.00020 | 0.00043 | 0.00044 | 0.00127 | 0.0004 | | | 0.00021 | 0.00058 | 0.00095 | 0.00019 |
| Magnesium (Mg)-Total (mg/L) | 9.99 | 42 | 40.2 | 37.4 | 29.8 | 32.9 | 27.9 | 27.9 | 37.3 | | | 35.8 | 31.7 | 33.9 | 37 |
| Mercury (Hg)-Total (mg/L) | | | | | | | | | | | | | | | |
| Nickel (Ni)-Total (mg/L) | 0.00383 | 0.00105 | <0.001 | 0.0011 | <0.0010 | 0.0009 | 0.00076 | 0.00335 | 0.001 | | | 0.00083 | 0.00067 | 0.00086 | 0.00063 |
| Silicon (Si)-Total (mg/L) | 7.11 | 5.58 | 5.7 | 7.04 | 5.05 | 6.02 | 7.18 | 8.37 | 6.07 | | | 5.46 | 7.12 | 7.92 | 6.65 |
| Silver (Ag)-Total (mg/L) | 0.00002 | <0.00001 | 0.00004 | <0.000020 | <0.000020 | <0.000010 | <0.000010 | 0.000027 | 0.000011 | | | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.25 | 32.6 | 31.8 | 38.7 | 66.6 | 37.9 | 47.6 | 19.7 | 33.1 | | | 22.7 | 41.4 | 24.4 | 20 |
| Strontium (Sr)-Total (mg/L) | 0.38 | 4.48 | 3.87 | 5.3 | 4.48 | 3.47 | 4.3 | 2.64 | 4.21 | | | 2.53 | 5.03 | 4.86 | 3.14 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0002 | <0.00020 | <0.00020 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 1.66 | 0.234 | 0.319 | 0.191 | 0.0964 | 0.263 | 0.279 | 1.72 | 0.245 | | | 0.207 | 0.0837 | 0.116 | 0.132 |
| Total Cadmium (mg/L) | 0.0001 | <0.00011 | <0.00008 | <0.00025 | <0.000080 | <0.00010 | <0.00013 | <0.00020 | <0.00010 | | | <0.000060 | <0.00025 | <0.00025 | <0.00010 |
| Total Copper (mg/L) | 0.0286 | 0.0123 | 0.011 | 0.0095 | 0.0066 | 0.0121 | 0.0065 | 0.0463 | 0.0124 | | | 0.00896 | 0.00614 | 0.0105 | 0.00757 |
| Total Iron (mg/L) | 1.63 | 0.215 | 0.299 | 0.193 | 0.107 | 0.229 | 0.294 | 1.98 | 0.258 | | | 0.236 | 0.107 | 0.309 | 0.13 |
| Total Lead (mg/L) | 0.000482 | 0.000078 | <0.0001 | <0.00010 | <0.00010 | <0.000050 | 0.000128 | 0.000565 | <0.00020 | | | 0.000091 | <0.000050 | 0.000054 | 0.00008 |
| Total Manganese (mg/L) | 0.0573 | 0.059 | 0.0438 | 0.241 | 0.0262 | 0.101 | 0.113 | 0.0965 | 0.0986 | | | 0.0379 | 0.169 | 0.23 | 0.0451 |
| Total Molybdenum (mg/L) | 0.0223 | 0.212 | 0.146 | 0.18 | 0.155 | 0.12 | 0.141 | 0.111 | 0.15 | | | 0.086 | 0.148 | 0.125 | 0.0771 |
| Total Selenium (mg/L) | 0.0058 | 0.0487 | 0.0282 | 0.0119 | 0.0125 | 0.013 | 0.00867 | 0.0251 | 0.0312 | | | 0.0288 | 0.0136 | 0.0182 | 0.0217 |
| Zinc (Zn)-Total (mg/L) | 0.0061 | 0.0037 | <0.006 | 0.0088 | <0.0060 | 0.0071 | 0.0119 | 0.0112 | 0.0042 | | | 0.0046 | 0.0076 | 0.0084 | 0.0038 |

| | E247301 : E7 - Perimeter Pond | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **1-May-13** | **8-Aug-13** | **5-Nov-13** | **5-Dec-13** | **10-Dec-13** | **12-Dec-13** | **16-Dec-13** | **19-Dec-13** |
| Diss-Tin (Sn) (mg/L) | | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Zinc (Zn) (mg/L) | | | 0.0048 | 0.0056 | 0.0070 | 0.0054 | 0.0062 | 0.0072 |
| TDS (mg/L) | 979 | 1230 | 1050 | 1230 | 892 | 900 | 806 | 1000 |
| **Physical Test** | | | | | | | | |
| Alkalinity (CaCO3) ( | 74 | 71.9 | 121 | 153 | 106 | 109 | 107 | 113 |
| Hardness (mg/L) | 679 | 757 | 659 | 852 | 579 | 597 | 512 | 663 |
| NTU (ntu) | 3.85 | 2.7 | 5.31 | 15.9 | 38.7 | 27.6 | 30.1 | 6.07 |
| TDS (mg/L) | 979 | 1230 | 1050 | 1230 | 892 | 900 | 806 | 1000 |
| TSS (mg/L) | 11.1 | 9.7 | <3.0 | 12.3 | 19.8 | 26.5 | 20.9 | 5.7 |
| **Total Metals** | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00042 | 0.00062 | 0.00088 | 0.00138 | 0.00177 | 0.00131 | 0.00142 | 0.00084 |
| Arsenic (As)-Total ( | 0.00067 | 0.00088 | 0.00127 | 0.00148 | 0.00173 | 0.00148 | 0.00163 | 0.00126 |
| Barium (Ba)-Total | 0.0475 | 0.0466 | 0.0645 | 0.0633 | 0.0601 | 0.0554 | 0.0606 | 0.0422 |
| Boron (B)-Total (mg/L) | 0.078 | 0.119 | 0.231 | 0.295 | 0.280 | 0.254 | 0.194 | 0.260 |
| Calcium (Ca)-Total ( | 207 | 236 | 217 | 256 | 178 | 178 | 161 | 211 |
| Chromium (Cr)-Total (mg/L) | 0.00062 | <0.00050 | 0.00064 | 0.00139 | 0.00370 | 0.00231 | 0.00269 | 0.00074 |
| Cobalt (Co)-Total (m | 0.00047 | 0.00016 | 0.00094 | 0.00135 | 0.00175 | 0.00128 | 0.00197 | 0.00105 |
| Magnesium (Mg)-Total (mg/L) | 39.5 | 40.6 | 32.9 | 39.9 | 30.8 | 30.2 | 28.3 | 29.8 |
| Mercury (Hg)-Total (mg/L) | | <0.000010 | | | | | | |
| Nickel (Ni)-Total (mg/L) | 0.00129 | 0.0006 | 0.00112 | 0.00171 | 0.00339 | 0.00217 | 0.00225 | 0.00109 |
| Silicon (Si)-Total (mg/L) | 5.65 | 4.58 | 7.65 | 11.9 | 14.7 | 10.2 | 12.5 | 8.05 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | 0.000012 | 0.000020 | 0.000022 | 0.000018 | 0.000034 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 24.7 | 54.6 | 51.4 | 47.8 | 36.2 | 37.6 | 41.8 | 41.5 |
| Strontium (Sr)-Total (mg/L) | 2.89 | 4.35 | 5.08 | 4.68 | 3.25 | 3.32 | 2.42 | 4.37 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.47 | 0.182 | 0.326 | 1.01 | 3.03 | 1.53 | 2.02 | 0.457 |
| Total Cadmium (mg/L) | <0.00020 | <0.00011 | <0.00030 | <0.00027 | <0.00021 | <0.00018 | <0.00012 | <0.00024 |
| Total Copper (mg/L) | 0.0357 | 0.00948 | 0.00969 | 0.0184 | 0.0284 | 0.0242 | 0.0213 | 0.00988 |
| Total Iron (mg/L) | 0.388 | 0.167 | 0.278 | 1.01 | 2.76 | 1.73 | 1.90 | 0.443 |
| Total Lead (mg/L) | 0.000105 | 0.000058 | 0.000107 | 0.000271 | 0.00200 | 0.00103 | 0.000896 | 0.000230 |
| Total Manganese (mg/L) | 0.0684 | 0.0261 | 0.245 | 0.400 | 0.317 | 0.275 | 0.317 | 0.376 |
| Total Molybdenum (mg/L) | 0.152 | 0.276 | 0.166 | 0.180 | 0.137 | 0.124 | 0.126 | 0.154 |
| Total Selenium (mg/L) | 0.0519 | 0.0308 | 0.0169 | 0.0280 | 0.0302 | 0.0258 | 0.0255 | 0.0160 |
| Zinc (Zn)-Total (mg/L) | 0.0077 | <0.0030 | 0.009 | 0.0104 | 0.0154 | 0.0184 | 0.0135 | 0.0081 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E247301 : E7 - Perimeter Pond | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 78 | 60 | 0.00500 | 0.89500 | 0.05223 | 0.10275 | 0.11685 |
| Chloride (mg/L) | 22 | 18 | 0.60000 | 17.70000 | 7.83636 | | 4.27836 |
| Diss-Orthophosphate (mg/L) | 78 | 40 | 0.00050 | 0.02900 | 0.00414 | 0.01750 | 0.00505 |
| Diss-Phosphorus (mg/L) | 78 | 68 | 0.00250 | 0.03200 | 0.00857 | 0.02300 | 0.00616 |
| Nitrate (N) (mg/L) | 38 | 38 | 1.44000 | 58.00000 | 7.69474 | 22.22500 | 8.76413 |
| Nitrate and Nitrite (mg/L) | 53 | 49 | 0.01000 | 22.70000 | 6.08057 | 20.61500 | 5.98176 |
| Nitrite (N) (mg/L) | 52 | 38 | 0.00050 | 0.26200 | 0.03041 | 0.03470 | 0.05425 |
| Sulphate (mg/L) | 76 | 76 | 11.00000 | 1,660.00000 | 306.78026 | 445.15000 | 259.27475 |
| Total Nitrogen (mg/L) | 47 | 47 | 2.35000 | 23.40000 | 9.44596 | 21.48000 | 5.31112 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 75 | 59 | 0.00080 | 0.10300 | 0.01068 | 0.03685 | 0.01834 |
| Diss-Antimony (Sb) (mg/L) | 76 | 72 | 0.00005 | 0.00173 | 0.00045 | 0.00088 | 0.00035 |
| Diss-Arsenic (As) (mg/L) | 76 | 75 | 0.00010 | 0.00130 | 0.00073 | 0.00120 | 0.00025 |
| Diss-Barium (Ba) (mg/L) | 76 | 76 | 0.01040 | 0.08750 | 0.04797 | 0.07918 | 0.01454 |
| Diss-Beryllium (Be) (mg/L) | 76 | 0 | 0.00003 | 0.00125 | 0.00016 | 0.00065 | 0.00028 |
| Diss-Boron (B) (mg/L) | 39 | 38 | 0.01300 | 0.38100 | 0.13100 | 0.13585 | 0.09053 |
| Diss-Cadmium (Cd) (mg/L) | 76 | 46 | 0.00001 | 0.00020 | 0.00006 | 0.00013 | 0.00005 |
| Diss-Calcium (Ca) (mg/L) | 75 | 75 | 16.80000 | 272.00000 | 127.32400 | 188.00000 | 57.82270 |
| Diss-Chromium (Cr) (mg/L) | 76 | 16 | 0.00010 | 0.00420 | 0.00048 | 0.00200 | 0.00068 |
| Diss-Cobalt (Co) (mg/L) | 76 | 48 | 0.00001 | 0.00104 | 0.00021 | 0.00038 | 0.00023 |
| Diss-Copper (Cu) (mg/L) | 76 | 76 | 0.00220 | 0.01510 | 0.00512 | 0.00862 | 0.00243 |
| Diss-Iron (Fe) (mg/L) | 76 | 23 | 0.00250 | 0.34100 | 0.01987 | 0.05820 | 0.04016 |
| Diss-Lead (Pb) (mg/L) | 76 | 29 | 0.00001 | 0.00030 | 0.00005 | 0.00023 | 0.00006 |
| Diss-Magnesium (Mg) (mg/L) | 75 | 75 | 1.87000 | 42.10000 | 21.42560 | 31.27500 | 9.45039 |
| Diss-Manganese (Mn) (mg/L) | 76 | 76 | 0.00003 | 1.54000 | 0.13498 | 0.61680 | 0.22520 |
| Diss-Mercury (Hg) (mg/L) | 37 | 0 | 0.00001 | 0.00003 | 0.00002 | 0.00003 | 0.00000 |
| Diss-Molybdenum (Mo) (mg/L) | 76 | 76 | 0.00165 | 0.28400 | 0.07004 | 0.21280 | 0.07875 |
| Diss-Nickel (Ni) (mg/L) | 76 | 18 | 0.00025 | 0.00310 | 0.00045 | 0.00073 | 0.00038 |
| Diss-Potassium (K) (mg/L) | 76 | 76 | 0.93000 | 15.10000 | 3.93737 | 7.11400 | 2.40823 |
| Diss-Selenium (mg/L) | 76 | 74 | 0.00025 | 0.05320 | 0.01204 | 0.02674 | 0.01074 |
| Diss-Silicon (Si) (mg/L) | 75 | 75 | 0.80000 | 9.99000 | 4.07760 | 6.79000 | 2.05031 |
| Diss-Silver (Ag) (mg/L) | 76 | 2 | 0.00001 | 0.00003 | 0.00001 | 0.00001 | 0.00000 |
| Diss-Sodium (Na) (mg/L) | 75 | 75 | 2.89000 | 71.50000 | 21.40440 | 44.75000 | 14.80016 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E247301 : E7 - Perimeter Pond | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Strontium (Sr) (mg/L) | 76 | 76 | 0.09310 | 5.16000 | 1.63829 | 2.58800 | 1.50511 |
| Diss-Tin (Sn) (mg/L) | 76 | 28 | 0.00003 | 0.00078 | 0.00012 | 0.00056 | 0.00015 |
| Diss-Zinc (Zn) (mg/L) | 76 | 62 | 0.00025 | 0.04510 | 0.00487 | 0.01452 | 0.00673 |
| TDS (mg/L) | 69 | 69 | 60.00000 | 1,230.00000 | 636.57971 | 866.90000 | 305.24221 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 78 | 66 | 1.00000 | 577.00000 | 113.77308 | 212.25000 | 78.89648 |
| Hardness (mg/L) | 77 | 77 | 50.60000 | 852.00000 | 415.13766 | 598.50000 | 189.41721 |
| NTU (ntu) | 75 | 75 | 0.54000 | 43.40000 | 8.51627 | 26.20000 | 10.75722 |
| TDS (mg/L) | 69 | 69 | 60.00000 | 1,230.00000 | 636.57971 | 866.90000 | 305.24221 |
| TSS (mg/L) | 76 | 46 | 1.50000 | 49.20000 | 8.36447 | 27.90500 | 10.17721 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 79 | 76 | 0.00009 | 0.00177 | 0.00047 | 0.00095 | 0.00035 |
| Arsenic (As)-Total ( | 79 | 79 | 0.00020 | 0.00173 | 0.00089 | 0.00124 | 0.00028 |
| Barium (Ba)-Total | 79 | 79 | 0.01140 | 0.09000 | 0.05232 | 0.08104 | 0.01469 |
| Boron (B)-Total (mg/L) | 42 | 41 | 0.01400 | 0.40500 | 0.13255 | 0.13395 | 0.09158 |
| Calcium (Ca)-Total ( | 79 | 79 | 17.10000 | 256.00000 | 128.65316 | 183.80000 | 59.11034 |
| Chromium (Cr)-Total (mg/L) | 79 | 44 | 0.00010 | 0.00540 | 0.00090 | 0.00172 | 0.00094 |
| Cobalt (Co)-Total (m | 79 | 57 | 0.00002 | 0.00197 | 0.00045 | 0.00084 | 0.00042 |
| Magnesium (Mg)-Total (mg/L) | 79 | 79 | 1.91000 | 42.00000 | 21.95835 | 31.46000 | 9.95245 |
| Mercury (Hg)-Total (mg/L) | 37 | 0 | 0.00001 | 0.00003 | 0.00002 | 0.00003 | 0.00000 |
| Nickel (Ni)-Total (mg/L) | 79 | 27 | 0.00025 | 0.00383 | 0.00077 | 0.00130 | 0.00083 |
| Silicon (Si)-Total (mg/L) | 79 | 79 | 0.88000 | 14.70000 | 4.81709 | 7.21200 | 2.75322 |
| Silver (Ag)-Total (mg/L) | 79 | 19 | 0.00001 | 0.00008 | 0.00001 | 0.00003 | 0.00001 |
| Sodium (Na)-Total (mg/L) | 79 | 79 | 2.58000 | 70.00000 | 21.70253 | 45.22000 | 15.24437 |
| Strontium (Sr)-Total (mg/L) | 81 | 81 | 0.09420 | 5.30000 | 1.70273 | 2.60500 | 1.51428 |
| Tin (Sn)-Total (mg/L) | 79 | 24 | 0.00003 | 0.00153 | 0.00012 | 0.00032 | 0.00021 |
| Total Aluminum (mg/L) | 79 | 78 | 0.00250 | 3.03000 | 0.34571 | 0.63380 | 0.53339 |
| Total Cadmium (mg/L) | 79 | 49 | 0.00001 | 0.00052 | 0.00010 | 0.00028 | 0.00010 |
| Total Copper (mg/L) | 79 | 79 | 0.00250 | 0.04630 | 0.01059 | 0.02224 | 0.00942 |
| Total Iron (mg/L) | 79 | 75 | 0.03000 | 2.91000 | 0.42392 | 0.86280 | 0.61108 |
| Total Lead (mg/L) | 79 | 60 | 0.00002 | 0.00200 | 0.00025 | 0.00069 | 0.00029 |
| Total Manganese (mg/L) | 79 | 79 | 0.00470 | 1.55000 | 0.15956 | 0.67700 | 0.22440 |
| Total Molybdenum (mg/L) | 79 | 79 | 0.00139 | 0.28600 | 0.07404 | 0.21040 | 0.08116 |
| Total Selenium (mg/L) | 81 | 79 | 0.00025 | 0.05190 | 0.01280 | 2.13000 | 0.01141 |
| Zinc (Zn)-Total (mg/L) | 79 | 70 | 0.00100 | 0.06340 | 0.00789 | 0.02656 | 0.00992 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E294970 : East Main Toe Drain | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15-Apr-10 | 8-Jul-10 | 5-Aug-10 | 14-Oct-10 | 5-Apr-11 | 11-May-11 | 18-May-11 | 9-Jun-11 | 13-Jul-11 | 3-Aug-11 | 31-Aug-11 | 5-Oct-11 | 31-Oct-11 | 5-Dec-11 | 8-Feb-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | 0.11 | 0.0326 | 0.0988 | 0.0899 | 0.0793 | 0.0743 | 0.0798 | 0.0802 | 0.178 | 0.0684 | 0.132 | 0.136 | 0.107 | 0.138 |
| Chloride (mg/L) | 22.1 | 25.1 | 29 | 28.6 | 28.1 | 32.2 | 29.3 | 28.9 | 27 | 29.2 | 27.3 | 28.6 | 28.9 | 25.7 | 26.7 |
| Diss-Orthophosphate (mg/L) | 0.0332 | 0.0472 | 0.0293 | 0.0271 | 0.0254 | 0.0249 | 0.0215 | 0.0226 | 0.0229 | 0.101 | 0.0241 | 0.0692 | 0.0776 | 0.0396 | 0.0418 |
| Diss-Phosphorus (mg/L) | 0.0446 | 0.067 | 0.0401 | 0.0378 | 0.0369 | 0.0338 | 0.0376 | 0.0382 | 0.0328 | 0.118 | | 0.0931 | 0.092 | 0.0558 | 0.0544 |
| Nitrate (N) (mg/L) | 3.96 | 0.259 | 0.683 | 1.06 | 1.41 | 1.56 | 1.51 | 1.44 | 1.6 | 0.037 | 1.64 | 0.063 | <0.050 | 0.968 | 0.76 |
| Nitrate and Nitrite (mg/L) | | 0.278 | 0.75 | 1.14 | 1.49 | 1.65 | 1.6 | 1.48 | 1.68 | 0.037 | 1.78 | 0.063 | <0.051 | 1.08 | 0.865 |
| Nitrite (N) (mg/L) | 0.0203 | 0.019 | 0.067 | 0.082 | 0.084 | 0.096 | 0.093 | 0.042 | 0.085 | <0.005 | 0.14 | <0.010 | <0.010 | 0.108 | 0.105 |
| Sulphate (mg/L) | 499 | 336 | 456 | 479 | 545 | 562 | 549 | 545 | 513 | 201 | 471 | 307 | 279 | 453 | 458 |
| Total Nitrogen (mg/L) | 6.73 | 0.47 | 0.88 | 4.14 | 1.89 | 2.63 | 1.58 | 2.43 | 2.08 | 0.35 | 2.59 | 0.27 | 0.11 | 1.23 | 1.07 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.002 | 0.0032 | <0.002 | 0.0041 | <0.003 | <0.003 | <0.003 | 0.0038 | 0.0031 | <0.003 | 0.0075 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00029 | 0.00086 | 0.00066 | 0.00056 | 0.00056 | 0.00045 | 0.00047 | 0.00044 | 0.00043 | <0.0001 | 0.00047 | <0.00010 | <0.00010 | 0.00038 | 0.00038 |
| Diss-Arsenic (As) (mg/L) | 0.00061 | 0.00204 | 0.00157 | 0.00166 | 0.0018 | 0.00166 | 0.00167 | 0.00148 | 0.0016 | 0.00277 | 0.0016 | 0.00238 | 0.00256 | 0.00174 | 0.00176 |
| Diss-Barium (Ba) (mg/L) | 0.0632 | 0.102 | 0.0662 | 0.0762 | 0.081 | 0.0638 | 0.0638 | 0.0621 | 0.0634 | 0.212 | 0.0618 | 0.161 | 0.179 | 0.0932 | 0.0949 |
| Diss-Beryllium (Be) (mg/L) | <0.001 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.104 | 0.141 | 0.144 | 0.171 | 0.156 | 0.147 | 0.144 | 0.139 | 0.153 | 0.121 | 0.146 | 0.137 | 0.131 | 0.125 | 0.136 |
| Diss-Cadmium (Cd) (mg/L) | <0.000034 | <0.0005 | <0.0008 | <0.00015 | <0.0002 | <0.00012 | 0.000105 | <0.00015 | <0.0001 | <0.00004 | <0.00015 | <0.000040 | <0.000050 | 0.000112 | <0.00012 |
| Diss-Calcium (Ca) (mg/L) | 215 | 100 | 122 | 135 | 148 | 147 | 145 | 145 | 136 | 64.5 | 129 | 81.1 | 78 | 123 | 122 |
| Diss-Chromium (Cr) (mg/L) | <0.001 | <0.0005 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0002 | 0.00048 | 0.00036 | 0.00038 | 0.00056 | 0.00043 | 0.00045 | 0.00043 | 0.00042 | 0.00054 | 0.00037 | 0.00049 | 0.00052 | 0.00051 | 0.00049 |
| Diss-Copper (Cu) (mg/L) | 0.00317 | 0.019 | <0.008 | 0.0022 | 0.0109 | 0.00317 | 0.00321 | 0.00333 | 0.00291 | <0.0005 | 0.00268 | <0.00050 | <0.00050 | 0.00294 | 0.0038 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.0001 | <0.00005 | <0.0001 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000059 |
| Diss-Magnesium (Mg) (mg/L) | 29 | 16.6 | 20.2 | 21.9 | 24.6 | 24.4 | 23.6 | 23.9 | 22.5 | 11 | 21.1 | 13.8 | 13.3 | 22 | 21.9 |
| Diss-Manganese (Mn) (mg/L) | 0.0246 | 1.05 | 0.623 | 0.772 | 0.942 | 0.849 | 0.829 | 0.854 | 0.8 | 1.88 | 0.72 | 1.46 | 1.75 | 1.14 | 1.1 |
| Diss-Mercury (Hg) (mg/L) | | | | | | | | | | | | | | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.185 | 0.14 | 0.15 | 0.187 | 0.184 | 0.168 | 0.172 | 0.186 | 0.183 | 0.18 | 0.176 | 0.174 | 0.172 | 0.184 | 0.184 |
| Diss-Nickel (Ni) (mg/L) | <0.001 | <0.0005 | <0.001 | 0.00068 | 0.00069 | 0.00071 | 0.00099 | 0.00163 | 0.00072 | <0.0005 | 0.00061 | <0.00050 | <0.00050 | 0.00069 | 0.00067 |
| Diss-Potassium (K) (mg/L) | 6.44 | 13 | 15.4 | 16.8 | 16.5 | 16.6 | 16.5 | 16.5 | 15.5 | 11 | 16.1 | 12.3 | 12.9 | 15.6 | 13.4 |
| Diss-Selenium (mg/L) | 0.0239 | 0.0041 | 0.0025 | 0.0023 | 0.00229 | 0.00231 | 0.00238 | 0.00203 | 0.00252 | <0.0005 | 0.00257 | <0.00050 | <0.00050 | 0.00156 | 0.00143 |
| Diss-Silicon (Si) (mg/L) | 5.98 | 6.4 | 5.9 | 6.34 | 6.25 | 6.15 | 5.92 | 6.13 | 5.92 | 6.39 | 6.09 | 6.18 | 6.4 | 6.27 | 6.34 |
| Diss-Silver (Ag) (mg/L) | <0.00002 | 0.00003 | <0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 53 | 86.1 | 86.3 | 89.7 | 95.7 | 93.9 | 95.1 | 103 | 89.7 | 76.8 | 90.7 | 88.5 | 93.2 | 95.4 | 87.1 |
| Diss-Strontium (Sr) (mg/L) | 3.07 | 1.24 | 1.76 | 2.02 | 2.21 | 2.29 | 2.33 | 2.31 | 2.13 | 0.817 | 2.04 | 1.06 | 0.991 | 1.73 | 1.65 |

| | E294970 : East Main Toe Drain | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 26-Apr-12 | 2-May-12 | 7-Jun-12 | 28-Jun-12 | 5-Jul-12 | 15-Nov-12 | 7-Feb-13 | 1-May-13 | 6-Jun-13 | 10-Jul-13 | 8-Aug-13 | 5-Sep-13 | 3-Oct-13 | 5-Nov-13 | 12-Nov-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0938 | 0.188 | 0.0697 | 0.0699 | 0.0558 | 0.059 | 0.0619 | 0.0565 | 0.0607 | 0.0546 | 0.0567 | 0.0571 | 0.0579 | 0.0576 | 0.0502 |
| Chloride (mg/L) | 28.3 | 28.6 | 27.4 | 26.5 | 26.6 | 26.7 | 25.7 | 26.1 | 27.3 | 26.5 | 26.7 | 29.4 | 25.5 | 26.5 | 25.7 |
| Diss-Orthophosphate (mg/L) | 0.0479 | 0.0202 | 0.0239 | 0.0244 | 0.0242 | 0.0222 | 0.0234 | 0.0239 | 0.0297 | 0.0191 | 0.0218 | 0.0219 | 0.0219 | 0.0217 | 0.0206 |
| Diss-Phosphorus (mg/L) | 0.0596 | 0.0252 | 0.033 | 0.0325 | 0.0361 | 0.0304 | 0.0362 | 0.033 | 0.0337 | 0.0298 | 0.0315 | 0.0318 | 0.0333 | 0.0303 | 0.0301 |
| Nitrate (N) (mg/L) | 0.864 | <0.050 | 1.22 | 1.18 | 1.36 | 1.33 | 1.2 | 1.5 | 1.53 | 1.34 | 1.34 | 1.32 | 1.35 | 1.36 | 1.34 |
| Nitrate and Nitrite (mg/L) | 1.03 | <0.051 | 1.37 | 1.33 | 1.54 | 1.56 | 1.41 | 1.72 | 1.76 | 1.6 | 1.63 | 1.6 | 1.63 | 1.64 | 1.61 |
| Nitrite (N) (mg/L) | 0.164 | <0.010 | 0.152 | 0.147 | 0.176 | 0.233 | 0.216 | 0.219 | 0.232 | 0.263 | 0.283 | 0.283 | 0.283 | 0.281 | 0.269 |
| Sulphate (mg/L) | 448 | 554 | 475 | 471 | 472 | 481 | 488 | 506 | 512 | 499 | 503 | 501 | 500 | 507 | 504 |
| Total Nitrogen (mg/L) | 0.92 | 0.23 | 1.53 | 1.44 | 1.66 | 2.03 | 1.4 | 1.7 | 1.78 | 1.66 | 1.63 | 3.45 | 1.6 | 1.61 | 1.67 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | <0.0030 | 0.0032 | 0.0033 | <0.0030 | <0.0030 | | <0.0030 | 0.0036 | <0.0030 | <0.0030 | <0.0030 | 0.0035 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00037 | <0.00010 | 0.0004 | 0.0004 | 0.00037 | 0.00048 | | 0.00046 | 0.00045 | 0.00043 | 0.00043 | 0.00043 | 0.00044 | 0.00048 | 0.00046 |
| Diss-Arsenic (As) (mg/L) | 0.00178 | 0.00418 | 0.00158 | 0.00154 | 0.00159 | 0.00159 | | 0.00155 | 0.00157 | 0.00148 | 0.00153 | 0.0015 | 0.00154 | 0.00158 | 0.00167 |
| Diss-Barium (Ba) (mg/L) | 0.096 | 0.091 | 0.0571 | 0.0622 | 0.0618 | 0.0562 | | 0.0564 | 0.0567 | 0.0605 | 0.0543 | 0.057 | 0.0547 | 0.0554 | 0.0574 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.133 | 0.169 | 0.124 | 0.145 | 0.116 | 0.129 | | 0.128 | 0.139 | 0.126 | 0.118 | 0.125 | 0.122 | 0.117 | 0.145 |
| Diss-Cadmium (Cd) (mg/L) | <0.00011 | <0.00020 | <0.00020 | <0.00010 | <0.00015 | <0.00012 | | 0.000095 | <0.00020 | <0.00010 | <0.00011 | <0.00012 | <0.00013 | <0.00015 | <0.00015 |
| Diss-Calcium (Ca) (mg/L) | 121 | 132 | 123 | 121 | 120 | 127 | | 128 | 125 | 125 | 124 | 124 | 130 | 129 | 129 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00049 | 0.00064 | 0.00035 | 0.00036 | 0.00034 | 0.00035 | | 0.00033 | 0.00034 | 0.00032 | 0.0003 | 0.00031 | 0.0003 | 0.00033 | 0.00032 |
| Diss-Copper (Cu) (mg/L) | 0.00264 | <0.00050 | 0.00306 | 0.00308 | 0.00264 | 0.00324 | | 0.00288 | 0.00344 | 0.00301 | 0.00228 | 0.00281 | 0.00241 | 0.00251 | 0.00188 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 21 | 22.5 | 20.4 | 20 | 21.6 | 20.2 | | 21.5 | 21.9 | 20.5 | 20.6 | 20.7 | 21.6 | 21.8 | 21.4 |
| Diss-Manganese (Mn) (mg/L) | 1.13 | 0.925 | 0.685 | 0.686 | 0.673 | 0.617 | | 0.619 | 0.623 | 0.637 | 0.632 | 0.611 | 0.573 | 0.614 | 0.615 |
| Diss-Mercury (Hg) (mg/L) | | | | | | | | | | | | | | <0.000010 | |
| Diss-Molybdenum (Mo) (mg/L) | 0.195 | 0.159 | 0.176 | 0.193 | 0.16 | 0.203 | | 0.199 | 0.206 | 0.203 | 0.204 | 0.208 | 0.205 | 0.225 | 0.208 |
| Diss-Nickel (Ni) (mg/L) | 0.00125 | 0.00061 | 0.00064 | 0.00181 | 0.00081 | 0.00074 | | 0.00052 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 14.1 | 15.7 | 15 | 14.7 | 14.3 | 14.4 | | 15.2 | 14.9 | 15.5 | 15.2 | 14.7 | 14.2 | 14.7 | 15.5 |
| Diss-Selenium (mg/L) | 0.00159 | <0.00050 | 0.00317 | 0.00368 | 0.00409 | 0.00416 | | 0.00565 | 0.00579 | 0.00564 | 0.00544 | 0.00565 | 0.0057 | 0.00558 | 0.00573 |
| Diss-Silicon (Si) (mg/L) | 6.13 | 5.9 | 5.99 | 5.96 | 6.21 | 6.09 | | 6.08 | 6.18 | 5.87 | 5.74 | 5.64 | 6.19 | 6.28 | 5.99 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 89.6 | 108 | 87.9 | 89.1 | 89.1 | 86.9 | | 89.4 | 90.1 | 89.6 | 91.3 | 89.7 | 86.4 | 89.6 | 87.3 |
| Diss-Strontium (Sr) (mg/L) | 1.67 | 1.62 | 1.72 | 1.88 | 1.53 | 1.95 | | 1.93 | 2 | 1.97 | 1.9 | 1.84 | 1.94 | 1.99 | 1.95 |

| | 0 : East Ma |
|---|---|
| | 5-Dec-13 |
| **Anions and Nutrients** | |
| Ammonia (as N) (mg/L | 0.0534 |
| Chloride (mg/L) | 27.7 |
| Diss-Orthophosphate (mg/L) | 0.0222 |
| Diss-Phosphorus (mg/L) | 0.0327 |
| Nitrate (N) (mg/L) | 1.48 |
| Nitrate and Nitrite (mg/L) | 1.76 |
| Nitrite (N) (mg/L) | 0.280 |
| Sulphate (mg/L) | 518 |
| Total Nitrogen (mg/L) | 1.73 |
| **Dissolved Metals** | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00049 |
| Diss-Arsenic (As) (mg/L) | 0.00160 |
| Diss-Barium (Ba) (mg/L) | 0.0553 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.122 |
| Diss-Cadmium (Cd) (mg/L) | <0.00012 |
| Diss-Calcium (Ca) (mg/L) | 135 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00031 |
| Diss-Copper (Cu) (mg/L) | 0.00270 |
| Diss-Iron (Fe) (mg/L) | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 21.3 |
| Diss-Manganese (Mn) (mg/L) | 0.594 |
| Diss-Mercury (Hg) (mg/L) | |
| Diss-Molybdenum (Mo) (mg/L) | 0.207 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 |
| Diss-Potassium (K) (mg/L) | 15.6 |
| Diss-Selenium (mg/L) | 0.00587 |
| Diss-Silicon (Si) (mg/L) | 6.24 |
| Diss-Silver (Ag) (mg/L) | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 87.8 |
| Diss-Strontium (Sr) (mg/L) | 1.99 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E294970 : East Main Toe Drain | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15-Apr-10 | 8-Jul-10 | 5-Aug-10 | 14-Oct-10 | 5-Apr-11 | 11-May-11 | 18-May-11 | 9-Jun-11 | 13-Jul-11 | 3-Aug-11 | 31-Aug-11 | 5-Oct-11 | 31-Oct-11 | 5-Dec-11 | 8-Feb-12 |
| Diss-Tin (Sn) (mg/L) | <0.0002 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Zinc (Zn) (mg/L) | <0.002 | <0.001 | 0.0036 | <0.003 | 0.0047 | 0.0036 | 0.0056 | 0.0057 | 0.0038 | <0.003 | 0.0188 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 946 | 693 | 823 | 850 | 972 | 941 | 961 | 933 | 890 | 509 | 836 | 644 | 598 | 804 | 753 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 114 | 120 | 96.5 | 94.9 | 91.2 | 88.1 | 88.5 | 86.6 | 86.8 | 155 | 86.6 | 133 | 140 | 103 | 107 |
| Hardness (mg/L) | 655 | 318 | 389 | 429 | 472 | 468 | 459 | 461 | 432 | 206 | 408 | 259 | 250 | 397 | 394 |
| NTU (ntu) | 0.2 | 4.73 | 0.56 | <0.1 | 10.7 | 0.12 | 1.24 | 0.41 | 0.38 | 0.25 | 0.41 | 0.39 | 0.33 | 0.32 | 1.48 |
| TDS (mg/L) | 946 | 693 | 823 | 850 | 972 | 941 | 961 | 933 | 890 | 509 | 836 | 644 | 598 | 804 | 753 |
| TSS (mg/L) | <3 | 32.5 | 4.3 | <3 | 24.2 | <3 | <3 | <3 | <3 | <3 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00062 | 0.00202 | 0.00068 | 0.00059 | 0.00084 | 0.00045 | 0.00048 | 0.00048 | 0.00046 | <0.0001 | 0.00048 | <0.00010 | <0.00010 | 0.00038 | 0.00036 |
| Arsenic (As)-Total ( | 0.00145 | 0.00403 | 0.00162 | 0.00172 | 0.00422 | 0.0017 | 0.00177 | 0.00164 | 0.00173 | 0.00282 | 0.00172 | 0.00245 | 0.00257 | 0.00175 | 0.00178 |
| Barium (Ba)-Total | 0.0645 | 0.147 | 0.0673 | 0.0779 | 0.105 | 0.0648 | 0.0664 | 0.0616 | 0.0656 | 0.219 | 0.0616 | 0.167 | 0.182 | 0.0905 | 0.0935 |
| Boron (B)-Total (mg/L) | 0.152 | 0.131 | 0.149 | 0.174 | 0.158 | 0.155 | 0.148 | 0.148 | 0.168 | 0.127 | 0.148 | 0.125 | 0.132 | 0.118 | 0.136 |
| Calcium (Ca)-Total ( | 119 | 97.8 | 123 | 136 | 146 | 151 | 149 | 151 | 137 | 66.5 | 129 | 80 | 79.2 | 120 | 120 |
| Chromium (Cr)-Total (mg/L) | <0.001 | 0.00096 | <0.001 | <0.0005 | 0.00054 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00032 | 0.00159 | 0.00041 | 0.0004 | 0.00107 | 0.00046 | 0.00048 | 0.00045 | 0.00043 | 0.00055 | 0.00038 | 0.00053 | 0.00053 | 0.00051 | 0.00049 |
| Magnesium (Mg)-Total (mg/L) | 19.1 | 17 | 20.3 | 22.2 | 24.3 | 24.6 | 24.5 | 24.9 | 22.9 | 11.4 | 21.2 | 13.7 | 13.5 | 21.2 | 21.4 |
| Mercury (Hg)-Total (mg/L) | | | | | | | | | | | | | | | |
| Nickel (Ni)-Total (mg/L) | <0.001 | 0.00154 | <0.001 | 0.00068 | 0.00126 | 0.00072 | 0.00109 | 0.00143 | 0.0008 | <0.0005 | 0.0006 | <0.00050 | <0.00050 | 0.00064 | 0.00061 |
| Silicon (Si)-Total (mg/L) | 6.14 | 10.3 | 5.94 | 6.49 | 7.72 | 6.23 | 6.16 | 6.36 | 6.01 | 6.58 | 6.13 | 6.14 | 6.56 | 6.05 | 6.2 |
| Silver (Ag)-Total (mg/L) | <0.00002 | 0.000012 | <0.00002 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 81.8 | 87.9 | 88.9 | 90.9 | 92.8 | 96.8 | 99.8 | 109 | 93.4 | 80.3 | 94.2 | 91.2 | 96.4 | 93.7 | 86.2 |
| Strontium (Sr)-Total (mg/L) | 1.82 | 1.26 | 1.78 | 2.08 | 2.19 | 2.31 | 2.43 | 2.47 | 2.18 | 0.852 | 2.1 | 0.992 | 1.02 | 1.72 | 1.64 |
| Tin (Sn)-Total (mg/L) | <0.0002 | <0.0001 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0064 | 1.47 | 0.012 | 0.0099 | 0.636 | 0.0066 | 0.0077 | 0.0041 | 0.0053 | 0.0047 | 0.0053 | 0.0078 | 0.0059 | 0.0076 | 0.0056 |
| Total Cadmium (mg/L) | 0.000073 | <0.0009 | <0.0008 | <0.00015 | <0.00038 | <0.00012 | 0.00012 | <0.00015 | <0.00012 | <0.00004 | <0.00015 | <0.000040 | <0.000050 | <0.00020 | <0.00012 |
| Total Copper (mg/L) | 0.00342 | 0.331 | <0.006 | 0.00301 | 0.503 | 0.00387 | 0.00419 | 0.00413 | 0.00637 | 0.00061 | 0.00363 | 0.0017 | 0.00056 | 0.00722 | 0.00479 |
| Total Iron (mg/L) | <0.03 | 2.09 | <0.03 | <0.03 | 1.64 | <0.03 | <0.03 | 0.031 | 0.034 | 0.131 | <0.030 | 0.102 | 0.113 | 0.046 | 0.043 |
| Total Lead (mg/L) | <0.0001 | 0.000667 | <0.0001 | 0.000075 | 0.00112 | 0.000078 | 0.000197 | 0.000297 | 0.000267 | 0.000296 | 0.00006 | 0.000091 | <0.000050 | 0.000592 | 0.00101 |
| Total Manganese (mg/L) | 0.585 | 1.12 | 0.674 | 0.794 | 0.941 | 0.867 | 0.872 | 0.834 | 0.821 | 1.96 | 0.751 | 1.53 | 1.8 | 1.16 | 1.09 |
| Total Molybdenum (mg/L) | 0.147 | 0.136 | 0.153 | 0.195 | 0.18 | 0.171 | 0.181 | 0.199 | 0.187 | 0.188 | 0.181 | 0.163 | 0.179 | 0.184 | 0.182 |
| Total Selenium (mg/L) | 0.0045 | 0.0069 | 0.0024 | 0.0023 | 0.00301 | 0.00246 | 0.00242 | 0.00186 | 0.00252 | <0.0005 | 0.00246 | <0.00050 | <0.00050 | 0.00143 | 0.00146 |
| Zinc (Zn)-Total (mg/L) | <0.002 | 0.0058 | <0.002 | 0.005 | 0.012 | 0.004 | 0.0065 | 0.0085 | 0.0066 | <0.003 | 0.0176 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

| | E294970 : East Main Toe Drain | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **26-Apr-12** | **2-May-12** | **7-Jun-12** | **28-Jun-12** | **5-Jul-12** | **15-Nov-12** | **7-Feb-13** | **1-May-13** | **6-Jun-13** | **10-Jul-13** | **8-Aug-13** | **5-Sep-13** | **3-Oct-13** | **5-Nov-13** | **12-Nov-13** |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Zinc (Zn) (mg/L) | 0.0061 | 0.0036 | 0.0299 | 0.0053 | 0.0033 | 0.0048 | | 0.006 | 0.0087 | 0.008 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 760 | 910 | 830 | 804 | 832 | 828 | 843 | 848 | 818 | 837 | 902 | 883 | 863 | 863 | 891 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 121 | 79.2 | 83.9 | 88.2 | 84.6 | 83.2 | 84.3 | 81.3 | 82 | 80.6 | 78.3 | 78 | 78.4 | 84.8 | 85.7 |
| Hardness (mg/L) | 389 | 423 | 391 | 384 | 389 | 402 | 380 | 408 | 401 | 396 | 394 | 396 | 413 | 413 | 410 |
| NTU (ntu) | 0.15 | 2.1 | 0.47 | 3.41 | 2.05 | 0.54 | 0.63 | 0.21 | 0.27 | 0.28 | 0.13 | 0.12 | 0.35 | 0.14 | 0.16 |
| TDS (mg/L) | 760 | 910 | 830 | 804 | 832 | 828 | 843 | 848 | 818 | 837 | 902 | 883 | 863 | 863 | 891 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | 3.8 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00038 | <0.00010 | 0.00047 | 0.00042 | 0.00037 | 0.0005 | 0.0004 | 0.00051 | 0.00043 | 0.00045 | 0.00045 | 0.00045 | 0.00048 | 0.00058 | 0.00051 |
| Arsenic (As)-Total ( | 0.00183 | 0.00494 | 0.00171 | 0.0017 | 0.00168 | 0.00173 | 0.00176 | 0.00172 | 0.00158 | 0.00163 | 0.00168 | 0.00165 | 0.00169 | 0.00192 | 0.00180 |
| Barium (Ba)-Total | 0.0959 | 0.0924 | 0.0585 | 0.066 | 0.0642 | 0.0576 | 0.0664 | 0.0571 | 0.056 | 0.0582 | 0.0552 | 0.0568 | 0.0561 | 0.0572 | 0.0599 |
| Boron (B)-Total (mg/L) | 0.133 | 0.178 | 0.145 | 0.15 | 0.124 | 0.131 | 0.101 | 0.133 | 0.132 | 0.132 | 0.126 | 0.135 | 0.131 | 0.12 | 0.154 |
| Calcium (Ca)-Total ( | 120 | 131 | 126 | 124 | 120 | 131 | 120 | 131 | 125 | 123 | 129 | 126 | 131 | 131 | 131 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00049 | 0.00067 | 0.00037 | 0.00046 | 0.00041 | 0.00035 | 0.00037 | 0.00035 | 0.00036 | 0.00033 | 0.00033 | 0.00032 | 0.00031 | 0.00034 | 0.00032 |
| Magnesium (Mg)-Total (mg/L) | 20.8 | 22.7 | 21 | 20.8 | 21.8 | 20.9 | 19.6 | 21.9 | 22.4 | 20.3 | 21.2 | 21.1 | 21.8 | 22 | 22.1 |
| Mercury (Hg)-Total (mg/L) | | | | | | | <0.000010 | | | | | | | <0.000010 | |
| Nickel (Ni)-Total (mg/L) | 0.00118 | 0.00064 | 0.00067 | 0.00202 | 0.00094 | 0.00102 | 0.00066 | <0.00050 | 0.00056 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00076 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 6.09 | 5.93 | 6.21 | 6.61 | 6.36 | 6.35 | 5.96 | 6.21 | 6.27 | 5.8 | 5.94 | 5.8 | 6.24 | 6.34 | 6.17 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 88.8 | 107 | 88.1 | 89.6 | 89.4 | 89.6 | 93.5 | 92 | 90.3 | 89.8 | 93.6 | 92.1 | 89.6 | 93.8 | 89.9 |
| Strontium (Sr)-Total (mg/L) | 1.69 | 1.61 | 1.93 | 1.91 | 1.55 | 1.98 | 1.6 | 2.04 | 2.05 | 1.98 | 1.96 | 1.92 | 2.02 | 2.05 | 2.04 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0044 | 0.0051 | 0.0218 | 0.185 | 0.0647 | 0.0442 | 0.0373 | 0.0184 | 0.006 | 0.0063 | 0.0042 | 0.0041 | 0.0042 | 0.0041 | 0.0039 |
| Total Cadmium (mg/L) | <0.00012 | <0.00020 | <0.00020 | <0.00010 | <0.00015 | <0.00012 | <0.00010 | 0.000091 | <0.00020 | <0.00010 | <0.00011 | <0.00012 | <0.00013 | <0.00015 | <0.00015 |
| Total Copper (mg/L) | 0.00395 | 0.00087 | 0.00454 | 0.00678 | 0.00491 | 0.00522 | 0.0104 | 0.00473 | 0.00487 | 0.00558 | 0.00371 | 0.00389 | 0.00676 | 0.00394 | 0.00332 |
| Total Iron (mg/L) | <0.030 | 0.307 | 0.054 | 0.235 | 0.09 | 0.068 | 0.078 | 0.056 | 0.322 | 0.153 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Total Lead (mg/L) | 0.000166 | 0.00007 | 0.000078 | 0.000293 | 0.000192 | 0.000073 | 0.00011 | 0.000071 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.000156 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 1.13 | 0.966 | 0.695 | 0.697 | 0.691 | 0.628 | 0.698 | 0.645 | 0.63 | 0.617 | 0.632 | 0.629 | 0.592 | 0.634 | 0.641 |
| Total Molybdenum (mg/L) | 0.196 | 0.158 | 0.202 | 0.197 | 0.162 | 0.214 | 0.164 | 0.204 | 0.203 | 0.2 | 0.206 | 0.216 | 0.214 | 0.224 | 0.217 |
| Total Selenium (mg/L) | 0.00157 | <0.00050 | 0.00331 | 0.00385 | 0.00415 | 0.00424 | 0.00477 | 0.006 | 0.0057 | 0.00563 | 0.00579 | 0.00591 | 0.00586 | 0.00567 | 0.00576 |
| Zinc (Zn)-Total (mg/L) | 0.0068 | 0.0061 | 0.0171 | 0.0077 | 0.0064 | 0.0056 | 0.009 | 0.0068 | 0.0081 | 0.0097 | <0.0030 | <0.0030 | 0.004 | <0.0030 | <0.0030 |

| | 0 : East Ma |
|---|---|
| | 5-Dec-13 |
| Diss-Tin (Sn) (mg/L) | <0.00010 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 |
| TDS (mg/L) | 893 |
| **Physical Test** | |
| Alkalinity (CaCO3) ( | 79.8 |
| Hardness (mg/L) | 424 |
| NTU (ntu) | 0.12 |
| TDS (mg/L) | 893 |
| TSS (mg/L) | <3.0 |
| **Total Metals** | |
| Antimony (Sb)-Total (mg/L) | 0.00050 |
| Arsenic (As)-Total ( | 0.00164 |
| Barium (Ba)-Total | 0.0563 |
| Boron (B)-Total (mg/L) | 0.122 |
| Calcium (Ca)-Total ( | 136 |
| Chromium (Cr)-Total (mg/L) | <0.00050 |
| Cobalt (Co)-Total (m | 0.00032 |
| Magnesium (Mg)-Total (mg/L) | 21.7 |
| Mercury (Hg)-Total (mg/L) | |
| Nickel (Ni)-Total (mg/L) | <0.00050 |
| Silicon (Si)-Total (mg/L) | 6.43 |
| Silver (Ag)-Total (mg/L) | <0.000010 |
| Sodium (Na)-Total (mg/L) | 90.0 |
| Strontium (Sr)-Total (mg/L) | 2.03 |
| Tin (Sn)-Total (mg/L) | <0.00010 |
| Total Aluminum (mg/L) | 0.0051 |
| Total Cadmium (mg/L) | <0.00012 |
| Total Copper (mg/L) | 0.00353 |
| Total Iron (mg/L) | <0.030 |
| Total Lead (mg/L) | <0.000050 |
| Total Manganese (mg/L) | 0.610 |
| Total Molybdenum (mg/L) | 0.213 |
| Total Selenium (mg/L) | 0.00607 |
| Zinc (Zn)-Total (mg/L) | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E294970 : East Main Toe Drain | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 31 | 30 | 0.00500 | 0.18800 | 0.08104 | | 0.03981 |
| Chloride (mg/L) | 31 | 31 | 22.10000 | 32.20000 | 27.35161 | | 1.81344 |
| Diss-Orthophosphate (mg/L) | 31 | 31 | 0.01910 | 0.10100 | 0.03214 | | 0.01889 |
| Diss-Phosphorus (mg/L) | 30 | 30 | 0.02520 | 0.11800 | 0.04404 | | 0.02189 |
| Nitrate (N) (mg/L) | 31 | 29 | 0.02500 | 3.96000 | 1.18432 | | 0.72278 |
| Nitrate and Nitrite (mg/L) | 30 | 28 | 0.02550 | 1.78000 | 1.23780 | | 0.58572 |
| Nitrite (N) (mg/L) | 31 | 27 | 0.00250 | 0.28300 | 0.14322 | | 0.09948 |
| Sulphate (mg/L) | 31 | 31 | 201.00000 | 562.00000 | 470.70968 | | 82.13858 |
| Total Nitrogen (mg/L) | 31 | 31 | 0.11000 | 6.73000 | 1.75774 | | 1.27666 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 30 | 9 | 0.00100 | 0.00750 | 0.00219 | | 0.00137 |
| Diss-Antimony (Sb) (mg/L) | 30 | 26 | 0.00005 | 0.00086 | 0.00041 | | 0.00017 |
| Diss-Arsenic (As) (mg/L) | 30 | 30 | 0.00061 | 0.00418 | 0.00177 | | 0.00059 |
| Diss-Barium (Ba) (mg/L) | 30 | 30 | 0.05430 | 0.21200 | 0.07919 | | 0.03884 |
| Diss-Beryllium (Be) (mg/L) | 30 | 0 | 0.00005 | 0.00050 | 0.00012 | | 0.00013 |
| Diss-Boron (B) (mg/L) | 30 | 30 | 0.10400 | 0.17100 | 0.13510 | | 0.01542 |
| Diss-Cadmium (Cd) (mg/L) | 30 | 3 | 0.00002 | 0.00040 | 0.00008 | | 0.00007 |
| Diss-Calcium (Ca) (mg/L) | 30 | 30 | 64.50000 | 215.00000 | 126.12000 | | 25.48686 |
| Diss-Chromium (Cr) (mg/L) | 30 | 0 | 0.00025 | 0.00050 | 0.00027 | | 0.00006 |
| Diss-Cobalt (Co) (mg/L) | 30 | 29 | 0.00010 | 0.00064 | 0.00040 | | 0.00011 |
| Diss-Copper (Cu) (mg/L) | 30 | 25 | 0.00025 | 0.01900 | 0.00336 | | 0.00348 |
| Diss-Iron (Fe) (mg/L) | 30 | 0 | 0.01500 | 0.01500 | 0.01500 | | 0.00000 |
| Diss-Lead (Pb) (mg/L) | 30 | 1 | 0.00003 | 0.00006 | 0.00003 | | 0.00001 |
| Diss-Magnesium (Mg) (mg/L) | 30 | 30 | 11.00000 | 29.00000 | 20.89333 | | 3.45802 |
| Diss-Manganese (Mn) (mg/L) | 30 | 30 | 0.02460 | 1.88000 | 0.83425 | | 0.36772 |
| Diss-Mercury (Hg) (mg/L) | 1 | 0 | 0.00001 | 0.00001 | 0.00001 | | |
| Diss-Molybdenum (Mo) (mg/L) | 30 | 30 | 0.14000 | 0.22500 | 0.18587 | | 0.01932 |
| Diss-Nickel (Ni) (mg/L) | 30 | 16 | 0.00025 | 0.00181 | 0.00059 | | 0.00040 |
| Diss-Potassium (K) (mg/L) | 30 | 30 | 6.44000 | 16.80000 | 14.60800 | | 2.04656 |
| Diss-Selenium (mg/L) | 30 | 26 | 0.00025 | 0.02390 | 0.00395 | | 0.00423 |
| Diss-Silicon (Si) (mg/L) | 30 | 30 | 5.64000 | 6.40000 | 6.10500 | | 0.19625 |
| Diss-Silver (Ag) (mg/L) | 30 | 1 | 0.00001 | 0.00003 | 0.00001 | | 0.00000 |
| Diss-Sodium (Na) (mg/L) | 30 | 30 | 53.00000 | 108.00000 | 89.20000 | | 8.73704 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E294970 : East Main Toe Drain | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Strontium (Sr) (mg/L) | 30 | 30 | 0.81700 | 3.07000 | 1.85093 | | 0.43862 |
| Diss-Tin (Sn) (mg/L) | 30 | 0 | 0.00005 | 0.00010 | 0.00005 | | 0.00001 |
| Diss-Zinc (Zn) (mg/L) | 30 | 16 | 0.00050 | 0.02990 | 0.00470 | | 0.00595 |
| TDS (mg/L) | 31 | 31 | 509.00000 | 972.00000 | 830.90323 | | 104.10519 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 31 | 31 | 78.00000 | 155.00000 | 94.98387 | | 19.88631 |
| Hardness (mg/L) | 31 | 31 | 206.00000 | 655.00000 | 400.32258 | | 76.05410 |
| NTU (ntu) | 31 | 30 | 0.05000 | 10.70000 | 1.05484 | | 2.07329 |
| TDS (mg/L) | 31 | 31 | 509.00000 | 972.00000 | 830.90323 | | 104.10519 |
| TSS (mg/L) | 31 | 4 | 1.50000 | 32.50000 | 3.39677 | | 6.77714 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 31 | 27 | 0.00005 | 0.00202 | 0.00048 | | 0.00034 |
| Arsenic (As)-Total ( | 31 | 31 | 0.00145 | 0.00494 | 0.00205 | | 0.00084 |
| Barium (Ba)-Total | 31 | 31 | 0.05520 | 0.21900 | 0.08218 | | 0.04125 |
| Boron (B)-Total (mg/L) | 31 | 31 | 0.10100 | 0.17800 | 0.13923 | | 0.01713 |
| Calcium (Ca)-Total ( | 31 | 31 | 66.50000 | 151.00000 | 123.85484 | | 19.50989 |
| Chromium (Cr)-Total (mg/L) | 31 | 2 | 0.00025 | 0.00096 | 0.00030 | | 0.00015 |
| Cobalt (Co)-Total (m | 31 | 31 | 0.00031 | 0.00159 | 0.00047 | | 0.00025 |
| Magnesium (Mg)-Total (mg/L) | 31 | 31 | 11.40000 | 24.90000 | 20.78387 | | 3.10474 |
| Mercury (Hg)-Total (mg/L) | 2 | 0 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Nickel (Ni)-Total (mg/L) | 31 | 19 | 0.00025 | 0.00202 | 0.00069 | | 0.00045 |
| Silicon (Si)-Total (mg/L) | 31 | 31 | 5.80000 | 10.30000 | 6.37806 | | 0.80599 |
| Silver (Ag)-Total (mg/L) | 31 | 1 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Sodium (Na)-Total (mg/L) | 31 | 31 | 80.30000 | 109.00000 | 91.94839 | | 5.78509 |
| Strontium (Sr)-Total (mg/L) | 31 | 31 | 0.85200 | 2.47000 | 1.84529 | | 0.39233 |
| Tin (Sn)-Total (mg/L) | 31 | 0 | 0.00005 | 0.00010 | 0.00005 | | 0.00001 |
| Total Aluminum (mg/L) | 31 | 31 | 0.00390 | 1.47000 | 0.08431 | | 0.28216 |
| Total Cadmium (mg/L) | 31 | 3 | 0.00004 | 0.00090 | 0.00018 | | 0.00019 |
| Total Copper (mg/L) | 31 | 30 | 0.00056 | 0.50300 | 0.03098 | | 0.10543 |
| Total Iron (mg/L) | 31 | 18 | 0.03000 | 2.09000 | 0.19300 | | 0.45689 |
| Total Lead (mg/L) | 31 | 21 | 0.00005 | 0.00112 | 0.00021 | | 0.00027 |
| Total Manganese (mg/L) | 31 | 31 | 0.58500 | 1.96000 | 0.86884 | | 0.34782 |
| Total Molybdenum (mg/L) | 31 | 31 | 0.13600 | 0.22400 | 0.18761 | | 0.02260 |
| Total Selenium (mg/L) | 31 | 27 | 0.00025 | 0.00690 | 0.00352 | | 0.00207 |
| Zinc (Zn)-Total (mg/L) | 31 | 19 | 0.00100 | 0.01760 | 0.00549 | | 0.00442 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E289717 : HD-1 Hazeltine Discharge | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 19-Sep-13 | 24-Sep-13 | 1-Oct-13 | 10-Oct-13 | 17-Oct-13 | 22-Oct-13 | 29-Oct-13 | 31-Oct-13 |
| **Anions and Nutrients** | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0068 | 0.0139 | <0.0050 | 0.0255 | <0.0050 | <0.0050 | 0.0056 | 0.0104 |
| Chloride (mg/L) | 26.2 | 25.6 | 27.4 | 27.7 | 25.3 | 27.1 | 27.3 | 26.9 |
| Diss-Orthophosphate (mg/L) | 0.0017 | 0.006 | 0.0050 | 0.0116 | 0.0083 | 0.0085 | 0.0084 | 0.0086 |
| Diss-Phosphorus (mg/L) | 0.0080 | 0.0125 | 0.0117 | 0.0202 | 0.0168 | 0.0185 | 0.018 | 0.0173 |
| Nitrate (N) (mg/L) | 1.26 | 1.38 | 1.51 | 1.42 | 1.58 | 1.64 | 1.59 | 1.53 |
| Nitrate and Nitrite (mg/L) | 1.50 | 1.52 | 1.65 | 1.60 | 1.66 | 1.69 | 1.66 | 1.62 |
| Nitrite (N) (mg/L) | 0.239 | 0.142 | 0.138 | 0.183 | 0.083 | 0.050 | 0.074 | 0.092 |
| Sulphate (mg/L) | 453 | 463 | 464 | 444 | 462 | 450 | 469 | 456 |
| Total Nitrogen (mg/L) | 1.52 | 1.49 | 1.55 | 1.60 | 1.57 | 1.61 | 1.56 | 1.60 |
| **Dissolved Metals** | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00052 | 0.00047 | 0.00040 | 0.00038 | 0.00041 | 0.00042 | 0.00042 | 0.00041 |
| Diss-Arsenic (As) (mg/L) | 0.00160 | 0.0016 | 0.00172 | 0.00179 | 0.00184 | 0.00171 | 0.00177 | 0.00173 |
| Diss-Barium (Ba) (mg/L) | 0.0606 | 0.0586 | 0.0600 | 0.0586 | 0.0596 | 0.0582 | 0.0622 | 0.0560 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.133 | 0.13 | 0.141 | 0.136 | 0.152 | 0.146 | 0.137 | 0.139 |
| Diss-Cadmium (Cd) (mg/L) | <0.00015 | <0.00010 | <0.00011 | <0.00010 | <0.00011 | <0.00012 | <0.00012 | <0.00010 |
| Diss-Calcium (Ca) (mg/L) | 115 | 116 | 115 | 118 | 120 | 113 | 34.8 | 110 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | 0.00027 | 0.00025 | 0.00027 | 0.00020 | 0.00023 | 0.00026 |
| Diss-Copper (Cu) (mg/L) | 0.00328 | 0.00139 | 0.00175 | 0.00152 | 0.00186 | 0.00185 | 0.0019 | 0.00164 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | 0.031 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 18.1 | 18 | 18.1 | 19.0 | 18.5 | 17.8 | 18.1 | 18.2 |
| Diss-Manganese (Mn) (mg/L) | 0.125 | 0.0798 | 0.328 | 0.352 | 0.327 | 0.314 | 0.349 | 0.322 |
| Diss-Molybdenum (Mo) (mg/L) | 0.185 | 0.179 | 0.189 | 0.190 | 0.198 | 0.201 | 0.203 | 0.195 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00052 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 14.3 | 14.5 | 15.2 | 14.5 | 15.0 | 15.0 | 15.7 | 14.1 |
| Diss-Selenium (mg/L) | 0.00461 | 0.00461 | 0.00500 | 0.00502 | 0.00507 | 0.00473 | 0.00502 | 0.00465 |
| Diss-Silicon (Si) (mg/L) | 6.28 | 6.34 | 6.12 | 6.47 | 6.22 | 5.91 | 6.29 | 6.27 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 93.8 | 91.1 | 90.2 | 90.5 | 88.9 | 91.6 | 94.8 | 90.7 |
| Diss-Strontium (Sr) (mg/L) | 1.86 | 1.8 | 1.91 | 1.89 | 2.01 | 1.95 | 2.04 | 1.92 |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E289717 : HD-1 Hazeltine Discharge | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **19-Sep-13** | **24-Sep-13** | **1-Oct-13** | **10-Oct-13** | **17-Oct-13** | **22-Oct-13** | **29-Oct-13** | **31-Oct-13** |
| Diss-Zinc (Zn) (mg/L) | 0.0415 | 0.0244 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 741 | 789 | 795 | 795 | 712 | 814 | 807 | 777 |
| **Physical Test** | | | | | | | | |
| Alkalinity (CaCO3) ( | 82.7 | 85.6 | 85.2 | 78.6 | 85.8 | 82.1 | 79.5 | 75.7 |
| Hardness (mg/L) | 361 | 365 | 362 | 373 | 375 | 354 | 377 | 350 |
| NTU (ntu) | 1.20 | 1.12 | 0.34 | 0.32 | 0.41 | 0.32 | 0.61 | 0.22 |
| TDS (mg/L) | 741 | 789 | 795 | 795 | 712 | 814 | 807 | 777 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | 3.2 | <3.0 | <3.0 | 24.6 | 5.8 |
| **Total Metals** | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00054 | 0.00051 | 0.00041 | 0.00041 | 0.00043 | 0.00044 | 0.00041 | 0.00043 |
| Arsenic (As)-Total ( | 0.00175 | 0.00177 | 0.00178 | 0.00186 | 0.00195 | 0.00189 | 0.00186 | 0.00179 |
| Barium (Ba)-Total | 0.0620 | 0.0604 | 0.0601 | 0.0582 | 0.0578 | 0.0570 | 0.0602 | 0.0573 |
| Boron (B)-Total (mg/L) | 0.143 | 0.147 | 0.147 | 0.139 | 0.156 | 0.152 | 0.136 | 0.139 |
| Calcium (Ca)-Total ( | 116 | 118 | 115 | 119 | 119 | 113 | 123 | 111 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00051 | 0.00028 | 0.00028 | 0.00031 | 0.00026 | 0.00023 | 0.00025 | 0.00029 |
| Magnesium (Mg)-Total (mg/L) | 18.4 | 18.3 | 18.2 | 19.0 | 18.5 | 17.7 | 19.2 | 18.6 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 6.43 | 6.41 | 6.13 | 6.45 | 6.24 | 5.90 | 6.63 | 6.38 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000027 |
| Sodium (Na)-Total (mg/L) | 96.3 | 93.8 | 90.8 | 92.3 | 88.8 | 90.0 | 93.5 | 91.1 |
| Strontium (Sr)-Total (mg/L) | 1.91 | 1.97 | 1.96 | 1.93 | 1.96 | 1.96 | 2 | 1.88 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0306 | 0.0092 | 0.0033 | 0.0041 | 0.0034 | 0.0137 | 0.0039 | 0.0036 |
| Total Cadmium (mg/L) | <0.00015 | <0.00010 | <0.00012 | <0.00010 | <0.00012 | <0.00012 | <0.00012 | <0.00010 |
| Total Copper (mg/L) | 0.00428 | 0.00231 | 0.00240 | 0.00263 | 0.00238 | 0.00246 | 0.00247 | 0.00274 |
| Total Iron (mg/L) | 0.043 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | 0.115 | <0.030 |
| Total Lead (mg/L) | 0.000120 | 0.000063 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.247 | 0.178 | 0.335 | 0.371 | 0.324 | 0.341 | 0.335 | 0.333 |
| Total Molybdenum (mg/L) | 0.188 | 0.199 | 0.195 | 0.194 | 0.196 | 0.203 | 0.199 | 0.187 |
| Total Selenium (mg/L) | 0.00464 | 0.00482 | 0.00506 | 0.00507 | 0.00522 | 0.00479 | 0.00505 | 0.00478 |
| Zinc (Zn)-Total (mg/L) | 0.0489 | 0.0287 | 0.0041 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E289717 : HD-1 Hazeltine Discharge | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 8 | 5 | 0.00500 | 0.02550 | 0.00965 | | 0.00716 |
| Chloride (mg/L) | 8 | 8 | 25.30000 | 27.70000 | 26.68750 | | 0.88388 |
| Diss-Orthophosphate (mg/L) | 8 | 8 | 0.00170 | 0.01160 | 0.00726 | | 0.00298 |
| Diss-Phosphorus (mg/L) | 8 | 8 | 0.00800 | 0.02020 | 0.01538 | | 0.00417 |
| Nitrate (N) (mg/L) | 8 | 8 | 1.26000 | 1.64000 | 1.48875 | | 0.12677 |
| Nitrate and Nitrite (mg/L) | 8 | 8 | 1.50000 | 1.69000 | 1.61250 | | 0.06902 |
| Nitrite (N) (mg/L) | 8 | 8 | 0.05000 | 0.23900 | 0.12512 | | 0.06313 |
| Sulphate (mg/L) | 8 | 8 | 444.00000 | 469.00000 | 457.62500 | | 8.33131 |
| Total Nitrogen (mg/L) | 8 | 8 | 1.49000 | 1.61000 | 1.56250 | | 0.04200 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 8 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| Diss-Antimony (Sb) (mg/L) | 8 | 8 | 0.00038 | 0.00052 | 0.00043 | | 0.00004 |
| Diss-Arsenic (As) (mg/L) | 8 | 8 | 0.00160 | 0.00184 | 0.00172 | | 0.00009 |
| Diss-Barium (Ba) (mg/L) | 8 | 8 | 0.05600 | 0.06220 | 0.05923 | | 0.00184 |
| Diss-Beryllium (Be) (mg/L) | 8 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Boron (B) (mg/L) | 8 | 8 | 0.13000 | 0.15200 | 0.13925 | | 0.00709 |
| Diss-Cadmium (Cd) (mg/L) | 8 | 0 | 0.00005 | 0.00008 | 0.00006 | | 0.00001 |
| Diss-Calcium (Ca) (mg/L) | 8 | 8 | 34.80000 | 120.00000 | 105.22500 | | 28.61477 |
| Diss-Chromium (Cr) (mg/L) | 8 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Cobalt (Co) (mg/L) | 8 | 6 | 0.00005 | 0.00027 | 0.00020 | | 0.00009 |
| Diss-Copper (Cu) (mg/L) | 8 | 8 | 0.00139 | 0.00328 | 0.00190 | | 0.00059 |
| Diss-Iron (Fe) (mg/L) | 8 | 1 | 0.01500 | 0.03100 | 0.01700 | | 0.00566 |
| Diss-Lead (Pb) (mg/L) | 8 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 8 | 8 | 17.80000 | 19.00000 | 18.22500 | | 0.36936 |
| Diss-Manganese (Mn) (mg/L) | 8 | 8 | 0.07980 | 0.35200 | 0.27460 | | 0.10774 |
| Diss-Molybdenum (Mo) (mg/L) | 8 | 8 | 0.17900 | 0.20300 | 0.19250 | | 0.00825 |
| Diss-Nickel (Ni) (mg/L) | 8 | 1 | 0.00025 | 0.00052 | 0.00028 | | 0.00010 |
| Diss-Potassium (K) (mg/L) | 8 | 8 | 14.10000 | 15.70000 | 14.78750 | | 0.53033 |
| Diss-Selenium (mg/L) | 8 | 8 | 0.00461 | 0.00507 | 0.00484 | | 0.00021 |
| Diss-Silicon (Si) (mg/L) | 8 | 8 | 5.91000 | 6.47000 | 6.23750 | | 0.16542 |
| Diss-Silver (Ag) (mg/L) | 8 | 0 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Diss-Sodium (Na) (mg/L) | 8 | 8 | 88.90000 | 94.80000 | 91.45000 | | 1.94275 |
| Diss-Strontium (Sr) (mg/L) | 8 | 8 | 1.80000 | 2.04000 | 1.92250 | | 0.07778 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E289717 : HD-1 Hazeltine Discharge | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Tin (Sn) (mg/L) | 8 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Zinc (Zn) (mg/L) | 8 | 2 | 0.00150 | 0.04150 | 0.00936 | | 0.01526 |
| TDS (mg/L) | 8 | 8 | 712.00000 | 814.00000 | 778.75000 | | 34.96427 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 8 | 8 | 75.70000 | 85.80000 | 81.90000 | | 3.69478 |
| Hardness (mg/L) | 8 | 8 | 350.00000 | 377.00000 | 364.62500 | | 9.84070 |
| NTU (ntu) | 8 | 8 | 0.22000 | 1.20000 | 0.56750 | | 0.38302 |
| TDS (mg/L) | 8 | 8 | 712.00000 | 814.00000 | 778.75000 | | 34.96427 |
| TSS (mg/L) | 8 | 3 | 1.50000 | 24.60000 | 5.13750 | | 8.01016 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 8 | 8 | 0.00041 | 0.00054 | 0.00045 | | 0.00005 |
| Arsenic (As)-Total ( | 8 | 8 | 0.00175 | 0.00195 | 0.00183 | | 0.00007 |
| Barium (Ba)-Total | 8 | 8 | 0.05700 | 0.06200 | 0.05912 | | 0.00179 |
| Boron (B)-Total (mg/L) | 8 | 8 | 0.13600 | 0.15600 | 0.14488 | | 0.00692 |
| Calcium (Ca)-Total ( | 8 | 8 | 111.00000 | 123.00000 | 116.75000 | | 3.80789 |
| Chromium (Cr)-Total (mg/L) | 8 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Cobalt (Co)-Total (m | 8 | 8 | 0.00023 | 0.00051 | 0.00030 | | 0.00009 |
| Magnesium (Mg)-Total (mg/L) | 8 | 8 | 17.70000 | 19.20000 | 18.48750 | | 0.46733 |
| Nickel (Ni)-Total (mg/L) | 8 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Silicon (Si)-Total (mg/L) | 8 | 8 | 5.90000 | 6.63000 | 6.32125 | | 0.22542 |
| Silver (Ag)-Total (mg/L) | 8 | 1 | 0.00001 | 0.00003 | 0.00001 | | 0.00001 |
| Sodium (Na)-Total (mg/L) | 8 | 8 | 88.80000 | 96.30000 | 92.07500 | | 2.40580 |
| Strontium (Sr)-Total (mg/L) | 8 | 8 | 1.88000 | 2.00000 | 1.94625 | | 0.03777 |
| Tin (Sn)-Total (mg/L) | 8 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Total Aluminum (mg/L) | 8 | 8 | 0.00330 | 0.03060 | 0.00898 | | 0.00950 |
| Total Cadmium (mg/L) | 8 | 0 | 0.00010 | 0.00015 | 0.00012 | | 0.00002 |
| Total Copper (mg/L) | 8 | 8 | 0.00231 | 0.00428 | 0.00271 | | 0.00065 |
| Total Iron (mg/L) | 8 | 2 | 0.03000 | 0.11500 | 0.04225 | | 0.02975 |
| Total Lead (mg/L) | 8 | 2 | 0.00005 | 0.00012 | 0.00006 | | 0.00002 |
| Total Manganese (mg/L) | 8 | 8 | 0.17800 | 0.37100 | 0.30800 | | 0.06327 |
| Total Molybdenum (mg/L) | 8 | 8 | 0.18700 | 0.20300 | 0.19512 | | 0.00549 |
| Total Selenium (mg/L) | 8 | 8 | 0.00464 | 0.00522 | 0.00493 | | 0.00020 |
| Zinc (Zn)-Total (mg/L) | 8 | 3 | 0.00150 | 0.04890 | 0.01115 | | 0.01792 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E294969 : West Main Toe Drain | | | | | |
|---|---|---|---|---|---|---|
| | 8-Aug-13 | 5-Sep-13 | 3-Oct-13 | 5-Nov-13 | 12-Nov-13 | 5-Dec-13 |
| **Anions and Nutrients** | | | | | | |
| Ammonia (as N) (mg/L | 0.05 | 0.0513 | 0.0529 | 0.054 | 0.0473 | 0.0486 |
| Chloride (mg/L) | 25.7 | 28.6 | 25.7 | 26.2 | 24.8 | 27.2 |
| Diss-Orthophosphate (mg/L) | 0.0149 | 0.0139 | 0.0141 | 0.0145 | 0.0127 | 0.0146 |
| Diss-Phosphorus (mg/L) | 0.0253 | 0.0256 | 0.0248 | 0.0225 | 0.0233 | 0.0245 |
| Nitrate (N) (mg/L) | 1.3 | 1.29 | 1.38 | 1.42 | 1.41 | 1.55 |
| Nitrate and Nitrite (mg/L) | 1.57 | 1.56 | 1.66 | 1.68 | 1.67 | 1.82 |
| Nitrite (N) (mg/L) | 0.269 | 0.273 | 0.277 | 0.263 | 0.263 | 0.270 |
| Sulphate (mg/L) | 459 | 452 | 456 | 460 | 463 | 480 |
| Total Nitrogen (mg/L) | 1.6 | 3.26 | 1.61 | 1.65 | 1.63 | 1.75 |
| **Dissolved Metals** | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | 0.0031 | <0.0030 | 0.0033 | 0.0031 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00039 | 0.00039 | 0.0004 | 0.00046 | 0.00041 | 0.00044 |
| Diss-Arsenic (As) (mg/L) | 0.00178 | 0.00175 | 0.00184 | 0.00188 | 0.00192 | 0.00179 |
| Diss-Barium (Ba) (mg/L) | 0.0614 | 0.0628 | 0.0595 | 0.0612 | 0.0624 | 0.0591 |
| Diss-Beryllium (Be) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Boron (B) (mg/L) | 0.126 | 0.136 | 0.133 | 0.125 | 0.152 | 0.131 |
| Diss-Cadmium (Cd) (mg/L) | <0.00010 | <0.00010 | <0.00013 | <0.00015 | <0.00012 | <0.00010 |
| Diss-Calcium (Ca) (mg/L) | 111 | 109 | 117 | 115 | 116 | 119 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00035 | 0.00035 | 0.00035 | 0.0004 | 0.00038 | 0.00036 |
| Diss-Copper (Cu) (mg/L) | <0.0019 | 0.00204 | 0.00182 | 0.00226 | 0.00173 | 0.00235 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.060 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 17.5 | 17.3 | 18.6 | 18.4 | 18.5 | 18.1 |
| Diss-Manganese (Mn) (mg/L) | 0.351 | 0.341 | 0.325 | 0.362 | 0.357 | 0.350 |
| Diss-Mercury (Hg) (mg/L) | | | | <0.000010 | | |
| Diss-Molybdenum (Mo) (mg/L) | 0.187 | 0.19 | 0.191 | 0.204 | 0.192 | 0.193 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | 0.00054 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 14.4 | 14.7 | 14 | 14.7 | 15.7 | 15.5 |
| Diss-Selenium (mg/L) | 0.00451 | 0.00479 | 0.00479 | 0.00481 | 0.00507 | 0.00510 |
| Diss-Silicon (Si) (mg/L) | 6.02 | 5.83 | 6.51 | 6.41 | 6.28 | 6.25 |
| Diss-Silver (Ag) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Sodium (Na) (mg/L) | 87.6 | 90.2 | 86.4 | 91.8 | 89.3 | 91.9 |
| Diss-Strontium (Sr) (mg/L) | 1.82 | 1.78 | 1.92 | 1.95 | 1.88 | 2.07 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E294969 : West Main Toe Drain | | | | | |
|---|---|---|---|---|---|---|
| | **8-Aug-13** | **5-Sep-13** | **3-Oct-13** | **5-Nov-13** | **12-Nov-13** | **5-Dec-13** |
| Diss-Tin (Sn) (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| TDS (mg/L) | 794 | 825 | 809 | 810 | 821 | 841 |
| **Physical Test** | | | | | | |
| Alkalinity (CaCO3) ( | 80.3 | 82.7 | 80.8 | 90.6 | 84.9 | 83.3 |
| Hardness (mg/L) | 349 | 344 | 368 | 363 | 366 | 373 |
| NTU (ntu) | 0.1 | 0.13 | 0.13 | 0.31 | 0.20 | 0.21 |
| TDS (mg/L) | 794 | 825 | 809 | 810 | 821 | 841 |
| TSS (mg/L) | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00041 | 0.00038 | 0.00041 | 0.00048 | 0.00047 | 0.00045 |
| Arsenic (As)-Total ( | 0.00195 | 0.00192 | 0.00185 | 0.00212 | 0.00204 | 0.00205 |
| Barium (Ba)-Total | 0.0634 | 0.0642 | 0.0594 | 0.0599 | 0.0626 | 0.0598 |
| Boron (B)-Total (mg/L) | 0.134 | 0.147 | 0.138 | 0.131 | 0.161 | 0.133 |
| Calcium (Ca)-Total ( | 111 | 112 | 114 | 118 | 119 | 127 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Cobalt (Co)-Total (m | 0.00036 | 0.00039 | 0.00036 | 0.00037 | 0.00039 | 0.00037 |
| Magnesium (Mg)-Total (mg/L) | 17.9 | 17.5 | 18 | 19.1 | 19.3 | 19.5 |
| Mercury (Hg)-Total (mg/L) | | | | <0.000010 | | |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silicon (Si)-Total (mg/L) | 6.15 | 5.99 | 6.32 | 6.63 | 6.52 | 6.77 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000012 |
| Sodium (Na)-Total (mg/L) | 91.6 | 93.5 | 88 | 92.8 | 91.7 | 92.4 |
| Strontium (Sr)-Total (mg/L) | 1.88 | 1.87 | 1.9 | 2.01 | 1.98 | 2.05 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0038 | 0.0039 | 0.0054 | 0.0042 | 0.0046 | 0.0042 |
| Total Cadmium (mg/L) | <0.00010 | <0.00012 | <0.00013 | <0.00015 | <0.00012 | <0.00011 |
| Total Copper (mg/L) | 0.00271 | 0.00287 | 0.00255 | 0.00311 | 0.00302 | 0.00318 |
| Total Iron (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.060 |
| Total Lead (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.37 | 0.363 | 0.332 | 0.358 | 0.389 | 0.356 |
| Total Molybdenum (mg/L) | 0.194 | 0.196 | 0.19 | 0.21 | 0.197 | 0.203 |
| Total Selenium (mg/L) | 0.00465 | 0.00485 | 0.00479 | 0.00502 | 0.00522 | 0.00649 |
| Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E294969 : West Main Toe Drain | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 6 | 6 | 0.04730 | 0.05400 | 0.05068 | | 0.00255 |
| Chloride (mg/L) | 6 | 6 | 24.80000 | 28.60000 | 26.36667 | | 1.34561 |
| Diss-Orthophosphate (mg/L) | 6 | 6 | 0.01270 | 0.01490 | 0.01412 | | 0.00078 |
| Diss-Phosphorus (mg/L) | 6 | 6 | 0.02250 | 0.02560 | 0.02433 | | 0.00120 |
| Nitrate (N) (mg/L) | 6 | 6 | 1.29000 | 1.55000 | 1.39167 | | 0.09496 |
| Nitrate and Nitrite (mg/L) | 6 | 6 | 1.56000 | 1.82000 | 1.66000 | | 0.09402 |
| Nitrite (N) (mg/L) | 6 | 6 | 0.26300 | 0.27700 | 0.26917 | | 0.00553 |
| Sulphate (mg/L) | 6 | 6 | 452.00000 | 480.00000 | 461.66667 | | 9.72968 |
| Total Nitrogen (mg/L) | 6 | 6 | 1.60000 | 3.26000 | 1.91667 | | 0.66029 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 6 | 3 | 0.00150 | 0.00330 | 0.00233 | | 0.00092 |
| Diss-Antimony (Sb) (mg/L) | 6 | 6 | 0.00039 | 0.00046 | 0.00042 | | 0.00003 |
| Diss-Arsenic (As) (mg/L) | 6 | 6 | 0.00175 | 0.00192 | 0.00183 | | 0.00007 |
| Diss-Barium (Ba) (mg/L) | 6 | 6 | 0.05910 | 0.06280 | 0.06107 | | 0.00150 |
| Diss-Beryllium (Be) (mg/L) | 6 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Boron (B) (mg/L) | 6 | 6 | 0.12500 | 0.15200 | 0.13383 | | 0.00983 |
| Diss-Cadmium (Cd) (mg/L) | 6 | 0 | 0.00005 | 0.00008 | 0.00006 | | 0.00001 |
| Diss-Calcium (Ca) (mg/L) | 6 | 6 | 109.00000 | 119.00000 | 114.50000 | | 3.78153 |
| Diss-Chromium (Cr) (mg/L) | 6 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Cobalt (Co) (mg/L) | 6 | 6 | 0.00035 | 0.00040 | 0.00037 | | 0.00002 |
| Diss-Copper (Cu) (mg/L) | 6 | 5 | 0.00095 | 0.00235 | 0.00186 | | 0.00051 |
| Diss-Iron (Fe) (mg/L) | 6 | 0 | 0.01500 | 0.03000 | 0.01750 | | 0.00612 |
| Diss-Lead (Pb) (mg/L) | 6 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 6 | 6 | 17.30000 | 18.60000 | 18.06667 | | 0.54650 |
| Diss-Manganese (Mn) (mg/L) | 6 | 6 | 0.32500 | 0.36200 | 0.34767 | | 0.01317 |
| Diss-Mercury (Hg) (mg/L) | 1 | 0 | 0.00001 | 0.00001 | 0.00001 | | |
| Diss-Molybdenum (Mo) (mg/L) | 6 | 6 | 0.18700 | 0.20400 | 0.19283 | | 0.00585 |
| Diss-Nickel (Ni) (mg/L) | 6 | 1 | 0.00025 | 0.00054 | 0.00030 | | 0.00012 |
| Diss-Potassium (K) (mg/L) | 6 | 6 | 14.00000 | 15.70000 | 14.83333 | | 0.65013 |
| Diss-Selenium (mg/L) | 6 | 6 | 0.00451 | 0.00510 | 0.00485 | | 0.00022 |
| Diss-Silicon (Si) (mg/L) | 6 | 6 | 5.83000 | 6.51000 | 6.21667 | | 0.25169 |
| Diss-Silver (Ag) (mg/L) | 6 | 0 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Diss-Sodium (Na) (mg/L) | 6 | 6 | 86.40000 | 91.90000 | 89.53333 | | 2.22681 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/25/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E294969 : West Main Toe Drain | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Diss-Strontium (Sr) (mg/L) | 6 | 6 | 1.78000 | 2.07000 | 1.90333 | | 0.10289 |
| Diss-Tin (Sn) (mg/L) | 6 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Zinc (Zn) (mg/L) | 6 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| TDS (mg/L) | 6 | 6 | 794.00000 | 841.00000 | 816.66667 | | 16.10797 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 6 | 6 | 80.30000 | 90.60000 | 83.76667 | | 3.74575 |
| Hardness (mg/L) | 6 | 6 | 344.00000 | 373.00000 | 360.50000 | | 11.43241 |
| NTU (ntu) | 6 | 6 | 0.10000 | 0.31000 | 0.18000 | | 0.07694 |
| TDS (mg/L) | 6 | 6 | 794.00000 | 841.00000 | 816.66667 | | 16.10797 |
| TSS (mg/L) | 6 | 0 | 1.50000 | 1.50000 | 1.50000 | | 0.00000 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 6 | 6 | 0.00038 | 0.00048 | 0.00043 | | 0.00004 |
| Arsenic (As)-Total ( | 6 | 6 | 0.00185 | 0.00212 | 0.00199 | | 0.00010 |
| Barium (Ba)-Total | 6 | 6 | 0.05940 | 0.06420 | 0.06155 | | 0.00210 |
| Boron (B)-Total (mg/L) | 6 | 6 | 0.13100 | 0.16100 | 0.14067 | | 0.01147 |
| Calcium (Ca)-Total ( | 6 | 6 | 111.00000 | 127.00000 | 116.83333 | | 5.91326 |
| Chromium (Cr)-Total (mg/L) | 6 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Cobalt (Co)-Total (m | 6 | 6 | 0.00036 | 0.00039 | 0.00037 | | 0.00001 |
| Magnesium (Mg)-Total (mg/L) | 6 | 6 | 17.50000 | 19.50000 | 18.55000 | | 0.84794 |
| Mercury (Hg)-Total (mg/L) | 1 | 0 | 0.00001 | 0.00001 | 0.00001 | | |
| Nickel (Ni)-Total (mg/L) | 6 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Silicon (Si)-Total (mg/L) | 6 | 6 | 5.99000 | 6.77000 | 6.39667 | | 0.29703 |
| Silver (Ag)-Total (mg/L) | 6 | 1 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Sodium (Na)-Total (mg/L) | 6 | 6 | 88.00000 | 93.50000 | 91.66667 | | 1.93046 |
| Strontium (Sr)-Total (mg/L) | 6 | 6 | 1.87000 | 2.05000 | 1.94833 | | 0.07521 |
| Tin (Sn)-Total (mg/L) | 6 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Total Aluminum (mg/L) | 6 | 6 | 0.00380 | 0.00540 | 0.00435 | | 0.00059 |
| Total Cadmium (mg/L) | 6 | 0 | 0.00010 | 0.00015 | 0.00012 | | 0.00002 |
| Total Copper (mg/L) | 6 | 6 | 0.00255 | 0.00318 | 0.00291 | | 0.00024 |
| Total Iron (mg/L) | 6 | 0 | 0.03000 | 0.06000 | 0.03500 | | 0.01225 |
| Total Lead (mg/L) | 6 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Total Manganese (mg/L) | 6 | 6 | 0.33200 | 0.38900 | 0.36133 | | 0.01867 |
| Total Molybdenum (mg/L) | 6 | 6 | 0.19000 | 0.21000 | 0.19833 | | 0.00712 |
| Total Selenium (mg/L) | 6 | 6 | 0.00465 | 0.00649 | 0.00517 | | 0.00068 |
| Zinc (Zn)-Total (mg/L) | 6 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |

# Monitoring data report for:
## Effluent Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **E1** | 14/01/09 | 945 | 8.51 | 2.5 |
| | 10/02/09 | 916 | 9.87 | 2.1 |
| | 04/03/09 | 945 | 10.01 | 2.3 |
| | 07/04/09 | 903 | 10.26 | 1.9 |
| | 13/05/09 | 732 | 9.26 | 10.4 |
| | 10/06/09 | 800 | 7.48 | 18.5 |
| | 08/07/09 | 843 | 8.02 | 17.4 |
| | 05/08/09 | 995 | 8.26 | 20.1 |
| | 19/08/09 | 1070 | 8.47 | 19.6 |
| | 02/09/09 | 1104 | 8.38 | 19 |
| | 06/10/09 | 1642 | 8.75 | 8.1 |
| | 29/10/09 | 766 | 8.64 | 1.2 |
| | 19/11/09 | 1689 | 8.98 | 1.5 |
| | 13/01/10 | 1699 | 9.43 | 2.6 |
| | 10/02/10 | 1636 | 9.94 | 3.8 |
| | 03/03/10 | 1470 | 9.71 | 4.6 |
| | 07/04/10 | 1273 | 9.35 | 4.4 |
| | 12/05/10 | 1368 | 8.24 | 13.1 |
| | 03/06/10 | | 7.3 | 13.7 |
| | 08/07/10 | 1642 | 7.87 | 21.3 |
| | 05/08/10 | 1787 | 7.94 | 20.9 |
| | 01/09/10 | 1848 | | 13.8 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Effluent Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| E1 | 07/10/10 | 2001 | 7.78 | 10.5 |
| | 04/11/10 | 1889 | 8.08 | 5.2 |
| | 01/12/10 | 1992 | 8.25 | 1.8 |
| | 10/01/11 | 1902 | 8.42 | 2.8 |
| | 07/03/11 | 1671 | 9.45 | 3.7 |
| | 06/04/11 | 1439 | 8.35 | 3.3 |
| | 12/05/11 | 1055 | 7.94 | 11.6 |
| | 09/06/11 | 1076 | 8.31 | 17.2 |
| | 13/07/11 | 1107 | 8.25 | 17.1 |
| | 14/07/11 | 1105 | 8.32 | 17 |
| | 04/08/11 | 1174 | 8.12 | 18 |
| | 08/09/11 | 1215 | 8.56 | 17.3 |
| | 05/10/11 | 1280 | 8.43 | 9.4 |
| | 31/10/11 | 1311 | 8.9 | 4.4 |
| | 02/11/11 | 1337 | 8.35 | 2.5 |
| | 05/12/11 | 1337 | 9.47 | 3.3 |
| | 04/01/12 | 1337 | 9.16 | 3.5 |
| | 08/02/12 | 1338 | 9.33 | 3.7 |
| | 14/03/12 | 1331 | 7.36 | 3.5 |
| | 03/04/12 | 1297 | | 2.8 |
| | 02/05/12 | 1084 | 8.471 | 9.6 |
| | 07/06/12 | 1126 | 8.20 | 12.9 |
| | 05/07/12 | 1131 | 8.08 | 16.5 |
| | 01/08/12 | 1191 | 8.23 | 20.1 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Effluent Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **E1** | 06/09/12 | 1225 | 8.545 | 14.7 |
| | 03/10/12 | 1271 | 8.00 | 1.2 |
| | 15/11/12 | 1284 | 8.606 | 1.3 |
| | 06/12/12 | 1283 | 8.247 | 2.6 |
| | 02/01/13 | 1273 | 8.903 | 3.4 |
| | 06/02/13 | 1273 | 8.884 | 3.5 |
| | 01/05/13 | 1072 | 9.663 | 8.4 |
| | 08/08/13 | 1193 | 8.051 | 21.8 |
| | 05/11/13 | 1281 | 8.391 | 1.2 |
| **E4** | 14/01/09 | 885 | 7.98 | 0.9 |
| | 10/02/09 | 880 | 7.82 | 2.4 |
| | 04/03/09 | 852 | 7.81 | 1.7 |
| | 07/04/09 | 798 | 7.8 | 1.7 |
| | 12/05/09 | 808 | 8.52 | 10.7 |
| | 09/06/09 | 912 | 8.53 | 14.2 |
| | 07/07/09 | 862 | 8.1 | 15.5 |
| | 05/08/09 | 875 | 8.91 | 17.4 |
| | 19/08/09 | 867 | 9.05 | 20.5 |
| | 02/09/09 | 891 | 8.48 | 16.9 |
| | 06/10/09 | 898 | 8.51 | 7.6 |
| | 29/10/09 | 877 | 8.35 | 2.7 |
| | 19/11/09 | 957 | 8.27 | 3 |
| | 16/12/09 | 1072 | 7.7 | 0.2 |
| | 13/01/10 | 983 | 7.91 | 2.4 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Effluent Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **E4** | 10/02/10 | 987 | 7.72 | 1 |
| | 03/03/10 | 613 | 7.99 | 1.6 |
| | 07/04/10 | 872 | 8.61 | 6.7 |
| | 11/05/10 | 1061 | 8.05 | 8.2 |
| | 03/06/10 | | 6.57 | 7.8 |
| | 08/07/10 | 872 | 8.87 | 19.6 |
| | 05/08/10 | 1000 | 8.02 | 19.4 |
| | 01/09/10 | 1082 | | 12.5 |
| | 07/10/10 | 1334 | 7.56 | 9.3 |
| | 04/11/10 | 1502 | 7.63 | 5.6 |
| | 01/12/10 | 1604 | 7.99 | 2.2 |
| | 10/01/11 | 1583 | 7.49 | 1.3 |
| | 05/04/11 | 1138 | 7.57 | 12.2 |
| | 12/05/11 | 1017 | 7.78 | 11.7 |
| | 09/06/11 | 1117 | 8.42 | 16.7 |
| | 13/07/11 | 1111 | 8.32 | 15.6 |
| | 04/08/11 | 1188 | 9.2 | 16.7 |
| | 08/09/11 | 1201 | 8.17 | 13.9 |
| | 05/10/11 | 1240 | 8.07 | 9.1 |
| | 31/10/11 | 1254 | 8.22 | 6.0 |
| | 02/11/11 | 1254 | 8.18 | 4.3 |
| | 05/12/11 | 1283 | 8.06 | 3.5 |
| | 04/01/12 | 1268 | 8.17 | 3.7 |
| | 08/02/12 | 1298 | 8.11 | 2.3 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Effluent Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **E4** | 14/03/12 | 1288 | 7.61 | 2 |
| | 03/04/12 | 957 | | 1.3 |
| | 02/05/12 | 1050 | 8.7 | 8.0 |
| | 07/06/12 | 1083 | 8.48 | 10.5 |
| | 05/07/12 | 1115 | 8.35 | 13.3 |
| | 01/08/12 | 1213 | 7.813 | 16.6 |
| | 06/09/12 | 1214 | 8.389 | 13.4 |
| | 03/10/12 | 1220 | 8.07 | 7.8 |
| | 15/11/12 | 1264 | 8.141 | 5.3 |
| | 06/12/12 | 1223 | 7.955 | 3.8 |
| | 02/01/13 | 1245 | 8.0 | 0.6 |
| | 06/02/13 | 1251 | 8.012 | 2.6 |
| | 10/03/13 | 1255 | 7.92 | 7.92 |
| | 13/03/13 | 1201 | 8.07 | 5.1 |
| | 04/04/13 | 1221 | 7.425 | 7.6 |
| | 01/05/13 | 1183 | 7.762 | 6.6 |
| | 06/06/13 | 878 | 8.26 | 13 |
| | 10/07/13 | 944 | 8.49 | 15.5 |
| | 08/08/13 | 1176 | 8.059 | 16.4 |
| | 05/09/13 | 1197 | 8.095 | 15 |
| | 03/10/13 | 1255 | 7.92 | 10.9 |
| | 05/11/13 | 1227 | 8.115 | 5.4 |
| | 05/12/13 | 1142 | 8.21 | 3.4 |
| **E5** | 14/01/09 | 887 | 8.01 | 7.2 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Effluent Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **E5** | 10/02/09 | 884 | 7.94 | 7.3 |
| | 04/03/09 | 871 | 7.66 | 6.5 |
| | 07/04/09 | 941 | 7.53 | 8.3 |
| | 12/05/09 | 931 | 8.07 | 8.1 |
| | 09/06/09 | 1010 | 7.8 | 8.4 |
| | 07/07/09 | 928 | 7.78 | 10.7 |
| | 05/08/09 | 923 | 8.34 | 8.3 |
| | 02/09/09 | 903 | 8.39 | 8.5 |
| | 06/10/09 | 909 | 8.44 | 7.6 |
| | 29/10/09 | 920 | 8.46 | 6.1 |
| | 19/11/09 | 987 | 8.28 | 6.1 |
| | 13/01/10 | 999 | 7.87 | 7.5 |
| | 10/02/10 | 1054 | 7.69 | 8 |
| | 03/03/10 | 1060 | 7.85 | 8.4 |
| | 07/04/10 | 1059 | 7.79 | 7.8 |
| | 11/05/10 | 856 | 8.23 | 11.4 |
| | 03/06/10 | | | 7.8 |
| | 08/07/10 | 1030 | 7.49 | 7.8 |
| | 05/08/10 | 1035 | 8.06 | 8.8 |
| | 01/09/10 | 1081 | | 7.9 |
| | 07/10/10 | 1128 | 7.28 | 7.9 |
| | 04/11/10 | 1107 | 7.26 | 7.8 |
| | 01/12/10 | 1089 | 7.83 | 7.5 |
| | 10/01/11 | 1133 | 7.6 | 7.3 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Effluent Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **E5** | 07/03/11 | 1155 | 7.58 | 7.4 |
| | 05/04/11 | 1314 | 7.65 | 6.2 |
| | 12/05/11 | 1160 | 7.51 | 7.5 |
| | 09/06/11 | 1288 | 7.85 | 8.4 |
| | 13/07/11 | 1212 | 7.96 | 7.5 |
| | 03/08/11 | 1219 | 7.88 | 7.7 |
| | 08/09/11 | 1141 | 7.89 | 7.4 |
| | 05/10/11 | 1139 | 7.8 | 7.9 |
| | 02/11/11 | 1155 | 7.81 | 7 |
| | 05/12/11 | 1149 | 7.92 | 7.0 |
| | 04/01/12 | 1136 | 7.98 | 7.7 |
| | 08/02/12 | 1140 | 7.95 | 7.8 |
| | 14/03/12 | 1163 | 7.8 | 6.7 |
| | 03/04/12 | 1320 | | 6.3 |
| | 02/05/12 | 1183 | 7.84 | 7.3 |
| | 07/06/12 | 1137 | 7.88 | 9.2 |
| | 05/07/12 | 1211 | 7.71 | 9.0 |
| | 01/08/12 | 1177 | 7.895 | 7.7 |
| | 06/09/12 | 1100 | 8.239 | 8.4 |
| | 03/10/12 | 1106 | 8.02 | 7.0 |
| | 15/11/12 | 1101 | 8.120 | 7.6 |
| | 06/12/12 | 1149 | 7.646 | 7.9 |
| | 02/01/13 | 1159 | 7.797 | 8.0 |
| | 06/02/13 | 1162 | 7.792 | 8.3 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Effluent Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **E5** | 13/03/13 | 1170 | 7.846 | 8.0 |
| | 04/04/13 | 1021 | 7.858 | 7.0 |
| | 01/05/13 | 1238 | 9.028 | 7.5 |
| | 06/06/13 | 783 | 7.75 | 8.4 |
| | 10/07/13 | 795 | 7.79 | 8 |
| **E7** | 22/04/09 | 339 | 6.83 | 9.3 |
| | 08/06/11 | 1393 | 7.99 | 13.1 |
| | 03/08/11 | 1339 | 8.16 | 15.6 |
| | 08/09/11 | 1348 | 8.2 | 14.4 |
| | 05/10/11 | 1388 | 7.86 | 8.2 |
| | 02/11/11 | 1245 | 8.17 | 2.9 |
| | 08/02/12 | 1203 | 8.14 | 2.6 |
| | 02/05/12 | 985 | 7.043 | 5.0 |
| | 07/06/12 | 893 | 7.86 | 8.5 |
| | 05/07/12 | 925 | 8.35 | 16.5 |
| | 01/08/12 | 1304 | 7.969 | 16.4 |
| | 06/09/12 | 1356 | 7.852 | 12.4 |
| | 03/10/12 | 1366 | 7.89 | 3.9 |
| | 15/11/12 | 1131 | 8.281 | 0.1 |
| | 06/12/12 | 1307 | 7.795 | 3.6 |
| | 02/01/13 | 1239 | 8.199 | 0 |
| | 06/02/13 | 1112 | 8.034 | 0.1 |
| | 01/05/13 | 1250 | 7.793 | 5.9 |
| | 08/08/13 | 1493 | 8.21 | 18.5 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Effluent Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **E7** | 05/11/13 | 1316 | 8.231 | 2.2 |
| | 05/12/13 | 1251 | 8.443 | 1.6 |
| | 10/12/13 | 1162 | 7.678 | |
| | 12/12/13 | 1147 | 7.306 | 3.3 |
| | 16/12/13 | 1050 | 7.585 | 2 |
| | 19/12/13 | 1347 | 8.141 | 3.7 |
| **HD-1** | 19/09/13 | 1114 | 7.922 | 16.5 |
| | 24/09/13 | 1117 | 7.935 | 12.0 |
| | 01/10/13 | 1121 | 7.93 | 7.9 |
| | 10/10/13 | 707 | 7.97 | 5.9 |
| | 17/10/13 | 706 | 8 | 5.5 |
| | 22/10/13 | 1126 | 7.888 | 6.6 |
| | 29/10/13 | 1148 | 7.804 | 2 |
| | 31/10/13 | 1124 | 8.096 | 2.6 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Toe Drain Monitoring Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **East MTD** | 30/08/11 | 1120 | 8.25 | 11.7 |
| | 31/08/11 | 1130 | 8.1 | 7.9 |
| | 05/10/11 | 940 | 8.09 | 7.3 |
| | 31/10/11 | 907 | 8.16 | 6.8 |
| | 26/04/12 | 1156 | 8.01 | 3.4 |
| | 02/05/12 | 1310 | 7.045 | 2.5 |
| | 07/06/12 | 1158 | 7.84 | 8.3 |
| | 28/06/12 | 1143 | 8.07 | 9.4 |
| | 05/07/12 | 1158 | 8.2 | 7.7 |
| | 15/11/12 | 1160 | 8.142 | 6.5 |
| | 07/02/13 | 1179 | 7.967 | 6.9 |
| | 10/03/13 | 1187 | 7.996 | 8 |
| | 01/05/13 | 1187 | 7.592 | 8.3 |
| | 06/06/13 | 797 | 8.07 | 8.5 |
| | 10/07/13 | 812 | 7.99 | 8.5 |
| | 08/08/13 | 1183 | 7.993 | 8.5 |
| | 05/09/13 | 1181 | 8.03 | 8.3 |
| | 03/10/13 | 1187 | 7.996 | 8 |
| | 05/11/13 | 1201 | 8.112 | 7.2 |
| | 12/11/13 | 1200 | 8.206 | 7.7 |
| | 05/12/13 | 1210 | 7.931 | 7.4 |
| **West MTD** | 10/03/13 | 1114 | 8.051 | 7.9 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Permitted Toe Drain Monitoring Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2009 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **West MTD** | 08/08/13 | 1108 | 8.032 | 8.1 |
| | 05/09/13 | 1108 | 8.066 | 7.9 |
| | 03/10/13 | 1114 | 8.051 | 7.9 |
| | 05/11/13 | 1130 | 8.069 | 8 |
| | 12/11/13 | 1134 | 7.985 | 8 |
| | 05/12/13 | 1146 | 8.029 | 8.3 |

**Printed Date:** 3/25/2014

# Appendix E

## West Ditch Sump As-Built Report – 2013

*Report in digital format on accompanying CD*

Mount Polley Mining Corporation

# Mine Drainage Creek Sump and West Ditch As-Built Report November 13, 2013

This report is to satisfy requirement 5.1 of Authorization N0: 13-HPAC-PA7-00276 of Fisheries Act Subsection 35(2)(b) Authorization For Works, Undertakings or Activities Affecting Fish Habitat (Fisheries and Oceans Canada), issued Aug. 26, 2013, regarding the harmful alteration or disruption, or the destruction of fish habitat. Construction of the sump and ditch portion affected by this authorization was coordinated by Ryan Brown, Senior Mine Engineer and supervised by Colleen Hughes, Environmental Coordinator, and occurred between September 22, 2013 and October 1, 2013.

The portion of the project affected by this authorization consists of the construction of a sump with a compacted till berm and adjoining ditching and the installation of pumping infrastructure.

Prior to construction fish salvage was completed to confirm that no fish would be present during the development. Details of the salvage can be found in "Summary of Mine Drainage Creek Juvenile Rainbow Trout Population Estimates, Stream Discharge Surveys, and Fish Salvaging", Dolighan and Zirnhelt, September 2013.

In addition, ditching and pumping infrastructure was installed outside the riparian area, but adjacent to it, prior to construction of the sump. These installations were completed in preparation of halting water flow in Mine Drainage Creek and necessary for future water management. This work was completed by September 30th.

Construction of the sump and ditch portions which fall within fish habitat commenced on September 22nd. Initial work was hand falling trees within the drainage and skidding them out. Care was taken not to disturb the stream channel while skidding took place. Sediment fence was installed downstream of the work area. On October 1st a pump diversion was installed to effectively divert water around the active work site and back into the stream channel. The pump diversion dewatered the work area so construction of the sump and adjacent ditching could commence. Once the stream channel was dewatered, sump and ditch construction commenced with an excavator.

All in-stream works were completed within a 10 hour time frame. An environmental monitor was present throughout the entire in stream works. All in stream work was completed as planned and was conducted following the practices outlined in the Environmental Management Plan for the construction of the West Ditch, the Mine Drainage Creek Emergency Works request correspondence(August 13, 2013) and the Project Notification and Review Application Form (July 7, 2013).

Once the sump and ditch work in the immediate vicinity of Mine Drainage Creek was complete the pump diversion was removed and the creek was allowed to flow into the sump, effectively preventing the water from reaching the stream channel on the downstream side of the work area and ultimately Bootjack Lake.

The sump was allowed to fill and the pumping infrastructure was connected. Pumping commenced on October 2nd redirecting water from Mine Drainage Creek to the West Ditch.

Additional Notes

- Equipment was checked for leaks prior to working within the riparian area

- Grass seeding of the south portion of the West Ditch was completed on November 13 and the remainder is scheduled for spring 2014.
- Development did not extend beyond the logged areas
- The south portion of the West Ditch was constructed prior to the sump development
- The north portion of the West Ditch was constructed after the sump development

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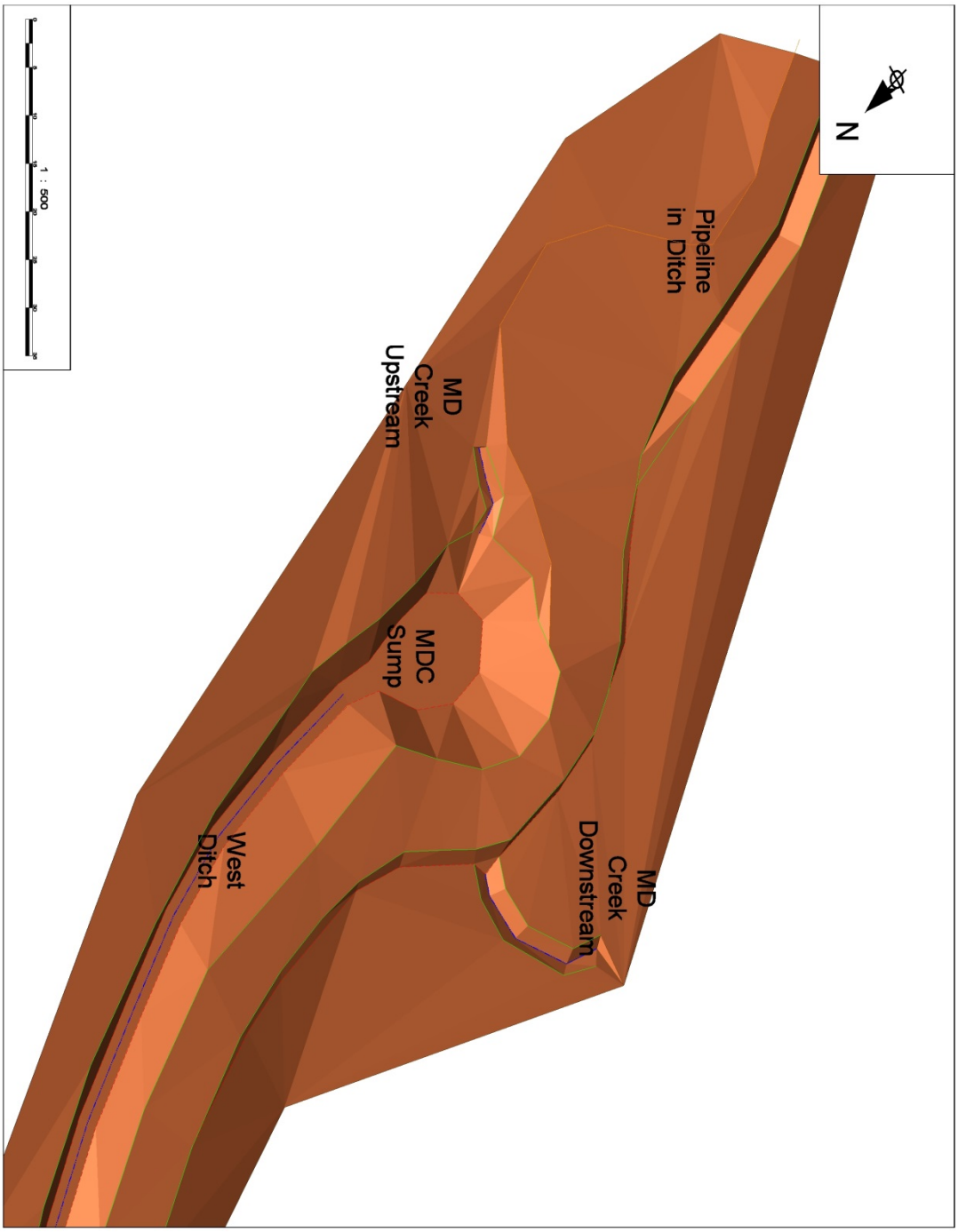
250-790-2215 EXT. 2171

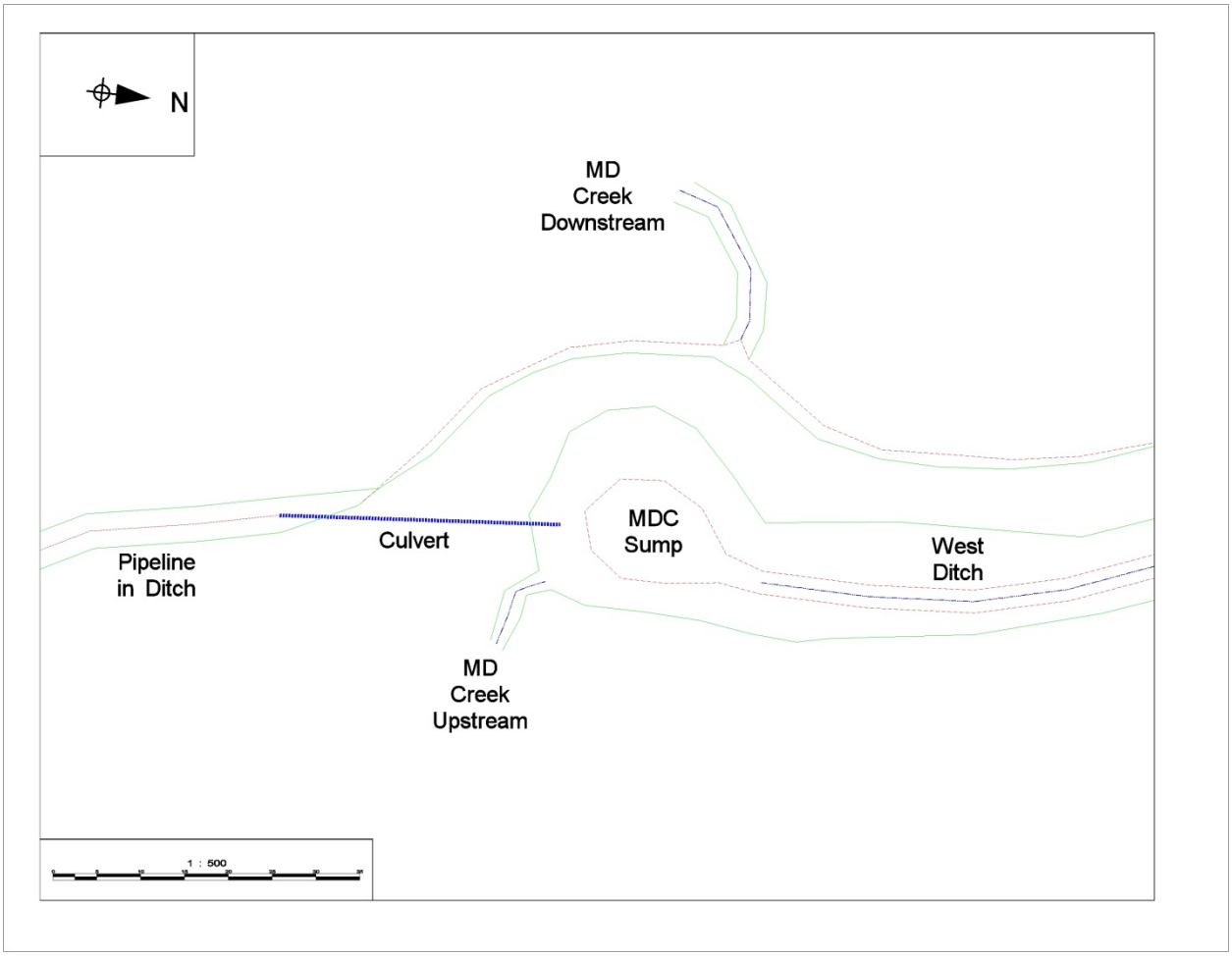
| | |
|---|---|
| | May 22, 2013<br><br>Mine Drainage Creek typical site characteristics near proposed sump location prior to construction |
| | |

| | |
|---|---|
| | May 22, 2013<br><br>Typical riparian area adjacent to Mine Drainage Creek near channel |
| | |
| | October 1, 2013<br><br>Mine Drainage Creek Sump during construction |
| | |

| | |
|---|---|
| | October 1, 2013<br><br>Mine Drainage Creek Sump during construction<br><br>Mine Drainage Creek is being diverted around the work area |
| | |
| | October 1, 2013<br><br>Mine Drainage Creek Sump during construction<br>Note the pipe on the right ready for pumping |

| | |
|---|---|
| | November 4, 2013<br><br>Completed sump with pumping infrastructure<br><br>Mine Drainage Creek reporting to the sump |
| | |
| | November 4, 2013<br><br>Completed portion of the West Ditch immediately north of Mine Drainage Creek Sump |


N
1 : 500
Pipeline in Ditch
MD Creek Upstream
MDC Sump
West Ditch
MD Creek Downstream


N
MD
Creek
Downstream
MDC
Sump
West
Ditch
Culvert
Pipeline
in Ditch
MD
Creek
Upstream
1 : 500

# Appendix F

# Groundwater Quality Results 2013

*Tables in digital format on accompanying CD*

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229695 : 95-R5 Lower SERDS Well (deep) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **25-Jun-08** | **9-Jun-09** | **2-Sep-09** | **27-May-10** | **26-Oct-10** | **26-May-11** | **13-Oct-11** | **23-May-12** | **10-Oct-12** | **17-Jun-13** | **9-Oct-13** |
| **Anions and Nutrients** | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0072 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | | | | | <5 | <5 | <5.0 | <5.0 | <5.0 | <5.0 | <0.50 |
| Nitrate and Nitrite (mg/L) | 1.66 | 0.772 | 0.472 | 0.246 | <0.051 | <0.051 | 0.053 | 0.066 | 0.089 | <0.051 | <0.0051 |
| Sulphate (mg/L) | 310 | 380 | 447 | 473 | 531 | 404 | 524 | 374 | 490 | 84.7 | 127 |
| Total Nitrogen (mg/L) | | | | 0.39 | <0.05 | 0.14 | 0.14 | <0.050 | 0.05 | <0.050 | <0.050 |
| **Dissolved Metals** | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0026 | 0.0208 | <0.002 | <0.002 | <0.003 | <0.003 | <0.0060 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | <0.0002 | <0.0002 | <0.0002 | <0.0002 | <0.0001 | <0.0001 | <0.00020 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.0006 | 0.0005 | 0.00042 | 0.00044 | 0.00041 | 0.00049 | 0.00039 | 0.00043 | 0.00077 | 0.00203 | 0.00251 |
| Diss-Barium (Ba) (mg/L) | 0.0267 | 0.0305 | 0.0346 | 0.0391 | 0.0519 | 0.0334 | 0.0442 | 0.0305 | 0.0415 | 0.0229 | 0.0232 |
| Diss-Cadmium (Cd) (mg/L) | 0.00027 | 0.000292 | 0.00029 | 0.000293 | 0.000324 | 0.000277 | 0.00029 | 0.00011 | 0.00002 | 0.000015 | 0.000025 |
| Diss-Calcium (Ca) (mg/L) | 155 | 169 | 193 | 194 | 229 | 188 | 219 | 170 | 206 | 141 | 87.2 |
| Diss-Chromium (Cr) (mg/L) | <0.001 | <0.001 | 0.0012 | <0.001 | <0.0005 | <0.0005 | <0.0010 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00032 | 0.00091 | 0.00089 | 0.00058 | 0.0008 | 0.00054 | 0.00071 | 0.00055 | 0.00084 | 0.00068 | 0.00018 |
| Diss-Copper (Cu) (mg/L) | 0.00162 | 0.00159 | 0.00187 | 0.00152 | 0.00208 | 0.00076 | <0.0010 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | 0.385 | 0.659 | 0.333 |
| Diss-Lead (Pb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00005 | <0.00005 | <0.00010 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 35.6 | 38.8 | 41.2 | 45.7 | 51.2 | 37.3 | 48.2 | 35.5 | 46.3 | 19.2 | 14.2 |
| Diss-Manganese (Mn) (mg/L) | 1.19 | 1.65 | 1.64 | 1.89 | 2.32 | 1.67 | 2.09 | 1.48 | 1.97 | 0.457 | 0.439 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0169 | 0.0157 | 0.016 | 0.0148 | 0.0141 | 0.0166 | 0.0143 | 0.0166 | 0.0151 | 0.0161 | 0.0246 |
| Diss-Nickel (Ni) (mg/L) | <0.001 | 0.0012 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.0010 | <0.00050 | <0.00050 | 0.00163 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 1.01 | 1.19 | 1.16 | 1.14 | 1.4 | 1.07 | 1.3 | 0.959 | 1.19 | 0.77 | 0.62 |
| Diss-Selenium (mg/L) | <0.002 | <0.002 | <0.002 | <0.002 | <0.001 | 0.00051 | <0.0010 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 8.3 | 9.03 | 9.56 | 9.64 | 11.5 | 8.81 | 11.1 | 8.09 | 10.2 | 6.03 | 6.18 |
| Diss-Strontium (Sr) (mg/L) | 0.418 | 0.463 | 0.54 | 0.585 | 0.776 | 0.578 | 0.715 | 0.529 | 0.701 | 0.359 | 0.266 |
| Diss-Zinc (Zn) (mg/L) | <0.002 | <0.002 | <0.002 | <0.002 | <0.003 | <0.003 | <0.0060 | <0.0030 | <0.0030 | 0.0124 | <0.0030 |
| **Field Tests** | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 925 | 1042 | 1118 | 1164 | 1272 | 1032 | 1244 | 994 | 1165 | 511 | 538 |
| pH (in situ) (pH) | 7.545 | 7.36 | 7.82 | 7.69 | 7.47 | 7.4 | 7.4 | 7.5 | 7.220 | 6.95 | 7.594 |
| Temp (in situ) (Degrees Celcius) | 7.1 | 6.5 | 8.1 | 6.8 | 7.1 | 7.1 | 6.8 | 6.8 | 6.4 | 6.9 | 6.6 |
| **Physical Test** | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 198 | 204 | 215 | 215 | 212 | 192 | 195 | 203 | 204 | 350 | 155 |
| Hardness (mg/L) | 533 | 581 | 652 | 672 | 782 | 623 | 746 | 571 | 706 | 431 | 276 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229695 : 95-R5 Lower SERDS Well (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 36 | 16 | 0.00500 | 0.03100 | 0.01049 | 0.02780 | 0.00779 |
| Chloride (mg/L) | 7 | 0 | 0.25000 | 2.50000 | 2.17857 | | 0.85042 |
| Nitrate and Nitrite (mg/L) | 36 | 22 | 0.00250 | 3.31000 | 0.25272 | 1.07000 | 0.64596 |
| Sulphate (mg/L) | 37 | 35 | 0.00003 | 531.00000 | 133.25946 | 66.97500 | 181.00331 |
| Total Nitrogen (mg/L) | 8 | 4 | 0.02500 | 0.39000 | 0.10250 | | 0.12663 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 38 | 22 | 0.00010 | 0.04300 | 0.00367 | 0.00782 | 0.00747 |
| Diss-Antimony (Sb) (mg/L) | 35 | 11 | 0.00003 | 0.00039 | 0.00008 | 0.00026 | 0.00008 |
| Diss-Arsenic (As) (mg/L) | 38 | 38 | 0.00039 | 0.00251 | 0.00093 | 0.00140 | 0.00046 |
| Diss-Barium (Ba) (mg/L) | 35 | 34 | 0.00390 | 0.05190 | 0.01587 | 0.01069 | 0.01378 |
| Diss-Cadmium (Cd) (mg/L) | 35 | 30 | 0.00001 | 0.00032 | 0.00010 | 0.00010 | 0.00010 |
| Diss-Calcium (Ca) (mg/L) | 37 | 37 | 45.50000 | 229.00000 | 95.54595 | 79.45000 | 59.12237 |
| Diss-Chromium (Cr) (mg/L) | 35 | 3 | 0.00010 | 0.00240 | 0.00031 | 0.00050 | 0.00042 |
| Diss-Cobalt (Co) (mg/L) | 35 | 28 | 0.00001 | 0.00232 | 0.00042 | 0.00117 | 0.00046 |
| Diss-Copper (Cu) (mg/L) | 38 | 30 | 0.00005 | 0.00208 | 0.00056 | 0.00072 | 0.00052 |
| Diss-Iron (Fe) (mg/L) | 38 | 29 | 0.01500 | 0.65900 | 0.23771 | 0.47260 | 0.19305 |
| Diss-Lead (Pb) (mg/L) | 38 | 8 | 0.00001 | 0.00050 | 0.00006 | 0.00040 | 0.00011 |
| Diss-Magnesium (Mg) (mg/L) | 38 | 38 | 6.63000 | 51.20000 | 19.75211 | 18.11000 | 13.34963 |
| Diss-Manganese (Mn) (mg/L) | 38 | 38 | 0.03690 | 2.32000 | 0.82699 | 0.89040 | 0.60579 |
| Diss-Molybdenum (Mo) (mg/L) | 38 | 38 | 0.01410 | 0.03460 | 0.02408 | 0.03412 | 0.00577 |
| Diss-Nickel (Ni) (mg/L) | 38 | 4 | 0.00003 | 0.00163 | 0.00033 | 0.00043 | 0.00029 |
| Diss-Potassium (K) (mg/L) | 38 | 38 | 0.40000 | 11.50000 | 1.10089 | 1.11200 | 1.75005 |
| Diss-Selenium (mg/L) | 38 | 4 | 0.00005 | 0.00100 | 0.00038 | 0.00060 | 0.00028 |
| Diss-Sodium (Na) (mg/L) | 38 | 38 | 4.12000 | 11.50000 | 7.51553 | 8.03600 | 1.59005 |
| Diss-Strontium (Sr) (mg/L) | 38 | 38 | 0.14600 | 0.77600 | 0.28226 | 0.22140 | 0.18773 |
| Diss-Zinc (Zn) (mg/L) | 38 | 17 | 0.00003 | 0.01240 | 0.00143 | 0.00271 | 0.00200 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 32 | 32 | 311.00000 | 1,272.00000 | 593.90625 | 511.00000 | 336.90722 |
| pH (in situ) (pH) | 32 | 32 | 6.50000 | 8.23000 | 7.58591 | 7.96000 | 0.37760 |
| Temp (in situ) (Degrees Celcius) | 31 | 31 | 6.40000 | 10.30000 | 7.90968 | 10.30000 | 1.11933 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 37 | 37 | 90.40000 | 350.00000 | 183.25405 | 195.25000 | 39.38851 |
| Hardness (mg/L) | 36 | 36 | 141.00000 | 782.00000 | 323.86111 | 273.00000 | 204.32777 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E242385 : GW00-1a - Tailings Impoundment West Well (deep) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **23-Apr-08** | **18-Nov-08** | **10-Jun-09** | **30-Sep-09** | **25-May-10** | **28-Oct-10** | **24-May-11** | **20-Oct-11** | **30-May-12** | **17-Oct-12** | **17-Jun-13** | **21-Oct-13** |
| **Anions and Nutrients** | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0078 | <0.0050 | <0.0050 | <0.0050 | 0.0063 | <0.0050 |
| Chloride (mg/L) | | | | | | 8.4 | 7.3 | 7.5 | 7.9 | 17.9 | 9.2 | 9.1 |
| Nitrate and Nitrite (mg/L) | <0.005 | <0.005 | 0.0839 | <0.03 | <0.005 | <0.051 | <0.025 | 0.026 | 0.061 | <0.051 | <0.051 | <0.051 |
| Sulphate (mg/L) | 239 | 245 | 254 | 259 | 253 | 264 | 266 | 260 | 246 | 278 | 271 | 281 |
| Total Nitrogen (mg/L) | | | | | 0.14 | <0.05 | 0.19 | <0.050 | 0.05 | 0.09 | 0.06 | 0.085 |
| **Dissolved Metals** | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.18 | 0.0973 | 0.017 | 0.0488 | 0.0058 | 0.0185 | 0.0177 | 0.0092 | 0.0349 | 0.0111 | 0.0133 | 0.0106 |
| Diss-Antimony (Sb) (mg/L) | 0.00055 | 0.00075 | 0.00079 | 0.00276 | 0.00123 | 0.00108 | 0.00063 | 0.00054 | 0.00044 | 0.00043 | 0.00038 | 0.00096 |
| Diss-Arsenic (As) (mg/L) | 0.0222 | 0.0217 | 0.0314 | 0.0235 | 0.0233 | 0.0222 | 0.0216 | 0.0221 | 0.0205 | 0.0204 | 0.0149 | 0.0193 |
| Diss-Barium (Ba) (mg/L) | 0.0224 | 0.0135 | 0.0212 | 0.0238 | 0.018 | 0.017 | 0.0159 | 0.0135 | 0.0411 | 0.0165 | 0.018 | 0.0126 |
| Diss-Cadmium (Cd) (mg/L) | <0.000034 | <0.000034 | 0.000037 | <0.000034 | <0.000034 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 6.62 | 6.65 | 9.59 | 7.92 | 8.02 | 7.26 | 8.14 | 7.97 | 10.6 | 8.05 | 7.77 | 8.38 |
| Diss-Chromium (Cr) (mg/L) | <0.001 | 0.0017 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00584 | 0.00127 | 0.0014 | <0.0002 | <0.0002 | <0.0001 | 0.00058 | <0.00010 | <0.00010 | <0.00010 | 0.00011 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00058 | 0.00126 | 0.00177 | 0.00102 | 0.00054 | <0.0005 | 0.00146 | <0.00050 | 0.0006 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | 0.094 | 0.077 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | 0.00016 | 0.00018 | 0.00021 | 0.00012 | <0.0001 | 0.00006 | 0.000078 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 3.28 | 3.45 | 3.53 | 3.54 | 3.56 | 3.65 | 3.88 | 3.63 | 3.37 | 3.45 | 3.87 | 3.68 |
| Diss-Manganese (Mn) (mg/L) | 0.066 | 0.0399 | 0.0356 | 0.0239 | 0.0282 | 0.0316 | 0.0208 | 0.0181 | 0.0181 | 0.0361 | 0.0492 | 0.0261 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0237 | 0.0228 | 0.0209 | 0.0231 | 0.0214 | 0.0213 | 0.0217 | 0.0216 | 0.0228 | 0.023 | 0.0257 | 0.0247 |
| Diss-Nickel (Ni) (mg/L) | 0.0027 | 0.0015 | 0.0013 | <0.001 | <0.001 | 0.0007 | 0.00096 | 0.00061 | 0.00055 | 0.00065 | 0.00191 | 0.00245 |
| Diss-Potassium (K) (mg/L) | 0.94 | 1.7 | 1.17 | 1.22 | 0.98 | 1.19 | 1.12 | 1.4 | 1.54 | 1.26 | 1.33 | 1.21 |
| Diss-Selenium (mg/L) | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 172 | 160 | 163 | | 168 | 158 | 153 | 154 | 150 | 153 | 156 | 162 |
| Diss-Strontium (Sr) (mg/L) | 1.17 | 1.2 | 1.22 | 1.32 | 1.19 | 1.26 | 1.11 | 1.06 | 1.13 | 1.08 | 1.17 | 1.11 |
| Diss-Zinc (Zn) (mg/L) | 0.0023 | <0.002 | <0.002 | <0.002 | <0.002 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 787 | 756 | 839 | 842 | 812 | 825 | 825 | 837 | 846 | 837 | 601 | 855 |
| pH (in situ) (pH) | 9.06 | 8.5 | 9.62 | 9.71 | | 8.76 | 8.91 | 9.31 | 9.39 | 9.12 | 8.92 | 9.095 |
| Temp (in situ) (Degrees Celcius) | 7.9 | 5.4 | 8.8 | 7.4 | 7.9 | 6.3 | 8.1 | 6.5 | 7.2 | 7.9 | 8.5 | 8.8 |
| **Physical Test** | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 136 | 122 | 125 | 111 | 129 | 112 | 115 | 116 | 132 | 113 | 113 | 114 |
| Hardness (mg/L) | 30 | 30.8 | 38.5 | 34.3 | 34.7 | 33.1 | 36.3 | 34.9 | 40.3 | 34.3 | 35.4 | 36.1 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E242385 : GW00-1a - Tailings Impoundment West Well (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 27 | 5 | 0.00300 | 0.02000 | 0.00633 | 0.02000 | 0.00407 |
| Chloride (mg/L) | 7 | 7 | 7.30000 | 17.90000 | 9.61429 | | 3.72667 |
| Nitrate and Nitrite (mg/L) | 27 | 6 | 0.00100 | 0.08390 | 0.01321 | 0.00769 | 0.01956 |
| Sulphate (mg/L) | 27 | 27 | 187.00000 | 336.00000 | 249.70370 | 308.00000 | 30.18636 |
| Total Nitrogen (mg/L) | 8 | 6 | 0.02500 | 0.19000 | 0.08313 | | 0.05744 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 29 | 29 | 0.00580 | 0.18000 | 0.03728 | 0.08478 | 0.03771 |
| Diss-Antimony (Sb) (mg/L) | 29 | 27 | 0.00010 | 0.00276 | 0.00062 | 0.00079 | 0.00049 |
| Diss-Arsenic (As) (mg/L) | 29 | 29 | 0.01490 | 0.13300 | 0.04237 | 0.11140 | 0.02872 |
| Diss-Barium (Ba) (mg/L) | 29 | 29 | 0.01260 | 0.06270 | 0.02794 | 0.05678 | 0.01298 |
| Diss-Cadmium (Cd) (mg/L) | 29 | 13 | 0.00001 | 0.00010 | 0.00003 | 0.00008 | 0.00003 |
| Diss-Calcium (Ca) (mg/L) | 27 | 27 | 6.25000 | 13.70000 | 7.96407 | 12.44000 | 1.86769 |
| Diss-Chromium (Cr) (mg/L) | 29 | 13 | 0.00010 | 0.00170 | 0.00066 | 0.00154 | 0.00050 |
| Diss-Cobalt (Co) (mg/L) | 29 | 22 | 0.00005 | 0.00584 | 0.00091 | 0.00301 | 0.00132 |
| Diss-Copper (Cu) (mg/L) | 29 | 23 | 0.00025 | 0.00350 | 0.00129 | 0.00334 | 0.00098 |
| Diss-Iron (Fe) (mg/L) | 29 | 11 | 0.00250 | 0.09400 | 0.02562 | 0.06940 | 0.02511 |
| Diss-Lead (Pb) (mg/L) | 29 | 18 | 0.00001 | 0.00047 | 0.00014 | 0.00037 | 0.00012 |
| Diss-Magnesium (Mg) (mg/L) | 28 | 28 | 3.24000 | 5.42000 | 3.76071 | 5.38250 | 0.55836 |
| Diss-Manganese (Mn) (mg/L) | 29 | 29 | 0.01810 | 0.24100 | 0.06815 | 0.21780 | 0.05639 |
| Diss-Molybdenum (Mo) (mg/L) | 29 | 29 | 0.01650 | 0.02780 | 0.02188 | 0.02724 | 0.00245 |
| Diss-Nickel (Ni) (mg/L) | 29 | 26 | 0.00050 | 0.00570 | 0.00195 | 0.00426 | 0.00127 |
| Diss-Potassium (K) (mg/L) | 29 | 28 | 0.59000 | 2.00000 | 1.06934 | 1.42400 | 0.34280 |
| Diss-Selenium (mg/L) | 29 | 1 | 0.00025 | 0.00250 | 0.00058 | 0.00130 | 0.00050 |
| Diss-Sodium (Na) (mg/L) | 27 | 27 | 145.00000 | 188.00000 | 162.18519 | 185.75000 | 11.09760 |
| Diss-Strontium (Sr) (mg/L) | 29 | 29 | 0.93200 | 2.36000 | 1.34110 | 2.04800 | 0.32097 |
| Diss-Zinc (Zn) (mg/L) | 29 | 13 | 0.00050 | 0.00530 | 0.00164 | 0.00434 | 0.00106 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 28 | 28 | 601.00000 | 932.00000 | 796.71429 | 922.25000 | 79.86000 |
| pH (in situ) (pH) | 27 | 27 | 5.98000 | 10.07000 | 8.88537 | 9.62000 | 0.75298 |
| Temp (in situ) (Degrees Celcius) | 27 | 27 | 4.50000 | 11.00000 | 7.92963 | 10.93000 | 1.72823 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 28 | 28 | 107.00000 | 162.00000 | 123.75000 | 149.25000 | 11.96484 |
| Hardness (mg/L) | 27 | 27 | 29.00000 | 53.60000 | 35.44074 | 52.48000 | 6.52122 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E242384 : GW00-1b - Tailings Impoundment West Well (shallow) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **23-Apr-08** | **18-Nov-08** | **10-Jun-09** | **30-Sep-09** | **18-May-10** | **19-May-10** | **20-Oct-10** | **11-May-11** | **13-Oct-11** | **30-May-12** | **17-Oct-12** | **16-May-13** | **9-Oct-13** |
| **Anions and Nutrients** | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | 0.0078 | 0.005 | <0.005 | <0.005 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | | | | | | | <5 | <5 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| Nitrate and Nitrite (mg/L) | 0.0187 | 0.0778 | 13.2 | 11.4 | 9.34 | 7.88 | 7.81 | 8.04 | 17.2 | 7 | 7 | 5.03 | 2.86 |
| Sulphate (mg/L) | 34.1 | 123 | 258 | 307 | 288 | 250 | 273 | 232 | 345 | 205 | 300 | 264 | 280 |
| Total Nitrogen (mg/L) | | | | | 13.1 | 11.6 | 10.3 | 13.6 | 26.4 | 11 | 8.23 | 4.95 | 2.78 |
| **Dissolved Metals** | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.063 | 0.422 | 0.007 | 0.0031 | <0.002 | <0.002 | <0.003 | <0.003 | <0.0030 | 0.0071 | <0.0030 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00023 | 0.00047 | 0.0002 | 0.00031 | 0.00029 | <0.0002 | 0.00017 | 0.00017 | 0.00015 | 0.00013 | 0.00013 | 0.00012 | 0.00058 |
| Diss-Arsenic (As) (mg/L) | 0.00111 | 0.00124 | 0.0006 | 0.00058 | 0.00047 | 0.00051 | 0.0005 | 0.00054 | 0.00054 | 0.00079 | 0.00068 | 0.00058 | 0.00061 |
| Diss-Barium (Ba) (mg/L) | 0.0468 | 0.0634 | 0.0705 | 0.103 | 0.0827 | 0.074 | 0.108 | 0.0934 | 0.109 | 0.117 | 0.0976 | 0.0832 | 0.102 |
| Diss-Cadmium (Cd) (mg/L) | 0.000186 | 0.000102 | 0.000107 | 0.000162 | 0.000118 | 0.000108 | 0.000118 | 0.000089 | 0.000123 | 0.000064 | 0.000095 | 0.000086 | 0.000137 |
| Diss-Calcium (Ca) (mg/L) | 62.6 | 85.2 | 103 | 124 | 123 | 111 | 118 | 105 | 137 | 103 | 125 | 120 | 123 |
| Diss-Chromium (Cr) (mg/L) | <0.002 | 0.00378 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00031 | 0.00061 | 0.00127 | 0.0004 | 0.00029 | 0.00026 | 0.00033 | 0.00054 | 0.00042 | 0.0002 | 0.00034 | 0.00032 | 0.00033 |
| Diss-Copper (Cu) (mg/L) | 0.00156 | 0.0108 | 0.00181 | 0.00236 | 0.00103 | 0.00097 | 0.00151 | 0.00152 | 0.00122 | 0.0011 | 0.00126 | 0.00102 | 0.00119 |
| Diss-Iron (Fe) (mg/L) | 0.809 | 0.375 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | 0.00157 | <0.0001 | 0.00014 | <0.0001 | <0.0001 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 37.2 | 45.1 | 49.1 | 55.7 | 54.2 | 50.8 | 56.8 | 49.3 | 60.8 | 50.2 | 59.1 | 56.7 | 59.4 |
| Diss-Manganese (Mn) (mg/L) | 0.1 | 0.234 | 0.827 | 1.34 | 1.03 | 0.9 | 1.24 | 1.02 | 1.74 | 0.841 | 1.29 | 1.15 | 1.25 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00431 | 0.00337 | 0.00457 | 0.00961 | 0.0168 | 0.0145 | 0.0202 | 0.0231 | 0.0274 | 0.041 | 0.0404 | 0.0287 | 0.0338 |
| Diss-Nickel (Ni) (mg/L) | 0.00188 | 0.00312 | 0.0036 | 0.0031 | 0.0019 | 0.0017 | 0.00213 | 0.0019 | 0.00254 | 0.00702 | 0.00193 | 0.00199 | 0.00208 |
| Diss-Potassium (K) (mg/L) | 0.818 | 0.853 | 0.94 | 1.16 | 0.98 | 0.94 | 1.16 | 1.06 | 1.34 | 1 | 1.24 | 1.1 | 1.23 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | 0.0066 | <0.002 | 0.0096 | 0.0075 | 0.0077 | 0.0139 | 0.029 | 0.00875 | 0.00562 | 0.00516 | 0.0007 |
| Diss-Sodium (Na) (mg/L) | 22.9 | 21.7 | 22 | 23.5 | 25 | 25.3 | 22.4 | 26.1 | 27.8 | 23.8 | 25.7 | 24.4 | 25.6 |
| Diss-Strontium (Sr) (mg/L) | 0.925 | 1.16 | 1.42 | 1.67 | 1.47 | 1.37 | 1.57 | 1.36 | 1.72 | 1.36 | 1.76 | 1.59 | 1.66 |
| Diss-Zinc (Zn) (mg/L) | <0.001 | 0.0077 | <0.002 | <0.002 | <0.002 | <0.002 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 550 | 733 | 936 | 1036 | 934 | 928 | 952 | 909 | 1124 | 891 | 995 | 655 | 1009 |
| pH (in situ) (pH) | 7.818 | 7.5 | 7.6 | 7.87 | | 7.5 | 7.5 | 7.64 | 7.54 | 7.52 | 7.35 | 7.46 | 7.493 |
| Temp (in situ) (Degrees Celcius) | 5.65 | 7.7 | 7.5 | 9.6 | 7.7 | 7.9 | 9.7 | 6.8 | 8.0 | 6.2 | 8.7 | 9 | 8.5 |
| **Physical Test** | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 307 | 299 | 246 | 231 | 237 | 241 | 244 | 243 | 233 | 255 | 253 | 281 | 283 |
| Hardness (mg/L) | 309 | 398 | 459 | 540 | 531 | 486 | 528 | 465 | 593 | 464 | 557 | 534 | 551 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E242384 : GW00-1b - Tailings Impoundment West Well (shallow) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 32 | 5 | 0.00300 | 0.02000 | 0.00728 | 0.02000 | 0.00514 |
| Chloride (mg/L) | 8 | 0 | 2.50000 | 2.50000 | 2.50000 | | 0.00000 |
| Nitrate and Nitrite (mg/L) | 32 | 17 | 0.00100 | 17.20000 | 3.42206 | 0.00592 | 4.86907 |
| Sulphate (mg/L) | 33 | 33 | 5.40000 | 345.00000 | 114.72970 | 12.94500 | 128.96290 |
| Total Nitrogen (mg/L) | 10 | 10 | 2.77000 | 26.40000 | 10.47300 | | 6.87976 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 33 | 24 | 0.00050 | 0.42200 | 0.02872 | 0.07161 | 0.07371 |
| Diss-Antimony (Sb) (mg/L) | 33 | 31 | 0.00003 | 0.00058 | 0.00020 | 0.00028 | 0.00013 |
| Diss-Arsenic (As) (mg/L) | 33 | 33 | 0.00047 | 0.00239 | 0.00083 | 0.00163 | 0.00036 |
| Diss-Barium (Ba) (mg/L) | 33 | 33 | 0.03990 | 0.11700 | 0.06598 | 0.06003 | 0.02745 |
| Diss-Cadmium (Cd) (mg/L) | 33 | 28 | 0.00001 | 0.00019 | 0.00007 | 0.00004 | 0.00005 |
| Diss-Calcium (Ca) (mg/L) | 33 | 33 | 33.60000 | 137.00000 | 77.78485 | 54.99000 | 33.04392 |
| Diss-Chromium (Cr) (mg/L) | 33 | 12 | 0.00010 | 0.00378 | 0.00064 | 0.00160 | 0.00071 |
| Diss-Cobalt (Co) (mg/L) | 33 | 32 | 0.00001 | 0.00127 | 0.00043 | 0.00091 | 0.00026 |
| Diss-Copper (Cu) (mg/L) | 33 | 33 | 0.00032 | 0.01080 | 0.00154 | 0.00208 | 0.00176 |
| Diss-Iron (Fe) (mg/L) | 33 | 14 | 0.00250 | 0.80900 | 0.06291 | 0.09575 | 0.14929 |
| Diss-Lead (Pb) (mg/L) | 33 | 16 | 0.00001 | 0.00157 | 0.00010 | 0.00018 | 0.00027 |
| Diss-Magnesium (Mg) (mg/L) | 33 | 33 | 12.50000 | 60.80000 | 40.57273 | 34.42000 | 12.55693 |
| Diss-Manganese (Mn) (mg/L) | 33 | 33 | 0.03640 | 1.74000 | 0.50099 | 0.14255 | 0.54547 |
| Diss-Molybdenum (Mo) (mg/L) | 33 | 33 | 0.00337 | 0.04100 | 0.01152 | 0.00498 | 0.01188 |
| Diss-Nickel (Ni) (mg/L) | 33 | 25 | 0.00025 | 0.00702 | 0.00160 | 0.00161 | 0.00141 |
| Diss-Potassium (K) (mg/L) | 33 | 32 | 0.54400 | 1.34000 | 0.91715 | 1.03300 | 0.20979 |
| Diss-Selenium (mg/L) | 33 | 12 | 0.00025 | 0.02900 | 0.00332 | 0.00050 | 0.00586 |
| Diss-Sodium (Na) (mg/L) | 33 | 33 | 14.50000 | 46.70000 | 24.55758 | 35.22500 | 5.13170 |
| Diss-Strontium (Sr) (mg/L) | 33 | 33 | 0.65000 | 1.76000 | 1.15215 | 1.17750 | 0.34101 |
| Diss-Zinc (Zn) (mg/L) | 33 | 16 | 0.00025 | 0.00800 | 0.00202 | 0.00469 | 0.00181 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 29 | 29 | 447.00000 | 1,124.00000 | 692.72414 | 585.25000 | 215.66838 |
| pH (in situ) (pH) | 28 | 28 | 5.91000 | 8.62000 | 7.59646 | 8.20000 | 0.43928 |
| Temp (in situ) (Degrees Celcius) | 29 | 29 | 5.65000 | 12.50000 | 8.42931 | 11.07500 | 1.46991 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 33 | 33 | 200.00000 | 325.00000 | 275.63636 | 308.85000 | 28.37342 |
| Hardness (mg/L) | 33 | 33 | 135.00000 | 593.00000 | 361.36364 | 273.65000 | 133.63449 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E242387 : GW00-2a - Tailings Impoundment West Well (deep) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **23-Apr-08** | **18-Nov-08** | **3-Jun-09** | **14-Sep-09** | **26-May-10** | **27-May-10** | **27-Oct-10** | **24-May-11** | **20-Oct-11** | **24-May-12** | **11-Oct-12** | **16-May-13** | **9-Oct-13** |
| **Anions and Nutrients** | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | 0.0123 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.0050 | 0.008 | 0.0059 | <0.0050 | <0.0050 |
| Chloride (mg/L) | | | | | | | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Nitrate and Nitrite (mg/L) | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 |
| Sulphate (mg/L) | 7.7 | 13.9 | 7.66 | 6.35 | 4.82 | 7.05 | 10.5 | 5.57 | 5.75 | 5.47 | 6.09 | 5.35 | 5.41 |
| Total Nitrogen (mg/L) | | | | | 0.13 | <0.05 | <0.05 | <0.05 | <0.050 | <0.050 | <0.050 | <0.10 | <0.050 |
| **Dissolved Metals** | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0225 | 0.0073 | 0.0071 | 0.0862 | 0.0016 | 0.0012 | 0.0082 | 0.0032 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0031 |
| Diss-Antimony (Sb) (mg/L) | 0.0005 | 0.00035 | 0.00045 | 0.00056 | 0.00022 | 0.00066 | 0.00064 | <0.0001 | 0.00039 | 0.00067 | 0.00092 | 0.00029 | 0.00047 |
| Diss-Arsenic (As) (mg/L) | 0.00363 | 0.0024 | 0.00274 | 0.00748 | 0.00397 | 0.00258 | 0.00229 | 0.00245 | 0.00175 | 0.00177 | 0.00197 | 0.00159 | 0.00155 |
| Diss-Barium (Ba) (mg/L) | 0.111 | 0.091 | 0.107 | 0.0883 | 0.103 | 0.0956 | 0.111 | 0.115 | 0.0822 | 0.0912 | 0.0795 | 0.0773 | 0.0759 |
| Diss-Cadmium (Cd) (mg/L) | 0.00002 | 0.000025 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | 0.000016 |
| Diss-Calcium (Ca) (mg/L) | 34.4 | 35.3 | 32.4 | 30.6 | 33.3 | 33 | 33.3 | 32.7 | 31.3 | 34 | 34.1 | 33.8 | 32.5 |
| Diss-Chromium (Cr) (mg/L) | <0.0015 | 0.00128 | <0.002 | 0.00094 | <0.0006 | <0.0006 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00501 | 0.00089 | 0.0025 | 0.00076 | <0.0001 | 0.00011 | 0.00017 | 0.00032 | <0.00010 | 0.00013 | 0.00026 | 0.00018 | 0.00012 |
| Diss-Copper (Cu) (mg/L) | 0.00027 | 0.00058 | 0.00044 | 0.00109 | 0.00019 | 0.00023 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | 0.081 | 0.223 | 0.113 | 0.086 | 0.214 | 0.106 | 0.107 | 0.248 | 0.03 | 0.041 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | 0.000086 | 0.000064 | 0.000567 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 12.1 | 12.4 | 12.5 | 12 | 13.1 | 12.7 | 12.3 | 12.6 | 12.5 | 12.3 | 12.4 | 12.6 | 12.6 |
| Diss-Manganese (Mn) (mg/L) | 0.368 | 0.366 | 0.339 | 0.257 | 0.275 | 0.251 | 0.299 | 0.327 | 0.256 | 0.274 | 0.251 | 0.272 | 0.289 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00437 | 0.00754 | 0.00303 | 0.0205 | 0.00347 | 0.00341 | 0.00299 | 0.00279 | 0.00271 | 0.00276 | 0.00326 | 0.00285 | 0.00301 |
| Diss-Nickel (Ni) (mg/L) | 0.00303 | 0.0012 | 0.00119 | 0.00056 | <0.0005 | 0.00059 | 0.00119 | 0.00072 | 0.0007 | 0.00102 | 0.00107 | 0.00098 | 0.0008 |
| Diss-Potassium (K) (mg/L) | 0.7 | 1.37 | 0.648 | 0.734 | 0.666 | 0.619 | 0.673 | 0.768 | 0.676 | 0.666 | 0.674 | 0.697 | 0.68 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 51.8 | 52.7 | 46.2 | 43.1 | 45.9 | 41.9 | 46.5 | 49.9 | 45.6 | 43.4 | 44 | 43.5 | 44.5 |
| Diss-Strontium (Sr) (mg/L) | 0.723 | 0.806 | 0.801 | 0.696 | 0.772 | 0.7 | 0.768 | 0.743 | 0.881 | 0.711 | 0.965 | 0.697 | 0.673 |
| Diss-Zinc (Zn) (mg/L) | 0.0026 | 0.0017 | 0.0029 | 0.0018 | <0.001 | <0.001 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 424 | 731 | 421 | 442 | 420 | 402 | 406 | 409 | 415 | 450 | 415 | 264 | 409 |
| pH (in situ) (pH) | 7.998 | 7.7 | 7.86 | 8.42 | 8.07 | 8.34 | 7.79 | 7.55 | 7.96 | 7.89 | 8.001 | 7.84 | 7.866 |
| Temp (in situ) (Degrees Celcius) | 6.05 | 7.7 | 8.3 | 9.8 | 7 | 7.5 | 6.8 | 6.5 | 5.6 | 6.6 | 5.3 | 7 | 6.3 |
| **Physical Test** | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 239 | 235 | 228 | 248 | 249 | 234 | 213 | 223 | 223 | 241 | 224 | 229 | 218 |
| Hardness (mg/L) | 136 | 139 | 132 | 8.2 | 137 | 135 | 134 | 134 | 130 | 135 | 136 | 137 | 133 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E242387 : GW00-2a - Tailings Impoundment West Well (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 27 | 6 | 0.00500 | 0.02000 | 0.00664 | 0.02000 | 0.00416 |
| Chloride (mg/L) | 7 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Nitrate and Nitrite (mg/L) | 27 | 4 | 0.00250 | 0.02200 | 0.00425 | 0.02135 | 0.00514 |
| Sulphate (mg/L) | 28 | 28 | 4.82000 | 100.00000 | 13.62464 | 51.28000 | 17.92370 |
| Total Nitrogen (mg/L) | 9 | 1 | 0.02500 | 0.13000 | 0.03944 | | 0.03495 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 29 | 25 | 0.00120 | 0.08620 | 0.01001 | 0.02308 | 0.01624 |
| Diss-Antimony (Sb) (mg/L) | 29 | 28 | 0.00005 | 0.00092 | 0.00040 | 0.00053 | 0.00019 |
| Diss-Arsenic (As) (mg/L) | 29 | 29 | 0.00155 | 0.00900 | 0.00367 | 0.00886 | 0.00212 |
| Diss-Barium (Ba) (mg/L) | 29 | 29 | 0.01200 | 0.12900 | 0.09841 | 0.12550 | 0.02108 |
| Diss-Cadmium (Cd) (mg/L) | 29 | 10 | 0.00001 | 0.00007 | 0.00001 | 0.00004 | 0.00001 |
| Diss-Calcium (Ca) (mg/L) | 29 | 29 | 2.17000 | 38.50000 | 32.18517 | 37.31000 | 6.04529 |
| Diss-Chromium (Cr) (mg/L) | 29 | 10 | 0.00010 | 0.00820 | 0.00101 | 0.00540 | 0.00162 |
| Diss-Cobalt (Co) (mg/L) | 29 | 26 | 0.00005 | 0.00501 | 0.00082 | 0.00188 | 0.00104 |
| Diss-Copper (Cu) (mg/L) | 29 | 22 | 0.00019 | 0.01300 | 0.00117 | 0.00537 | 0.00235 |
| Diss-Iron (Fe) (mg/L) | 28 | 21 | 0.00250 | 0.24800 | 0.08816 | 0.19125 | 0.07314 |
| Diss-Lead (Pb) (mg/L) | 29 | 16 | 0.00002 | 0.00057 | 0.00008 | 0.00017 | 0.00011 |
| Diss-Magnesium (Mg) (mg/L) | 29 | 29 | 0.68000 | 13.20000 | 12.02690 | 13.06000 | 2.21933 |
| Diss-Manganese (Mn) (mg/L) | 29 | 29 | 0.00056 | 0.81600 | 0.35371 | 0.80200 | 0.15272 |
| Diss-Molybdenum (Mo) (mg/L) | 29 | 29 | 0.00271 | 0.02050 | 0.00448 | 0.00584 | 0.00331 |
| Diss-Nickel (Ni) (mg/L) | 29 | 26 | 0.00025 | 0.00482 | 0.00144 | 0.00418 | 0.00111 |
| Diss-Potassium (K) (mg/L) | 29 | 29 | 0.60000 | 1.37000 | 0.77324 | 1.15800 | 0.18071 |
| Diss-Selenium (mg/L) | 29 | 1 | 0.00025 | 0.00090 | 0.00038 | 0.00062 | 0.00016 |
| Diss-Sodium (Na) (mg/L) | 29 | 29 | 41.90000 | 102.00000 | 53.32414 | 70.57000 | 12.75367 |
| Diss-Strontium (Sr) (mg/L) | 29 | 29 | 0.07380 | 1.08000 | 0.75879 | 1.05200 | 0.16301 |
| Diss-Zinc (Zn) (mg/L) | 29 | 17 | 0.00025 | 0.01360 | 0.00283 | 0.00947 | 0.00270 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 30 | 30 | 264.00000 | 731.00000 | 445.03333 | 614.50000 | 89.15909 |
| pH (in situ) (pH) | 30 | 30 | 5.96000 | 8.62000 | 7.84083 | 8.43100 | 0.53801 |
| Temp (in situ) (Degrees Celcius) | 30 | 30 | 5.30000 | 11.60000 | 7.58500 | 10.90000 | 1.59834 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 28 | 28 | 212.00000 | 266.00000 | 230.71429 | 251.30000 | 11.63920 |
| Hardness (mg/L) | 29 | 29 | 8.20000 | 150.00000 | 129.80000 | 147.20000 | 24.04466 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E242389 : GW00-3a - Tailings Impoundment West Well (deep) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **4-Jun-08** | **15-Oct-08** | **18-Nov-08** | **10-Jun-09** | **30-Sep-09** | **27-May-10** | **18-May-11** | **20-Oct-11** | **31-May-12** | **23-Oct-12** | **17-Jun-13** | **21-Oct-13** |
| **Anions and Nutrients** | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | 0.0116 | <0.005 | 0.0052 | 0.0167 | <0.005 | <0.0050 | 0.007 | <0.0050 | 0.0065 | <0.0050 |
| Chloride (mg/L) | | | | | | | 0.58 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Nitrate and Nitrite (mg/L) | <0.005 | <0.005 | <0.005 | <0.005 | 10 | <0.005 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | 0.0054 | <0.0051 |
| Sulphate (mg/L) | 11.6 | 14.9 | 9.43 | 10.2 | 265 | 9.42 | 8.34 | 6.68 | 6.9 | 5.5 | 4.86 | 4.47 |
| Total Nitrogen (mg/L) | | | | | | 0.08 | 0.12 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| **Dissolved Metals** | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0073 | 0.0113 | 0.0224 | 0.0037 | 0.0034 | 0.0017 | 0.0079 | <0.0030 | 0.0033 | <0.0030 | 0.0041 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00248 | 0.00677 | 0.00708 | 0.00466 | 0.00123 | 0.00274 | 0.00327 | 0.00126 | 0.00088 | 0.00121 | 0.00073 | 0.00021 |
| Diss-Arsenic (As) (mg/L) | 0.00034 | 0.00083 | 0.00084 | 0.00128 | 0.00087 | 0.00082 | 0.00069 | 0.00118 | 0.0012 | 0.00065 | 0.00086 | 0.00110 |
| Diss-Barium (Ba) (mg/L) | 0.0455 | 0.101 | 0.0666 | 0.0544 | 0.0885 | 0.0181 | 0.0192 | 0.0637 | 0.0526 | 0.0624 | 0.0568 | 0.105 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 15.7 | 26.9 | 23.9 | 17.3 | 34.3 | 7.91 | 9.47 | 19.6 | 15.4 | 12.7 | 18.3 | 39.2 |
| Diss-Chromium (Cr) (mg/L) | 0.00072 | <0.002 | 0.00125 | 0.00135 | <0.0005 | 0.00062 | 0.00185 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00034 | 0.00081 | 0.00274 | 0.00029 | 0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00112 | 0.00061 | 0.00159 | 0.00095 | <0.0006 | 0.00166 | 0.00313 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | 0.063 | <0.030 |
| Diss-Lead (Pb) (mg/L) | 0.000092 | 0.00016 | 0.000146 | 0.00007 | 0.000055 | <0.00005 | 0.000084 | <0.000050 | <0.000050 | 0.0001 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 1.71 | 14.1 | 11 | 9.97 | 10.9 | 3.86 | 2.57 | 10.2 | 8.85 | 9.95 | 5.84 | 11.7 |
| Diss-Manganese (Mn) (mg/L) | 0.000755 | 0.0184 | 0.0252 | 0.00981 | 0.082 | 0.000062 | 0.000143 | 0.00533 | 0.0181 | 0.0241 | 0.00966 | 0.0429 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00201 | 0.00219 | 0.0016 | 0.00238 | 0.00144 | 0.00218 | 0.00244 | 0.00148 | 0.00142 | 0.00147 | 0.00131 | 0.000849 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | 0.00228 | 0.00119 | 0.00079 | 0.00056 | <0.0005 | 0.00087 | <0.00050 | <0.00050 | <0.00050 | 0.00065 | 0.00062 |
| Diss-Potassium (K) (mg/L) | 0.595 | 0.356 | 0.533 | 0.318 | 0.303 | 0.283 | 0.464 | 0.219 | 0.221 | 0.257 | 0.281 | 0.266 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 23.2 | 33.2 | 32.4 | 27 | 27.7 | 18.9 | 18.5 | 25.2 | 21.7 | 26 | 24.8 | 29.1 |
| Diss-Strontium (Sr) (mg/L) | 0.374 | 1.13 | 0.882 | 0.761 | 1.07 | 0.255 | 0.235 | 0.796 | 0.643 | 0.695 | 0.58 | 1.48 |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | 0.0015 | <0.001 | <0.001 | <0.001 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 223 | | 388 | 270 | 418 | 202 | 189 | 270 | 195 | 196.8 | 165 | 363 |
| pH (in situ) (pH) | 11.124 | 9.2 | 8.6 | 9.35 | 8.56 | 9.17 | 9.65 | 8.68 | 10.58 | 9.964 | 10.52 | 8.085 |
| Temp (in situ) (Degrees Celcius) | 8.2 | 7.4 | 5.8 | 7.9 | 7.8 | 7.5 | 8 | 5.8 | 7.4 | 5.9 | 8.2 | 7.1 |
| **Physical Test** | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 73.5 | 190 | 209 | 140 | 220 | 90.2 | 63.2 | 126 | 85.9 | 146 | 79.3 | 198 |
| Hardness (mg/L) | 46.3 | 125 | 105 | 84.4 | 130 | 35.7 | 34.2 | 91.1 | 75 | 72.7 | 69.7 | 146 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E242389 : GW00-3a - Tailings Impoundment West Well (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 24 | 9 | 0.00500 | 0.02800 | 0.00854 | 0.02300 | 0.00668 |
| Chloride (mg/L) | 7 | 1 | 0.25000 | 0.58000 | 0.29714 | | 0.12473 |
| Nitrate and Nitrite (mg/L) | 25 | 5 | 0.00250 | 10.00000 | 0.40335 | 0.01095 | 1.99930 |
| Sulphate (mg/L) | 25 | 25 | 4.47000 | 265.00000 | 24.88520 | 289.10000 | 53.56795 |
| Total Nitrogen (mg/L) | 8 | 2 | 0.02500 | 0.12000 | 0.04375 | | 0.03633 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 25 | 22 | 0.00050 | 0.02240 | 0.00574 | 0.07598 | 0.00501 |
| Diss-Antimony (Sb) (mg/L) | 25 | 25 | 0.00021 | 0.00708 | 0.00186 | 0.00133 | 0.00192 |
| Diss-Arsenic (As) (mg/L) | 25 | 25 | 0.00034 | 0.00220 | 0.00098 | 0.09620 | 0.00037 |
| Diss-Barium (Ba) (mg/L) | 25 | 25 | 0.01810 | 0.27000 | 0.10724 | 0.23480 | 0.07169 |
| Diss-Cadmium (Cd) (mg/L) | 25 | 4 | 0.00001 | 0.00005 | 0.00001 | 0.00010 | 0.00001 |
| Diss-Calcium (Ca) (mg/L) | 25 | 25 | 7.91000 | 83.60000 | 33.83160 | 67.11000 | 20.79633 |
| Diss-Chromium (Cr) (mg/L) | 25 | 14 | 0.00010 | 0.00260 | 0.00084 | 0.00240 | 0.00073 |
| Diss-Cobalt (Co) (mg/L) | 25 | 17 | 0.00005 | 0.00931 | 0.00120 | 0.00398 | 0.00202 |
| Diss-Copper (Cu) (mg/L) | 25 | 19 | 0.00025 | 0.00327 | 0.00123 | 0.00326 | 0.00099 |
| Diss-Iron (Fe) (mg/L) | 25 | 8 | 0.00250 | 0.62200 | 0.06050 | 0.21420 | 0.12933 |
| Diss-Lead (Pb) (mg/L) | 25 | 18 | 0.00001 | 0.00034 | 0.00009 | 0.00035 | 0.00009 |
| Diss-Magnesium (Mg) (mg/L) | 25 | 25 | 1.71000 | 19.30000 | 10.81040 | 17.70500 | 5.01423 |
| Diss-Manganese (Mn) (mg/L) | 25 | 25 | 0.00006 | 1.84000 | 0.18851 | 0.84420 | 0.41224 |
| Diss-Molybdenum (Mo) (mg/L) | 25 | 25 | 0.00085 | 0.00421 | 0.00223 | 0.02558 | 0.00091 |
| Diss-Nickel (Ni) (mg/L) | 25 | 19 | 0.00025 | 0.01610 | 0.00279 | 0.00976 | 0.00391 |
| Diss-Potassium (K) (mg/L) | 24 | 24 | 0.21900 | 0.69000 | 0.39971 | 1.27650 | 0.15001 |
| Diss-Selenium (mg/L) | 25 | 0 | 0.00025 | 0.00050 | 0.00035 | 0.00200 | 0.00012 |
| Diss-Sodium (Na) (mg/L) | 25 | 25 | 18.00000 | 47.40000 | 31.49600 | 185.00000 | 8.98580 |
| Diss-Strontium (Sr) (mg/L) | 25 | 25 | 0.23500 | 2.50000 | 1.11012 | 2.31600 | 0.63609 |
| Diss-Zinc (Zn) (mg/L) | 25 | 10 | 0.00025 | 0.00670 | 0.00193 | 0.00536 | 0.00179 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 23 | 23 | 125.00000 | 707.00000 | 355.99130 | 907.10000 | 157.62666 |
| pH (in situ) (pH) | 24 | 24 | 6.47000 | 11.12400 | 8.57346 | 9.41400 | 1.21738 |
| Temp (in situ) (Degrees Celcius) | 24 | 24 | 5.80000 | 12.40000 | 8.19167 | 10.97000 | 1.72499 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 26 | 26 | 63.20000 | 303.00000 | 178.44231 | 291.60000 | 74.81728 |
| Hardness (mg/L) | 26 | 26 | 34.20000 | 288.00000 | 131.05000 | 256.20000 | 68.17922 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E242388 : GW00-3b - Tailings Impoundment West Well (shallow) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 23-Apr-08 | 4-Jun-08 | 18-Nov-08 | 3-Jun-09 | 10-Jun-09 | 14-Sep-09 | 30-Sep-09 | 18-May-10 | 19-May-10 | 27-May-10 | 20-Oct-10 | 27-Oct-10 | 18-May-11 | 20-Oct-11 | 11-Oct-12 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | 0.0131 | <0.005 | <0.005 | <0.005 | <0.005 | 0.0078 | <0.005 | 0.0051 | <0.005 | <0.005 | <0.005 | <0.0050 | |
| Chloride (mg/L) | | | | | | | | | | | <5 | <0.5 | <0.5 | 0.52 | |
| Nitrate and Nitrite (mg/L) | 0.0187 | <0.005 | 0.0778 | <0.005 | 13.2 | <0.005 | 11.4 | 9.34 | 7.88 | 0.0315 | 7.81 | 0.0138 | <0.0051 | 0.0216 | |
| Sulphate (mg/L) | 34.1 | 5.72 | 5.93 | 5.46 | 258 | 5.31 | 307 | 288 | 250 | 5.29 | 273 | 5.42 | 5.78 | 6.05 | |
| Total Nitrogen (mg/L) | | | | | | | | 13.1 | 11.6 | 0.07 | 10.3 | <0.05 | 0.15 | 0.07 | |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.063 | 0.0251 | 0.422 | 0.0147 | 0.007 | 1.29 | 0.0031 | <0.002 | <0.002 | 0.0012 | <0.003 | <0.003 | <0.003 | <0.0030 | |
| Diss-Antimony (Sb) (mg/L) | 0.00023 | 0.00136 | 0.00068 | 0.00126 | 0.0002 | 0.00267 | 0.00031 | 0.00029 | <0.0002 | 0.00201 | 0.00017 | 0.0014 | 0.001 | 0.00056 | |
| Diss-Arsenic (As) (mg/L) | 0.00111 | 0.0007 | 0.00124 | 0.00085 | 0.0006 | 0.00153 | 0.00058 | 0.00047 | 0.00051 | 0.00066 | 0.0005 | 0.00056 | 0.00068 | 0.00071 | |
| Diss-Barium (Ba) (mg/L) | 0.0468 | 0.0339 | 0.0634 | 0.0399 | 0.0705 | 0.077 | 0.103 | 0.0827 | 0.074 | 0.0365 | 0.108 | 0.0497 | 0.0521 | 0.0479 | |
| Diss-Cadmium (Cd) (mg/L) | 0.000186 | 0.000026 | 0.000102 | 0.000043 | 0.000107 | 0.000079 | 0.000162 | 0.000118 | 0.000108 | 0.000045 | 0.000118 | 0.000032 | 0.000027 | 0.000017 | |
| Diss-Calcium (Ca) (mg/L) | 62.6 | 68.1 | 85.2 | 70.7 | 103 | 72.4 | 124 | 123 | 111 | 69.3 | 118 | 72.9 | 72.6 | 67.8 | |
| Diss-Chromium (Cr) (mg/L) | <0.002 | <0.0005 | 0.00378 | <0.002 | <0.001 | <0.005 | <0.001 | <0.001 | <0.001 | <0.0006 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | |
| Diss-Cobalt (Co) (mg/L) | 0.00031 | 0.00259 | 0.00254 | 0.00079 | 0.00127 | 0.00153 | 0.0004 | 0.00029 | 0.00026 | 0.00028 | 0.00033 | 0.00026 | 0.00017 | 0.0001 | |
| Diss-Copper (Cu) (mg/L) | 0.00156 | 0.00099 | 0.0108 | 0.00275 | 0.00181 | 0.011 | 0.00236 | 0.00103 | 0.00097 | 0.00065 | 0.00151 | 0.00096 | 0.00058 | 0.00051 | |
| Diss-Iron (Fe) (mg/L) | 0.809 | 0.08 | 0.375 | 0.031 | <0.03 | 0.555 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | |
| Diss-Lead (Pb) (mg/L) | <0.00005 | 0.000129 | 0.00157 | 0.000115 | <0.0001 | 0.0017 | 0.00014 | <0.0001 | <0.0001 | <0.00005 | <0.00005 | 0.00011 | <0.00005 | <0.000050 | |
| Diss-Magnesium (Mg) (mg/L) | 37.2 | 23.5 | 45.1 | 24.2 | 49.1 | 23.9 | 55.7 | 54.2 | 50.8 | 24.9 | 56.8 | 25 | 25.5 | 25.4 | |
| Diss-Manganese (Mn) (mg/L) | 0.1 | 0.0674 | 0.234 | 0.056 | 0.827 | 0.151 | 1.34 | 1.03 | 0.9 | 0.0597 | 1.24 | 0.0469 | 0.0515 | 0.0437 | |
| Diss-Molybdenum (Mo) (mg/L) | 0.00431 | 0.00337 | 0.00403 | 0.00325 | 0.00457 | 0.0025 | 0.00961 | 0.0168 | 0.0145 | 0.00408 | 0.0202 | 0.00355 | 0.0037 | 0.00362 | |
| Diss-Nickel (Ni) (mg/L) | 0.00188 | 0.00147 | 0.00312 | 0.00191 | 0.0036 | 0.00551 | 0.0031 | 0.0019 | 0.0017 | 0.00325 | 0.00213 | 0.00217 | 0.00221 | 0.00144 | |
| Diss-Potassium (K) (mg/L) | 0.818 | 0.793 | 0.853 | 0.844 | 0.94 | 0.865 | 1.16 | 0.98 | 0.94 | 0.673 | 1.16 | 0.8 | 0.72 | 0.758 | |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | 0.0066 | <0.001 | <0.002 | 0.0096 | 0.0075 | <0.001 | 0.0077 | <0.001 | <0.0005 | <0.00050 | |
| Diss-Sodium (Na) (mg/L) | 22.9 | 10.5 | 21.7 | 10.2 | 22 | 10.8 | 23.5 | 25 | 25.3 | 10.2 | 22.4 | 11.1 | 10.8 | 11.3 | |
| Diss-Strontium (Sr) (mg/L) | 0.925 | 0.599 | 1.16 | 0.682 | 1.42 | 0.699 | 1.67 | 1.47 | 1.37 | 0.628 | 1.57 | 0.693 | 0.753 | 0.708 | |
| Diss-Zinc (Zn) (mg/L) | <0.001 | 0.0033 | 0.0077 | 0.0067 | <0.002 | 0.0092 | <0.002 | <0.002 | <0.002 | <0.001 | <0.003 | <0.003 | <0.003 | <0.0030 | |
| **Field Tests** | | | | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 550 | 508 | 733 | 514 | 936 | 511 | 1036 | 934 | 928 | 509 | 952 | 512 | 517 | 524 | 288 |
| pH (in situ) (pH) | 7.818 | 7.888 | 7.9 | 7.76 | 7.6 | 8.16 | 7.87 | | 7.5 | 7.98 | 7.5 | 7.68 | 7.74 | 7.66 | 9.346 |
| Temp (in situ) (Degrees Celcius) | 5.65 | 8.5 | 7.7 | 8.3 | 7.5 | 9 | 9.6 | 7.7 | 7.9 | 9.6 | 9.7 | 7.2 | 8.5 | 6.4 | 3.9 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 307 | 275 | 299 | 290 | 246 | 313 | 231 | 237 | 241 | 284 | 244 | 284 | 296 | 288 | |
| Hardness (mg/L) | 309 | 267 | 398 | 277 | 459 | 279 | 540 | 531 | 486 | 276 | 528 | 285 | 286 | 274 | |

| | E242388 : GW00-3b - | | |
|---|---|---|---|
| | 23-Oct-12 | 17-Jun-13 | 21-Oct-13 |
| **Anions and Nutrients** | | | |
| Ammonia (as N) (mg/L | | | 0.0073 |
| Chloride (mg/L) | | | 0.52 |
| Nitrate and Nitrite (mg/L) | | | 0.0481 |
| Sulphate (mg/L) | | | 5.98 |
| Total Nitrogen (mg/L) | | | 0.093 |
| **Dissolved Metals** | | | |
| Diss-Aluminum (Al) (mg/L) | | | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | | | 0.00012 |
| Diss-Arsenic (As) (mg/L) | | | 0.00084 |
| Diss-Barium (Ba) (mg/L) | | | 0.0419 |
| Diss-Cadmium (Cd) (mg/L) | | | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | | | 70.3 |
| Diss-Chromium (Cr) (mg/L) | | | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | | | 0.00012 |
| Diss-Copper (Cu) (mg/L) | | | <0.00050 |
| Diss-Iron (Fe) (mg/L) | | | <0.030 |
| Diss-Lead (Pb) (mg/L) | | | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | | | 24.1 |
| Diss-Manganese (Mn) (mg/L) | | | 0.0234 |
| Diss-Molybdenum (Mo) (mg/L) | | | 0.00276 |
| Diss-Nickel (Ni) (mg/L) | | | 0.00094 |
| Diss-Potassium (K) (mg/L) | | | 0.684 |
| Diss-Selenium (mg/L) | | | <0.00050 |
| Diss-Sodium (Na) (mg/L) | | | 10.3 |
| Diss-Strontium (Sr) (mg/L) | | | 0.984 |
| Diss-Zinc (Zn) (mg/L) | | | <0.0030 |
| **Field Tests** | | | |
| Cond (in situ) (µs/cm) | 515 | 354 | 518 |
| pH (in situ) (pH) | 8.359 | 8.43 | 7.768 |
| Temp (in situ) (Degrees Celcius) | 4.2 | 10.7 | 7.3 |
| **Physical Test** | | | |
| Alkalinity (CaCO3) ( | | | 263 |
| Hardness (mg/L) | | | 275 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E242388 : GW00-3b - Tailings Impoundment West Well (shallow) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 44 | 10 | 0.00300 | 0.02590 | 0.00773 | 0.02000 | 0.00568 |
| Chloride (mg/L) | 5 | 2 | 0.25000 | 2.50000 | 0.80800 | | 0.95544 |
| Nitrate and Nitrite (mg/L) | 44 | 20 | 0.00100 | 13.20000 | 1.35744 | 0.01305 | 3.50589 |
| Sulphate (mg/L) | 46 | 46 | 5.29000 | 307.00000 | 43.76152 | 12.28000 | 88.15098 |
| Total Nitrogen (mg/L) | 8 | 7 | 0.02500 | 13.10000 | 4.42600 | | 6.04254 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 46 | 39 | 0.00050 | 1.29000 | 0.06711 | 0.07552 | 0.21193 |
| Diss-Antimony (Sb) (mg/L) | 46 | 43 | 0.00003 | 0.00267 | 0.00045 | 0.00068 | 0.00054 |
| Diss-Arsenic (As) (mg/L) | 46 | 46 | 0.00047 | 0.01510 | 0.00125 | 0.00219 | 0.00212 |
| Diss-Barium (Ba) (mg/L) | 46 | 46 | 0.03390 | 0.11400 | 0.05295 | 0.06656 | 0.01857 |
| Diss-Cadmium (Cd) (mg/L) | 46 | 38 | 0.00001 | 0.00019 | 0.00005 | 0.00007 | 0.00004 |
| Diss-Calcium (Ca) (mg/L) | 46 | 46 | 33.60000 | 124.00000 | 67.56087 | 71.76000 | 21.00343 |
| Diss-Chromium (Cr) (mg/L) | 46 | 20 | 0.00010 | 0.00460 | 0.00080 | 0.00184 | 0.00092 |
| Diss-Cobalt (Co) (mg/L) | 46 | 44 | 0.00001 | 0.00259 | 0.00067 | 0.00168 | 0.00062 |
| Diss-Copper (Cu) (mg/L) | 46 | 45 | 0.00020 | 0.01100 | 0.00158 | 0.00238 | 0.00212 |
| Diss-Iron (Fe) (mg/L) | 45 | 27 | 0.00250 | 1.41000 | 0.10647 | 0.21520 | 0.24930 |
| Diss-Lead (Pb) (mg/L) | 46 | 32 | 0.00001 | 0.00170 | 0.00014 | 0.00022 | 0.00033 |
| Diss-Magnesium (Mg) (mg/L) | 46 | 46 | 12.50000 | 56.80000 | 30.68696 | 33.86000 | 10.12830 |
| Diss-Manganese (Mn) (mg/L) | 46 | 46 | 0.01150 | 1.34000 | 0.21622 | 0.29320 | 0.33360 |
| Diss-Molybdenum (Mo) (mg/L) | 46 | 46 | 0.00250 | 0.02020 | 0.00500 | 0.00471 | 0.00346 |
| Diss-Nickel (Ni) (mg/L) | 46 | 37 | 0.00025 | 0.00551 | 0.00174 | 0.00310 | 0.00119 |
| Diss-Potassium (K) (mg/L) | 46 | 45 | 0.54400 | 1.22000 | 0.82472 | 1.11400 | 0.15695 |
| Diss-Selenium (mg/L) | 46 | 5 | 0.00025 | 0.00960 | 0.00115 | 0.00050 | 0.00230 |
| Diss-Sodium (Na) (mg/L) | 46 | 46 | 10.20000 | 46.70000 | 19.28261 | 40.10000 | 8.55062 |
| Diss-Strontium (Sr) (mg/L) | 46 | 46 | 0.54300 | 1.67000 | 0.88061 | 1.10600 | 0.28632 |
| Diss-Zinc (Zn) (mg/L) | 46 | 28 | 0.00025 | 0.03500 | 0.00323 | 0.00848 | 0.00537 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 47 | 47 | 288.00000 | 1,036.00000 | 560.89362 | 572.05000 | 150.89562 |
| pH (in situ) (pH) | 46 | 46 | 5.84000 | 9.34600 | 7.72041 | 8.05650 | 0.53830 |
| Temp (in situ) (Degrees Celcius) | 47 | 47 | 1.90000 | 12.50000 | 8.18617 | 11.18500 | 2.06557 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 47 | 47 | 200.00000 | 325.00000 | 277.95745 | 299.10000 | 23.10275 |
| Hardness (mg/L) | 46 | 46 | 135.00000 | 540.00000 | 295.41304 | 281.80000 | 87.46951 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E258923 : GW05-01 - Wight Pit/Polley Lake Interface Well | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6-Feb-08 | 13-May-08 | 12-Aug-08 | 25-Nov-08 | 9-Feb-09 | 10-Jun-09 | 1-Sep-09 | 26-Nov-09 | 12-May-10 | 28-Jun-12 | 5-Nov-12 | 7-Feb-13 | 9-Apr-13 | 2-May-13 | 8-Aug-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | | | | | | | | | | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Nitrate and Nitrite (mg/L) | 0.0577 | 0.0838 | 0.0684 | 0.0593 | 0.0508 | 0.0526 | 0.0504 | 0.0606 | 0.0375 | 0.0386 | 0.0276 | 0.0221 | 0.0271 | <0.0051 | <0.0051 |
| Sulphate (mg/L) | 114 | 162 | 161 | 149 | 133 | 130 | 128 | 108 | 102 | 107 | 110 | 111 | 113 | 113 | 121 |
| Total Nitrogen (mg/L) | | | | | | | | | <0.05 | <0.050 | 0.05 | <0.050 | <0.050 | <0.050 | <0.050 |
| **Dissolved Metals** | | | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.001 | <0.002 | 0.002 | 0.0943 | <0.001 | <0.001 | 0.0014 | <0.001 | <0.002 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0002 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0002 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00089 | 0.00081 | 0.00086 | 0.00103 | 0.00088 | 0.00084 | 0.00077 | 0.00036 | 0.00091 | 0.00029 | 0.00052 | 0.00033 | 0.00038 | 0.00045 | 0.00057 |
| Diss-Barium (Ba) (mg/L) | 0.00872 | 0.0106 | 0.0108 | 0.0103 | 0.00825 | 0.0091 | 0.00886 | 0.00828 | 0.00704 | 0.00738 | 0.00694 | 0.00698 | 0.00697 | 0.00687 | 0.00772 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000034 | <0.000034 | 0.000029 | 0.00002 | 0.000022 | 0.000025 | 0.000028 | <0.000034 | 0.000018 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 84.5 | 103 | 108 | 100 | 99.9 | 94.8 | 95.9 | 96.3 | 98.2 | 88.4 | 81.6 | 80.2 | 85 | 80.3 | 84.5 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.001 | <0.001 | <0.0005 | <0.0005 | <0.0005 | 0.00086 | <0.0005 | <0.001 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0002 | <0.0002 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0002 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00039 | 0.00092 | 0.00105 | 0.00427 | 0.00071 | 0.00062 | 0.0021 | 0.00557 | 0.00149 | 0.0242 | 0.0272 | 0.00673 | 0.00703 | 0.00064 | 0.0133 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | 0.059 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | 0.00118 | 0.00091 | 0.00607 | 0.000232 | <0.00005 | 0.000148 | 0.000096 | <0.0001 | 0.000052 | <0.000050 | <0.000050 | 0.000129 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 6.64 | 7.39 | 7.45 | 6.89 | 6.54 | 6.64 | 6.44 | 6.2 | 5.8 | 5.11 | 5.05 | 5.05 | 5.11 | 4.92 | 5.14 |
| Diss-Manganese (Mn) (mg/L) | 0.000268 | 0.00014 | 0.00012 | 0.00627 | 0.000101 | 0.000093 | 0.000222 | 0.00329 | 0.00021 | 0.00205 | 0.000812 | 0.00198 | 0.00163 | 0.000971 | 0.00132 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00425 | 0.00457 | 0.00494 | 0.00524 | 0.00532 | 0.00601 | 0.00593 | 0.00524 | 0.00633 | 0.00756 | 0.0074 | 0.0075 | 0.00768 | 0.00728 | 0.00742 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.001 | 0.0018 | 0.00958 | 0.00227 | <0.0005 | 0.00097 | <0.0005 | <0.001 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.372 | 0.4 | 0.41 | 0.423 | 0.378 | 0.433 | 0.383 | 0.327 | 0.36 | 0.347 | 0.343 | 0.346 | 0.335 | 0.351 | 0.377 |
| Diss-Selenium (mg/L) | <0.001 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.002 | 0.00063 | 0.00055 | 0.00052 | 0.00052 | 0.00051 | 0.00053 |
| Diss-Sodium (Na) (mg/L) | 10.7 | 12.7 | 13.8 | 15.4 | 13.7 | 14 | 13.4 | 11.8 | 14.7 | 16.1 | 15.8 | 16.4 | 15.8 | 16.7 | 17 |
| Diss-Strontium (Sr) (mg/L) | 0.67 | 1.04 | 0.991 | 1.05 | 1.2 | 0.909 | 0.851 | 0.552 | 1 | 0.586 | 0.587 | 0.607 | 0.607 | 0.585 | 0.628 |
| Diss-Zinc (Zn) (mg/L) | 0.0191 | 0.0076 | 0.007 | 0.009 | 0.0051 | 0.0039 | 0.0066 | 0.0463 | 0.0056 | 2.5 | 0.598 | 0.963 | 0.809 | 0.701 | 0.717 |
| **Field Tests** | | | | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | | 590 | | 563 | 572 | 540 | 1897 | 516 | 492 | | 506 | 518 | 508 | 485 | 508 |
| pH (in situ) (pH) | 7.938 | 7.79 | | 8.06 | 7.84 | 7.88 | 8.18 | 8.14 | 8.04 | | 7.53 | 7.819. | 8.210 | 7.6 | 7.496 |
| Temp (in situ) (Degrees Celcius) | 6.1 | 6.8 | | | 5.7 | 8.9 | 7.8 | 6.2 | 7.2 | | 14.7 | 6.2 | 9.4 | 10.2 | 17.5 |
| **Physical Test** | | | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 149 | 154 | 155 | 151 | 155 | 163 | 152 | 183 | 157 | 150 | 147 | 146 | 152 | 150 | 143 |
| Hardness (mg/L) | 238 | 288 | 300 | 279 | 276 | 264 | 266 | 266 | 269 | 242 | 224 | 221 | 233 | 221 | 232 |

| | 923 : GW05<br>5-Nov-13 |
|---|---|
| **Anions and Nutrients** | |
| Ammonia (as N) (mg/L | <0.0050 |
| Chloride (mg/L) | <0.50 |
| Nitrate and Nitrite (mg/L) | 0.0473 |
| Sulphate (mg/L) | 123 |
| Total Nitrogen (mg/L) | 0.066 |
| **Dissolved Metals** | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00055 |
| Diss-Barium (Ba) (mg/L) | 0.00683 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 86.3 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.0120 |
| Diss-Iron (Fe) (mg/L) | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 5.21 |
| Diss-Manganese (Mn) (mg/L) | 0.00163 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00800 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.364 |
| Diss-Selenium (mg/L) | 0.00054 |
| Diss-Sodium (Na) (mg/L) | 16.8 |
| Diss-Strontium (Sr) (mg/L) | 0.654 |
| Diss-Zinc (Zn) (mg/L) | 0.472 |
| **Field Tests** | |
| Cond (in situ) (µs/cm) | 508 |
| pH (in situ) (pH) | 7.888 |
| Temp (in situ) (Degrees Celcius) | 12.1 |
| **Physical Test** | |
| Alkalinity (CaCO3) ( | 155 |
| Hardness (mg/L) | 237 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E258923 : GW05-01 - Wight Pit/Polley Lake Interface Well | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 28 | 4 | 0.00500 | 0.34300 | 0.01912 | 0.17140 | 0.06378 |
| Chloride (mg/L) | 7 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Nitrate and Nitrite (mg/L) | 28 | 25 | 0.00250 | 1.12000 | 0.12959 | 0.96380 | 0.24719 |
| Sulphate (mg/L) | 28 | 28 | 39.10000 | 162.00000 | 105.26786 | 117.30000 | 31.26894 |
| Total Nitrogen (mg/L) | 8 | 2 | 0.02500 | 0.06600 | 0.03325 | | 0.01586 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 28 | 11 | 0.00040 | 0.09430 | 0.00461 | 0.00305 | 0.01759 |
| Diss-Antimony (Sb) (mg/L) | 28 | 2 | 0.00003 | 0.00013 | 0.00006 | 0.00009 | 0.00002 |
| Diss-Arsenic (As) (mg/L) | 28 | 28 | 0.00029 | 0.00134 | 0.00081 | 0.00132 | 0.00033 |
| Diss-Barium (Ba) (mg/L) | 28 | 28 | 0.00683 | 0.01100 | 0.00841 | 0.00989 | 0.00120 |
| Diss-Cadmium (Cd) (mg/L) | 28 | 13 | 0.00001 | 0.00009 | 0.00002 | 0.00005 | 0.00002 |
| Diss-Calcium (Ca) (mg/L) | 28 | 28 | 61.60000 | 108.00000 | 86.97857 | 96.52500 | 10.93155 |
| Diss-Chromium (Cr) (mg/L) | 28 | 3 | 0.00010 | 0.00086 | 0.00033 | 0.00060 | 0.00016 |
| Diss-Cobalt (Co) (mg/L) | 28 | 0 | 0.00001 | 0.00010 | 0.00005 | 0.00005 | 0.00002 |
| Diss-Copper (Cu) (mg/L) | 28 | 28 | 0.00039 | 0.02720 | 0.00436 | 0.00264 | 0.00691 |
| Diss-Iron (Fe) (mg/L) | 27 | 3 | 0.00250 | 0.06400 | 0.01965 | 0.06200 | 0.01511 |
| Diss-Lead (Pb) (mg/L) | 28 | 15 | 0.00001 | 0.00607 | 0.00045 | 0.00151 | 0.00123 |
| Diss-Magnesium (Mg) (mg/L) | 28 | 28 | 4.92000 | 7.95000 | 6.12143 | 7.43300 | 0.83713 |
| Diss-Manganese (Mn) (mg/L) | 28 | 28 | 0.00009 | 0.01930 | 0.00183 | 0.01135 | 0.00372 |
| Diss-Molybdenum (Mo) (mg/L) | 28 | 28 | 0.00418 | 0.00800 | 0.00564 | 0.00551 | 0.00124 |
| Diss-Nickel (Ni) (mg/L) | 28 | 7 | 0.00025 | 0.00958 | 0.00080 | 0.00070 | 0.00179 |
| Diss-Potassium (K) (mg/L) | 28 | 28 | 0.32700 | 0.45600 | 0.37329 | 0.41915 | 0.02983 |
| Diss-Selenium (mg/L) | 28 | 10 | 0.00050 | 0.00100 | 0.00061 | 0.00100 | 0.00019 |
| Diss-Sodium (Na) (mg/L) | 27 | 27 | 9.71000 | 17.00000 | 13.11148 | 11.60000 | 2.44260 |
| Diss-Strontium (Sr) (mg/L) | 28 | 28 | 0.55200 | 1.20000 | 0.77986 | 1.04850 | 0.19591 |
| Diss-Zinc (Zn) (mg/L) | 28 | 28 | 0.00390 | 2.50000 | 0.25980 | 0.12934 | 0.53050 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 24 | 24 | 380.00000 | 1,897.00000 | 551.41667 | 538.50000 | 292.04436 |
| pH (in situ) (pH) | 24 | 24 | 7.25000 | 8.32000 | 7.81758 | 8.23000 | 0.28405 |
| Temp (in situ) (Degrees Celcius) | 24 | 24 | 4.70000 | 19.40000 | 8.50000 | 14.35000 | 3.82304 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 28 | 28 | 143.00000 | 183.00000 | 155.32143 | 165.50000 | 7.91180 |
| Hardness (mg/L) | 28 | 28 | 176.00000 | 300.00000 | 242.42857 | 270.90000 | 29.40701 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291210 : GW11-1a - Below Temp PAG Dump | | | | |
|---|---|---|---|---|---|
| | 5-Dec-11 | 31-May-12 | 23-Oct-12 | 13-Jun-13 | 21-Oct-13 |
| **Anions and Nutrients** | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Nitrate and Nitrite (mg/L) | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 |
| Sulphate (mg/L) | 18.2 | 17.8 | 18.1 | 18 | 17.1 |
| Total Nitrogen (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| **Dissolved Metals** | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0033 | 0.0031 | 0.0033 | 0.0039 | 0.0054 |
| Diss-Antimony (Sb) (mg/L) | 0.00042 | 0.00039 | 0.00039 | 0.00047 | 0.00042 |
| Diss-Arsenic (As) (mg/L) | 0.00341 | 0.00382 | 0.00393 | 0.00349 | 0.00359 |
| Diss-Barium (Ba) (mg/L) | 0.0147 | 0.00385 | 0.0043 | 0.00378 | 0.00441 |
| Diss-Cadmium (Cd) (mg/L) | 0.000017 | 0.000015 | 0.000015 | 0.00002 | <0.000030 |
| Diss-Calcium (Ca) (mg/L) | 25.7 | 22.8 | 22.5 | 24.9 | 28.6 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 | <0.00010 | 0.00014 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 4.58 | 3.97 | 4.04 | 4.49 | 4.87 |
| Diss-Manganese (Mn) (mg/L) | 0.0277 | 0.00831 | 0.052 | 0.0162 | 0.0189 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0658 | 0.0645 | 0.0636 | 0.0573 | 0.0574 |
| Diss-Nickel (Ni) (mg/L) | <0.00050 | <0.00050 | <0.00050 | 0.00086 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 0.211 | 0.195 | 0.195 | 0.217 | 0.219 |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 13.8 | 12.7 | 13.2 | 13.6 | 14.5 |
| Diss-Strontium (Sr) (mg/L) | 0.129 | 0.107 | 0.106 | 0.112 | 0.135 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | |
| Cond (in situ) (µs/cm) | 215 | 196 | 198 | 139 | 230 |
| pH (in situ) (pH) | 8.25 | 8.13 | 8.04 | 7.84 | 8.07 |
| Temp (in situ) (Degrees Celcius) | 5.4 | 7.3 | 5.8 | 7 | 8.1 |
| **Physical Test** | | | | | |
| Alkalinity (CaCO3) ( | 92.3 | 88.8 | 81.9 | 96.2 | 103 |
| Hardness (mg/L) | 83.0 | 73.2 | 72.7 | 80.7 | 91.4 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291210 : GW11-1a - Below Temp PAG Dump on Bootjack Rd | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 6 | 0 | 0.00500 | 0.00500 | 0.00500 | | 0.00000 |
| Chloride (mg/L) | 6 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Nitrate and Nitrite (mg/L) | 6 | 0 | 0.00255 | 0.00255 | 0.00255 | | 0.00000 |
| Sulphate (mg/L) | 6 | 6 | 17.10000 | 18.20000 | 17.83333 | | 0.39328 |
| Total Nitrogen (mg/L) | 6 | 0 | 0.02500 | 0.02500 | 0.02500 | | 0.00000 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 6 | 6 | 0.00310 | 0.00540 | 0.00368 | | 0.00089 |
| Diss-Antimony (Sb) (mg/L) | 6 | 6 | 0.00039 | 0.00047 | 0.00042 | | 0.00003 |
| Diss-Arsenic (As) (mg/L) | 6 | 6 | 0.00341 | 0.00393 | 0.00367 | | 0.00020 |
| Diss-Barium (Ba) (mg/L) | 6 | 6 | 0.00378 | 0.01470 | 0.00582 | | 0.00436 |
| Diss-Cadmium (Cd) (mg/L) | 6 | 5 | 0.00001 | 0.00002 | 0.00002 | | 0.00000 |
| Diss-Calcium (Ca) (mg/L) | 6 | 6 | 22.50000 | 28.60000 | 24.55000 | | 2.37382 |
| Diss-Chromium (Cr) (mg/L) | 6 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Cobalt (Co) (mg/L) | 6 | 1 | 0.00005 | 0.00014 | 0.00007 | | 0.00004 |
| Diss-Copper (Cu) (mg/L) | 6 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Iron (Fe) (mg/L) | 6 | 0 | 0.01500 | 0.01500 | 0.01500 | | 0.00000 |
| Diss-Lead (Pb) (mg/L) | 6 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 6 | 6 | 3.96000 | 4.87000 | 4.31833 | | 0.38196 |
| Diss-Manganese (Mn) (mg/L) | 6 | 6 | 0.00831 | 0.05200 | 0.02191 | | 0.01643 |
| Diss-Molybdenum (Mo) (mg/L) | 6 | 6 | 0.05730 | 0.06580 | 0.06215 | | 0.00379 |
| Diss-Nickel (Ni) (mg/L) | 6 | 1 | 0.00025 | 0.00086 | 0.00035 | | 0.00025 |
| Diss-Potassium (K) (mg/L) | 6 | 6 | 0.19200 | 0.21900 | 0.20483 | | 0.01221 |
| Diss-Selenium (mg/L) | 6 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Sodium (Na) (mg/L) | 6 | 6 | 12.50000 | 14.50000 | 13.38333 | | 0.74140 |
| Diss-Strontium (Sr) (mg/L) | 6 | 6 | 0.10600 | 0.13500 | 0.11617 | | 0.01258 |
| Diss-Zinc (Zn) (mg/L) | 6 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 5 | 5 | 139.00000 | 230.00000 | 195.60000 | | 34.52970 |
| pH (in situ) (pH) | 5 | 5 | 7.84000 | 8.25000 | 8.06600 | | 0.14977 |
| Temp (in situ) (Degrees Celcius) | 5 | 5 | 5.40000 | 8.10000 | 6.72000 | | 1.10770 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 6 | 6 | 81.90000 | 103.00000 | 91.98333 | | 7.15917 |
| Hardness (mg/L) | 6 | 6 | 72.70000 | 91.40000 | 79.03333 | | 7.47815 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291211 : GW11-1b - Below Temp PAG Dump | | | | |
|---|---|---|---|---|---|
| | 5-Dec-11 | 31-May-12 | 23-Oct-12 | 13-Jun-13 | 21-Oct-13 |
| **Anions and Nutrients** | | | | | |
| Ammonia (as N) (mg/L | 0.034 | 0.0205 | 0.0435 | <0.0050 | <0.0050 |
| Chloride (mg/L) | 0.5 | 0.56 | 1.29 | 1.92 | 2.20 |
| Nitrate and Nitrite (mg/L) | <0.0051 | <0.0051 | <0.0051 | <0.0051 | 0.0086 |
| Sulphate (mg/L) | 20.1 | 20.9 | 15 | 13.1 | 11.8 |
| Total Nitrogen (mg/L) | <0.050 | <0.050 | 0.26 | 0.12 | 0.109 |
| **Dissolved Metals** | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0049 | 0.0053 | 0.0383 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00027 | 0.00034 | 0.00028 | 0.00203 | 0.00098 |
| Diss-Arsenic (As) (mg/L) | 0.00201 | 0.00233 | 0.00376 | 0.0008 | 0.00116 |
| Diss-Barium (Ba) (mg/L) | 0.0451 | 0.0131 | 0.0247 | 0.0249 | 0.0319 |
| Diss-Cadmium (Cd) (mg/L) | 0.000017 | 0.000022 | <0.000010 | 0.000013 | 0.000053 |
| Diss-Calcium (Ca) (mg/L) | 44.5 | 44.4 | 55.7 | 67.3 | 68.4 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | 0.00105 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00016 | 0.00024 | 0.00406 | 0.00264 | 0.00059 |
| Diss-Copper (Cu) (mg/L) | <0.00050 | 0.00083 | <0.00050 | 0.00059 | 0.00135 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | 5.65 | 0.112 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 7.39 | 6.48 | 9.54 | 11.8 | 11.6 |
| Diss-Manganese (Mn) (mg/L) | 0.24 | 0.16 | 2.88 | 0.198 | 0.104 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0456 | 0.0402 | 0.0374 | 0.0189 | 0.0130 |
| Diss-Nickel (Ni) (mg/L) | 0.00064 | 0.00062 | 0.00129 | 0.00626 | 0.00229 |
| Diss-Potassium (K) (mg/L) | 0.708 | 0.636 | 1.12 | 0.787 | 0.873 |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 18.9 | 18.1 | 18.1 | 14.3 | 14.6 |
| Diss-Strontium (Sr) (mg/L) | 0.248 | 0.183 | 0.239 | 0.247 | 0.282 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | 0.0033 | <0.0030 |
| **Field Tests** | | | | | |
| Cond (in situ) (µs/cm) | 340 | 329 | 390 | 282 | 454 |
| pH (in situ) (pH) | 8.14 | 7.42 | 7.2 | 7.18 | 7.285 |
| Temp (in situ) (Degrees Celcius) | 5.5 | 6.2 | 7.5 | 7.19 | 9.1 |
| **Physical Test** | | | | | |
| Alkalinity (CaCO3) ( | 159 | 157 | 190 | 223 | 230 |
| Hardness (mg/L) | 142 | 138 | 178 | 217 | 219 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291211 : GW11-1b - Below Temp PAG Dump on Bootjack Rd | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 5 | 3 | 0.00500 | 0.04350 | 0.02160 | | 0.01722 |
| Chloride (mg/L) | 5 | 5 | 0.50000 | 2.20000 | 1.29400 | | 0.77167 |
| Nitrate and Nitrite (mg/L) | 5 | 1 | 0.00255 | 0.00860 | 0.00376 | | 0.00271 |
| Sulphate (mg/L) | 5 | 5 | 11.80000 | 20.90000 | 16.18000 | | 4.11424 |
| Total Nitrogen (mg/L) | 5 | 3 | 0.02500 | 0.26000 | 0.10780 | | 0.09621 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 5 | 3 | 0.00150 | 0.03830 | 0.01030 | | 0.01576 |
| Diss-Antimony (Sb) (mg/L) | 5 | 5 | 0.00027 | 0.00203 | 0.00078 | | 0.00076 |
| Diss-Arsenic (As) (mg/L) | 5 | 5 | 0.00080 | 0.00376 | 0.00201 | | 0.00116 |
| Diss-Barium (Ba) (mg/L) | 5 | 5 | 0.01310 | 0.04510 | 0.02794 | | 0.01173 |
| Diss-Cadmium (Cd) (mg/L) | 5 | 4 | 0.00001 | 0.00005 | 0.00002 | | 0.00002 |
| Diss-Calcium (Ca) (mg/L) | 5 | 5 | 44.40000 | 68.40000 | 56.06000 | | 11.70824 |
| Diss-Chromium (Cr) (mg/L) | 5 | 1 | 0.00025 | 0.00105 | 0.00041 | | 0.00036 |
| Diss-Cobalt (Co) (mg/L) | 5 | 5 | 0.00016 | 0.00406 | 0.00154 | | 0.00174 |
| Diss-Copper (Cu) (mg/L) | 5 | 3 | 0.00025 | 0.00135 | 0.00065 | | 0.00046 |
| Diss-Iron (Fe) (mg/L) | 5 | 2 | 0.01500 | 5.65000 | 1.16140 | | 2.50956 |
| Diss-Lead (Pb) (mg/L) | 5 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 5 | 5 | 6.48000 | 11.80000 | 9.36200 | | 2.40722 |
| Diss-Manganese (Mn) (mg/L) | 5 | 5 | 0.10400 | 2.88000 | 0.71640 | | 1.21052 |
| Diss-Molybdenum (Mo) (mg/L) | 5 | 5 | 0.01300 | 0.04560 | 0.03102 | | 0.01422 |
| Diss-Nickel (Ni) (mg/L) | 5 | 5 | 0.00062 | 0.00626 | 0.00222 | | 0.00236 |
| Diss-Potassium (K) (mg/L) | 5 | 5 | 0.63600 | 1.12000 | 0.82480 | | 0.18720 |
| Diss-Selenium (mg/L) | 5 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Sodium (Na) (mg/L) | 5 | 5 | 14.30000 | 18.90000 | 16.80000 | | 2.17256 |
| Diss-Strontium (Sr) (mg/L) | 5 | 5 | 0.18300 | 0.28200 | 0.23980 | | 0.03580 |
| Diss-Zinc (Zn) (mg/L) | 5 | 1 | 0.00150 | 0.00330 | 0.00186 | | 0.00080 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 5 | 5 | 282.00000 | 454.00000 | 359.00000 | | 65.52862 |
| pH (in situ) (pH) | 5 | 5 | 7.18000 | 8.14000 | 7.44500 | | 0.39984 |
| Temp (in situ) (Degrees Celcius) | 5 | 5 | 5.50000 | 9.10000 | 7.09800 | | 1.37278 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 5 | 5 | 157.00000 | 230.00000 | 191.80000 | | 34.36132 |
| Hardness (mg/L) | 5 | 5 | 138.00000 | 219.00000 | 178.80000 | | 39.03460 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291212 : GW11-2a - Below SERDS on Polley | | | | |
|---|---|---|---|---|---|
| | 1-Dec-11 | 30-May-12 | 17-Oct-12 | 17-Jun-13 | 10-Oct-13 |
| **Anions and Nutrients** | | | | | |
| Ammonia (as N) (mg/L | 0.99 | 2.02 | 1.8 | 2.67 | 2.17 |
| Chloride (mg/L) | <5.0 | <10 | <10 | <10 | <5.0 |
| Nitrate and Nitrite (mg/L) | <0.051 | 0.13 | <0.10 | <0.10 | <0.051 |
| Sulphate (mg/L) | 37.7 | 22 | 18 | <10 | 8.6 |
| Total Nitrogen (mg/L) | 0.93 | 2.34 | 2.09 | 2.97 | 2.13 |
| **Dissolved Metals** | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0227 | 0.746 | 0.962 | 0.616 | 1.02 |
| Diss-Antimony (Sb) (mg/L) | 0.00043 | 0.00082 | 0.00096 | 0.00103 | 0.00048 |
| Diss-Arsenic (As) (mg/L) | 0.0054 | 0.00129 | 0.00163 | 0.00086 | 0.00234 |
| Diss-Barium (Ba) (mg/L) | 0.356 | 1 | 0.944 | 1.1 | 0.412 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000020 | <0.000010 | <0.000020 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 15.7 | 276 | 243 | 316 | 147 |
| Diss-Chromium (Cr) (mg/L) | 0.00087 | <0.0010 | 0.00091 | 0.00064 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00013 | <0.00020 | 0.00013 | <0.00020 | 0.0001 |
| Diss-Copper (Cu) (mg/L) | 0.00131 | 0.0019 | 0.00304 | 0.0049 | 0.00213 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | 0.00016 | 0.000235 | 0.0019 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 1.72 | 0.27 | <0.10 | <0.10 | <0.10 |
| Diss-Manganese (Mn) (mg/L) | 0.000191 | 0.00674 | 0.000412 | <0.00010 | 0.000177 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0126 | 0.0107 | 0.0104 | 0.0112 | 0.00993 |
| Diss-Nickel (Ni) (mg/L) | 0.00084 | 0.0026 | 0.00466 | 0.0064 | 0.00386 |
| Diss-Potassium (K) (mg/L) | 7.3 | 6.2 | 5.3 | 4.91 | 3.18 |
| Diss-Selenium (mg/L) | <0.00050 | <0.0010 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 110 | 73.1 | 70 | 52 | 59 |
| Diss-Strontium (Sr) (mg/L) | 1.36 | 4.35 | 3.57 | 2.72 | 1.32 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0060 | <0.0030 | 0.0032 | <0.0030 |
| **Field Tests** | | | | | |
| Cond (in situ) (µs/cm) | 801 | 3970 | 3240 | 2920 | 2750 |
| pH (in situ) (pH) | 11.89 | 12.8 | 12.84 | 12.68 | 12.61 |
| Temp (in situ) (Degrees Celcius) | 5.3 | 7.4 | 7.4 | 7.6 | 6.7 |
| **Physical Test** | | | | | |
| Alkalinity (CaCO3) ( | 260 | 788 | 682 | 828 | 439 |
| Hardness (mg/L) | 46.2 | 691 | 606 | 789 | 367 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291212 : GW11-2a - Below SERDS on Polley Lake Rd | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 5 | 5 | 0.99000 | 2.67000 | 1.93000 | | 0.61518 |
| Chloride (mg/L) | 5 | 0 | 2.50000 | 5.00000 | 4.00000 | | 1.36931 |
| Nitrate and Nitrite (mg/L) | 5 | 1 | 0.02550 | 0.13000 | 0.05620 | | 0.04304 |
| Sulphate (mg/L) | 5 | 4 | 5.00000 | 37.70000 | 18.26000 | | 12.85605 |
| Total Nitrogen (mg/L) | 5 | 5 | 0.93000 | 2.97000 | 2.09200 | | 0.73893 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 5 | 5 | 0.02270 | 1.02000 | 0.67334 | | 0.39856 |
| Diss-Antimony (Sb) (mg/L) | 5 | 5 | 0.00043 | 0.00103 | 0.00074 | | 0.00028 |
| Diss-Arsenic (As) (mg/L) | 5 | 5 | 0.00086 | 0.00540 | 0.00230 | | 0.00181 |
| Diss-Barium (Ba) (mg/L) | 5 | 5 | 0.35600 | 1.10000 | 0.76240 | | 0.35048 |
| Diss-Cadmium (Cd) (mg/L) | 5 | 0 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Diss-Calcium (Ca) (mg/L) | 5 | 5 | 15.70000 | 316.00000 | 199.54000 | | 120.26578 |
| Diss-Chromium (Cr) (mg/L) | 5 | 3 | 0.00025 | 0.00091 | 0.00063 | | 0.00027 |
| Diss-Cobalt (Co) (mg/L) | 5 | 3 | 0.00010 | 0.00013 | 0.00011 | | 0.00002 |
| Diss-Copper (Cu) (mg/L) | 5 | 5 | 0.00131 | 0.00490 | 0.00266 | | 0.00140 |
| Diss-Iron (Fe) (mg/L) | 5 | 0 | 0.01500 | 0.01500 | 0.01500 | | 0.00000 |
| Diss-Lead (Pb) (mg/L) | 5 | 3 | 0.00003 | 0.00190 | 0.00047 | | 0.00081 |
| Diss-Magnesium (Mg) (mg/L) | 5 | 2 | 0.05000 | 1.72000 | 0.42800 | | 0.72851 |
| Diss-Manganese (Mn) (mg/L) | 5 | 4 | 0.00005 | 0.00674 | 0.00151 | | 0.00292 |
| Diss-Molybdenum (Mo) (mg/L) | 5 | 5 | 0.00993 | 0.01260 | 0.01097 | | 0.00102 |
| Diss-Nickel (Ni) (mg/L) | 5 | 5 | 0.00084 | 0.00640 | 0.00367 | | 0.00210 |
| Diss-Potassium (K) (mg/L) | 5 | 5 | 3.18000 | 7.30000 | 5.37800 | | 1.53510 |
| Diss-Selenium (mg/L) | 5 | 0 | 0.00025 | 0.00050 | 0.00030 | | 0.00011 |
| Diss-Sodium (Na) (mg/L) | 5 | 5 | 52.00000 | 110.00000 | 72.82000 | | 22.44353 |
| Diss-Strontium (Sr) (mg/L) | 5 | 5 | 1.32000 | 4.35000 | 2.66400 | | 1.33915 |
| Diss-Zinc (Zn) (mg/L) | 5 | 1 | 0.00150 | 0.00320 | 0.00214 | | 0.00088 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 5 | 5 | 801.00000 | 3,970.00000 | 2,736.20000 | | 1,178.45755 |
| pH (in situ) (pH) | 5 | 5 | 11.89000 | 12.84000 | 12.56400 | | 0.38785 |
| Temp (in situ) (Degrees Celcius) | 5 | 5 | 5.30000 | 7.60000 | 6.88000 | | 0.94710 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 5 | 5 | 260.00000 | 828.00000 | 599.40000 | | 242.67839 |
| Hardness (mg/L) | 5 | 5 | 46.20000 | 789.00000 | 499.84000 | | 297.85118 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291213 : GW11-2b - Below SERDS on Polley | | | | |
|---|---|---|---|---|---|
| | 1-Dec-11 | 30-May-12 | 17-Oct-12 | 17-Jun-13 | 10-Oct-13 |
| **Anions and Nutrients** | | | | | |
| Ammonia (as N) (mg/L | 1.39 | 0.92 | 1.27 | 1.05 | 1.7 |
| Chloride (mg/L) | 3.28 | 1.02 | 0.6 | <0.50 | <0.50 |
| Nitrate and Nitrite (mg/L) | <0.0051 | 0.0186 | <0.0051 | <0.0051 | <0.0051 |
| Sulphate (mg/L) | 38.7 | 10.2 | 6.57 | 2.74 | 2.34 |
| Total Nitrogen (mg/L) | 1.62 | 1.1 | 1.67 | 1.32 | 1.71 |
| **Dissolved Metals** | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0054 | 0.0044 | 0.0042 | 0.0187 | 0.0255 |
| Diss-Antimony (Sb) (mg/L) | 0.00039 | 0.00043 | 0.00042 | 0.00027 | 0.00069 |
| Diss-Arsenic (As) (mg/L) | 0.00492 | 0.00591 | 0.00453 | 0.0086 | 0.00447 |
| Diss-Barium (Ba) (mg/L) | 0.181 | 0.0821 | 0.0789 | 0.132 | 0.122 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 73.1 | 65.4 | 72.4 | 68 | 67.3 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 | 0.00136 | 0.00053 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00137 | 0.00062 | 0.00075 | 0.00038 | 0.00047 |
| Diss-Copper (Cu) (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | 0.515 | 0.596 | 1.21 | 1.08 | 0.747 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 19.7 | 20.2 | 20.2 | 20.1 | 18.9 |
| Diss-Manganese (Mn) (mg/L) | 1.58 | 1.23 | 1.65 | 1.1 | 1.35 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0066 | 0.00362 | 0.00161 | 0.00191 | 0.0014 |
| Diss-Nickel (Ni) (mg/L) | 0.00399 | 0.00123 | 0.0023 | 0.00104 | 0.00129 |
| Diss-Potassium (K) (mg/L) | 2.04 | 1.45 | 1.57 | 1.41 | 1.48 |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 37 | 26.8 | 29.3 | 23.6 | 27.9 |
| Diss-Strontium (Sr) (mg/L) | 0.577 | 0.448 | 0.501 | 0.457 | 0.541 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | |
| Cond (in situ) (µs/cm) | 610 | 533 | 572 | 371 | 563 |
| pH (in situ) (pH) | 7.67 | 7.72 | 7.44 | 8.02 | 7.692 |
| Temp (in situ) (Degrees Celcius) | 6.2 | 7.5 | 7.8 | 7.5 | 7.7 |
| **Physical Test** | | | | | |
| Alkalinity (CaCO3) ( | 294 | 292 | 317 | 314 | 304 |
| Hardness (mg/L) | 264 | 246 | 264 | 253 | 246 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291213 : GW11-2b - Below SERDS on Polley Lake Rd | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 5 | 5 | 0.92000 | 1.70000 | 1.26600 | | 0.30419 |
| Chloride (mg/L) | 5 | 3 | 0.25000 | 3.28000 | 1.08000 | | 1.27002 |
| Nitrate and Nitrite (mg/L) | 5 | 1 | 0.00255 | 0.01860 | 0.00576 | | 0.00718 |
| Sulphate (mg/L) | 5 | 5 | 2.34000 | 38.70000 | 12.11000 | | 15.20376 |
| Total Nitrogen (mg/L) | 5 | 5 | 1.10000 | 1.71000 | 1.48400 | | 0.26387 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 5 | 5 | 0.00420 | 0.02550 | 0.01164 | | 0.00986 |
| Diss-Antimony (Sb) (mg/L) | 5 | 5 | 0.00027 | 0.00069 | 0.00044 | | 0.00015 |
| Diss-Arsenic (As) (mg/L) | 5 | 5 | 0.00447 | 0.00860 | 0.00569 | | 0.00173 |
| Diss-Barium (Ba) (mg/L) | 5 | 5 | 0.07890 | 0.18100 | 0.11920 | | 0.04181 |
| Diss-Cadmium (Cd) (mg/L) | 5 | 0 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Diss-Calcium (Ca) (mg/L) | 5 | 5 | 65.40000 | 73.10000 | 69.24000 | | 3.35157 |
| Diss-Chromium (Cr) (mg/L) | 5 | 2 | 0.00025 | 0.00136 | 0.00053 | | 0.00048 |
| Diss-Cobalt (Co) (mg/L) | 5 | 5 | 0.00038 | 0.00137 | 0.00072 | | 0.00039 |
| Diss-Copper (Cu) (mg/L) | 5 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Iron (Fe) (mg/L) | 5 | 5 | 0.51500 | 1.21000 | 0.82960 | | 0.30322 |
| Diss-Lead (Pb) (mg/L) | 5 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 5 | 5 | 18.90000 | 20.20000 | 19.82000 | | 0.55408 |
| Diss-Manganese (Mn) (mg/L) | 5 | 5 | 1.10000 | 1.65000 | 1.38200 | | 0.23167 |
| Diss-Molybdenum (Mo) (mg/L) | 5 | 5 | 0.00140 | 0.00660 | 0.00303 | | 0.00218 |
| Diss-Nickel (Ni) (mg/L) | 5 | 5 | 0.00104 | 0.00399 | 0.00197 | | 0.00123 |
| Diss-Potassium (K) (mg/L) | 5 | 5 | 1.41000 | 2.04000 | 1.59000 | | 0.25836 |
| Diss-Selenium (mg/L) | 5 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Sodium (Na) (mg/L) | 5 | 5 | 23.60000 | 37.00000 | 28.92000 | | 4.98167 |
| Diss-Strontium (Sr) (mg/L) | 5 | 5 | 0.44800 | 0.57700 | 0.50480 | | 0.05488 |
| Diss-Zinc (Zn) (mg/L) | 5 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 5 | 5 | 371.00000 | 610.00000 | 529.80000 | | 92.92847 |
| pH (in situ) (pH) | 5 | 5 | 7.44000 | 8.02000 | 7.70840 | | 0.20677 |
| Temp (in situ) (Degrees Celcius) | 5 | 5 | 6.20000 | 7.80000 | 7.34000 | | 0.65038 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 5 | 5 | 292.00000 | 317.00000 | 304.20000 | | 11.32254 |
| Hardness (mg/L) | 5 | 5 | 246.00000 | 264.00000 | 254.60000 | | 9.04434 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291969 : | |
|---|---|---|
| | 13-Jun-13 | 21-Oct-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | <0.0050 | 0.0089 |
| Chloride (mg/L) | 5.78 | 6.93 |
| Nitrate and Nitrite (mg/L) | <0.0051 | <0.0051 |
| Sulphate (mg/L) | 178 | 233 |
| Total Nitrogen (mg/L) | 0.108 | 0.088 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | 0.0082 | 0.0080 |
| Diss-Antimony (Sb) (mg/L) | 0.00156 | 0.00019 |
| Diss-Arsenic (As) (mg/L) | 0.00204 | 0.00333 |
| Diss-Barium (Ba) (mg/L) | 0.031 | 0.0309 |
| Diss-Cadmium (Cd) (mg/L) | 0.000032 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 53.8 | 44.8 |
| Diss-Chromium (Cr) (mg/L) | 0.00198 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00026 | 0.00021 |
| Diss-Copper (Cu) (mg/L) | 0.00346 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.030 | 0.150 |
| Diss-Lead (Pb) (mg/L) | 0.000143 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 7.7 | 6.60 |
| Diss-Manganese (Mn) (mg/L) | 0.0742 | 0.752 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0306 | 0.0251 |
| Diss-Nickel (Ni) (mg/L) | 0.00826 | 0.00170 |
| Diss-Potassium (K) (mg/L) | 1.46 | 1.03 |
| Diss-Selenium (mg/L) | 0.00128 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 56 | 78.2 |
| Diss-Strontium (Sr) (mg/L) | 0.553 | 0.749 |
| Diss-Zinc (Zn) (mg/L) | 0.0079 | <0.0030 |
| **Field Tests** | | |
| Cond (in situ) (µs/cm) | 393 | 642 |
| pH (in situ) (pH) | 7.68 | 7.923 |
| Temp (in situ) (Degrees Celcius) | 8.7 | 6.5 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 102 | 57.9 |
| Hardness (mg/L) | 166 | 139 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291969 : GW12-1a - NW of Temp PAG Dump (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 2 | 1 | 0.00500 | 0.00890 | 0.00695 | | 0.00276 |
| Chloride (mg/L) | 2 | 2 | 5.78000 | 6.93000 | 6.35500 | | 0.81317 |
| Nitrate and Nitrite (mg/L) | 2 | 0 | 0.00255 | 0.00255 | 0.00255 | | 0.00000 |
| Sulphate (mg/L) | 2 | 2 | 178.00000 | 233.00000 | 205.50000 | | 38.89087 |
| Total Nitrogen (mg/L) | 2 | 2 | 0.08800 | 0.10800 | 0.09800 | | 0.01414 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 2 | 2 | 0.00800 | 0.00820 | 0.00810 | | 0.00014 |
| Diss-Antimony (Sb) (mg/L) | 2 | 2 | 0.00019 | 0.00156 | 0.00088 | | 0.00097 |
| Diss-Arsenic (As) (mg/L) | 2 | 2 | 0.00204 | 0.00333 | 0.00269 | | 0.00091 |
| Diss-Barium (Ba) (mg/L) | 2 | 2 | 0.03090 | 0.03100 | 0.03095 | | 0.00007 |
| Diss-Cadmium (Cd) (mg/L) | 2 | 1 | 0.00001 | 0.00003 | 0.00002 | | 0.00002 |
| Diss-Calcium (Ca) (mg/L) | 2 | 2 | 44.80000 | 53.80000 | 49.30000 | | 6.36396 |
| Diss-Chromium (Cr) (mg/L) | 2 | 1 | 0.00025 | 0.00198 | 0.00112 | | 0.00122 |
| Diss-Cobalt (Co) (mg/L) | 2 | 2 | 0.00021 | 0.00026 | 0.00024 | | 0.00004 |
| Diss-Copper (Cu) (mg/L) | 2 | 1 | 0.00025 | 0.00346 | 0.00186 | | 0.00227 |
| Diss-Iron (Fe) (mg/L) | 2 | 1 | 0.01500 | 0.15000 | 0.08250 | | 0.09546 |
| Diss-Lead (Pb) (mg/L) | 2 | 1 | 0.00003 | 0.00014 | 0.00008 | | 0.00008 |
| Diss-Magnesium (Mg) (mg/L) | 2 | 2 | 6.60000 | 7.70000 | 7.15000 | | 0.77782 |
| Diss-Manganese (Mn) (mg/L) | 2 | 2 | 0.07420 | 0.75200 | 0.41310 | | 0.47928 |
| Diss-Molybdenum (Mo) (mg/L) | 2 | 2 | 0.02510 | 0.03060 | 0.02785 | | 0.00389 |
| Diss-Nickel (Ni) (mg/L) | 2 | 2 | 0.00170 | 0.00826 | 0.00498 | | 0.00464 |
| Diss-Potassium (K) (mg/L) | 2 | 2 | 1.03000 | 1.46000 | 1.24500 | | 0.30406 |
| Diss-Selenium (mg/L) | 2 | 1 | 0.00025 | 0.00128 | 0.00077 | | 0.00073 |
| Diss-Sodium (Na) (mg/L) | 2 | 2 | 56.00000 | 78.20000 | 67.10000 | | 15.69777 |
| Diss-Strontium (Sr) (mg/L) | 2 | 2 | 0.55300 | 0.74900 | 0.65100 | | 0.13859 |
| Diss-Zinc (Zn) (mg/L) | 2 | 1 | 0.00150 | 0.00790 | 0.00470 | | 0.00453 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 2 | 2 | 393.00000 | 642.00000 | 517.50000 | | 176.06959 |
| pH (in situ) (pH) | 2 | 2 | 7.68000 | 7.92300 | 7.80150 | | 0.17183 |
| Temp (in situ) (Degrees Celcius) | 2 | 2 | 6.50000 | 8.70000 | 7.60000 | | 1.55563 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 2 | 2 | 57.90000 | 102.00000 | 79.95000 | | 31.18341 |
| Hardness (mg/L) | 2 | 2 | 139.00000 | 166.00000 | 152.50000 | | 19.09188 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291970 : | |
|---|---|---|
| | 13-Jun-13 | 21-Oct-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 |
| Chloride (mg/L) | 2.25 | 1.64 |
| Nitrate and Nitrite (mg/L) | 0.0619 | 0.0482 |
| Sulphate (mg/L) | 33.6 | 31.8 |
| Total Nitrogen (mg/L) | 0.103 | 0.099 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00058 | 0.00058 |
| Diss-Arsenic (As) (mg/L) | 0.00149 | 0.00168 |
| Diss-Barium (Ba) (mg/L) | 0.0313 | 0.0290 |
| Diss-Cadmium (Cd) (mg/L) | 0.000043 | 0.000039 |
| Diss-Calcium (Ca) (mg/L) | 53.7 | 51.9 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00031 | 0.00015 |
| Diss-Copper (Cu) (mg/L) | 0.00216 | 0.00161 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 7.8 | 7.57 |
| Diss-Manganese (Mn) (mg/L) | 0.087 | 0.112 |
| Diss-Molybdenum (Mo) (mg/L) | 0.034 | 0.0339 |
| Diss-Nickel (Ni) (mg/L) | 0.00162 | 0.00087 |
| Diss-Potassium (K) (mg/L) | 0.649 | 0.606 |
| Diss-Selenium (mg/L) | 0.00053 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 15.2 | 13.8 |
| Diss-Strontium (Sr) (mg/L) | 0.188 | 0.195 |
| Diss-Zinc (Zn) (mg/L) | 0.0094 | <0.0030 |
| **Field Tests** | | |
| Cond (in situ) (µs/cm) | 240 | 364 |
| pH (in situ) (pH) | 7.46 | 7.706 |
| Temp (in situ) (Degrees Celcius) | 6.8 | 6 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 169 | 156 |
| Hardness (mg/L) | 166 | 161 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291970 : GW12-1b - NW of Temp PAG Dump (shallow) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 2 | 0 | 0.00500 | 0.00500 | 0.00500 | | 0.00000 |
| Chloride (mg/L) | 2 | 2 | 1.64000 | 2.25000 | 1.94500 | | 0.43134 |
| Nitrate and Nitrite (mg/L) | 2 | 2 | 0.04820 | 0.06190 | 0.05505 | | 0.00969 |
| Sulphate (mg/L) | 2 | 2 | 31.80000 | 33.60000 | 32.70000 | | 1.27279 |
| Total Nitrogen (mg/L) | 2 | 2 | 0.09900 | 0.10300 | 0.10100 | | 0.00283 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 2 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| Diss-Antimony (Sb) (mg/L) | 2 | 2 | 0.00058 | 0.00058 | 0.00058 | | 0.00000 |
| Diss-Arsenic (As) (mg/L) | 2 | 2 | 0.00149 | 0.00168 | 0.00159 | | 0.00013 |
| Diss-Barium (Ba) (mg/L) | 2 | 2 | 0.02900 | 0.03130 | 0.03015 | | 0.00163 |
| Diss-Cadmium (Cd) (mg/L) | 2 | 2 | 0.00004 | 0.00004 | 0.00004 | | 0.00000 |
| Diss-Calcium (Ca) (mg/L) | 2 | 2 | 51.90000 | 53.70000 | 52.80000 | | 1.27279 |
| Diss-Chromium (Cr) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Cobalt (Co) (mg/L) | 2 | 2 | 0.00015 | 0.00031 | 0.00023 | | 0.00011 |
| Diss-Copper (Cu) (mg/L) | 2 | 2 | 0.00161 | 0.00216 | 0.00189 | | 0.00039 |
| Diss-Iron (Fe) (mg/L) | 2 | 0 | 0.01500 | 0.01500 | 0.01500 | | 0.00000 |
| Diss-Lead (Pb) (mg/L) | 2 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 2 | 2 | 7.57000 | 7.80000 | 7.68500 | | 0.16263 |
| Diss-Manganese (Mn) (mg/L) | 2 | 2 | 0.08700 | 0.11200 | 0.09950 | | 0.01768 |
| Diss-Molybdenum (Mo) (mg/L) | 2 | 2 | 0.03390 | 0.03400 | 0.03395 | | 0.00007 |
| Diss-Nickel (Ni) (mg/L) | 2 | 2 | 0.00087 | 0.00162 | 0.00125 | | 0.00053 |
| Diss-Potassium (K) (mg/L) | 2 | 2 | 0.60600 | 0.64900 | 0.62750 | | 0.03041 |
| Diss-Selenium (mg/L) | 2 | 1 | 0.00025 | 0.00053 | 0.00039 | | 0.00020 |
| Diss-Sodium (Na) (mg/L) | 2 | 2 | 13.80000 | 15.20000 | 14.50000 | | 0.98995 |
| Diss-Strontium (Sr) (mg/L) | 2 | 2 | 0.18800 | 0.19500 | 0.19150 | | 0.00495 |
| Diss-Zinc (Zn) (mg/L) | 2 | 1 | 0.00150 | 0.00940 | 0.00545 | | 0.00559 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 2 | 2 | 240.00000 | 364.00000 | 302.00000 | | 87.68124 |
| pH (in situ) (pH) | 2 | 2 | 7.46000 | 7.70600 | 7.58300 | | 0.17395 |
| Temp (in situ) (Degrees Celcius) | 2 | 2 | 6.00000 | 6.80000 | 6.40000 | | 0.56569 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 2 | 2 | 156.00000 | 169.00000 | 162.50000 | | 9.19239 |
| Hardness (mg/L) | 2 | 2 | 161.00000 | 166.00000 | 163.50000 | | 3.53553 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291971 : | |
|---|---|---|
| | 13-Jun-13 | 21-Oct-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 |
| Chloride (mg/L) | 0.96 | 0.80 |
| Nitrate and Nitrite (mg/L) | 0.136 | <0.0051 |
| Sulphate (mg/L) | 54.7 | 54.2 |
| Total Nitrogen (mg/L) | 0.159 | <0.050 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | 0.0079 | 0.0077 |
| Diss-Antimony (Sb) (mg/L) | 0.00016 | 0.00015 |
| Diss-Arsenic (As) (mg/L) | 0.00222 | 0.00216 |
| Diss-Barium (Ba) (mg/L) | 0.00874 | 0.00832 |
| Diss-Cadmium (Cd) (mg/L) | 0.000012 | <0.000030 |
| Diss-Calcium (Ca) (mg/L) | 18.5 | 18.0 |
| Diss-Chromium (Cr) (mg/L) | 0.00054 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 1.82 | 1.53 |
| Diss-Manganese (Mn) (mg/L) | 0.0195 | 0.0376 |
| Diss-Molybdenum (Mo) (mg/L) | 0.037 | 0.0389 |
| Diss-Nickel (Ni) (mg/L) | 0.00063 | 0.00056 |
| Diss-Potassium (K) (mg/L) | 0.223 | 0.161 |
| Diss-Selenium (mg/L) | 0.00276 | 0.00059 |
| Diss-Sodium (Na) (mg/L) | 25.2 | 26.4 |
| Diss-Strontium (Sr) (mg/L) | 0.052 | 0.0499 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 |
| **Field Tests** | | |
| Cond (in situ) (µs/cm) | 158 | 229 |
| pH (in situ) (pH) | 8.1 | 8.373 |
| Temp (in situ) (Degrees Celcius) | 8.2 | 7.5 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 57.8 | 53.2 |
| Hardness (mg/L) | 53.8 | 51.2 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291971 : GW12-2a - Springer Pit Well (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 2 | 0 | 0.00500 | 0.00500 | 0.00500 | | 0.00000 |
| Chloride (mg/L) | 2 | 2 | 0.80000 | 0.96000 | 0.88000 | | 0.11314 |
| Nitrate and Nitrite (mg/L) | 2 | 1 | 0.00255 | 0.13600 | 0.06928 | | 0.09436 |
| Sulphate (mg/L) | 2 | 2 | 54.20000 | 54.70000 | 54.45000 | | 0.35355 |
| Total Nitrogen (mg/L) | 2 | 1 | 0.02500 | 0.15900 | 0.09200 | | 0.09475 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 2 | 2 | 0.00770 | 0.00790 | 0.00780 | | 0.00014 |
| Diss-Antimony (Sb) (mg/L) | 2 | 2 | 0.00015 | 0.00016 | 0.00016 | | 0.00001 |
| Diss-Arsenic (As) (mg/L) | 2 | 2 | 0.00216 | 0.00222 | 0.00219 | | 0.00004 |
| Diss-Barium (Ba) (mg/L) | 2 | 2 | 0.00832 | 0.00874 | 0.00853 | | 0.00030 |
| Diss-Cadmium (Cd) (mg/L) | 2 | 1 | 0.00001 | 0.00002 | 0.00001 | | 0.00000 |
| Diss-Calcium (Ca) (mg/L) | 2 | 2 | 18.00000 | 18.50000 | 18.25000 | | 0.35355 |
| Diss-Chromium (Cr) (mg/L) | 2 | 1 | 0.00025 | 0.00054 | 0.00040 | | 0.00021 |
| Diss-Cobalt (Co) (mg/L) | 2 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Copper (Cu) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Iron (Fe) (mg/L) | 2 | 0 | 0.01500 | 0.01500 | 0.01500 | | 0.00000 |
| Diss-Lead (Pb) (mg/L) | 2 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 2 | 2 | 1.53000 | 1.82000 | 1.67500 | | 0.20506 |
| Diss-Manganese (Mn) (mg/L) | 2 | 2 | 0.01950 | 0.03760 | 0.02855 | | 0.01280 |
| Diss-Molybdenum (Mo) (mg/L) | 2 | 2 | 0.03700 | 0.03890 | 0.03795 | | 0.00134 |
| Diss-Nickel (Ni) (mg/L) | 2 | 2 | 0.00056 | 0.00063 | 0.00060 | | 0.00005 |
| Diss-Potassium (K) (mg/L) | 2 | 2 | 0.16100 | 0.22300 | 0.19200 | | 0.04384 |
| Diss-Selenium (mg/L) | 2 | 2 | 0.00059 | 0.00276 | 0.00168 | | 0.00153 |
| Diss-Sodium (Na) (mg/L) | 2 | 2 | 25.20000 | 26.40000 | 25.80000 | | 0.84853 |
| Diss-Strontium (Sr) (mg/L) | 2 | 2 | 0.04990 | 0.05200 | 0.05095 | | 0.00148 |
| Diss-Zinc (Zn) (mg/L) | 2 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 2 | 2 | 158.00000 | 229.00000 | 193.50000 | | 50.20458 |
| pH (in situ) (pH) | 2 | 2 | 8.10000 | 8.37300 | 8.23650 | | 0.19304 |
| Temp (in situ) (Degrees Celcius) | 2 | 2 | 7.50000 | 8.20000 | 7.85000 | | 0.49497 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 2 | 2 | 53.20000 | 57.80000 | 55.50000 | | 3.25269 |
| Hardness (mg/L) | 2 | 2 | 51.20000 | 53.80000 | 52.50000 | | 1.83848 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291972 : | |
|---|---|---|
| | 13-Jun-13 | 21-Oct-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 |
| Chloride (mg/L) | 1.38 | 1.23 |
| Nitrate and Nitrite (mg/L) | 3.99 | 3.47 |
| Sulphate (mg/L) | 44.8 | 39.8 |
| Total Nitrogen (mg/L) | 3.82 | 3.12 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00071 | 0.00022 |
| Diss-Arsenic (As) (mg/L) | 0.00062 | 0.00064 |
| Diss-Barium (Ba) (mg/L) | 0.0273 | 0.0232 |
| Diss-Cadmium (Cd) (mg/L) | 0.000015 | 0.000015 |
| Diss-Calcium (Ca) (mg/L) | 68.7 | 64.8 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 20.1 | 20.4 |
| Diss-Manganese (Mn) (mg/L) | 0.0146 | 0.0100 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0231 | 0.0227 |
| Diss-Nickel (Ni) (mg/L) | 0.00086 | 0.00053 |
| Diss-Potassium (K) (mg/L) | 0.741 | 0.691 |
| Diss-Selenium (mg/L) | 0.00402 | 0.00278 |
| Diss-Sodium (Na) (mg/L) | 12.2 | 12.3 |
| Diss-Strontium (Sr) (mg/L) | 0.26 | 0.264 |
| Diss-Zinc (Zn) (mg/L) | 0.0077 | 0.0030 |
| **Field Tests** | | |
| Cond (in situ) (µs/cm) | 337 | 491 |
| pH (in situ) (pH) | 7.45 | 7.699 |
| Temp (in situ) (Degrees Celcius) | 8.2 | 7.2 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 224 | 210 |
| Hardness (mg/L) | 254 | 246 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291972 : GW12-2b - Springer Pit (Shallow) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 2 | 0 | 0.00500 | 0.00500 | 0.00500 | | 0.00000 |
| Chloride (mg/L) | 2 | 2 | 1.23000 | 1.38000 | 1.30500 | | 0.10607 |
| Nitrate and Nitrite (mg/L) | 2 | 2 | 3.47000 | 3.99000 | 3.73000 | | 0.36770 |
| Sulphate (mg/L) | 2 | 2 | 39.80000 | 44.80000 | 42.30000 | | 3.53553 |
| Total Nitrogen (mg/L) | 2 | 2 | 3.12000 | 3.82000 | 3.47000 | | 0.49497 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 2 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| Diss-Antimony (Sb) (mg/L) | 2 | 2 | 0.00022 | 0.00071 | 0.00047 | | 0.00035 |
| Diss-Arsenic (As) (mg/L) | 2 | 2 | 0.00062 | 0.00064 | 0.00063 | | 0.00001 |
| Diss-Barium (Ba) (mg/L) | 2 | 2 | 0.02320 | 0.02730 | 0.02525 | | 0.00290 |
| Diss-Cadmium (Cd) (mg/L) | 2 | 2 | 0.00002 | 0.00002 | 0.00002 | | 0.00000 |
| Diss-Calcium (Ca) (mg/L) | 2 | 2 | 64.80000 | 68.70000 | 66.75000 | | 2.75772 |
| Diss-Chromium (Cr) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Cobalt (Co) (mg/L) | 2 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Copper (Cu) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Iron (Fe) (mg/L) | 2 | 0 | 0.01500 | 0.01500 | 0.01500 | | 0.00000 |
| Diss-Lead (Pb) (mg/L) | 2 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 2 | 2 | 20.10000 | 20.40000 | 20.25000 | | 0.21213 |
| Diss-Manganese (Mn) (mg/L) | 2 | 2 | 0.01000 | 0.01460 | 0.01230 | | 0.00325 |
| Diss-Molybdenum (Mo) (mg/L) | 2 | 2 | 0.02270 | 0.02310 | 0.02290 | | 0.00028 |
| Diss-Nickel (Ni) (mg/L) | 2 | 2 | 0.00053 | 0.00086 | 0.00070 | | 0.00023 |
| Diss-Potassium (K) (mg/L) | 2 | 2 | 0.69100 | 0.74100 | 0.71600 | | 0.03536 |
| Diss-Selenium (mg/L) | 2 | 2 | 0.00278 | 0.00402 | 0.00340 | | 0.00088 |
| Diss-Sodium (Na) (mg/L) | 2 | 2 | 12.20000 | 12.30000 | 12.25000 | | 0.07071 |
| Diss-Strontium (Sr) (mg/L) | 2 | 2 | 0.26000 | 0.26400 | 0.26200 | | 0.00283 |
| Diss-Zinc (Zn) (mg/L) | 2 | 2 | 0.00300 | 0.00770 | 0.00535 | | 0.00332 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 2 | 2 | 337.00000 | 491.00000 | 414.00000 | | 108.89444 |
| pH (in situ) (pH) | 2 | 2 | 7.45000 | 7.69900 | 7.57450 | | 0.17607 |
| Temp (in situ) (Degrees Celcius) | 2 | 2 | 7.20000 | 8.20000 | 7.70000 | | 0.70711 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 2 | 2 | 210.00000 | 224.00000 | 217.00000 | | 9.89949 |
| Hardness (mg/L) | 2 | 2 | 246.00000 | 254.00000 | 250.00000 | | 5.65685 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291973 : GW12-3a Below | | |
|---|---|---|---|
| | 13-Jun-13 | 25-Jul-13 | 16-Oct-13 |
| **Anions and Nutrients** | | | |
| Ammonia (as N) (mg/L | 0.0062 | 0.0327 | 0.0291 |
| Chloride (mg/L) | 6.8 | 5.5 | <5.0 |
| Nitrate and Nitrite (mg/L) | <0.051 | 0.265 | 0.340 |
| Sulphate (mg/L) | 649 | 597 | 622 |
| Total Nitrogen (mg/L) | 0.116 | 0.339 | 0.203 |
| **Dissolved Metals** | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0044 | 0.0043 | 0.0036 |
| Diss-Antimony (Sb) (mg/L) | 0.00024 | 0.00029 | 0.00018 |
| Diss-Arsenic (As) (mg/L) | 0.00347 | 0.00438 | 0.00502 |
| Diss-Barium (Ba) (mg/L) | 0.0598 | 0.0549 | 0.0524 |
| Diss-Cadmium (Cd) (mg/L) | 0.000016 | <0.000010 | <0.000020 |
| Diss-Calcium (Ca) (mg/L) | 178 | 176 | 190 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | 0.00079 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00059 | 0.0006 | 0.00028 |
| Diss-Copper (Cu) (mg/L) | <0.00050 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | 0.079 | 0.136 | 0.096 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 15.4 | 15.2 | 13.8 |
| Diss-Manganese (Mn) (mg/L) | 0.629 | 0.513 | 0.614 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0385 | 0.0394 | 0.0367 |
| Diss-Nickel (Ni) (mg/L) | 0.00242 | 0.00178 | 0.00177 |
| Diss-Potassium (K) (mg/L) | 2.03 | 2.13 | 1.57 |
| Diss-Selenium (mg/L) | 0.00634 | 0.00436 | 0.00266 |
| Diss-Sodium (Na) (mg/L) | 84 | 69 | 71.7 |
| Diss-Strontium (Sr) (mg/L) | 0.771 | 0.754 | 0.850 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | 0.0041 | <0.0030 |
| **Field Tests** | | | |
| Cond (in situ) (µs/cm) | 840 | 1197 | 1233 |
| pH (in situ) (pH) | 7.65 | 7.836 | 7.833 |
| Temp (in situ) (Degrees Celcius) | 7.3 | 6.9 | 7.3 |
| **Physical Test** | | | |
| Alkalinity (CaCO3) ( | 46.1 | 49 | 35.2 |
| Hardness (mg/L) | 509 | 503 | 532 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291973 : GW12-3a Below Waste Haul Rd (Deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 3 | 3 | 0.00620 | 0.03270 | 0.02267 | | 0.01437 |
| Chloride (mg/L) | 3 | 2 | 2.50000 | 6.80000 | 4.93333 | | 2.20530 |
| Nitrate and Nitrite (mg/L) | 3 | 2 | 0.02550 | 0.34000 | 0.21017 | | 0.16426 |
| Sulphate (mg/L) | 3 | 3 | 597.00000 | 649.00000 | 622.66667 | | 26.00641 |
| Total Nitrogen (mg/L) | 3 | 3 | 0.11600 | 0.33900 | 0.21933 | | 0.11239 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 3 | 3 | 0.00360 | 0.00440 | 0.00410 | | 0.00044 |
| Diss-Antimony (Sb) (mg/L) | 3 | 3 | 0.00018 | 0.00029 | 0.00024 | | 0.00006 |
| Diss-Arsenic (As) (mg/L) | 3 | 3 | 0.00347 | 0.00502 | 0.00429 | | 0.00078 |
| Diss-Barium (Ba) (mg/L) | 3 | 3 | 0.05240 | 0.05980 | 0.05570 | | 0.00376 |
| Diss-Cadmium (Cd) (mg/L) | 3 | 1 | 0.00001 | 0.00002 | 0.00001 | | 0.00001 |
| Diss-Calcium (Ca) (mg/L) | 3 | 3 | 176.00000 | 190.00000 | 181.33333 | | 7.57188 |
| Diss-Chromium (Cr) (mg/L) | 3 | 1 | 0.00025 | 0.00079 | 0.00043 | | 0.00031 |
| Diss-Cobalt (Co) (mg/L) | 3 | 3 | 0.00028 | 0.00060 | 0.00049 | | 0.00018 |
| Diss-Copper (Cu) (mg/L) | 3 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Iron (Fe) (mg/L) | 3 | 3 | 0.07900 | 0.13600 | 0.10367 | | 0.02926 |
| Diss-Lead (Pb) (mg/L) | 3 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 3 | 3 | 13.80000 | 15.40000 | 14.80000 | | 0.87178 |
| Diss-Manganese (Mn) (mg/L) | 3 | 3 | 0.51300 | 0.62900 | 0.58533 | | 0.06309 |
| Diss-Molybdenum (Mo) (mg/L) | 3 | 3 | 0.03670 | 0.03940 | 0.03820 | | 0.00137 |
| Diss-Nickel (Ni) (mg/L) | 3 | 3 | 0.00177 | 0.00242 | 0.00199 | | 0.00037 |
| Diss-Potassium (K) (mg/L) | 3 | 3 | 1.57000 | 2.13000 | 1.91000 | | 0.29866 |
| Diss-Selenium (mg/L) | 3 | 3 | 0.00266 | 0.00634 | 0.00445 | | 0.00184 |
| Diss-Sodium (Na) (mg/L) | 3 | 3 | 69.00000 | 84.00000 | 74.90000 | | 7.99562 |
| Diss-Strontium (Sr) (mg/L) | 3 | 3 | 0.75400 | 0.85000 | 0.79167 | | 0.05123 |
| Diss-Zinc (Zn) (mg/L) | 3 | 1 | 0.00150 | 0.00410 | 0.00237 | | 0.00150 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 3 | 3 | 840.00000 | 1,233.00000 | 1,090.00000 | | 217.25331 |
| pH (in situ) (pH) | 3 | 3 | 7.65000 | 7.83600 | 7.77300 | | 0.10653 |
| Temp (in situ) (Degrees Celcius) | 3 | 3 | 6.90000 | 7.30000 | 7.16667 | | 0.23094 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 3 | 3 | 35.20000 | 49.00000 | 43.43333 | | 7.27622 |
| Hardness (mg/L) | 3 | 3 | 503.00000 | 532.00000 | 514.66667 | | 15.30795 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291974 : | |
|---|---|---|
| | 13-Jun-13 | 16-Oct-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 |
| Chloride (mg/L) | 0.86 | 1.14 |
| Nitrate and Nitrite (mg/L) | 0.0727 | 0.410 |
| Sulphate (mg/L) | 38.3 | 58.4 |
| Total Nitrogen (mg/L) | 0.072 | 0.392 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00016 | 0.00014 |
| Diss-Arsenic (As) (mg/L) | 0.00659 | 0.00706 |
| Diss-Barium (Ba) (mg/L) | 0.00637 | 0.00513 |
| Diss-Cadmium (Cd) (mg/L) | <0.000010 | <0.000020 |
| Diss-Calcium (Ca) (mg/L) | 34.8 | 39.3 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 6.71 | 7.85 |
| Diss-Manganese (Mn) (mg/L) | 0.027 | 0.0184 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0302 | 0.0295 |
| Diss-Nickel (Ni) (mg/L) | 0.00051 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 1.49 | 1.59 |
| Diss-Selenium (mg/L) | 0.00089 | 0.00201 |
| Diss-Sodium (Na) (mg/L) | 9.11 | 9.70 |
| Diss-Strontium (Sr) (mg/L) | 0.159 | 0.183 |
| Diss-Zinc (Zn) (mg/L) | <0.0030 | <0.0030 |
| **Field Tests** | | |
| Cond (in situ) (µs/cm) | 160 | 297 |
| pH (in situ) (pH) | 7.75 | 7.947 |
| Temp (in situ) (Degrees Celcius) | 5.1 | 5.1 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 96 | 87.2 |
| Hardness (mg/L) | 114 | 130 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291974 : GW12-3b - Below Waste Haul Rd (Shallow) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 2 | 0 | 0.00500 | 0.00500 | 0.00500 | | 0.00000 |
| Chloride (mg/L) | 2 | 2 | 0.86000 | 1.14000 | 1.00000 | | 0.19799 |
| Nitrate and Nitrite (mg/L) | 2 | 2 | 0.07270 | 0.41000 | 0.24135 | | 0.23851 |
| Sulphate (mg/L) | 2 | 2 | 38.30000 | 58.40000 | 48.35000 | | 14.21285 |
| Total Nitrogen (mg/L) | 2 | 2 | 0.07200 | 0.39200 | 0.23200 | | 0.22627 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 2 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| Diss-Antimony (Sb) (mg/L) | 2 | 2 | 0.00014 | 0.00016 | 0.00015 | | 0.00001 |
| Diss-Arsenic (As) (mg/L) | 2 | 2 | 0.00659 | 0.00706 | 0.00683 | | 0.00033 |
| Diss-Barium (Ba) (mg/L) | 2 | 2 | 0.00513 | 0.00637 | 0.00575 | | 0.00088 |
| Diss-Cadmium (Cd) (mg/L) | 2 | 0 | 0.00001 | 0.00001 | 0.00001 | | 0.00000 |
| Diss-Calcium (Ca) (mg/L) | 2 | 2 | 34.80000 | 39.30000 | 37.05000 | | 3.18198 |
| Diss-Chromium (Cr) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Cobalt (Co) (mg/L) | 2 | 0 | 0.00005 | 0.00005 | 0.00005 | | 0.00000 |
| Diss-Copper (Cu) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Iron (Fe) (mg/L) | 2 | 0 | 0.01500 | 0.01500 | 0.01500 | | 0.00000 |
| Diss-Lead (Pb) (mg/L) | 2 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 2 | 2 | 6.71000 | 7.85000 | 7.28000 | | 0.80610 |
| Diss-Manganese (Mn) (mg/L) | 2 | 2 | 0.01840 | 0.02700 | 0.02270 | | 0.00608 |
| Diss-Molybdenum (Mo) (mg/L) | 2 | 2 | 0.02950 | 0.03020 | 0.02985 | | 0.00049 |
| Diss-Nickel (Ni) (mg/L) | 2 | 1 | 0.00025 | 0.00051 | 0.00038 | | 0.00018 |
| Diss-Potassium (K) (mg/L) | 2 | 2 | 1.49000 | 1.59000 | 1.54000 | | 0.07071 |
| Diss-Selenium (mg/L) | 2 | 2 | 0.00089 | 0.00201 | 0.00145 | | 0.00079 |
| Diss-Sodium (Na) (mg/L) | 2 | 2 | 9.11000 | 9.70000 | 9.40500 | | 0.41719 |
| Diss-Strontium (Sr) (mg/L) | 2 | 2 | 0.15900 | 0.18300 | 0.17100 | | 0.01697 |
| Diss-Zinc (Zn) (mg/L) | 2 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 2 | 2 | 160.00000 | 297.00000 | 228.50000 | | 96.87363 |
| pH (in situ) (pH) | 2 | 2 | 7.75000 | 7.94700 | 7.84850 | | 0.13930 |
| Temp (in situ) (Degrees Celcius) | 2 | 2 | 5.10000 | 5.10000 | 5.10000 | | 0.00000 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 2 | 2 | 87.20000 | 96.00000 | 91.60000 | | 6.22254 |
| Hardness (mg/L) | 2 | 2 | 114.00000 | 130.00000 | 122.00000 | | 11.31371 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291976 : | |
|---|---|---|
| | 17-Jun-13 | 16-Oct-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | <0.0050 | 0.0271 |
| Chloride (mg/L) | 1.21 | 5.04 |
| Nitrate and Nitrite (mg/L) | 0.0055 | <0.0051 |
| Sulphate (mg/L) | 28.5 | 77.3 |
| Total Nitrogen (mg/L) | 0.062 | 0.176 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | 0.0081 | 0.0053 |
| Diss-Antimony (Sb) (mg/L) | 0.00029 | 0.00011 |
| Diss-Arsenic (As) (mg/L) | 0.00435 | 0.00437 |
| Diss-Barium (Ba) (mg/L) | 0.0347 | 0.0455 |
| Diss-Cadmium (Cd) (mg/L) | 0.000043 | <0.000030 |
| Diss-Calcium (Ca) (mg/L) | 43.2 | 51.5 |
| Diss-Chromium (Cr) (mg/L) | 0.00225 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00078 | 0.00141 |
| Diss-Copper (Cu) (mg/L) | 0.00181 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.030 | 0.241 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 11.4 | 16.1 |
| Diss-Manganese (Mn) (mg/L) | 0.214 | 1.20 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0441 | 0.0406 |
| Diss-Nickel (Ni) (mg/L) | 0.0117 | 0.00514 |
| Diss-Potassium (K) (mg/L) | 2.9 | 3.10 |
| Diss-Selenium (mg/L) | 0.00123 | 0.00050 |
| Diss-Sodium (Na) (mg/L) | 8.29 | 21.3 |
| Diss-Strontium (Sr) (mg/L) | 0.22 | 0.354 |
| Diss-Zinc (Zn) (mg/L) | 0.0086 | <0.0030 |
| **Field Tests** | | |
| Cond (in situ) (µs/cm) | 194 | 435 |
| pH (in situ) (pH) | 7.81 | 7.426 |
| Temp (in situ) (Degrees Celcius) | 6.9 | 7.4 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 134 | 148 |
| Hardness (mg/L) | 155 | 195 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291976 : GW12-4a - Below NEZ (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 2 | 1 | 0.00500 | 0.02710 | 0.01605 | | 0.01563 |
| Chloride (mg/L) | 2 | 2 | 1.21000 | 5.04000 | 3.12500 | | 2.70822 |
| Nitrate and Nitrite (mg/L) | 2 | 1 | 0.00255 | 0.00550 | 0.00403 | | 0.00209 |
| Sulphate (mg/L) | 2 | 2 | 28.50000 | 77.30000 | 52.90000 | | 34.50681 |
| Total Nitrogen (mg/L) | 2 | 2 | 0.06200 | 0.17600 | 0.11900 | | 0.08061 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 2 | 2 | 0.00530 | 0.00810 | 0.00670 | | 0.00198 |
| Diss-Antimony (Sb) (mg/L) | 2 | 2 | 0.00011 | 0.00029 | 0.00020 | | 0.00013 |
| Diss-Arsenic (As) (mg/L) | 2 | 2 | 0.00435 | 0.00437 | 0.00436 | | 0.00001 |
| Diss-Barium (Ba) (mg/L) | 2 | 2 | 0.03470 | 0.04550 | 0.04010 | | 0.00764 |
| Diss-Cadmium (Cd) (mg/L) | 2 | 1 | 0.00002 | 0.00004 | 0.00003 | | 0.00002 |
| Diss-Calcium (Ca) (mg/L) | 2 | 2 | 43.20000 | 51.50000 | 47.35000 | | 5.86899 |
| Diss-Chromium (Cr) (mg/L) | 2 | 1 | 0.00025 | 0.00225 | 0.00125 | | 0.00141 |
| Diss-Cobalt (Co) (mg/L) | 2 | 2 | 0.00078 | 0.00141 | 0.00110 | | 0.00045 |
| Diss-Copper (Cu) (mg/L) | 2 | 1 | 0.00025 | 0.00181 | 0.00103 | | 0.00110 |
| Diss-Iron (Fe) (mg/L) | 2 | 1 | 0.01500 | 0.24100 | 0.12800 | | 0.15981 |
| Diss-Lead (Pb) (mg/L) | 2 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 2 | 2 | 11.40000 | 16.10000 | 13.75000 | | 3.32340 |
| Diss-Manganese (Mn) (mg/L) | 2 | 2 | 0.21400 | 1.20000 | 0.70700 | | 0.69721 |
| Diss-Molybdenum (Mo) (mg/L) | 2 | 2 | 0.04060 | 0.04410 | 0.04235 | | 0.00247 |
| Diss-Nickel (Ni) (mg/L) | 2 | 2 | 0.00514 | 0.01170 | 0.00842 | | 0.00464 |
| Diss-Potassium (K) (mg/L) | 2 | 2 | 2.90000 | 3.10000 | 3.00000 | | 0.14142 |
| Diss-Selenium (mg/L) | 2 | 2 | 0.00050 | 0.00123 | 0.00087 | | 0.00052 |
| Diss-Sodium (Na) (mg/L) | 2 | 2 | 8.29000 | 21.30000 | 14.79500 | | 9.19946 |
| Diss-Strontium (Sr) (mg/L) | 2 | 2 | 0.22000 | 0.35400 | 0.28700 | | 0.09475 |
| Diss-Zinc (Zn) (mg/L) | 2 | 1 | 0.00150 | 0.00860 | 0.00505 | | 0.00502 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 2 | 2 | 194.00000 | 435.00000 | 314.50000 | | 170.41273 |
| pH (in situ) (pH) | 2 | 2 | 7.42600 | 7.81000 | 7.61800 | | 0.27153 |
| Temp (in situ) (Degrees Celcius) | 2 | 2 | 6.90000 | 7.40000 | 7.15000 | | 0.35355 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 2 | 2 | 134.00000 | 148.00000 | 141.00000 | | 9.89949 |
| Hardness (mg/L) | 2 | 2 | 155.00000 | 195.00000 | 175.00000 | | 28.28427 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291977 : | |
|---|---|---|
| | 17-Jun-13 | 16-Oct-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 |
| Chloride (mg/L) | 1.91 | 0.56 |
| Nitrate and Nitrite (mg/L) | <0.0051 | 0.0237 |
| Sulphate (mg/L) | 15.2 | 8.14 |
| Total Nitrogen (mg/L) | <0.050 | <0.050 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00026 | 0.00024 |
| Diss-Arsenic (As) (mg/L) | 0.00069 | 0.00053 |
| Diss-Barium (Ba) (mg/L) | 0.0187 | 0.0181 |
| Diss-Cadmium (Cd) (mg/L) | 0.000021 | <0.000030 |
| Diss-Calcium (Ca) (mg/L) | 45.9 | 47.9 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00039 | 0.00036 |
| Diss-Copper (Cu) (mg/L) | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 8.98 | 9.17 |
| Diss-Manganese (Mn) (mg/L) | 0.311 | 0.257 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0365 | 0.0373 |
| Diss-Nickel (Ni) (mg/L) | 0.00197 | 0.00092 |
| Diss-Potassium (K) (mg/L) | 1.19 | 1.12 |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 8.39 | 5.33 |
| Diss-Strontium (Sr) (mg/L) | 0.124 | 0.140 |
| Diss-Zinc (Zn) (mg/L) | 0.0037 | <0.0030 |
| **Field Tests** | | |
| Cond (in situ) (µs/cm) | 217 | 301 |
| pH (in situ) (pH) | 7.56 | 7.523 |
| Temp (in situ) (Degrees Celcius) | 7.7 | 6.5 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 153 | 152 |
| Hardness (mg/L) | 151 | 157 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291977 : GW12-4b - Below NEZ (shallow) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 2 | 0 | 0.00500 | 0.00500 | 0.00500 | | 0.00000 |
| Chloride (mg/L) | 2 | 2 | 0.56000 | 1.91000 | 1.23500 | | 0.95459 |
| Nitrate and Nitrite (mg/L) | 2 | 1 | 0.00255 | 0.02370 | 0.01313 | | 0.01496 |
| Sulphate (mg/L) | 2 | 2 | 8.14000 | 15.20000 | 11.67000 | | 4.99217 |
| Total Nitrogen (mg/L) | 2 | 0 | 0.02500 | 0.02500 | 0.02500 | | 0.00000 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 2 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| Diss-Antimony (Sb) (mg/L) | 2 | 2 | 0.00024 | 0.00026 | 0.00025 | | 0.00001 |
| Diss-Arsenic (As) (mg/L) | 2 | 2 | 0.00053 | 0.00069 | 0.00061 | | 0.00011 |
| Diss-Barium (Ba) (mg/L) | 2 | 2 | 0.01810 | 0.01870 | 0.01840 | | 0.00042 |
| Diss-Cadmium (Cd) (mg/L) | 2 | 1 | 0.00002 | 0.00002 | 0.00002 | | 0.00000 |
| Diss-Calcium (Ca) (mg/L) | 2 | 2 | 45.90000 | 47.90000 | 46.90000 | | 1.41421 |
| Diss-Chromium (Cr) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Cobalt (Co) (mg/L) | 2 | 2 | 0.00036 | 0.00039 | 0.00038 | | 0.00002 |
| Diss-Copper (Cu) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Iron (Fe) (mg/L) | 2 | 0 | 0.01500 | 0.01500 | 0.01500 | | 0.00000 |
| Diss-Lead (Pb) (mg/L) | 2 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 2 | 2 | 8.98000 | 9.17000 | 9.07500 | | 0.13435 |
| Diss-Manganese (Mn) (mg/L) | 2 | 2 | 0.25700 | 0.31100 | 0.28400 | | 0.03818 |
| Diss-Molybdenum (Mo) (mg/L) | 2 | 2 | 0.03650 | 0.03730 | 0.03690 | | 0.00057 |
| Diss-Nickel (Ni) (mg/L) | 2 | 2 | 0.00092 | 0.00197 | 0.00145 | | 0.00074 |
| Diss-Potassium (K) (mg/L) | 2 | 2 | 1.12000 | 1.19000 | 1.15500 | | 0.04950 |
| Diss-Selenium (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Sodium (Na) (mg/L) | 2 | 2 | 5.33000 | 8.39000 | 6.86000 | | 2.16375 |
| Diss-Strontium (Sr) (mg/L) | 2 | 2 | 0.12400 | 0.14000 | 0.13200 | | 0.01131 |
| Diss-Zinc (Zn) (mg/L) | 2 | 1 | 0.00150 | 0.00370 | 0.00260 | | 0.00156 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 2 | 2 | 217.00000 | 301.00000 | 259.00000 | | 59.39697 |
| pH (in situ) (pH) | 2 | 2 | 7.52300 | 7.56000 | 7.54150 | | 0.02616 |
| Temp (in situ) (Degrees Celcius) | 2 | 2 | 6.50000 | 7.70000 | 7.10000 | | 0.84853 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 2 | 2 | 152.00000 | 153.00000 | 152.50000 | | 0.70711 |
| Hardness (mg/L) | 2 | 2 | 151.00000 | 157.00000 | 154.00000 | | 4.24264 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291978 : | |
|---|---|---|
| | 17-Jun-13 | 16-Oct-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 |
| Chloride (mg/L) | <0.50 | <0.50 |
| Nitrate and Nitrite (mg/L) | <0.0051 | <0.0051 |
| Sulphate (mg/L) | 21.7 | 19.4 |
| Total Nitrogen (mg/L) | <0.050 | <0.050 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | 0.0035 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00015 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00072 | 0.00128 |
| Diss-Barium (Ba) (mg/L) | 0.0298 | 0.0283 |
| Diss-Cadmium (Cd) (mg/L) | 0.000048 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 58.7 | 59.9 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00035 | 0.00013 |
| Diss-Copper (Cu) (mg/L) | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.030 | 0.201 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 5.77 | 5.76 |
| Diss-Manganese (Mn) (mg/L) | 0.0686 | 0.0642 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0138 | 0.0121 |
| Diss-Nickel (Ni) (mg/L) | 0.00599 | 0.00065 |
| Diss-Potassium (K) (mg/L) | 0.457 | 0.484 |
| Diss-Selenium (mg/L) | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 4.55 | 4.10 |
| Diss-Strontium (Sr) (mg/L) | 0.195 | 0.205 |
| Diss-Zinc (Zn) (mg/L) | 0.0071 | <0.0030 |
| **Field Tests** | | |
| Cond (in situ) (µs/cm) | 219 | 325 |
| pH (in situ) (pH) | 7.6 | 7.507 |
| Temp (in situ) (Degrees Celcius) | 7.2 | 6.4 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 153 | 154 |
| Hardness (mg/L) | 170 | 173 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291978 : GW12-5a - Below Wight Pit Rd (Deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 2 | 0 | 0.00500 | 0.00500 | 0.00500 | | 0.00000 |
| Chloride (mg/L) | 2 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Nitrate and Nitrite (mg/L) | 2 | 0 | 0.00255 | 0.00255 | 0.00255 | | 0.00000 |
| Sulphate (mg/L) | 2 | 2 | 19.40000 | 21.70000 | 20.55000 | | 1.62635 |
| Total Nitrogen (mg/L) | 2 | 0 | 0.02500 | 0.02500 | 0.02500 | | 0.00000 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 2 | 1 | 0.00150 | 0.00350 | 0.00250 | | 0.00141 |
| Diss-Antimony (Sb) (mg/L) | 2 | 1 | 0.00005 | 0.00015 | 0.00010 | | 0.00007 |
| Diss-Arsenic (As) (mg/L) | 2 | 2 | 0.00072 | 0.00128 | 0.00100 | | 0.00040 |
| Diss-Barium (Ba) (mg/L) | 2 | 2 | 0.02830 | 0.02980 | 0.02905 | | 0.00106 |
| Diss-Cadmium (Cd) (mg/L) | 2 | 1 | 0.00001 | 0.00005 | 0.00003 | | 0.00003 |
| Diss-Calcium (Ca) (mg/L) | 2 | 2 | 58.70000 | 59.90000 | 59.30000 | | 0.84853 |
| Diss-Chromium (Cr) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Cobalt (Co) (mg/L) | 2 | 2 | 0.00013 | 0.00035 | 0.00024 | | 0.00016 |
| Diss-Copper (Cu) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Iron (Fe) (mg/L) | 2 | 1 | 0.01500 | 0.20100 | 0.10800 | | 0.13152 |
| Diss-Lead (Pb) (mg/L) | 2 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 2 | 2 | 5.76000 | 5.77000 | 5.76500 | | 0.00707 |
| Diss-Manganese (Mn) (mg/L) | 2 | 2 | 0.06420 | 0.06860 | 0.06640 | | 0.00311 |
| Diss-Molybdenum (Mo) (mg/L) | 2 | 2 | 0.01210 | 0.01380 | 0.01295 | | 0.00120 |
| Diss-Nickel (Ni) (mg/L) | 2 | 2 | 0.00065 | 0.00599 | 0.00332 | | 0.00378 |
| Diss-Potassium (K) (mg/L) | 2 | 2 | 0.45700 | 0.48400 | 0.47050 | | 0.01909 |
| Diss-Selenium (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Sodium (Na) (mg/L) | 2 | 2 | 4.10000 | 4.55000 | 4.32500 | | 0.31820 |
| Diss-Strontium (Sr) (mg/L) | 2 | 2 | 0.19500 | 0.20500 | 0.20000 | | 0.00707 |
| Diss-Zinc (Zn) (mg/L) | 2 | 1 | 0.00150 | 0.00710 | 0.00430 | | 0.00396 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 2 | 2 | 219.00000 | 325.00000 | 272.00000 | | 74.95332 |
| pH (in situ) (pH) | 2 | 2 | 7.50700 | 7.60000 | 7.55350 | | 0.06576 |
| Temp (in situ) (Degrees Celcius) | 2 | 2 | 6.40000 | 7.20000 | 6.80000 | | 0.56569 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 2 | 2 | 153.00000 | 154.00000 | 153.50000 | | 0.70711 |
| Hardness (mg/L) | 2 | 2 | 170.00000 | 173.00000 | 171.50000 | | 2.12132 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291979 : | |
|---|---|---|
| | 17-Jun-13 | 16-Oct-13 |
| **Anions and Nutrients** | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.0050 |
| Chloride (mg/L) | <2.5 | 0.54 |
| Nitrate and Nitrite (mg/L) | 0.554 | 0.459 |
| Sulphate (mg/L) | 194 | 158 |
| Total Nitrogen (mg/L) | 0.563 | 0.499 |
| **Dissolved Metals** | | |
| Diss-Aluminum (Al) (mg/L) | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00014 | 0.00040 |
| Diss-Arsenic (As) (mg/L) | 0.00034 | 0.00037 |
| Diss-Barium (Ba) (mg/L) | 0.0346 | 0.0430 |
| Diss-Cadmium (Cd) (mg/L) | 0.000071 | 0.000024 |
| Diss-Calcium (Ca) (mg/L) | 143 | 130 |
| Diss-Chromium (Cr) (mg/L) | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00039 | 0.00022 |
| Diss-Copper (Cu) (mg/L) | 0.0008 | 0.00075 |
| Diss-Iron (Fe) (mg/L) | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 11.2 | 12.1 |
| Diss-Manganese (Mn) (mg/L) | 0.0554 | 0.0442 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00248 | 0.00168 |
| Diss-Nickel (Ni) (mg/L) | 0.0039 | 0.00086 |
| Diss-Potassium (K) (mg/L) | 0.531 | 0.589 |
| Diss-Selenium (mg/L) | 0.00104 | 0.00083 |
| Diss-Sodium (Na) (mg/L) | 7.08 | 5.78 |
| Diss-Strontium (Sr) (mg/L) | 0.275 | 0.462 |
| Diss-Zinc (Zn) (mg/L) | 0.0089 | 0.0035 |
| **Field Tests** | | |
| Cond (in situ) (µs/cm) | 458 | 674 |
| pH (in situ) (pH) | 7.37 | 7.412 |
| Temp (in situ) (Degrees Celcius) | 5.9 | 5.2 |
| **Physical Test** | | |
| Alkalinity (CaCO3) ( | 203 | 204 |
| Hardness (mg/L) | 402 | 374 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E291979 : GW12-5b - Below Wight Pit Rd (Shallow) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 2 | 0 | 0.00500 | 0.00500 | 0.00500 | | 0.00000 |
| Chloride (mg/L) | 2 | 1 | 0.54000 | 1.25000 | 0.89500 | | 0.50205 |
| Nitrate and Nitrite (mg/L) | 2 | 2 | 0.45900 | 0.55400 | 0.50650 | | 0.06718 |
| Sulphate (mg/L) | 2 | 2 | 158.00000 | 194.00000 | 176.00000 | | 25.45584 |
| Total Nitrogen (mg/L) | 2 | 2 | 0.49900 | 0.56300 | 0.53100 | | 0.04525 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 2 | 0 | 0.00150 | 0.00150 | 0.00150 | | 0.00000 |
| Diss-Antimony (Sb) (mg/L) | 2 | 2 | 0.00014 | 0.00040 | 0.00027 | | 0.00018 |
| Diss-Arsenic (As) (mg/L) | 2 | 2 | 0.00034 | 0.00037 | 0.00036 | | 0.00002 |
| Diss-Barium (Ba) (mg/L) | 2 | 2 | 0.03460 | 0.04300 | 0.03880 | | 0.00594 |
| Diss-Cadmium (Cd) (mg/L) | 2 | 2 | 0.00002 | 0.00007 | 0.00005 | | 0.00003 |
| Diss-Calcium (Ca) (mg/L) | 2 | 2 | 130.00000 | 143.00000 | 136.50000 | | 9.19239 |
| Diss-Chromium (Cr) (mg/L) | 2 | 0 | 0.00025 | 0.00025 | 0.00025 | | 0.00000 |
| Diss-Cobalt (Co) (mg/L) | 2 | 2 | 0.00022 | 0.00039 | 0.00031 | | 0.00012 |
| Diss-Copper (Cu) (mg/L) | 2 | 2 | 0.00075 | 0.00080 | 0.00078 | | 0.00004 |
| Diss-Iron (Fe) (mg/L) | 2 | 0 | 0.01500 | 0.01500 | 0.01500 | | 0.00000 |
| Diss-Lead (Pb) (mg/L) | 2 | 0 | 0.00003 | 0.00003 | 0.00003 | | 0.00000 |
| Diss-Magnesium (Mg) (mg/L) | 2 | 2 | 11.20000 | 12.10000 | 11.65000 | | 0.63640 |
| Diss-Manganese (Mn) (mg/L) | 2 | 2 | 0.04420 | 0.05540 | 0.04980 | | 0.00792 |
| Diss-Molybdenum (Mo) (mg/L) | 2 | 2 | 0.00168 | 0.00248 | 0.00208 | | 0.00057 |
| Diss-Nickel (Ni) (mg/L) | 2 | 2 | 0.00086 | 0.00390 | 0.00238 | | 0.00215 |
| Diss-Potassium (K) (mg/L) | 2 | 2 | 0.53100 | 0.58900 | 0.56000 | | 0.04101 |
| Diss-Selenium (mg/L) | 2 | 2 | 0.00083 | 0.00104 | 0.00094 | | 0.00015 |
| Diss-Sodium (Na) (mg/L) | 2 | 2 | 5.78000 | 7.08000 | 6.43000 | | 0.91924 |
| Diss-Strontium (Sr) (mg/L) | 2 | 2 | 0.27500 | 0.46200 | 0.36850 | | 0.13223 |
| Diss-Zinc (Zn) (mg/L) | 2 | 2 | 0.00350 | 0.00890 | 0.00620 | | 0.00382 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 2 | 2 | 458.00000 | 674.00000 | 566.00000 | | 152.73506 |
| pH (in situ) (pH) | 2 | 2 | 7.37000 | 7.41200 | 7.39100 | | 0.02970 |
| Temp (in situ) (Degrees Celcius) | 2 | 2 | 5.20000 | 5.90000 | 5.55000 | | 0.49497 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 2 | 2 | 203.00000 | 204.00000 | 203.50000 | | 0.70711 |
| Hardness (mg/L) | 2 | 2 | 374.00000 | 402.00000 | 388.00000 | | 19.79899 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229679 : GW96-1a - Tailings Impoundment North Well (deep) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **28-May-08** | **19-Nov-08** | **3-Jun-09** | **14-Sep-09** | **19-May-10** | **20-Oct-10** | **24-May-11** | **13-Oct-11** | **30-May-12** | **17-Oct-12** | **12-Jun-13** |
| **Anions and Nutrients** | | | | | | | | | | | |
| Ammonia (as N) (mg/L | | 0.154 | 0.167 | 0.0757 | 0.0798 | 0.0841 | 0.105 | 0.111 | 0.0968 | 0.0788 | 0.125 |
| Chloride (mg/L) | | | | | | 2.33 | 1.96 | 2.39 | 2.35 | 2.37 | 2.55 |
| Nitrate and Nitrite (mg/L) | 0.0055 | <0.005 | <0.005 | 0.0232 | 0.228 | 0.105 | <0.0051 | 0.0186 | 0.0072 | 0.0251 | 0.0213 |
| Sulphate (mg/L) | | 48.8 | 48.7 | 42.7 | 53.7 | 48 | 44.5 | 44.9 | 43.6 | 42.6 | 44 |
| Total Nitrogen (mg/L) | | | | | 0.44 | 0.23 | 0.19 | 0.19 | 0.06 | 0.12 | 0.161 |
| **Dissolved Metals** | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | | 0.0215 | 0.258 | 0.0761 | 0.0134 | 0.0146 | 0.0484 | 0.0148 | 0.0443 | 0.0135 | 0.0233 |
| Diss-Antimony (Sb) (mg/L) | | 0.00043 | 0.00029 | 0.00051 | 0.00092 | 0.00087 | 0.00079 | 0.00029 | 0.00058 | 0.00038 | 0.00029 |
| Diss-Arsenic (As) (mg/L) | | 0.0105 | 0.0083 | 0.00765 | 0.0063 | 0.00659 | 0.00623 | 0.00639 | 0.00592 | 0.00624 | 0.00594 |
| Diss-Barium (Ba) (mg/L) | | 0.0178 | 0.0204 | 0.0252 | 0.0179 | 0.02 | 0.0113 | 0.0141 | 0.0157 | 0.0137 | 0.0129 |
| Diss-Cadmium (Cd) (mg/L) | | <0.000017 | <0.00014 | 0.000044 | <0.000017 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | | 2.44 | 2.58 | 53.4 | 5.85 | 3.59 | 2.17 | 2.36 | 2.68 | 2.35 | 2.63 |
| Diss-Chromium (Cr) (mg/L) | | <0.002 | 0.0018 | <0.002 | 0.00053 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | | <0.0001 | 0.00145 | 0.00108 | <0.0001 | <0.0001 | 0.0004 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | | 0.00072 | 0.00025 | 0.0013 | 0.0024 | <0.0005 | 0.00143 | <0.00050 | 0.0006 | 0.00127 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | | <0.03 | 0.096 | 0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | | 0.000243 | 0.00031 | 0.000546 | 0.000285 | 0.000323 | 0.00078 | 0.000336 | 0.000674 | 0.000462 | 0.000265 |
| Diss-Magnesium (Mg) (mg/L) | | 1.02 | 1.22 | 20.3 | 2.53 | 1.47 | 0.76 | 0.97 | 1.01 | 0.99 | 0.97 |
| Diss-Manganese (Mn) (mg/L) | | 0.00661 | 0.00902 | 0.0673 | 0.0201 | 0.00966 | 0.00441 | 0.00338 | 0.00471 | 0.0064 | 0.00294 |
| Diss-Molybdenum (Mo) (mg/L) | | 0.0326 | 0.0315 | 0.0192 | 0.0278 | 0.0305 | 0.026 | 0.03 | 0.0295 | 0.0302 | 0.0319 |
| Diss-Nickel (Ni) (mg/L) | | <0.0005 | <0.001 | <0.0005 | 0.00068 | 0.00071 | <0.0005 | <0.00050 | <0.00050 | 0.00053 | 0.00052 |
| Diss-Potassium (K) (mg/L) | | 0.787 | 0.69 | 0.696 | 0.863 | 0.799 | 0.76 | 0.782 | 0.794 | 0.781 | 0.757 |
| Diss-Selenium (mg/L) | | <0.001 | <0.002 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | | 152 | 147 | 102 | 122 | 118 | 112 | 127 | 123 | 123 | 124 |
| Diss-Strontium (Sr) (mg/L) | | 0.121 | 0.122 | 0.999 | 0.153 | 0.129 | 0.0802 | 0.0944 | 0.0973 | 0.0994 | 0.0888 |
| Diss-Zinc (Zn) (mg/L) | | <0.001 | <0.002 | 0.001 | <0.001 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | | 526 | 524 | 474 | 556 | 576 | 512 | 610 | 568 | 574 | 385 |
| pH (in situ) (pH) | | 9.18 | 9.14 | 9.62 | | 8.42 | 8.62 | 9.01 | 9.13 | 8.88 | 8.98 |
| Temp (in situ) (Degrees Celcius) | | 4.8 | 10.2 | 8 | 8 | 9 | 6.5 | 7.7 | 7.1 | 7.4 | 7.7 |
| **Physical Test** | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 233 | 344 | 323 | 213 | 236 | 255 | 219 | 267 | 254 | 252 | 270 |
| Hardness (mg/L) | 14.2 | 10.3 | 11.5 | 9.3 | 25 | 15 | 8.55 | 9.87 | 10.8 | 9.93 | 10.6 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229679 : GW96-1a - Tailings Impoundment North Well (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 39 | 37 | 0.00500 | 0.20100 | 0.10531 | 0.16125 | 0.05324 |
| Chloride (mg/L) | 7 | 7 | 1.96000 | 2.56000 | 2.35857 | | 0.19920 |
| Nitrate and Nitrite (mg/L) | 40 | 30 | 0.00250 | 0.22800 | 0.02945 | 0.09250 | 0.04813 |
| Sulphate (mg/L) | 40 | 38 | 0.00003 | 58.60000 | 47.17250 | 56.54000 | 12.48120 |
| Total Nitrogen (mg/L) | 8 | 8 | 0.06000 | 0.44000 | 0.19438 | | 0.11165 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 44 | 44 | 0.00130 | 0.40400 | 0.05308 | 0.10510 | 0.07102 |
| Diss-Antimony (Sb) (mg/L) | 40 | 38 | 0.00005 | 0.00115 | 0.00038 | 0.00046 | 0.00025 |
| Diss-Arsenic (As) (mg/L) | 44 | 44 | 0.00141 | 0.01260 | 0.00708 | 0.01101 | 0.00218 |
| Diss-Barium (Ba) (mg/L) | 40 | 40 | 0.01120 | 0.03430 | 0.02090 | 0.02830 | 0.00505 |
| Diss-Cadmium (Cd) (mg/L) | 40 | 22 | 0.00001 | 0.00052 | 0.00005 | 0.00008 | 0.00008 |
| Diss-Calcium (Ca) (mg/L) | 43 | 43 | 2.14000 | 53.40000 | 4.77465 | 6.21800 | 7.74219 |
| Diss-Chromium (Cr) (mg/L) | 40 | 19 | 0.00010 | 0.00750 | 0.00116 | 0.00530 | 0.00153 |
| Diss-Cobalt (Co) (mg/L) | 40 | 24 | 0.00001 | 0.00360 | 0.00068 | 0.00345 | 0.00096 |
| Diss-Copper (Cu) (mg/L) | 44 | 40 | 0.00002 | 0.04420 | 0.00239 | 0.00755 | 0.00667 |
| Diss-Iron (Fe) (mg/L) | 44 | 30 | 0.00250 | 0.23900 | 0.03843 | 0.16235 | 0.04669 |
| Diss-Lead (Pb) (mg/L) | 44 | 41 | 0.00003 | 0.00288 | 0.00034 | 0.00070 | 0.00045 |
| Diss-Magnesium (Mg) (mg/L) | 44 | 44 | 0.75000 | 20.30000 | 2.01523 | 2.68300 | 2.96956 |
| Diss-Manganese (Mn) (mg/L) | 44 | 44 | 0.00294 | 0.06730 | 0.01111 | 0.01783 | 0.00976 |
| Diss-Molybdenum (Mo) (mg/L) | 44 | 44 | 0.00105 | 0.03630 | 0.02999 | 0.03567 | 0.00610 |
| Diss-Nickel (Ni) (mg/L) | 44 | 32 | 0.00025 | 0.00420 | 0.00115 | 0.00416 | 0.00112 |
| Diss-Potassium (K) (mg/L) | 44 | 44 | 0.46000 | 1.24000 | 0.89807 | 1.21550 | 0.16897 |
| Diss-Selenium (mg/L) | 43 | 7 | 0.00010 | 0.00100 | 0.00043 | 0.00100 | 0.00031 |
| Diss-Sodium (Na) (mg/L) | 43 | 43 | 10.40000 | 193.00000 | 147.99302 | 180.60000 | 34.37927 |
| Diss-Strontium (Sr) (mg/L) | 44 | 44 | 0.07160 | 0.99900 | 0.16065 | 0.18475 | 0.13406 |
| Diss-Zinc (Zn) (mg/L) | 44 | 27 | 0.00005 | 0.02900 | 0.00222 | 0.00410 | 0.00427 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 35 | 35 | 385.00000 | 739.00000 | 621.37143 | 725.85000 | 89.80636 |
| pH (in situ) (pH) | 35 | 35 | 6.80000 | 9.62000 | 8.85269 | 9.21000 | 0.54780 |
| Temp (in situ) (Degrees Celcius) | 36 | 36 | 4.80000 | 12.90000 | 8.36111 | 12.82000 | 2.02277 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 41 | 41 | 56.70000 | 344.00000 | 291.60244 | 338.00000 | 56.87236 |
| Hardness (mg/L) | 41 | 41 | 8.55000 | 217.00000 | 20.28659 | 28.17500 | 32.37814 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229680 : GW96-1b - Tailings Impoundment North Well (shallow | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **20-May-08** | **15-Oct-08** | **3-Jun-09** | **14-Sep-09** | **18-May-10** | **19-May-10** | **20-Oct-10** | **24-May-11** | **13-Oct-11** | **30-May-12** | **17-Oct-12** | **12-Jun-13** |
| **Anions and Nutrients** | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.072 | 0.0713 | 0.0786 | 0.0806 | 0.0714 | 0.0716 | 0.0695 | 0.0743 | 0.08 | 0.08 | 0.0732 | 0.0852 |
| Chloride (mg/L) | | | | | | | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 |
| Nitrate and Nitrite (mg/L) | 0.0143 | 0.0192 | <0.005 | <0.005 | 0.0165 | 0.0091 | 0.0073 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | 0.0078 |
| Sulphate (mg/L) | 23.9 | 23.3 | 23.4 | 22.8 | 23 | 24.1 | 22.7 | 23.8 | 23.6 | 22.8 | 22.4 | 24 |
| Total Nitrogen (mg/L) | | | | | <0.05 | <0.05 | 0.1 | 0.13 | 0.14 | <0.050 | <0.050 | 0.106 |
| **Dissolved Metals** | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.004 | 0.0029 | 0.0024 | 0.0022 | 0.0028 | 0.0023 | <0.003 | 0.0055 | 0.0038 | 0.0141 | 0.0033 | 0.0032 |
| Diss-Antimony (Sb) (mg/L) | 0.00018 | 0.00051 | <0.0001 | <0.0001 | 0.00034 | 0.00029 | 0.00044 | 0.00014 | 0.00012 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | 0.00545 | 0.00562 | 0.00673 | 0.00564 | 0.00564 | 0.00566 | 0.00547 | 0.00566 | 0.0055 | 0.00544 | 0.00535 | 0.00555 |
| Diss-Barium (Ba) (mg/L) | 0.033 | 0.0322 | 0.0371 | 0.0299 | 0.0328 | 0.0323 | 0.0358 | 0.0332 | 0.0325 | 0.0342 | 0.0306 | 0.0295 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.00004 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 9.62 | 9.92 | 9.87 | 10 | 9.97 | 9.84 | 10.3 | 10.3 | 10.2 | 10.4 | 10.8 | 10.8 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.0005 | <0.002 | <0.0006 | <0.001 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.0002 | 0.00023 | 0.00017 | <0.0001 | 0.00016 | 0.00011 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 6.78 | 7.14 | 7.57 | 7.47 | 7.38 | 7.53 | 7.61 | 7.7 | 7.69 | 7.83 | 8.11 | 7.63 |
| Diss-Manganese (Mn) (mg/L) | 0.00519 | 0.00591 | 0.00503 | 0.00588 | 0.00622 | 0.00648 | 0.00723 | 0.00691 | 0.00836 | 0.0108 | 0.0203 | 0.00528 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0114 | 0.0108 | 0.011 | 0.0104 | 0.0113 | 0.0113 | 0.0109 | 0.0109 | 0.0111 | 0.011 | 0.0112 | 0.0115 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 1.25 | 1.25 | 1.21 | 1.12 | 1.25 | 1.19 | 1.23 | 1.28 | 1.32 | 1.23 | 1.2 | 1.24 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 69.3 | 63.4 | 57.7 | 58.3 | 62.1 | 62 | 55.3 | 61.2 | 62.5 | 59.7 | 59.1 | 58.3 |
| Diss-Strontium (Sr) (mg/L) | 0.275 | 0.274 | 0.308 | 0.257 | 0.288 | 0.283 | 0.295 | 0.282 | 0.288 | 0.283 | 0.316 | 0.282 |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 355 | 368 | 357 | 362 | 351 | 350 | 361 | 365 | 366 | 366 | 368 | 244 |
| pH (in situ) (pH) | 9.054 | 11.048 | 8.94 | 9.23 | | | 8.19 | 8.45 | 8.85 | 8.83 | 8.71 | 8.87 |
| Temp (in situ) (Degrees Celcius) | 6.3 | 6.5 | 7.6 | 7.5 | | 7.2 | 7.9 | 6.4 | 6.2 | 6.3 | 6.2 | 7.6 |
| **Physical Test** | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 171 | 168 | 175 | 193 | 172 | 177 | 171 | 172 | 180 | 181 | 177 | 179 |
| Hardness (mg/L) | 51.9 | 54.2 | 55.8 | 55.8 | 55.3 | 55.6 | 57 | 57.3 | 57.2 | 58.2 | 60.4 | 58.3 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229680 : GW96-1b - Tailings Impoundment North Well (shallow | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 37 | 35 | 0.00500 | 0.14800 | 0.06134 | 0.09040 | 0.02794 |
| Chloride (mg/L) | 6 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Nitrate and Nitrite (mg/L) | 38 | 29 | 0.00250 | 0.25700 | 0.02343 | 0.08200 | 0.04285 |
| Sulphate (mg/L) | 39 | 37 | 0.00003 | 61.70000 | 27.05641 | 41.57000 | 9.94733 |
| Total Nitrogen (mg/L) | 8 | 4 | 0.02500 | 0.14000 | 0.07200 | | 0.05177 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 41 | 39 | 0.00080 | 0.07100 | 0.00562 | 0.01722 | 0.01118 |
| Diss-Antimony (Sb) (mg/L) | 37 | 32 | 0.00005 | 0.00051 | 0.00016 | 0.00024 | 0.00011 |
| Diss-Arsenic (As) (mg/L) | 41 | 41 | 0.00420 | 0.01260 | 0.00593 | 0.00704 | 0.00122 |
| Diss-Barium (Ba) (mg/L) | 37 | 37 | 0.02280 | 0.03940 | 0.03151 | 0.03920 | 0.00396 |
| Diss-Cadmium (Cd) (mg/L) | 37 | 15 | 0.00001 | 0.00007 | 0.00002 | 0.00006 | 0.00002 |
| Diss-Calcium (Ca) (mg/L) | 41 | 41 | 3.52000 | 10.80000 | 8.71024 | 9.74400 | 1.56213 |
| Diss-Chromium (Cr) (mg/L) | 37 | 2 | 0.00010 | 0.00410 | 0.00039 | 0.00148 | 0.00071 |
| Diss-Cobalt (Co) (mg/L) | 37 | 5 | 0.00001 | 0.00060 | 0.00006 | 0.00044 | 0.00012 |
| Diss-Copper (Cu) (mg/L) | 41 | 33 | 0.00002 | 0.00224 | 0.00042 | 0.00102 | 0.00040 |
| Diss-Iron (Fe) (mg/L) | 41 | 7 | 0.00100 | 0.07100 | 0.01170 | 0.04580 | 0.01427 |
| Diss-Lead (Pb) (mg/L) | 41 | 10 | 0.00001 | 0.00183 | 0.00016 | 0.00168 | 0.00045 |
| Diss-Magnesium (Mg) (mg/L) | 41 | 41 | 1.17000 | 8.11000 | 6.22659 | 6.83800 | 1.34105 |
| Diss-Manganese (Mn) (mg/L) | 41 | 41 | 0.00170 | 0.02030 | 0.00515 | 0.00563 | 0.00312 |
| Diss-Molybdenum (Mo) (mg/L) | 41 | 41 | 0.01010 | 0.03710 | 0.01299 | 0.01586 | 0.00413 |
| Diss-Nickel (Ni) (mg/L) | 41 | 5 | 0.00003 | 0.00105 | 0.00028 | 0.00048 | 0.00014 |
| Diss-Potassium (K) (mg/L) | 41 | 41 | 0.87700 | 4.72000 | 1.34676 | 1.74200 | 0.56090 |
| Diss-Selenium (mg/L) | 41 | 2 | 0.00005 | 0.00080 | 0.00031 | 0.00050 | 0.00016 |
| Diss-Sodium (Na) (mg/L) | 41 | 41 | 49.00000 | 160.00000 | 66.60732 | 72.10000 | 15.76708 |
| Diss-Strontium (Sr) (mg/L) | 41 | 41 | 0.16500 | 0.43400 | 0.27729 | 0.37740 | 0.04601 |
| Diss-Zinc (Zn) (mg/L) | 41 | 10 | 0.00003 | 0.00240 | 0.00069 | 0.00160 | 0.00060 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 35 | 35 | 244.00000 | 676.00000 | 356.34286 | 369.50000 | 60.35334 |
| pH (in situ) (pH) | 33 | 33 | 6.25000 | 11.73000 | 9.08067 | 9.67600 | 0.95189 |
| Temp (in situ) (Degrees Celcius) | 34 | 34 | 5.80000 | 11.90000 | 7.64412 | 10.44000 | 1.48348 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 39 | 39 | 131.00000 | 286.00000 | 163.69231 | 184.20000 | 25.53960 |
| Hardness (mg/L) | 39 | 39 | 13.60000 | 60.40000 | 47.81538 | 53.14000 | 9.19675 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229681 : GW96-2a - Tailings Impoundment East Well (deep) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **28-May-08** | **19-Nov-08** | **3-Jun-09** | **14-Sep-09** | **20-May-10** | **20-Oct-10** | **18-May-11** | **19-Oct-11** | **30-May-12** | **17-Oct-12** | **12-Jun-13** | **9-Oct-13** |
| **Anions and Nutrients** | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.128 | 0.096 | 0.0917 | 0.0939 | 0.113 | 0.0896 | 0.0823 | 0.0812 | 0.0974 | 0.0739 | 0.0123 | 0.12 |
| Chloride (mg/L) | | | | | | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Nitrate and Nitrite (mg/L) | <0.005 | <0.005 | 0.0135 | <0.005 | <0.005 | 0.0087 | 0.0053 | 0.0109 | 0.0499 | 0.0306 | 0.0908 | <0.0051 |
| Sulphate (mg/L) | 23.7 | 24.9 | 24.2 | 24.3 | 24 | 24.3 | 26.5 | 26.2 | 26.7 | 27.2 | 28 | 26.2 |
| Total Nitrogen (mg/L) | | | | | 0.15 | 0.16 | 0.1 | 0.17 | 0.08 | 0.07 | 0.114 | 0.13 |
| **Dissolved Metals** | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | 0.0143 | 0.0268 | <0.003 | <0.0030 | 0.0038 | <0.0030 | <0.0030 | 0.0043 |
| Diss-Antimony (Sb) (mg/L) | 0.00125 | 0.00068 | 0.00227 | 0.00228 | 0.0014 | 0.00241 | 0.00084 | 0.00086 | 0.00085 | 0.00151 | 0.00076 | 0.0003 |
| Diss-Arsenic (As) (mg/L) | 0.00715 | 0.00824 | 0.00746 | 0.0069 | 0.00654 | 0.00577 | 0.00588 | 0.00663 | 0.00696 | 0.00576 | 0.00541 | 0.00704 |
| Diss-Barium (Ba) (mg/L) | 0.06 | 0.0612 | 0.0685 | 0.0569 | 0.0677 | 0.0591 | 0.0692 | 0.0573 | 0.0717 | 0.0544 | 0.0514 | 0.0842 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | 0.000017 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 41.6 | 45.4 | 36.9 | 39.7 | 36.4 | 36.6 | 43.8 | 43.4 | 41.9 | 31.7 | 38.8 | 43.8 |
| Diss-Chromium (Cr) (mg/L) | 0.00068 | <0.002 | <0.002 | <0.0008 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | 0.00013 | 0.00024 | <0.0001 | 0.00101 | <0.0001 | 0.00074 | <0.00010 | <0.00010 | <0.00010 | 0.00015 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00036 | 0.00024 | 0.00049 | 0.0003 | 0.00023 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | 0.00069 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.03 | 0.059 | <0.03 | <0.03 | <0.03 | 0.032 | 0.039 | 0.046 | <0.030 | <0.030 | <0.030 | 0.085 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 22.8 | 23 | 22.1 | 22.3 | 20.8 | 20.5 | 23 | 23.3 | 23.2 | 22.6 | 20.6 | 21.7 |
| Diss-Manganese (Mn) (mg/L) | 0.00536 | 0.00805 | 0.00579 | 0.00768 | 0.0105 | 0.00603 | 0.00913 | 0.00719 | 0.0363 | 0.0187 | 0.0134 | 0.0743 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00267 | 0.00283 | 0.00339 | 0.00294 | 0.00314 | 0.0031 | 0.00244 | 0.00292 | 0.00295 | 0.00318 | 0.00371 | 0.00231 |
| Diss-Nickel (Ni) (mg/L) | 0.00076 | 0.0011 | 0.00273 | 0.00167 | 0.00186 | 0.00147 | 0.0013 | 0.0014 | 0.00129 | 0.00159 | 0.00306 | 0.00077 |
| Diss-Potassium (K) (mg/L) | 1.98 | 1.86 | 2.24 | 1.98 | 1.88 | 2.35 | 1.92 | 1.87 | 2.27 | 2.63 | 2.48 | 2.11 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 25.5 | 25.3 | 24 | 24.2 | 24.4 | 22.7 | 23.7 | 24.5 | 27.6 | 25.2 | 23.8 | 28.5 |
| Diss-Strontium (Sr) (mg/L) | 0.361 | 0.377 | 0.483 | 0.374 | 0.392 | 0.435 | 0.357 | 0.375 | 0.391 | 0.422 | 0.476 | 0.353 |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 442 | 426 | 441 | 442 | 402 | 408 | 444 | 456 | 433 | 420 | 282 | 458 |
| pH (in situ) (pH) | 8.078 | 8.48 | 8.06 | 8.42 | | 7.92 | 8.12 | 8.01 | 8.53 | 8.42 | 8.13 | 9.39 |
| Temp (in situ) (Degrees Celcius) | 8.7 | 5.8 | 9.4 | 9.8 | 7.7 | 9.1 | 7.9 | 7.4 | 8.2 | 7.9 | 9.3 | 6.9 |
| **Physical Test** | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 225 | 230 | 218 | 244 | 231 | 211 | 227 | 227 | 227 | 205 | 214 | 224 |
| Hardness (mg/L) | 198 | 208 | 183 | 191 | 177 | 176 | 204 | 205 | 200 | 172 | 182 | 199 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229681 : GW96-2a - Tailings Impoundment East Well (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 36 | 36 | 0.01100 | 0.12800 | 0.06587 | 0.10970 | 0.03515 |
| Chloride (mg/L) | 7 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Nitrate and Nitrite (mg/L) | 36 | 29 | 0.00250 | 0.09080 | 0.01794 | 0.03800 | 0.01869 |
| Sulphate (mg/L) | 37 | 35 | 0.00003 | 33.10000 | 24.78919 | 32.46000 | 7.33029 |
| Total Nitrogen (mg/L) | 8 | 8 | 0.07000 | 0.17000 | 0.12175 | | 0.03705 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 37 | 27 | 0.00010 | 0.76000 | 0.02636 | 0.04120 | 0.12432 |
| Diss-Antimony (Sb) (mg/L) | 33 | 33 | 0.00013 | 0.00241 | 0.00078 | 0.00102 | 0.00063 |
| Diss-Arsenic (As) (mg/L) | 37 | 37 | 0.00110 | 0.01500 | 0.00860 | 0.01368 | 0.00274 |
| Diss-Barium (Ba) (mg/L) | 33 | 33 | 0.04650 | 0.08420 | 0.06339 | 0.07320 | 0.00852 |
| Diss-Cadmium (Cd) (mg/L) | 32 | 11 | 0.00001 | 0.00844 | 0.00028 | 0.00059 | 0.00149 |
| Diss-Calcium (Ca) (mg/L) | 36 | 36 | 25.00000 | 55.00000 | 41.61944 | 47.72500 | 6.34309 |
| Diss-Chromium (Cr) (mg/L) | 32 | 7 | 0.00010 | 0.00720 | 0.00079 | 0.00483 | 0.00151 |
| Diss-Cobalt (Co) (mg/L) | 33 | 20 | 0.00001 | 0.00119 | 0.00018 | 0.00031 | 0.00028 |
| Diss-Copper (Cu) (mg/L) | 37 | 30 | 0.00001 | 0.05740 | 0.00204 | 0.00186 | 0.00936 |
| Diss-Iron (Fe) (mg/L) | 36 | 27 | 0.00200 | 1.10000 | 0.08518 | 0.20375 | 0.18170 |
| Diss-Lead (Pb) (mg/L) | 37 | 14 | 0.00001 | 0.00045 | 0.00006 | 0.00031 | 0.00009 |
| Diss-Magnesium (Mg) (mg/L) | 37 | 37 | 18.00000 | 24.60000 | 22.44054 | 23.78000 | 1.18285 |
| Diss-Manganese (Mn) (mg/L) | 37 | 37 | 0.00297 | 0.09960 | 0.01498 | 0.01848 | 0.01867 |
| Diss-Molybdenum (Mo) (mg/L) | 37 | 37 | 0.00231 | 0.00744 | 0.00349 | 0.00488 | 0.00088 |
| Diss-Nickel (Ni) (mg/L) | 36 | 35 | 0.00020 | 0.01070 | 0.00176 | 0.00299 | 0.00168 |
| Diss-Potassium (K) (mg/L) | 37 | 37 | 1.58000 | 2.63000 | 1.98676 | 2.50200 | 0.27469 |
| Diss-Selenium (mg/L) | 36 | 4 | 0.00005 | 0.00090 | 0.00032 | 0.00050 | 0.00017 |
| Diss-Sodium (Na) (mg/L) | 37 | 37 | 17.60000 | 29.30000 | 25.99459 | 29.20000 | 2.33998 |
| Diss-Strontium (Sr) (mg/L) | 37 | 37 | 0.31700 | 0.48300 | 0.37124 | 0.40180 | 0.03724 |
| Diss-Zinc (Zn) (mg/L) | 37 | 22 | 0.00025 | 0.03530 | 0.00479 | 0.02854 | 0.00845 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 34 | 34 | 282.00000 | 547.00000 | 438.08824 | 491.90000 | 49.19064 |
| pH (in situ) (pH) | 33 | 33 | 6.75000 | 9.39000 | 8.13176 | 9.09900 | 0.48770 |
| Temp (in situ) (Degrees Celcius) | 34 | 34 | 5.80000 | 18.60000 | 9.42941 | 13.93500 | 2.47882 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 36 | 36 | 185.00000 | 248.00000 | 224.00000 | 235.00000 | 12.21942 |
| Hardness (mg/L) | 35 | 35 | 158.00000 | 224.00000 | 196.80000 | 216.70000 | 16.68356 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229682 : GW96-2b - Tailings Impoundment East Well (shallow) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **20-May-08** | **15-Oct-08** | **3-Jun-09** | **14-Sep-09** | **19-May-10** | **20-Oct-10** | **18-May-11** | **19-Oct-11** | **30-May-12** | **17-Oct-12** | **12-Jun-13** | **9-Oct-13** |
| **Anions and Nutrients** | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | 0.0069 | 0.0051 | <0.005 | <0.005 | <0.005 | <0.005 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | 0.0099 |
| Chloride (mg/L) | | | | | | 15.2 | 23 | 22.3 | 23.5 | 17.8 | 22.6 | 18 |
| Nitrate and Nitrite (mg/L) | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 |
| Sulphate (mg/L) | 24.5 | 40.7 | 25 | 69.3 | 28 | 56.9 | 41.2 | 48.9 | 53.6 | 55.7 | 82 | 64.3 |
| Total Nitrogen (mg/L) | | | | | <0.05 | 0.07 | <0.05 | 0.05 | <0.050 | <0.050 | <0.050 | 0.065 |
| **Dissolved Metals** | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.002 | 0.0016 | <0.001 | 0.0011 | <0.001 | <0.003 | <0.003 | <0.0030 | 0.0043 | 0.0031 | <0.0030 | 0.0055 |
| Diss-Antimony (Sb) (mg/L) | 0.00014 | <0.0001 | <0.0001 | 0.00011 | 0.00027 | 0.00025 | 0.00017 | <0.00010 | 0.00014 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Arsenic (As) (mg/L) | <0.0001 | 0.00154 | 0.00178 | 0.00173 | 0.00154 | 0.00151 | 0.00151 | 0.00151 | 0.00147 | 0.00148 | 0.00153 | 0.00163 |
| Diss-Barium (Ba) (mg/L) | 0.0102 | 0.0103 | 0.0106 | 0.0118 | 0.0128 | 0.0135 | 0.0164 | 0.0137 | 0.0284 | 0.0209 | 0.0184 | 0.0468 |
| Diss-Cadmium (Cd) (mg/L) | 0.000021 | 0.000028 | 0.000023 | <0.00007 | 0.00002 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | 0.000029 | 0.000015 |
| Diss-Calcium (Ca) (mg/L) | 57.6 | 59 | 56.4 | 60.8 | 59.9 | 62.8 | 58.9 | 58.4 | 59.3 | 63.7 | 66.3 | 59.5 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | 0.00051 | <0.003 | <0.002 | <0.001 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.0012 | 0.00113 | 0.00109 | 0.00091 | 0.00119 | 0.00097 | 0.00093 | 0.0008 | 0.00106 | 0.00082 | 0.00088 | 0.00075 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 21.8 | 23.1 | 22.7 | 24.4 | 22 | 24.4 | 23 | 23.4 | 23.9 | 24.2 | 25 | 22.9 |
| Diss-Manganese (Mn) (mg/L) | 0.00362 | 0.0171 | 0.00645 | 0.0177 | 0.00432 | 0.0232 | 0.0046 | 0.00751 | 0.0558 | 0.0214 | 0.00721 | 0.124 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00502 | 0.00923 | 0.00526 | 0.0197 | 0.00498 | 0.0134 | 0.00556 | 0.00662 | 0.00673 | 0.00892 | 0.00797 | 0.0094 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | 0.0009 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | 0.00061 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 1.61 | 1.5 | 1.66 | 1.6 | 1.76 | 1.66 | 1.73 | 1.57 | 1.82 | 1.61 | 1.66 | 1.69 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 22.8 | 21.4 | 23.2 | 21.6 | 25.1 | 20.5 | 24.5 | 26.3 | 25.7 | 24.3 | 26.9 | 26.3 |
| Diss-Strontium (Sr) (mg/L) | 0.392 | 0.392 | 0.442 | 0.406 | 0.405 | 0.433 | 0.412 | 0.437 | 0.436 | 0.459 | 0.455 | 0.443 |
| Diss-Zinc (Zn) (mg/L) | 0.0013 | <0.001 | <0.001 | <0.001 | <0.001 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | 0.0048 | <0.0030 |
| **Field Tests** | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 512 | 529 | 517 | 554 | 520 | 539 | 542 | 551 | 566 | 558 | 402 | 561 |
| pH (in situ) (pH) | 7.889 | 8.046 | 7.88 | 8.27 | | 7.65 | 7.87 | 7.91 | 7.93 | 7.68 | 7.68 | 7.89 |
| Temp (in situ) (Degrees Celcius) | 7.9 | 7 | 8.6 | 8.2 | 8 | 7.9 | 7.4 | 7.1 | 7.4 | 6.9 | 8.2 | 6.7 |
| **Physical Test** | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 242 | 213 | 235 | 226 | 218 | 212 | 217 | 211 | 221 | 216 | 217 | 206 |
| Hardness (mg/L) | 234 | 243 | 234 | 252 | 240 | 257 | 242 | 242 | 247 | 259 | 269 | 243 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229682 : GW96-2b - Tailings Impoundment East Well (shallow) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 35 | 15 | 0.00500 | 0.02400 | 0.00803 | 0.02095 | 0.00535 |
| Chloride (mg/L) | 8 | 8 | 15.20000 | 23.50000 | 20.03750 | | 3.15275 |
| Nitrate and Nitrite (mg/L) | 36 | 9 | 0.00250 | 0.06100 | 0.00589 | 0.02230 | 0.01037 |
| Sulphate (mg/L) | 39 | 37 | 0.00003 | 82.00000 | 21.90513 | 18.27500 | 22.67079 |
| Total Nitrogen (mg/L) | 9 | 4 | 0.02500 | 0.07000 | 0.04111 | | 0.01981 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 37 | 25 | 0.00010 | 0.01170 | 0.00189 | 0.00462 | 0.00207 |
| Diss-Antimony (Sb) (mg/L) | 35 | 27 | 0.00003 | 0.00039 | 0.00014 | 0.00028 | 0.00008 |
| Diss-Arsenic (As) (mg/L) | 37 | 36 | 0.00005 | 0.00201 | 0.00139 | 0.00160 | 0.00030 |
| Diss-Barium (Ba) (mg/L) | 35 | 35 | 0.00790 | 0.04680 | 0.01301 | 0.01108 | 0.00732 |
| Diss-Cadmium (Cd) (mg/L) | 35 | 17 | 0.00001 | 0.00007 | 0.00002 | 0.00005 | 0.00001 |
| Diss-Calcium (Ca) (mg/L) | 36 | 36 | 47.00000 | 66.30000 | 58.47500 | 62.53000 | 3.75069 |
| Diss-Chromium (Cr) (mg/L) | 35 | 8 | 0.00010 | 0.00730 | 0.00097 | 0.00643 | 0.00182 |
| Diss-Cobalt (Co) (mg/L) | 35 | 4 | 0.00001 | 0.00005 | 0.00003 | 0.00005 | 0.00002 |
| Diss-Copper (Cu) (mg/L) | 37 | 37 | 0.00063 | 0.00420 | 0.00121 | 0.00169 | 0.00058 |
| Diss-Iron (Fe) (mg/L) | 36 | 6 | 0.00100 | 0.05900 | 0.01246 | 0.04870 | 0.01251 |
| Diss-Lead (Pb) (mg/L) | 37 | 11 | 0.00001 | 0.00182 | 0.00009 | 0.00019 | 0.00030 |
| Diss-Magnesium (Mg) (mg/L) | 37 | 37 | 15.30000 | 25.00000 | 22.77568 | 24.45500 | 1.64053 |
| Diss-Manganese (Mn) (mg/L) | 37 | 37 | 0.00206 | 0.12400 | 0.01800 | 0.05819 | 0.02580 |
| Diss-Molybdenum (Mo) (mg/L) | 37 | 37 | 0.00370 | 0.01970 | 0.00610 | 0.00535 | 0.00302 |
| Diss-Nickel (Ni) (mg/L) | 37 | 3 | 0.00003 | 0.00090 | 0.00026 | 0.00025 | 0.00013 |
| Diss-Potassium (K) (mg/L) | 37 | 37 | 1.14000 | 2.27000 | 1.57676 | 1.98950 | 0.24129 |
| Diss-Selenium (mg/L) | 37 | 4 | 0.00020 | 0.00060 | 0.00033 | 0.00050 | 0.00012 |
| Diss-Sodium (Na) (mg/L) | 37 | 37 | 11.30000 | 26.90000 | 21.61622 | 25.04000 | 3.47279 |
| Diss-Strontium (Sr) (mg/L) | 37 | 37 | 0.34600 | 0.45900 | 0.40670 | 0.44595 | 0.03042 |
| Diss-Zinc (Zn) (mg/L) | 37 | 22 | 0.00025 | 0.00710 | 0.00179 | 0.00680 | 0.00178 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 33 | 33 | 360.00000 | 566.00000 | 494.42424 | 517.00000 | 47.99807 |
| pH (in situ) (pH) | 31 | 31 | 6.62000 | 8.35000 | 7.80048 | 8.16950 | 0.39870 |
| Temp (in situ) (Degrees Celcius) | 32 | 32 | 6.50000 | 12.90000 | 8.28438 | 11.28500 | 1.41561 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 37 | 37 | 193.00000 | 278.00000 | 242.83784 | 273.55000 | 24.28021 |
| Hardness (mg/L) | 36 | 36 | 218.00000 | 269.00000 | 241.44444 | 255.00000 | 11.77999 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229683 : GW96-3a - Tailings Impoundment SE Well (deep) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4-Jun-08 | 25-Nov-08 | 25-Jun-09 | 29-Oct-09 | 29-Jun-10 | 5-Aug-10 | 8-Nov-10 | 15-Jun-11 | 14-Nov-11 | 17-Nov-11 | 31-Jul-12 | 21-Nov-12 | 25-Jul-13 |
| **Anions and Nutrients** | | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0212 | 0.0877 | 0.0719 | 0.0365 | 0.0531 | 0.0639 | 0.0647 | 0.0712 | | 0.0691 | 0.0415 | 0.0277 | 0.0465 |
| Chloride (mg/L) | | | | | | 1.18 | 12 | 1.17 | | 1.75 | 3.3 | <5.0 | 0.64 |
| Nitrate and Nitrite (mg/L) | 0.274 | 0.0437 | 0.0483 | 0.121 | 6 | 0.0388 | <0.1 | 0.0331 | | 0.0456 | 0.16 | 0.149 | 0.0656 |
| Sulphate (mg/L) | 229 | 41.3 | 45.6 | 116 | 101 | 41.3 | 218 | 41.6 | | 52.3 | 79.9 | 104 | 31.1 |
| Total Nitrogen (mg/L) | | | | | 7.99 | 0.15 | 0.108 | 0.22 | | 0.070 | 0.29 | 0.16 | 0.208 |
| **Dissolved Metals** | | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.054 | 1 | 0.957 | 0.347 | <0.001 | 0.878 | 0.271 | 0.907 | | 0.742 | 0.505 | 0.362 | 0.798 |
| Diss-Antimony (Sb) (mg/L) | 0.0016 | 0.00495 | 0.00265 | 0.00861 | 0.00075 | 0.00442 | 0.00332 | 0.00347 | | 0.00138 | 0.00121 | 0.00071 | 0.00184 |
| Diss-Arsenic (As) (mg/L) | 0.12 | 0.0121 | 0.0153 | 0.0633 | 0.00246 | 0.0158 | 0.0999 | 0.0147 | | 0.0226 | 0.0484 | 0.0547 | 0.0137 |
| Diss-Barium (Ba) (mg/L) | 0.0183 | 0.00555 | 0.00195 | 0.00871 | 0.0212 | 0.00215 | 0.0153 | 0.00574 | | 0.00352 | 0.0063 | 0.00901 | 0.00306 |
| Diss-Cadmium (Cd) (mg/L) | 0.00026 | <0.00017 | <0.000017 | 0.000085 | <0.000017 | 0.000022 | <0.00002 | <0.00001 | | <0.000010 | <0.000010 | <0.000020 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 15.4 | 8.32 | 1.26 | 8.54 | 71.1 | 1.55 | 11.2 | 12.5 | | 7.22 | 7.18 | 6.96 | 1.46 |
| Diss-Chromium (Cr) (mg/L) | <0.005 | 0.00178 | 0.00058 | <0.0025 | <0.0005 | <0.0005 | 0.0012 | <0.0005 | | <0.00050 | 0.00051 | <0.0010 | 0.00335 |
| Diss-Cobalt (Co) (mg/L) | <0.001 | 0.00031 | 0.00011 | <0.0005 | 0.00035 | 0.00037 | 0.00429 | 0.00153 | | <0.00010 | 0.00011 | 0.0002 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.0014 | 0.00134 | 0.0044 | 0.0031 | 0.00098 | 0.00168 | 0.0048 | 0.00206 | | 0.00193 | 0.00072 | 0.00069 | 0.00186 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | 0.037 | <0.03 | | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | <0.0005 | 0.000112 | 0.000147 | <0.00025 | <0.00005 | <0.00005 | 0.00027 | 0.000138 | | 0.000127 | 0.000092 | <0.00010 | 0.000177 |
| Diss-Magnesium (Mg) (mg/L) | 5.8 | 0.59 | 0.68 | 3.05 | 10.8 | 0.66 | 4.41 | 0.61 | | 1.20 | 1.72 | 2.6 | 0.24 |
| Diss-Manganese (Mn) (mg/L) | 0.0708 | 0.00488 | | 0.0139 | 0.16 | 0.000314 | 0.0599 | 0.00715 | | 0.000392 | 0.0149 | 0.0333 | 0.000908 |
| Diss-Molybdenum (Mo) (mg/L) | 0.0891 | 0.00977 | 0.0117 | 0.0404 | 0.0381 | 0.00951 | 0.0599 | 0.00853 | | 0.0125 | 0.0244 | 0.0309 | 0.00676 |
| Diss-Nickel (Ni) (mg/L) | <0.005 | 0.00059 | 0.0008 | <0.0025 | <0.0005 | 0.00058 | 0.0027 | 0.00054 | | 0.00057 | 0.0009 | 0.0013 | 0.00092 |
| Diss-Potassium (K) (mg/L) | 4.86 | 1.61 | 1.8 | 3.02 | 0.334 | 1.54 | 4.08 | 1.48 | | 1.69 | 2.08 | 2.72 | 1.14 |
| Diss-Selenium (mg/L) | <0.01 | <0.001 | <0.001 | <0.005 | 0.021 | <0.001 | <0.002 | <0.0005 | | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 579 | 92 | 94 | 306 | 17.6 | 79.6 | 447 | 70.6 | | 98.2 | 192 | 279 | 62.8 |
| Diss-Strontium (Sr) (mg/L) | 0.417 | 0.109 | 0.0687 | 0.223 | 0.187 | 0.0674 | 0.366 | 0.14 | | 0.115 | 0.142 | 0.185 | 0.0525 |
| Diss-Zinc (Zn) (mg/L) | <0.01 | <0.001 | <0.001 | <0.005 | <0.001 | <0.001 | <0.006 | <0.003 | | <0.0030 | <0.0030 | <0.0060 | <0.0030 |
| **Field Tests** | | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 229 | 430 | 495 | 902 | 621 | 418 | 2310 | 418 | 523 | | | | 379 |
| pH (in situ) (pH) | 7.926 | 9.94 | 10.3 | 9.42 | 9.64 | 10.1 | 7.67 | 9.69 | 8.16 | | | | 10.811 |
| Temp (in situ) (Degrees Celcius) | 7.1 | 6.6 | 9.6 | 7.4 | 9.3 | 8.6 | 8.1 | 7.7 | 6 | | | | 8.9 |
| **Physical Test** | | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 1090 | 172 | 179 | 522 | 120 | 146 | 1050 | 135 | | 195 | 323 | 454 | 121 |
| Hardness (mg/L) | 62.3 | 23.2 | 5.9 | 33.9 | 222 | 6.57 | 46.1 | 33.8 | | 23.0 | 25 | 28.1 | 4.63 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229683 : GW96-3a - Tailings Impoundment SE Well (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 38 | 38 | 0.00900 | 0.19100 | 0.08443 | 0.16220 | 0.04254 |
| Chloride (mg/L) | 7 | 6 | 0.64000 | 12.00000 | 3.22000 | | 3.97481 |
| Nitrate and Nitrite (mg/L) | 38 | 33 | 0.00250 | 6.00000 | 0.22351 | 0.07870 | 0.96473 |
| Sulphate (mg/L) | 39 | 36 | 0.00003 | 298.00000 | 96.42051 | 286.80000 | 92.97901 |
| Total Nitrogen (mg/L) | 8 | 8 | 0.07000 | 7.99000 | 1.14950 | | 2.76482 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 38 | 37 | 0.00050 | 2.13000 | 0.94223 | 2.03850 | 0.69041 |
| Diss-Antimony (Sb) (mg/L) | 36 | 36 | 0.00011 | 0.00861 | 0.00183 | 0.00217 | 0.00172 |
| Diss-Arsenic (As) (mg/L) | 40 | 40 | 0.00097 | 0.12600 | 0.03166 | 0.09290 | 0.03692 |
| Diss-Barium (Ba) (mg/L) | 38 | 38 | 0.00195 | 0.03600 | 0.01257 | 0.03118 | 0.00806 |
| Diss-Cadmium (Cd) (mg/L) | 38 | 21 | 0.00001 | 0.00026 | 0.00004 | 0.00012 | 0.00005 |
| Diss-Calcium (Ca) (mg/L) | 39 | 39 | 0.00004 | 71.70000 | 18.86975 | 57.04000 | 17.69540 |
| Diss-Chromium (Cr) (mg/L) | 38 | 23 | 0.00010 | 34.70000 | 1.82141 | 29.24708 | 7.81784 |
| Diss-Cobalt (Co) (mg/L) | 38 | 23 | 0.00001 | 0.00429 | 0.00054 | 0.00115 | 0.00087 |
| Diss-Copper (Cu) (mg/L) | 40 | 38 | 0.00001 | 0.00480 | 0.00181 | 0.00373 | 0.00125 |
| Diss-Iron (Fe) (mg/L) | 39 | 19 | 0.00230 | 0.89500 | 0.09635 | 0.85980 | 0.22919 |
| Diss-Lead (Pb) (mg/L) | 40 | 32 | 0.00001 | 0.08600 | 0.00439 | 0.06314 | 0.01873 |
| Diss-Magnesium (Mg) (mg/L) | 39 | 39 | 0.04250 | 10.80000 | 2.16503 | 6.25800 | 2.64232 |
| Diss-Manganese (Mn) (mg/L) | 39 | 39 | 0.00031 | 0.54000 | 0.05273 | 0.39907 | 0.11628 |
| Diss-Molybdenum (Mo) (mg/L) | 40 | 38 | 0.00003 | 0.09780 | 0.03254 | 0.08990 | 0.02899 |
| Diss-Nickel (Ni) (mg/L) | 40 | 27 | 0.00025 | 0.02210 | 0.00198 | 0.01728 | 0.00471 |
| Diss-Potassium (K) (mg/L) | 40 | 38 | 0.00025 | 6.93000 | 3.19861 | 5.16000 | 1.59566 |
| Diss-Selenium (mg/L) | 40 | 8 | 0.00010 | 3.45000 | 0.17203 | 2.54275 | 0.75466 |
| Diss-Sodium (Na) (mg/L) | 39 | 37 | 0.00001 | 633.00000 | 195.36410 | 574.80000 | 197.11275 |
| Diss-Strontium (Sr) (mg/L) | 40 | 40 | 0.04270 | 105.00000 | 5.34461 | 73.94850 | 22.39998 |
| Diss-Zinc (Zn) (mg/L) | 40 | 22 | 0.00005 | 0.01620 | 0.00258 | 0.01373 | 0.00357 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 35 | 35 | 200.00000 | 2,460.00000 | 934.34286 | 2,397.00000 | 655.89292 |
| pH (in situ) (pH) | 34 | 34 | 6.57000 | 12.51000 | 9.60626 | 12.50050 | 1.76750 |
| Temp (in situ) (Degrees Celcius) | 35 | 35 | 4.50000 | 17.50000 | 8.18857 | 11.92000 | 2.47336 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 39 | 39 | 120.00000 | 1,090.00000 | 420.48718 | 1,060.00000 | 377.13043 |
| Hardness (mg/L) | 39 | 39 | 3.25000 | 222.00000 | 60.82282 | 143.30000 | 45.49872 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229685 : GW96-4a - Tailings Impoundment SW Well (deep) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **28-May-08** | **18-Nov-08** | **7-May-09** | **14-Sep-09** | **26-May-10** | **27-May-10** | **27-Oct-10** | **24-May-11** | **20-Oct-11** | **24-May-12** | **11-Oct-12** | **16-May-13** |
| **Anions and Nutrients** | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | | | | | | | <0.5 | 0.55 | 0.68 | 1.11 | 1.44 | 1.89 |
| Nitrate and Nitrite (mg/L) | 0.0138 | 0.0213 | <0.005 | 0.0094 | 0.0193 | 0.0125 | <0.0051 | 0.0053 | 0.0074 | 0.0299 | 0.0438 | 0.0969 |
| Sulphate (mg/L) | 2 | 2.3 | 2.36 | 1.96 | 2.23 | 2.02 | 2.09 | 2.48 | 3.91 | 9.27 | 13.1 | 19.9 |
| Total Nitrogen (mg/L) | | | | | 0.15 | <0.05 | <0.05 | <0.05 | 0.08 | <0.050 | 0.13 | 0.12 |
| **Dissolved Metals** | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0944 | 0.003 | 0.0023 | 0.0022 | 0.0033 | 0.0021 | <0.003 | 0.11 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00077 | 0.0006 | 0.00061 | 0.00043 | 0.00065 | 0.00041 | 0.00039 | 0.00025 | 0.0002 | 0.00017 | 0.00018 | 0.00015 |
| Diss-Arsenic (As) (mg/L) | 0.00454 | 0.00418 | 0.00448 | 0.00432 | 0.00406 | 0.00403 | 0.0041 | 0.00405 | 0.00398 | 0.00384 | 0.00386 | 0.0036 |
| Diss-Barium (Ba) (mg/L) | 0.0132 | 0.0151 | 0.0131 | 0.0149 | 0.0166 | 0.0163 | 0.0165 | 0.0169 | 0.0198 | 0.0197 | 0.0165 | 0.0198 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.000017 | <0.00001 | 0.000031 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 22.4 | 22.9 | 21.9 | 22.6 | 23.6 | 23.2 | 23.3 | 23.6 | 23.9 | 25 | 26.6 | 29.2 |
| Diss-Chromium (Cr) (mg/L) | 0.00087 | 0.00088 | 0.00097 | <0.0007 | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.0003 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | 0.00027 | <0.00010 | <0.00010 | 0.00014 | 0.0001 |
| Diss-Copper (Cu) (mg/L) | 0.00235 | 0.00184 | 0.00114 | 0.00182 | 0.00332 | 0.00118 | 0.00106 | 0.00131 | 0.00077 | 0.00078 | 0.00122 | 0.00083 |
| Diss-Iron (Fe) (mg/L) | 0.033 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | 0.073 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | 0.000108 | <0.00005 | <0.00005 | <0.00005 | 0.000104 | <0.00005 | 0.000078 | 0.000222 | <0.000050 | <0.000050 | 0.000053 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 9.33 | 9.61 | 9.12 | 9.02 | 9.42 | 9.46 | 9.4 | 9.48 | 10 | 10.4 | 10.8 | 11.2 |
| Diss-Manganese (Mn) (mg/L) | 0.0036 | 0.00348 | 0.00204 | 0.00395 | 0.0116 | 0.00895 | 0.00982 | 0.00537 | 0.0064 | 0.0163 | 0.0148 | 0.0311 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00197 | 0.00202 | 0.00182 | 0.00175 | 0.00192 | 0.00163 | 0.00154 | 0.00169 | 0.00147 | 0.00143 | 0.00153 | 0.0014 |
| Diss-Nickel (Ni) (mg/L) | 0.00051 | 0.00056 | <0.0005 | <0.0005 | 0.00052 | <0.0005 | 0.00055 | 0.00072 | <0.00050 | 0.00073 | 0.00058 | 0.00058 |
| Diss-Potassium (K) (mg/L) | 0.204 | 0.181 | 0.152 | 0.168 | 0.202 | 0.125 | 0.137 | 0.155 | 0.129 | 0.13 | 0.156 | 0.106 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 38.2 | 36.6 | 33.6 | 31.3 | 33.9 | 30.3 | 34.8 | 32.5 | 31 | 30.2 | 33.2 | 30.5 |
| Diss-Strontium (Sr) (mg/L) | 0.852 | 0.867 | 0.731 | 0.806 | 0.882 | 0.837 | 0.925 | 0.854 | 0.918 | 0.888 | 0.998 | 1.03 |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.003 | 0.0033 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 307 | 364 | 322 | 297 | 315 | 300 | 304 | 311 | 308 | 321 | 342 | 219 |
| pH (in situ) (pH) | 8.485 | 8.4 | 8.36 | 8.61 | 8.3 | 8.48 | 8.07 | 7.83 | 8.18 | 8.16 | 8.061 | 8.02 |
| Temp (in situ) (Degrees Celcius) | 7.1 | 5.8 | 6.5 | 7.7 | 7.9 | 7.2 | 6.4 | 7 | 6.1 | 7.7 | 7.0 | 6.8 |
| **Physical Test** | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 170 | 177 | 171 | 181 | 189 | 177 | 165 | 168 | 164 | 179 | 169 | 162 |
| Hardness (mg/L) | 94.2 | 96.8 | 92.4 | 93.6 | 97.7 | 96.8 | 97 | 98 | 101 | 105 | 111 | 119 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229685 : GW96-4a - Tailings Impoundment SW Well (deep) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 36 | 1 | 0.00500 | 0.02000 | 0.00603 | 0.01960 | 0.00363 |
| Chloride (mg/L) | 6 | 5 | 0.25000 | 1.89000 | 0.98667 | | 0.61060 |
| Nitrate and Nitrite (mg/L) | 37 | 23 | 0.00250 | 0.09690 | 0.01241 | 0.02630 | 0.01727 |
| Sulphate (mg/L) | 35 | 33 | 0.00003 | 19.90000 | 4.67600 | 12.50000 | 4.42346 |
| Total Nitrogen (mg/L) | 8 | 4 | 0.02500 | 0.15000 | 0.07250 | | 0.05431 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 37 | 30 | 0.00010 | 0.11000 | 0.00919 | 0.01769 | 0.02307 |
| Diss-Antimony (Sb) (mg/L) | 35 | 35 | 0.00008 | 0.00077 | 0.00033 | 0.00054 | 0.00019 |
| Diss-Arsenic (As) (mg/L) | 37 | 37 | 0.00290 | 0.00475 | 0.00396 | 0.00420 | 0.00038 |
| Diss-Barium (Ba) (mg/L) | 35 | 35 | 0.01120 | 0.03130 | 0.01594 | 0.02060 | 0.00353 |
| Diss-Cadmium (Cd) (mg/L) | 35 | 12 | 0.00001 | 0.00010 | 0.00002 | 0.00005 | 0.00002 |
| Diss-Calcium (Ca) (mg/L) | 37 | 37 | 18.30000 | 29.20000 | 23.55405 | 25.57000 | 1.90330 |
| Diss-Chromium (Cr) (mg/L) | 35 | 13 | 0.00010 | 0.00270 | 0.00051 | 0.00180 | 0.00057 |
| Diss-Cobalt (Co) (mg/L) | 35 | 21 | 0.00001 | 0.00117 | 0.00016 | 0.00070 | 0.00023 |
| Diss-Copper (Cu) (mg/L) | 37 | 37 | 0.00003 | 0.00540 | 0.00140 | 0.00229 | 0.00096 |
| Diss-Iron (Fe) (mg/L) | 36 | 9 | 0.00100 | 0.07700 | 0.01819 | 0.07440 | 0.02191 |
| Diss-Lead (Pb) (mg/L) | 37 | 17 | 0.00001 | 0.00052 | 0.00006 | 0.00019 | 0.00009 |
| Diss-Magnesium (Mg) (mg/L) | 37 | 37 | 6.54000 | 11.20000 | 9.42297 | 10.18000 | 0.77418 |
| Diss-Manganese (Mn) (mg/L) | 37 | 37 | 0.00204 | 0.03110 | 0.00934 | 0.01459 | 0.00558 |
| Diss-Molybdenum (Mo) (mg/L) | 37 | 37 | 0.00140 | 0.00770 | 0.00263 | 0.00445 | 0.00121 |
| Diss-Nickel (Ni) (mg/L) | 37 | 21 | 0.00025 | 0.00104 | 0.00047 | 0.00098 | 0.00023 |
| Diss-Potassium (K) (mg/L) | 37 | 36 | 0.10600 | 1.00000 | 0.18803 | 0.27900 | 0.14245 |
| Diss-Selenium (mg/L) | 37 | 5 | 0.00010 | 0.00070 | 0.00035 | 0.00068 | 0.00016 |
| Diss-Sodium (Na) (mg/L) | 37 | 37 | 29.80000 | 49.30000 | 33.32973 | 36.98000 | 3.43462 |
| Diss-Strontium (Sr) (mg/L) | 37 | 37 | 0.73100 | 1.10000 | 0.89654 | 1.08080 | 0.08438 |
| Diss-Zinc (Zn) (mg/L) | 37 | 17 | 0.00005 | 0.01270 | 0.00143 | 0.00409 | 0.00214 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 34 | 34 | 219.00000 | 514.00000 | 310.97059 | 331.00000 | 45.26319 |
| pH (in situ) (pH) | 35 | 35 | 7.01000 | 8.70000 | 8.17131 | 8.66900 | 0.36255 |
| Temp (in situ) (Degrees Celcius) | 35 | 35 | 5.00000 | 11.60000 | 7.87429 | 10.80000 | 1.58937 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 38 | 38 | 62.00000 | 189.00000 | 161.63158 | 165.85000 | 18.95859 |
| Hardness (mg/L) | 37 | 37 | 87.60000 | 119.00000 | 98.03784 | 104.90000 | 6.59374 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229686 : GW96-4b - Tailings Impoundment SW Well (shallow) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **20-May-08** | **15-Oct-08** | **5-May-09** | **14-Sep-09** | **26-May-10** | **27-May-10** | **27-Oct-10** | **24-May-11** | **20-Oct-11** | **24-May-12** | **11-Oct-12** | **16-May-13** |
| **Anions and Nutrients** | | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0116 | 0.0188 | 0.016 | 0.0103 | 0.0131 | 0.0114 | 0.0101 | 0.0157 | 0.0063 | 0.0072 | <0.0050 | 0.0181 |
| Chloride (mg/L) | | | | | | | 0.71 | 1.37 | 4.34 | 7.09 | 9.7 | 12.4 |
| Nitrate and Nitrite (mg/L) | 0.0076 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.0051 | <0.0051 | 0.177 | 0.522 | 0.595 | 0.503 |
| Sulphate (mg/L) | 1.66 | 1.55 | 1.45 | 1.35 | 1.49 | 1.51 | 1.59 | 10.3 | 69 | 142 | 181 | 218 |
| Total Nitrogen (mg/L) | | | | | 0.1 | <0.05 | <0.05 | 0.14 | 0.28 | 0.47 | 0.6 | 0.56 |
| **Dissolved Metals** | | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.001 | 0.0098 | 0.016 | 0.0049 | 0.0011 | <0.001 | <0.003 | 0.0092 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | 0.00015 | 0.00016 | 0.00066 | 0.00028 | <0.0001 | <0.0001 | <0.0001 | 0.00029 | <0.00010 | 0.00021 | 0.00012 | 0.00036 |
| Diss-Arsenic (As) (mg/L) | 0.00147 | 0.00194 | 0.00197 | 0.00235 | 0.00185 | 0.00184 | 0.00188 | 0.00193 | 0.00129 | 0.00127 | 0.00146 | 0.00157 |
| Diss-Barium (Ba) (mg/L) | 0.022 | 0.0299 | 0.0228 | 0.0852 | 0.0258 | 0.0246 | 0.0278 | 0.0301 | 0.0332 | 0.0373 | 0.0487 | 0.0469 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | <0.000017 | <0.000017 | 0.000018 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | 0.00001 | 0.000019 | 0.000018 | <0.000010 |
| Diss-Calcium (Ca) (mg/L) | 58.6 | 57.6 | 57.9 | 54.7 | 59.5 | 58.5 | 61.9 | 65.6 | 83.8 | 107 | 116 | 118 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | <0.001 | 0.00467 | <0.002 | <0.0006 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | 0.00049 | 0.00048 | 0.00071 | 0.00054 | <0.0001 | <0.0001 | 0.00012 | 0.00028 | 0.00015 | 0.0002 | 0.00025 | 0.00019 |
| Diss-Copper (Cu) (mg/L) | 0.00018 | 0.00035 | 0.00051 | 0.00047 | 0.00036 | 0.00019 | <0.0005 | <0.0005 | <0.00050 | 0.00066 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | <0.03 | 0.204 | 0.367 | 0.329 | 0.254 | 0.255 | 0.212 | 0.34 | 0.135 | 0.142 | 0.187 | 0.308 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | 0.000055 | 0.000068 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 20 | 20.5 | 20.7 | 20.8 | 21.4 | 21.6 | 21.8 | 23.2 | 29 | 32.8 | 36.9 | 36.9 |
| Diss-Manganese (Mn) (mg/L) | 0.0838 | 0.0712 | 0.0646 | 0.238 | 0.0946 | 0.0839 | 0.104 | 0.113 | 0.165 | 0.2 | 0.221 | 0.214 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00103 | 0.0012 | 0.00115 | 0.00279 | 0.00101 | 0.00101 | 0.000977 | 0.00116 | 0.000925 | 0.000889 | 0.000909 | 0.00114 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | 0.00091 | 0.00073 | 0.0007 | <0.0005 | 0.00069 | 0.00072 | 0.00119 | 0.00079 | 0.00086 | 0.00083 | 0.00098 |
| Diss-Potassium (K) (mg/L) | 0.476 | 0.538 | 0.435 | 0.646 | 0.428 | 0.391 | 0.479 | 0.411 | 0.435 | 0.441 | 0.464 | 0.451 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 10.1 | 10.7 | 10.2 | 42.5 | 10.4 | 9.97 | 11.3 | 10.4 | 11.3 | 11.4 | 12.1 | 12.1 |
| Diss-Strontium (Sr) (mg/L) | 1.03 | 1.03 | 0.867 | 1.03 | 1.06 | 0.991 | 1.16 | 1.09 | 1.4 | 1.6 | 1.78 | 1.95 |
| Diss-Zinc (Zn) (mg/L) | 0.0011 | <0.001 | 0.0023 | <0.002 | <0.001 | <0.001 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 430 | 439 | 432 | 436 | 446 | 445 | 452 | 490 | 608 | 732 | 746 | 526 |
| pH (in situ) (pH) | 7.696 | 7.9 | 7.73 | 8.05 | 7.82 | 8.13 | 7.6 | 7.54 | 7.57 | 7.6 | 7.357 | 7.5 |
| Temp (in situ) (Degrees Celcius) | 6.9 | 5.8 | 6.7 | 8.6 | 7.4 | 7 | 8.2 | 6.3 | 7.6 | 6.7 | 7.6 | 6.2 |
| **Physical Test** | | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 248 | 245 | 249 | 263 | 257 | 257 | 253 | 264 | 264 | 268 | 243 | 239 |
| Hardness (mg/L) | 229 | 228 | 230 | 222 | 237 | 235 | 245 | 259 | 328 | 401 | 442 | 447 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229686 : GW96-4b - Tailings Impoundment SW Well (shallow) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 38 | 25 | 0.00500 | 0.03000 | 0.01051 | 0.02425 | 0.00622 |
| Chloride (mg/L) | 6 | 6 | 0.71000 | 12.40000 | 5.93500 | | 4.64735 |
| Nitrate and Nitrite (mg/L) | 37 | 12 | 0.00200 | 0.59500 | 0.05260 | 0.01780 | 0.15002 |
| Sulphate (mg/L) | 40 | 37 | 0.00003 | 218.00000 | 17.09500 | 3.84500 | 49.04296 |
| Total Nitrogen (mg/L) | 8 | 6 | 0.02500 | 0.60000 | 0.27500 | | 0.23867 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 42 | 34 | 0.00015 | 0.18800 | 0.01473 | 0.07528 | 0.03223 |
| Diss-Antimony (Sb) (mg/L) | 39 | 26 | 0.00003 | 0.00066 | 0.00016 | 0.00044 | 0.00016 |
| Diss-Arsenic (As) (mg/L) | 42 | 42 | 0.00127 | 0.00370 | 0.00186 | 0.00226 | 0.00039 |
| Diss-Barium (Ba) (mg/L) | 39 | 39 | 0.01400 | 0.08520 | 0.02641 | 0.02678 | 0.01189 |
| Diss-Cadmium (Cd) (mg/L) | 39 | 9 | 0.00001 | 0.00022 | 0.00003 | 0.00018 | 0.00005 |
| Diss-Calcium (Ca) (mg/L) | 41 | 41 | 30.40000 | 118.00000 | 56.63659 | 56.71000 | 18.19181 |
| Diss-Chromium (Cr) (mg/L) | 39 | 13 | 0.00010 | 0.00610 | 0.00079 | 0.00385 | 0.00134 |
| Diss-Cobalt (Co) (mg/L) | 39 | 30 | 0.00001 | 0.00317 | 0.00038 | 0.00199 | 0.00061 |
| Diss-Copper (Cu) (mg/L) | 42 | 34 | 0.00005 | 0.00220 | 0.00053 | 0.00160 | 0.00043 |
| Diss-Iron (Fe) (mg/L) | 41 | 37 | 0.01500 | 0.38300 | 0.23032 | 0.36985 | 0.11561 |
| Diss-Lead (Pb) (mg/L) | 42 | 19 | 0.00001 | 0.00050 | 0.00008 | 0.00039 | 0.00011 |
| Diss-Magnesium (Mg) (mg/L) | 41 | 41 | 11.80000 | 36.90000 | 20.23659 | 21.16500 | 5.20633 |
| Diss-Manganese (Mn) (mg/L) | 42 | 42 | 0.04800 | 0.23800 | 0.08502 | 0.07940 | 0.04863 |
| Diss-Molybdenum (Mo) (mg/L) | 42 | 42 | 0.00089 | 0.00279 | 0.00122 | 0.00153 | 0.00033 |
| Diss-Nickel (Ni) (mg/L) | 42 | 20 | 0.00025 | 0.00330 | 0.00060 | 0.00144 | 0.00055 |
| Diss-Potassium (K) (mg/L) | 42 | 41 | 0.23000 | 1.00000 | 0.47871 | 0.72600 | 0.15286 |
| Diss-Selenium (mg/L) | 42 | 4 | 0.00005 | 0.00120 | 0.00038 | 0.00100 | 0.00024 |
| Diss-Sodium (Na) (mg/L) | 41 | 41 | 9.15000 | 42.50000 | 11.69415 | 12.56500 | 4.99358 |
| Diss-Strontium (Sr) (mg/L) | 42 | 42 | 0.66500 | 1.95000 | 1.02836 | 1.08200 | 0.24733 |
| Diss-Zinc (Zn) (mg/L) | 42 | 25 | 0.00025 | 0.00880 | 0.00205 | 0.00516 | 0.00182 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 37 | 37 | 170.00000 | 746.00000 | 421.75676 | 430.85000 | 103.70723 |
| pH (in situ) (pH) | 37 | 37 | 6.51000 | 8.20000 | 7.70468 | 8.04000 | 0.34793 |
| Temp (in situ) (Degrees Celcius) | 35 | 35 | 5.30000 | 13.10000 | 8.10000 | 12.26000 | 1.95523 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 41 | 41 | 191.00000 | 268.00000 | 227.60976 | 248.80000 | 23.13750 |
| Hardness (mg/L) | 41 | 41 | 125.00000 | 447.00000 | 225.48780 | 228.60000 | 65.83355 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229687 : GW96-5a - Tailings Impoundment Background Well (de | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **28-May-08** | **19-Nov-08** | **7-May-09** | **14-Sep-09** | **26-May-10** | **28-Oct-10** | **26-May-11** | **20-Oct-11** | **31-May-12** | **23-Oct-12** | **17-Jun-13** |
| **Anions and Nutrients** | | | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0072 | <0.005 | <0.005 | <0.005 | 0.0059 | <0.005 | <0.005 | <0.0050 | <0.0050 | <0.0050 | 0.0094 |
| Chloride (mg/L) | | | | | | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 |
| Nitrate and Nitrite (mg/L) | 0.0117 | 0.0658 | 0.0361 | 0.005 | 0.0366 | <0.0051 | 0.0184 | <0.0051 | <0.0051 | <0.0051 | 0.0185 |
| Sulphate (mg/L) | 4.73 | 5.39 | 5.73 | 5.12 | 5.15 | 5.37 | 4.66 | 5.21 | 4.6 | 4.76 | 4.8 |
| Total Nitrogen (mg/L) | | | | | 0.15 | <0.05 | 0.08 | 0.06 | <0.050 | 0.21 | 0.11 |
| **Dissolved Metals** | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.001 | 0.0088 | 0.0031 | 0.217 | <0.001 | <0.003 | <0.003 | <0.0030 | <0.0030 | 0.0051 | 0.0032 |
| Diss-Antimony (Sb) (mg/L) | 0.00053 | 0.00089 | 0.00169 | 0.00157 | 0.00153 | 0.00136 | 0.00087 | 0.00067 | 0.00085 | 0.00108 | 0.00072 |
| Diss-Arsenic (As) (mg/L) | 0.00041 | 0.00049 | 0.00048 | 0.00052 | 0.00036 | 0.00037 | 0.00045 | 0.00029 | 0.00041 | 0.00053 | 0.00054 |
| Diss-Barium (Ba) (mg/L) | 0.0291 | 0.0333 | 0.0333 | 0.0498 | 0.0407 | 0.0438 | 0.0367 | 0.0349 | 0.0351 | 0.0918 | 0.0499 |
| Diss-Cadmium (Cd) (mg/L) | 0.000027 | 0.000027 | 0.000035 | 0.000026 | <0.000017 | 0.000017 | 0.000011 | 0.000013 | 0.000011 | <0.000010 | 0.000029 |
| Diss-Calcium (Ca) (mg/L) | 37.1 | 39.6 | 38.7 | 38.2 | 38.3 | 40 | 40.9 | 37.3 | 37.3 | 38.4 | 37.2 |
| Diss-Chromium (Cr) (mg/L) | 0.00098 | <0.0025 | <0.003 | <0.002 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | 0.00057 |
| Diss-Cobalt (Co) (mg/L) | 0.00024 | 0.00033 | <0.0001 | 0.00047 | <0.0001 | 0.00011 | <0.0001 | <0.00010 | <0.00010 | 0.00013 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00341 | 0.00225 | 0.00376 | 0.00926 | 0.00222 | 0.00265 | 0.00242 | 0.00188 | 0.00162 | 0.00088 | 0.00303 |
| Diss-Iron (Fe) (mg/L) | <0.03 | <0.03 | <0.03 | 0.21 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | <0.030 | <0.030 |
| Diss-Lead (Pb) (mg/L) | 0.000058 | 0.000124 | 0.000255 | 0.000558 | <0.00005 | 0.000077 | 0.000054 | <0.000050 | <0.000050 | <0.000050 | 0.00008 |
| Diss-Magnesium (Mg) (mg/L) | 46.7 | 48.9 | 48.8 | 49.4 | 49.4 | 47.9 | 45.9 | 49.7 | 46.5 | 48.1 | 47.9 |
| Diss-Manganese (Mn) (mg/L) | 0.00828 | 0.00703 | 0.00322 | 0.0197 | 0.00289 | 0.00913 | 0.00145 | 0.0121 | 0.0247 | 0.139 | 0.0771 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00158 | 0.0018 | 0.00168 | 0.00138 | 0.00168 | 0.00143 | 0.00131 | 0.00117 | 0.00146 | 0.00129 | 0.00113 |
| Diss-Nickel (Ni) (mg/L) | 0.00081 | 0.00135 | 0.00117 | 0.00191 | 0.00137 | 0.00138 | 0.00103 | 0.00056 | 0.00094 | 0.00069 | 0.00113 |
| Diss-Potassium (K) (mg/L) | 2.06 | 2.01 | 1.85 | 1.99 | 1.99 | 2.13 | 2.08 | 1.98 | 1.87 | 2.06 | 1.88 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 22 | 20.7 | 19.3 | 18.1 | 19 | 19.2 | 20.5 | 18.9 | 19.8 | 20.1 | 18.9 |
| Diss-Strontium (Sr) (mg/L) | 0.46 | 0.462 | 0.406 | 0.47 | 0.46 | 0.531 | 0.49 | 0.48 | 0.47 | 0.49 | 0.413 |
| Diss-Zinc (Zn) (mg/L) | 0.0018 | 0.0012 | 0.003 | 0.0034 | <0.001 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | 0.0048 |
| **Field Tests** | | | | | | | | | | | |
| Cond (in situ) (µs/cm) | 556 | 565 | 566 | 568 | 565 | 554 | 561 | 567 | 551 | 585 | 395 |
| pH (in situ) (pH) | 7.668 | 7.92 | 7.65 | 8.05 | 7.8 | 7.95 | 7.45 | 7.65 | 7.6 | 7.677 | 7.73 |
| Temp (in situ) (Degrees Celcius) | 9.7 | 6.2 | 7.4 | 8.8 | 8.3 | 6.9 | 7.9 | 7.6 | 8.2 | 6.0 | 9.2 |
| **Physical Test** | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 314 | 323 | 328 | 357 | 332 | 321 | 325 | 323 | 322 | 311 | 320 |
| Hardness (mg/L) | 285 | 300 | 298 | 299 | 299 | 297 | 291 | 298 | 285 | 294 | 290 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229687 : GW96-5a - Tailings Impoundment Background Well (de | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 34 | 6 | 0.00500 | 0.02000 | 0.00646 | 0.01960 | 0.00399 |
| Chloride (mg/L) | 6 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Nitrate and Nitrite (mg/L) | 34 | 23 | 0.00250 | 0.26700 | 0.02598 | 0.07540 | 0.04675 |
| Sulphate (mg/L) | 35 | 33 | 0.00003 | 115.00000 | 9.62229 | 18.40000 | 18.66348 |
| Total Nitrogen (mg/L) | 7 | 5 | 0.02500 | 0.21000 | 0.09429 | | 0.06797 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 36 | 28 | 0.00015 | 0.21700 | 0.01163 | 0.02690 | 0.03781 |
| Diss-Antimony (Sb) (mg/L) | 34 | 34 | 0.00036 | 0.00169 | 0.00074 | 0.00087 | 0.00034 |
| Diss-Arsenic (As) (mg/L) | 36 | 36 | 0.00010 | 0.00120 | 0.00058 | 0.00106 | 0.00022 |
| Diss-Barium (Ba) (mg/L) | 34 | 34 | 0.02100 | 0.09180 | 0.03814 | 0.04667 | 0.01201 |
| Diss-Cadmium (Cd) (mg/L) | 34 | 28 | 0.00001 | 0.00238 | 0.00010 | 0.00013 | 0.00040 |
| Diss-Calcium (Ca) (mg/L) | 35 | 35 | 31.50000 | 40.90000 | 37.14286 | 38.37000 | 1.68249 |
| Diss-Chromium (Cr) (mg/L) | 34 | 13 | 0.00010 | 0.00740 | 0.00093 | 0.00384 | 0.00148 |
| Diss-Cobalt (Co) (mg/L) | 34 | 21 | 0.00001 | 0.00066 | 0.00015 | 0.00054 | 0.00017 |
| Diss-Copper (Cu) (mg/L) | 36 | 36 | 0.00007 | 0.00926 | 0.00288 | 0.00472 | 0.00172 |
| Diss-Iron (Fe) (mg/L) | 35 | 13 | 0.00100 | 0.21000 | 0.02273 | 0.06025 | 0.03832 |
| Diss-Lead (Pb) (mg/L) | 36 | 26 | 0.00001 | 0.00071 | 0.00011 | 0.00032 | 0.00015 |
| Diss-Magnesium (Mg) (mg/L) | 36 | 36 | 39.10000 | 49.70000 | 46.42500 | 47.90000 | 1.99003 |
| Diss-Manganese (Mn) (mg/L) | 36 | 36 | 0.00120 | 0.13900 | 0.02001 | 0.03504 | 0.02508 |
| Diss-Molybdenum (Mo) (mg/L) | 36 | 36 | 0.00113 | 0.00700 | 0.00285 | 0.00661 | 0.00153 |
| Diss-Nickel (Ni) (mg/L) | 36 | 36 | 0.00056 | 0.00328 | 0.00117 | 0.00256 | 0.00060 |
| Diss-Potassium (K) (mg/L) | 36 | 36 | 1.80000 | 2.84000 | 2.10583 | 2.76200 | 0.24935 |
| Diss-Selenium (mg/L) | 36 | 7 | 0.00025 | 0.00400 | 0.00067 | 0.00378 | 0.00098 |
| Diss-Sodium (Na) (mg/L) | 36 | 36 | 18.10000 | 31.90000 | 23.28889 | 30.76000 | 3.59068 |
| Diss-Strontium (Sr) (mg/L) | 36 | 36 | 0.40600 | 0.57800 | 0.48086 | 0.54720 | 0.03708 |
| Diss-Zinc (Zn) (mg/L) | 36 | 29 | 0.00025 | 0.15400 | 0.00971 | 0.02208 | 0.02526 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 32 | 32 | 395.00000 | 677.00000 | 561.28125 | 632.00000 | 48.37637 |
| pH (in situ) (pH) | 33 | 33 | 6.10000 | 8.05000 | 7.62682 | 7.95950 | 0.44954 |
| Temp (in situ) (Degrees Celcius) | 33 | 33 | 2.50000 | 12.70000 | 8.70909 | 11.39500 | 2.05948 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 36 | 36 | 226.00000 | 368.00000 | 319.66667 | 330.20000 | 19.75131 |
| Hardness (mg/L) | 34 | 34 | 267.00000 | 300.00000 | 285.32353 | 292.80000 | 9.09785 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229690 : GW96-7 - SE Sed Pond Well | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **28-May-08** | **7-May-09** | **26-May-10** | **26-May-11** | **20-Oct-11** | **31-May-12** | **23-Oct-12** | **13-Jun-13** | **9-Oct-13** |
| **Anions and Nutrients** | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0088 | 0.0472 | <0.005 | <0.005 | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | | | | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Nitrate and Nitrite (mg/L) | 0.0091 | <0.005 | <0.005 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 |
| Sulphate (mg/L) | 26.8 | 26.2 | 25.8 | 158 | 138 | 106 | 75.8 | 55.5 | 36.2 |
| Total Nitrogen (mg/L) | | | <0.05 | 0.06 | 0.07 | <0.050 | <0.050 | <0.050 | <0.050 |
| **Dissolved Metals** | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0012 | <0.001 | <0.001 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| Diss-Antimony (Sb) (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | 0.00012 | <0.00010 | <0.00010 | 0.00012 |
| Diss-Arsenic (As) (mg/L) | 0.00147 | 0.00123 | 0.00147 | 0.00149 | 0.0013 | 0.00108 | 0.00125 | 0.00129 | 0.00134 |
| Diss-Barium (Ba) (mg/L) | 0.017 | 0.0167 | 0.0179 | 0.0304 | 0.0226 | 0.0265 | 0.0265 | 0.0185 | 0.0221 |
| Diss-Cadmium (Cd) (mg/L) | <0.000017 | 0.000021 | <0.000017 | <0.00001 | 0.000012 | <0.000010 | <0.000010 | <0.000010 | 0.000012 |
| Diss-Calcium (Ca) (mg/L) | 45.3 | 45.8 | 43.3 | 82.2 | 68.9 | 63.9 | 57.3 | 55.6 | 48.6 |
| Diss-Chromium (Cr) (mg/L) | <0.0005 | 0.00087 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Cobalt (Co) (mg/L) | <0.0001 | <0.0001 | <0.0001 | 0.00011 | <0.00010 | <0.00010 | <0.00010 | 0.0001 | <0.00010 |
| Diss-Copper (Cu) (mg/L) | 0.00044 | 0.0003 | 0.00018 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Iron (Fe) (mg/L) | 0.16 | 0.221 | 0.13 | <0.03 | 0.051 | <0.030 | 0.088 | 0.053 | 0.052 |
| Diss-Lead (Pb) (mg/L) | <0.00005 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Diss-Magnesium (Mg) (mg/L) | 8.81 | 8.56 | 8.56 | 15 | 14 | 12.3 | 11.4 | 10.4 | 9.15 |
| Diss-Manganese (Mn) (mg/L) | 0.129 | 0.107 | 0.127 | 0.226 | 0.189 | 0.185 | 0.164 | 0.144 | 0.161 |
| Diss-Molybdenum (Mo) (mg/L) | 0.00536 | 0.00507 | 0.00542 | 0.00964 | 0.0103 | 0.00818 | 0.0075 | 0.0061 | 0.00583 |
| Diss-Nickel (Ni) (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | 0.0005 | <0.00050 |
| Diss-Potassium (K) (mg/L) | 1.08 | 0.971 | 1.02 | 1.32 | 1.23 | 1.2 | 1.17 | 1.11 | 1.11 |
| Diss-Selenium (mg/L) | <0.001 | <0.001 | <0.001 | 0.00151 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Diss-Sodium (Na) (mg/L) | 7.58 | 6.96 | 7.27 | 8.95 | 8.68 | 8.13 | 7.99 | 7.53 | 7.95 |
| Diss-Strontium (Sr) (mg/L) | 0.11 | 0.0928 | 0.11 | 0.168 | 0.182 | 0.16 | 0.147 | 0.145 | 0.135 |
| Diss-Zinc (Zn) (mg/L) | <0.001 | <0.001 | <0.001 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |
| **Field Tests** | | | | | | | | | |
| Cond (in situ) (µs/cm) | 302 | 302 | 295 | 512 | 477 | 431 | 384 | 246 | 330 |
| pH (in situ) (pH) | 7.9 | 7.78 | 9.4 | 7.57 | 7.86 | 7.74 | 7.62 | 7.56 | 7.891 |
| Temp (in situ) (Degrees Celcius) | 11.7 | 8.2 | 8.34 | 9.2 | 7.7 | 8.1 | 6.8 | 8.5 | 7.2 |
| **Physical Test** | | | | | | | | | |
| Alkalinity (CaCO3) ( | 128 | 136 | 135 | 102 | 102 | 121 | 120 | 136 | 135 |
| Hardness (mg/L) | 149 | 150 | 143 | 267 | 230 | 210 | 190 | 182 | 159 |

# Grid Format Report

**From 1 Jan 2008 to 31 Dec 2013**

**Printed : 25/03/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E229690 : GW96-7 - SE Sed Pond Well | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 34 | 6 | 0.00500 | 0.04720 | 0.00697 | 0.00700 | 0.00758 |
| Chloride (mg/L) | 6 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Nitrate and Nitrite (mg/L) | 33 | 10 | 0.00250 | 0.21100 | 0.01397 | 0.09915 | 0.04034 |
| Sulphate (mg/L) | 33 | 31 | 0.00003 | 158.00000 | 36.80606 | 29.70000 | 34.22587 |
| Total Nitrogen (mg/L) | 7 | 2 | 0.02500 | 0.07000 | 0.03643 | | 0.01973 |
| **Dissolved Metals** | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 35 | 21 | 0.00010 | 0.00680 | 0.00120 | 0.00248 | 0.00117 |
| Diss-Antimony (Sb) (mg/L) | 33 | 24 | 0.00003 | 0.00038 | 0.00012 | 0.00032 | 0.00009 |
| Diss-Arsenic (As) (mg/L) | 35 | 35 | 0.00090 | 0.00210 | 0.00137 | 0.00150 | 0.00018 |
| Diss-Barium (Ba) (mg/L) | 33 | 33 | 0.01450 | 0.03040 | 0.01803 | 0.01797 | 0.00360 |
| Diss-Cadmium (Cd) (mg/L) | 33 | 13 | 0.00001 | 0.00007 | 0.00002 | 0.00007 | 0.00002 |
| Diss-Calcium (Ca) (mg/L) | 34 | 34 | 34.50000 | 82.20000 | 46.02353 | 45.94000 | 9.60846 |
| Diss-Chromium (Cr) (mg/L) | 33 | 6 | 0.00010 | 0.00330 | 0.00045 | 0.00206 | 0.00073 |
| Diss-Cobalt (Co) (mg/L) | 33 | 11 | 0.00001 | 0.00030 | 0.00005 | 0.00011 | 0.00005 |
| Diss-Copper (Cu) (mg/L) | 35 | 28 | 0.00005 | 0.05160 | 0.00192 | 0.00160 | 0.00865 |
| Diss-Iron (Fe) (mg/L) | 34 | 31 | 0.01500 | 0.22100 | 0.12603 | 0.19640 | 0.05597 |
| Diss-Lead (Pb) (mg/L) | 35 | 9 | 0.00001 | 0.00181 | 0.00008 | 0.00017 | 0.00030 |
| Diss-Magnesium (Mg) (mg/L) | 35 | 35 | 5.77000 | 15.00000 | 8.99771 | 9.02500 | 1.77935 |
| Diss-Manganese (Mn) (mg/L) | 35 | 35 | 0.07530 | 0.22600 | 0.12722 | 0.13275 | 0.02906 |
| Diss-Molybdenum (Mo) (mg/L) | 35 | 35 | 0.00468 | 0.01030 | 0.00579 | 0.00584 | 0.00125 |
| Diss-Nickel (Ni) (mg/L) | 35 | 3 | 0.00003 | 0.00071 | 0.00025 | 0.00025 | 0.00011 |
| Diss-Potassium (K) (mg/L) | 35 | 35 | 0.62000 | 1.32000 | 1.06003 | 1.19000 | 0.12978 |
| Diss-Selenium (mg/L) | 35 | 2 | 0.00005 | 0.00151 | 0.00033 | 0.00050 | 0.00028 |
| Diss-Sodium (Na) (mg/L) | 35 | 35 | 6.17000 | 9.12000 | 8.00629 | 9.05250 | 0.77603 |
| Diss-Strontium (Sr) (mg/L) | 35 | 35 | 0.08740 | 0.18200 | 0.11592 | 0.12100 | 0.02119 |
| Diss-Zinc (Zn) (mg/L) | 35 | 23 | 0.00025 | 0.03150 | 0.00247 | 0.00600 | 0.00522 |
| **Field Tests** | | | | | | | |
| Cond (in situ) (µs/cm) | 28 | 28 | 200.00000 | 512.00000 | 318.67857 | 332.60000 | 68.80679 |
| pH (in situ) (pH) | 28 | 28 | 6.40000 | 9.40000 | 7.75325 | 8.10600 | 0.53954 |
| Temp (in situ) (Degrees Celcius) | 28 | 28 | 2.70000 | 11.70000 | 8.61929 | 11.04000 | 1.84207 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 33 | 33 | 102.00000 | 137.00000 | 127.00000 | 132.00000 | 7.81825 |
| Hardness (mg/L) | 33 | 33 | 114.00000 | 267.00000 | 154.12121 | 151.85000 | 30.02266 |

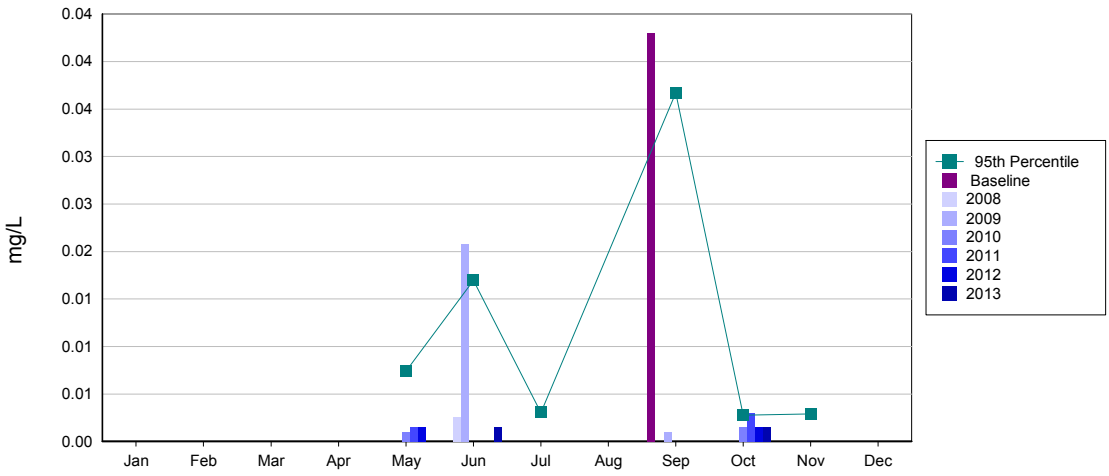
# Water Quality Report

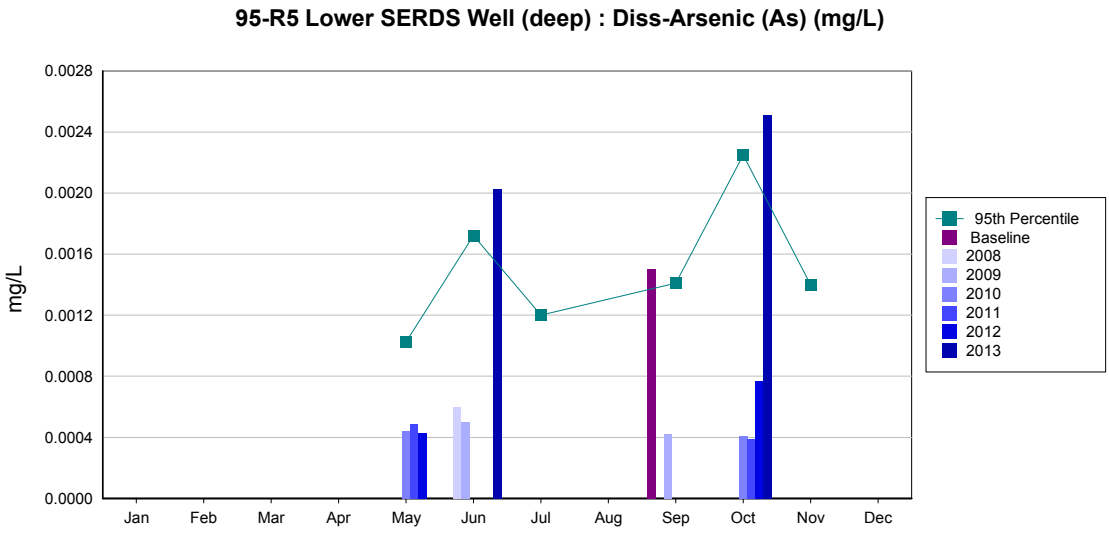
## Annual Report - Groundwater Graphs

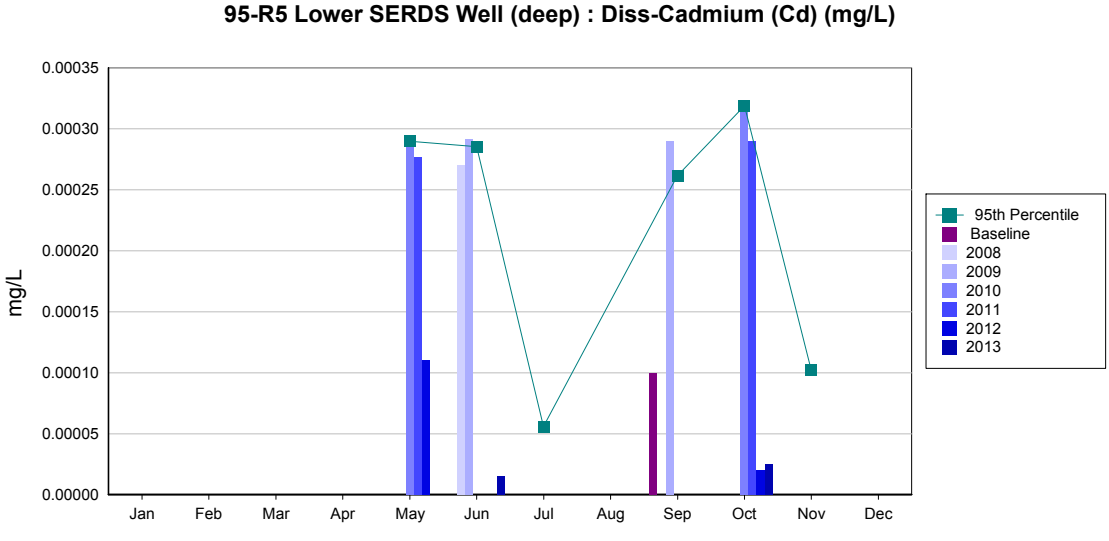
**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION



# Water Quality Report

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**Mount Polley**

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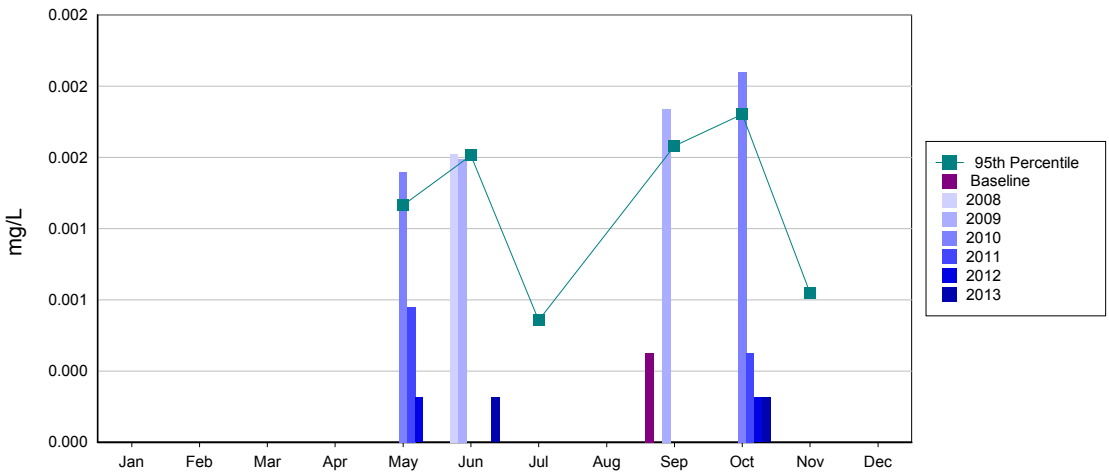
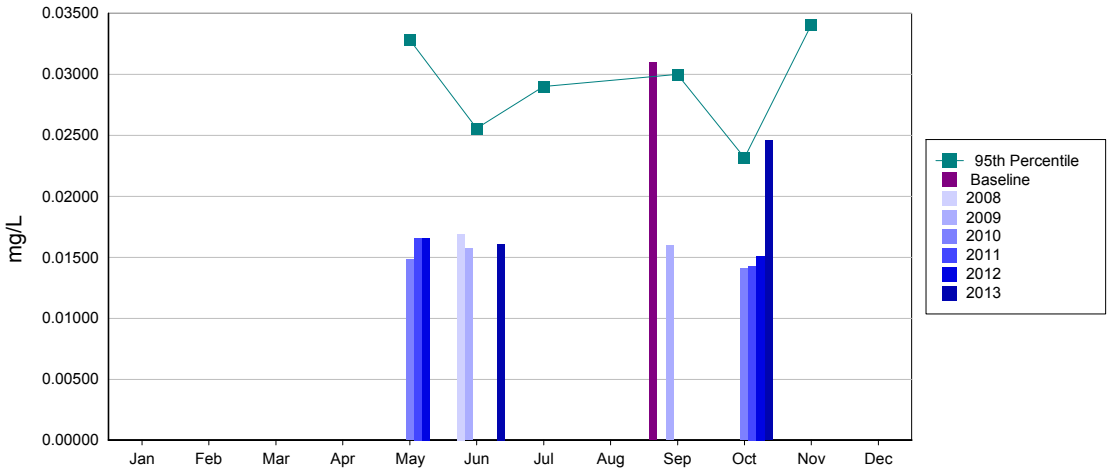
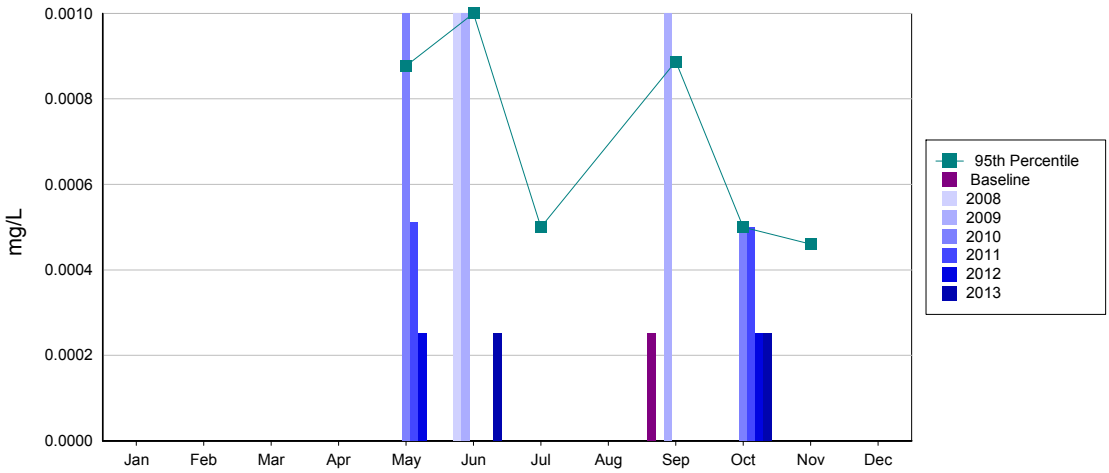
### 95-R5 Lower SERDS Well (deep) : Diss-Copper (Cu) (mg/L)




### 95-R5 Lower SERDS Well (deep) : Diss-Molybdenum (Mo) (mg/L)




### 95-R5 Lower SERDS Well (deep) : Diss-Selenium (mg/L)



# Water Quality Report

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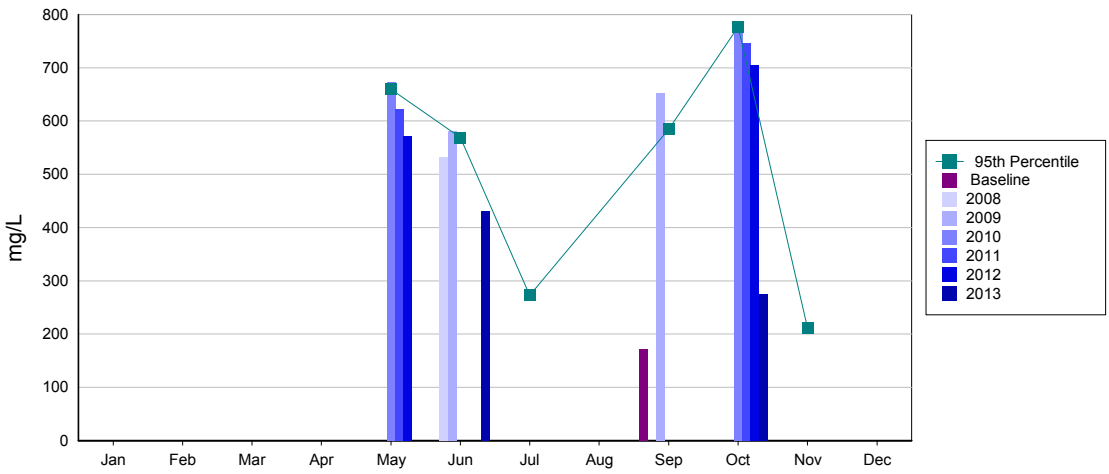
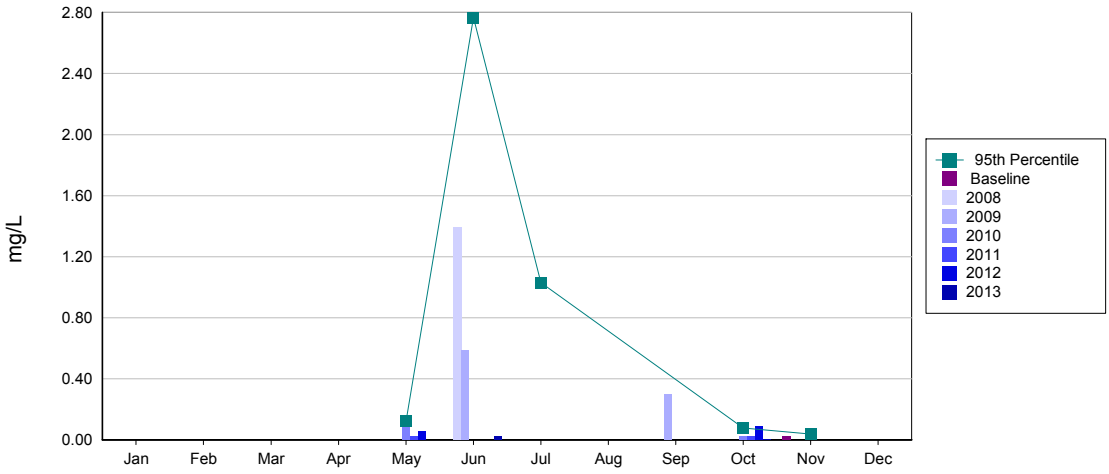
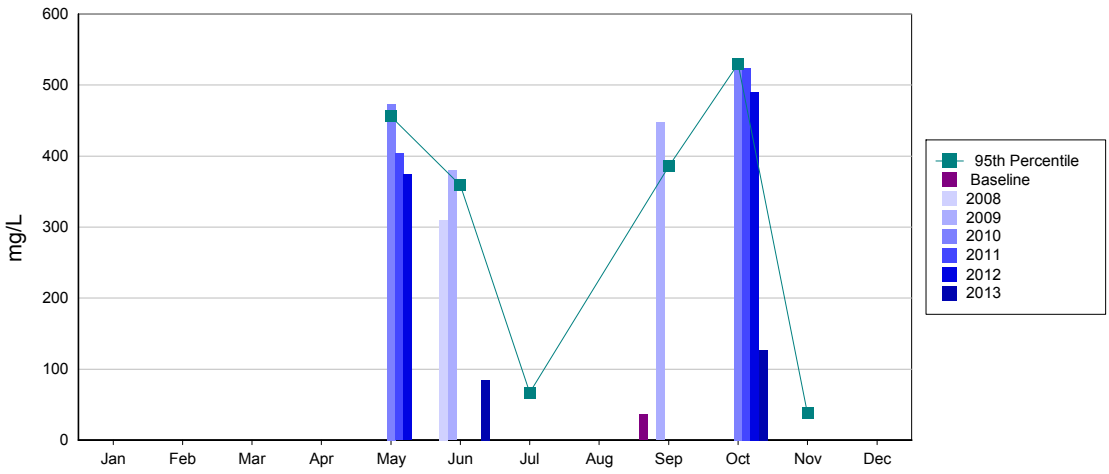
### 95-R5 Lower SERDS Well (deep) : Hardness (mg/L)




### 95-R5 Lower SERDS Well (deep) : Nitrate (N) (mg/L)




### 95-R5 Lower SERDS Well (deep) : Sulphate (mg/L)



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**Mount Polley**

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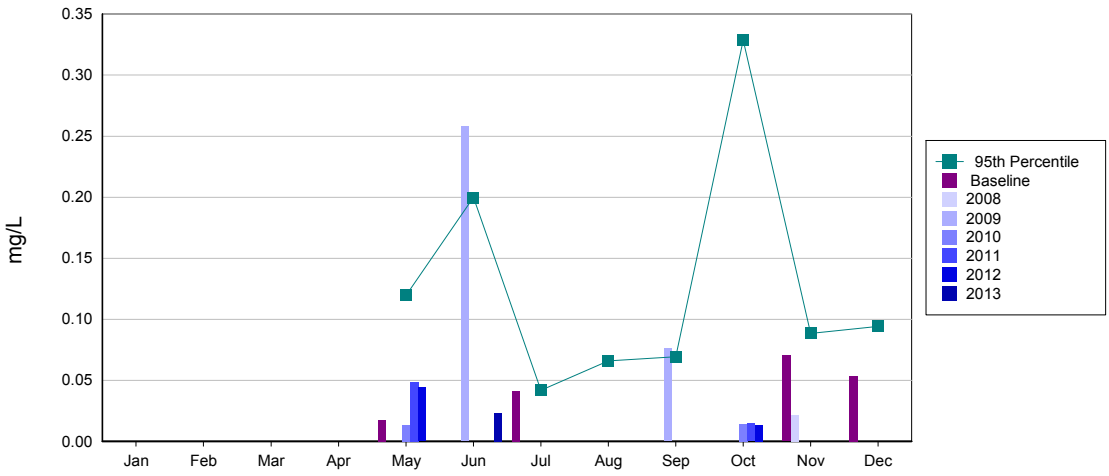
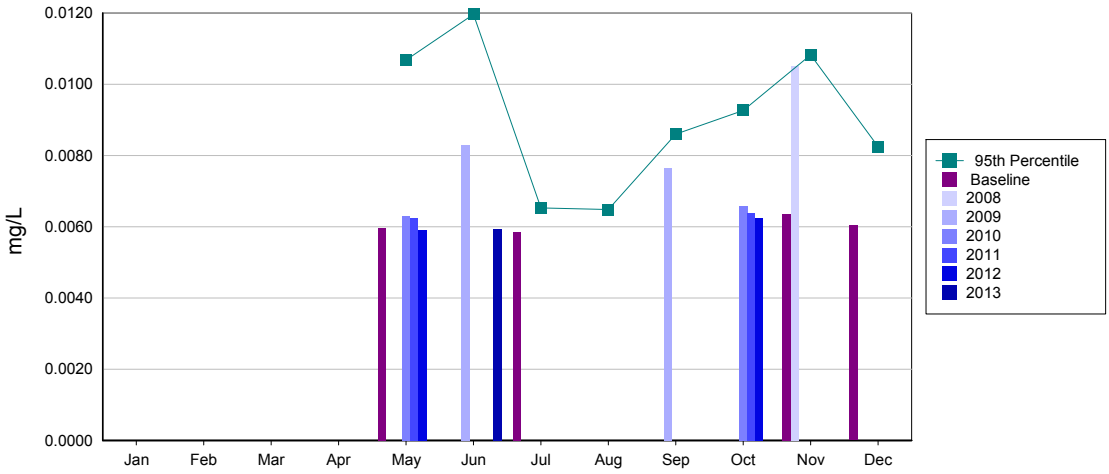
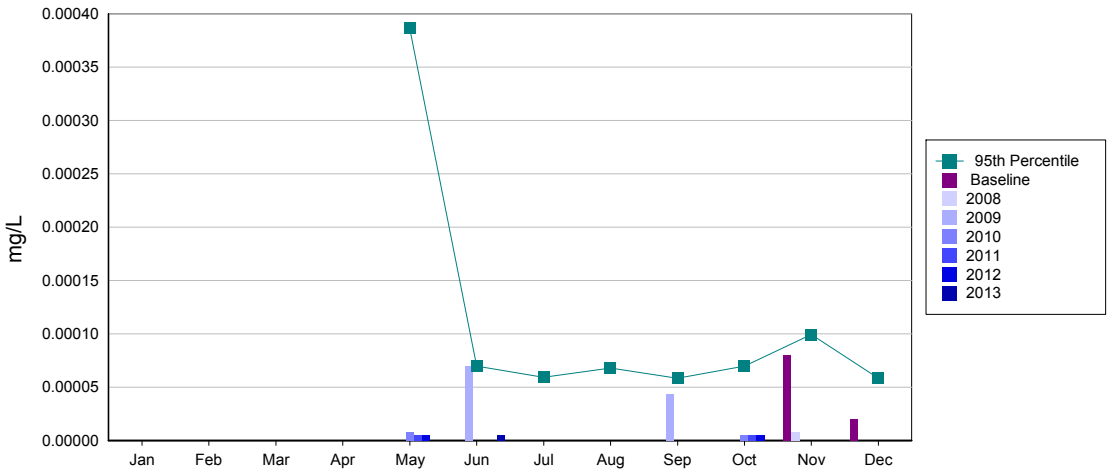
### GW96-1a - Tailings Impoundment North Well (deep) : Diss-Aluminum (Al) (mg/L)




### GW96-1a - Tailings Impoundment North Well (deep) : Diss-Arsenic (As) (mg/L)




### GW96-1a - Tailings Impoundment North Well (deep) : Diss-Cadmium (Cd) (mg/L)



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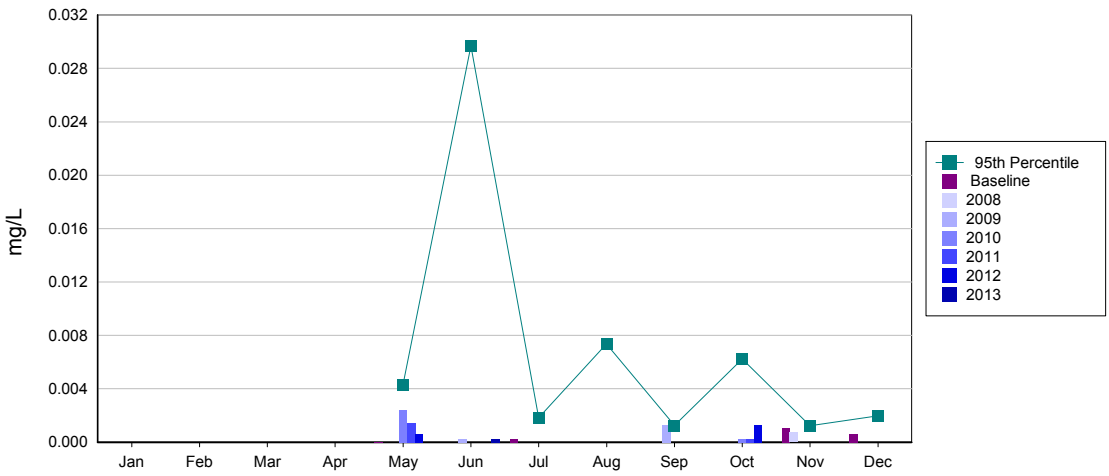
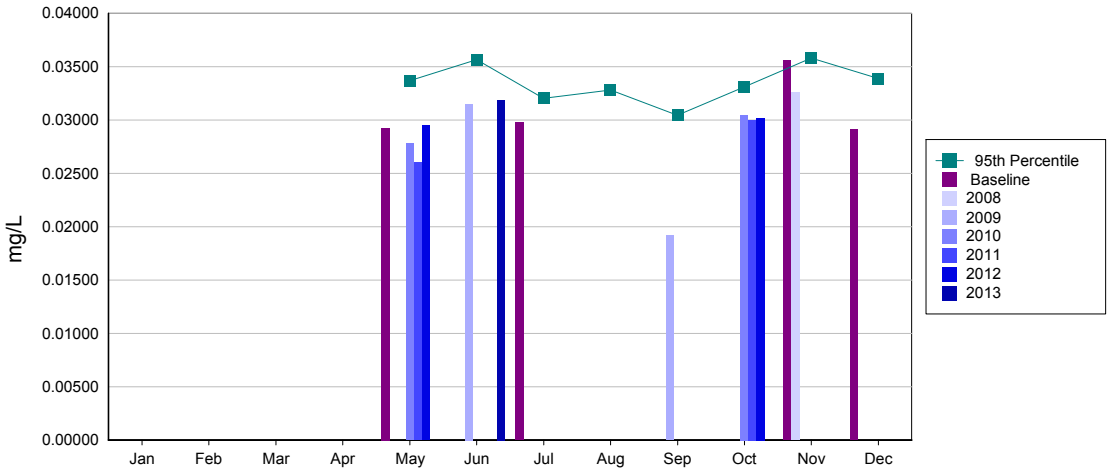
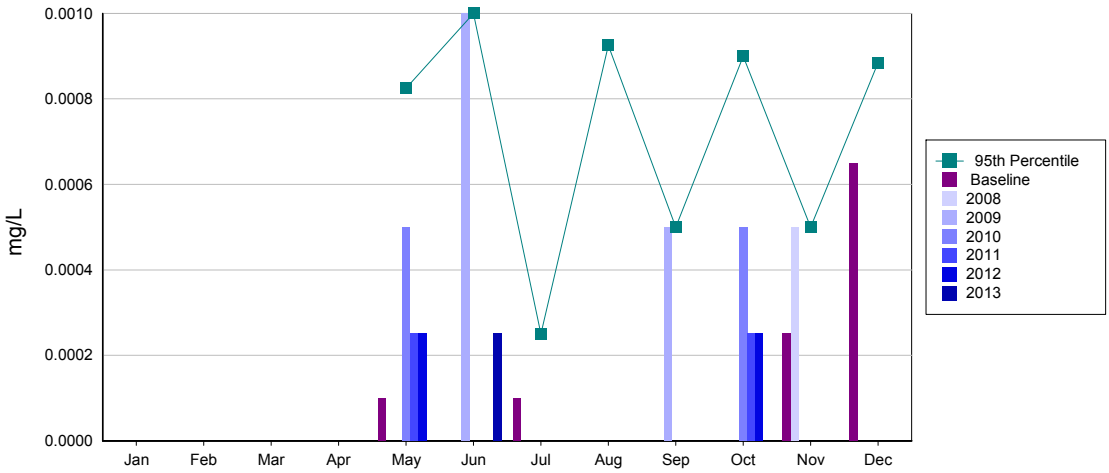
### GW96-1a - Tailings Impoundment North Well (deep) : Diss-Copper (Cu) (mg/L)




### GW96-1a - Tailings Impoundment North Well (deep) : Diss-Molybdenum (Mo) (mg/L)




### GW96-1a - Tailings Impoundment North Well (deep) : Diss-Selenium (mg/L)



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Mount Polley Mining Corporation
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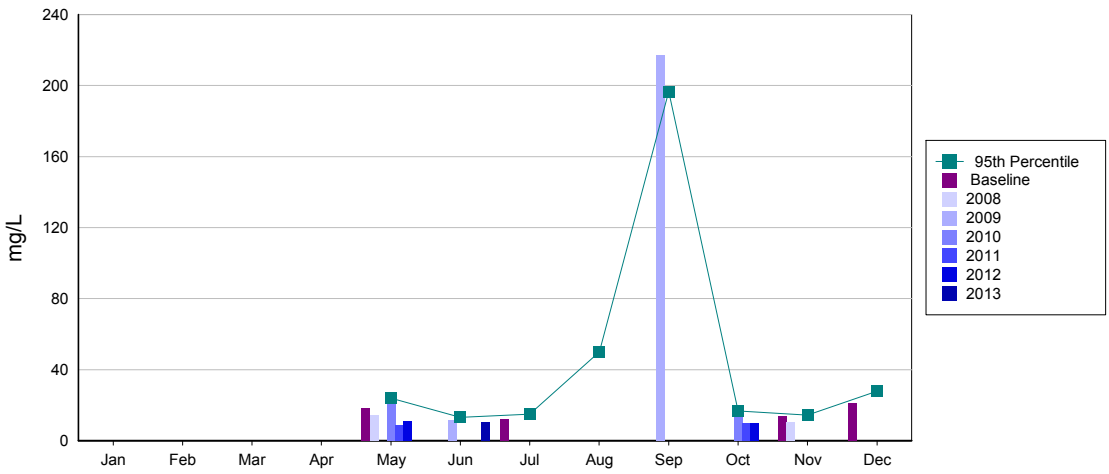
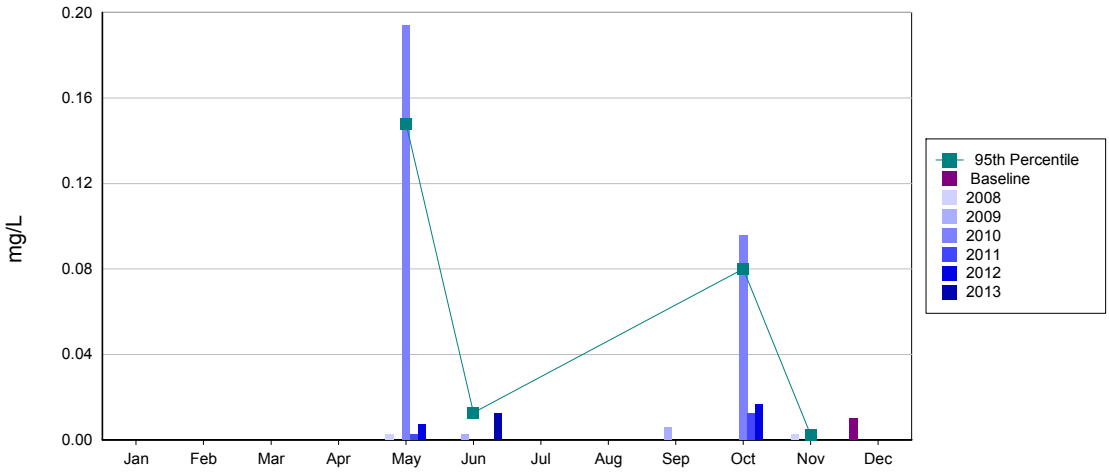
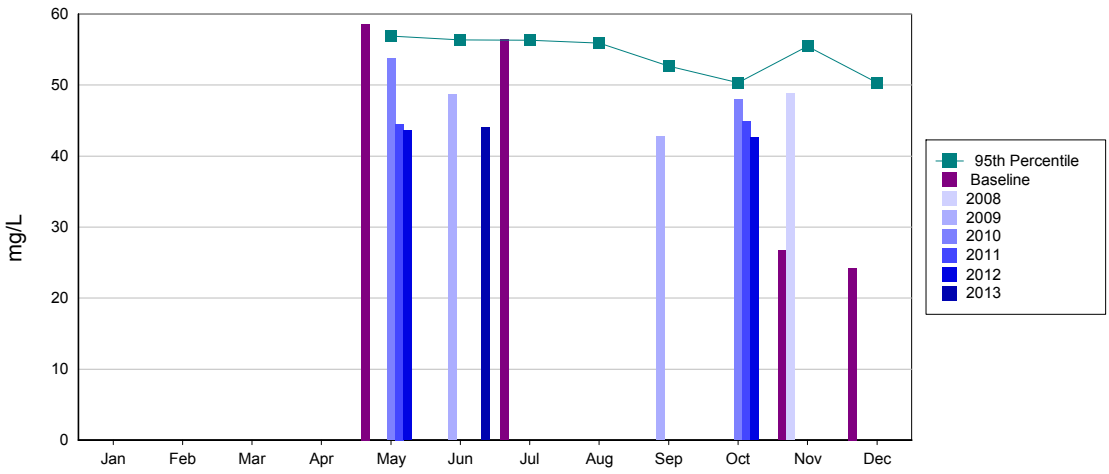
### GW96-1a - Tailings Impoundment North Well (deep) : Hardness (mg/L)




### GW96-1a - Tailings Impoundment North Well (deep) : Nitrate (N) (mg/L)




### GW96-1a - Tailings Impoundment North Well (deep) : Sulphate (mg/L)



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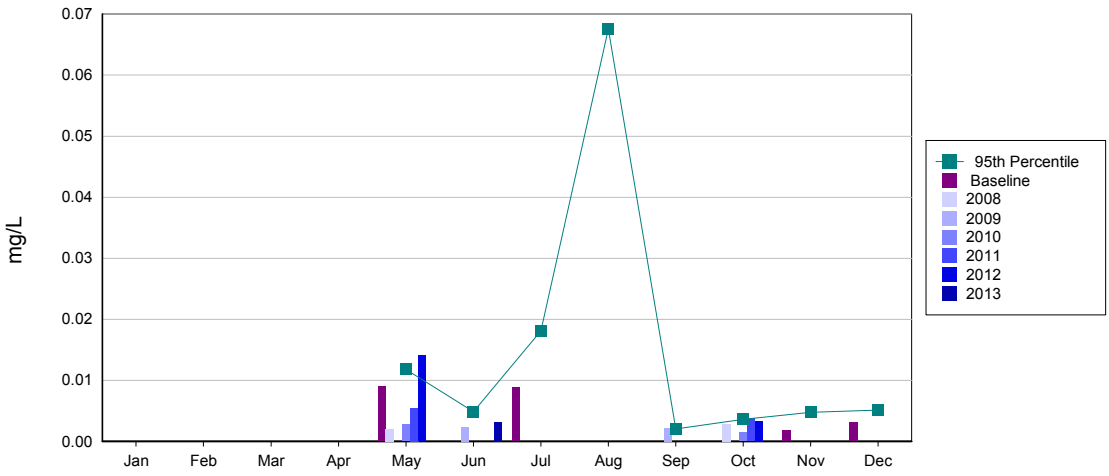
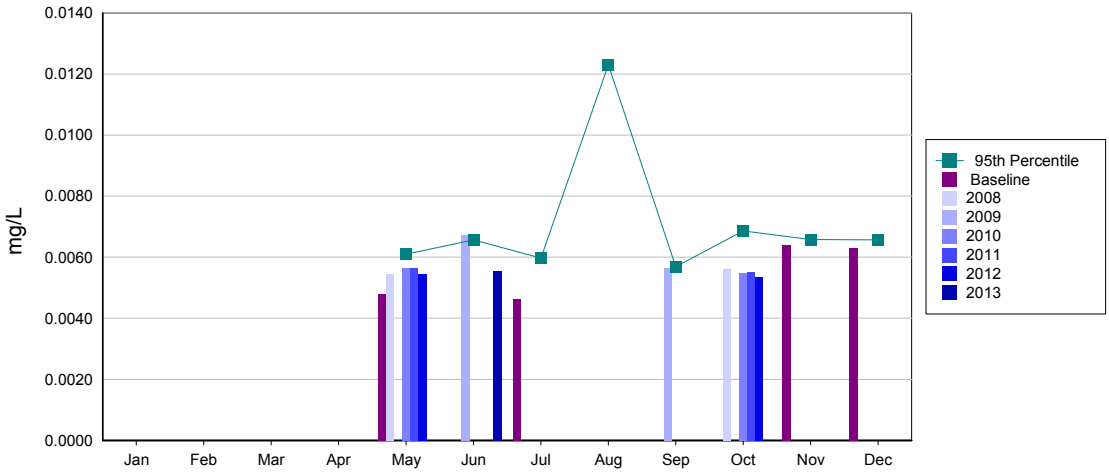
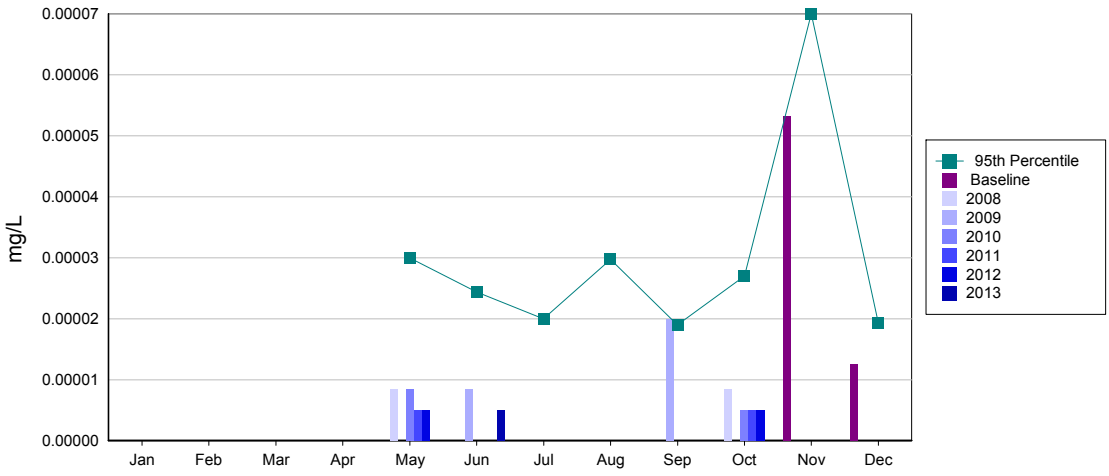
### GW96-1b - Tailings Impoundment North Well (shallow : Diss-Aluminum (Al) (mg/L)




### GW96-1b - Tailings Impoundment North Well (shallow : Diss-Arsenic (As) (mg/L)




### GW96-1b - Tailings Impoundment North Well (shallow : Diss-Cadmium (Cd) (mg/L)



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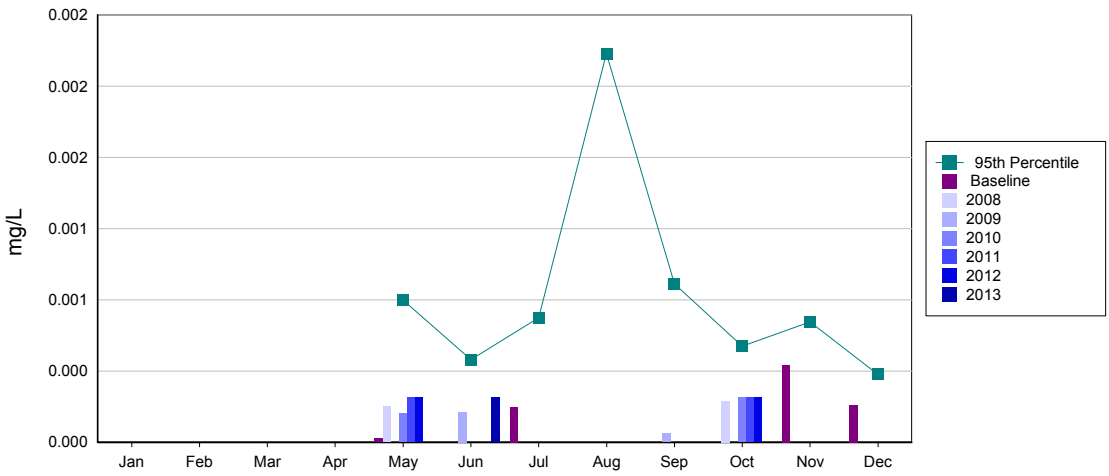
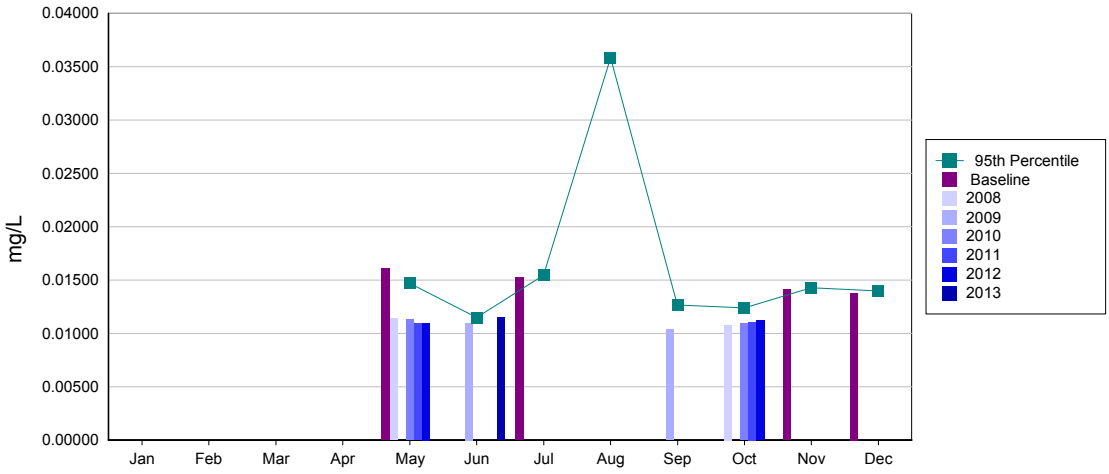
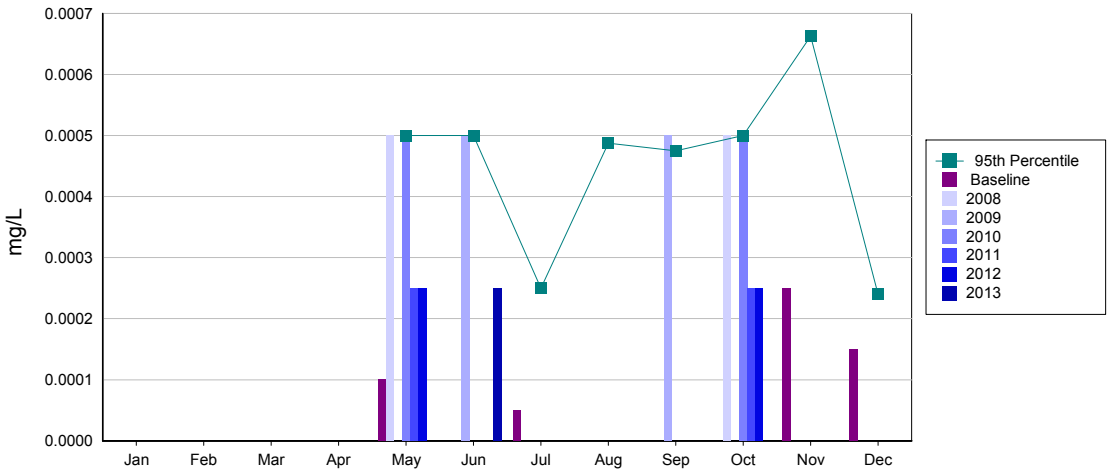
### GW96-1b - Tailings Impoundment North Well (shallow : Diss-Copper (Cu) (mg/L)




### GW96-1b - Tailings Impoundment North Well (shallow : Diss-Molybdenum (Mo) (mg/L)




### GW96-1b - Tailings Impoundment North Well (shallow : Diss-Selenium (mg/L)



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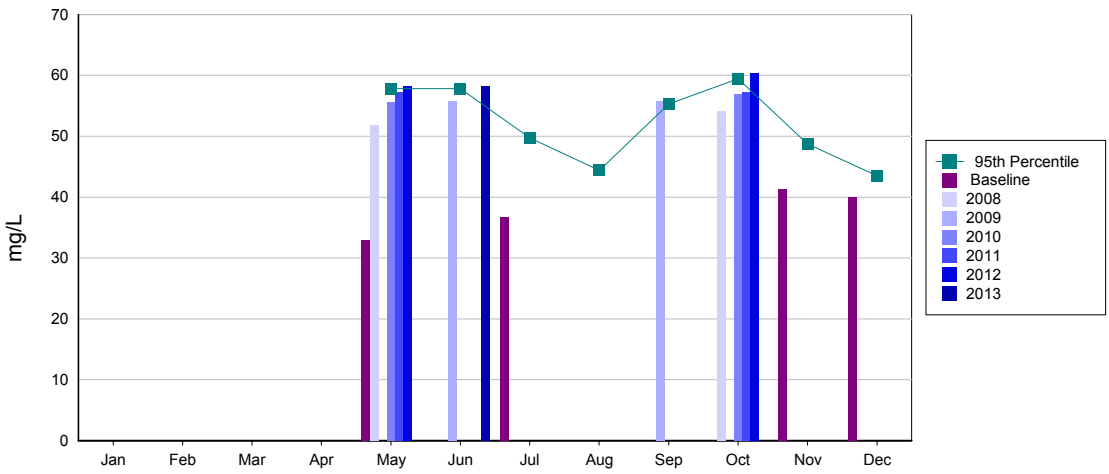
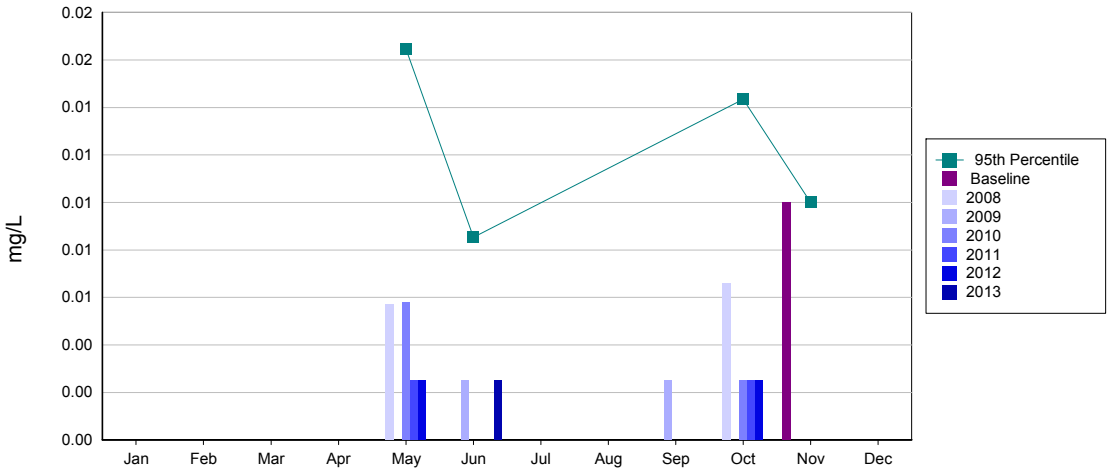
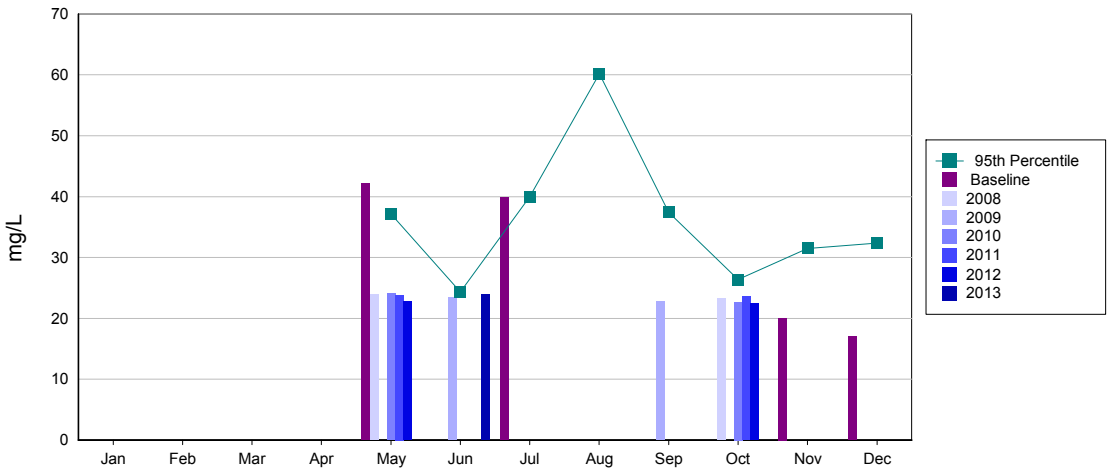
### GW96-1b - Tailings Impoundment North Well (shallow : Hardness (mg/L)




### GW96-1b - Tailings Impoundment North Well (shallow : Nitrate (N) (mg/L)




### GW96-1b - Tailings Impoundment North Well (shallow : Sulphate (mg/L)



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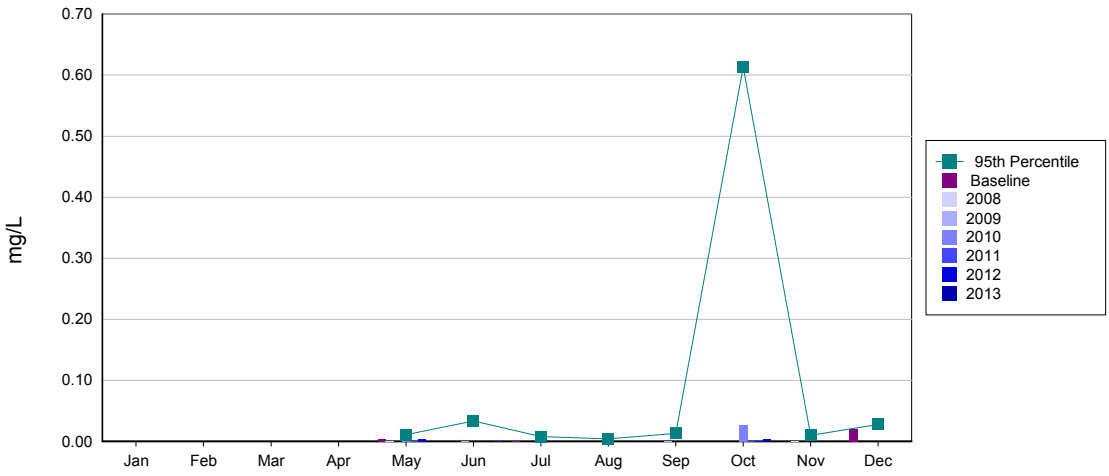
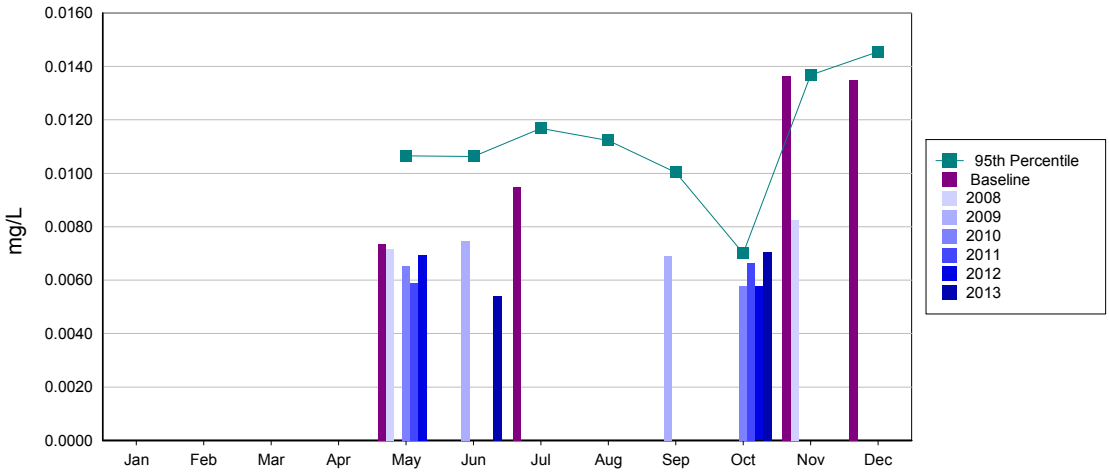
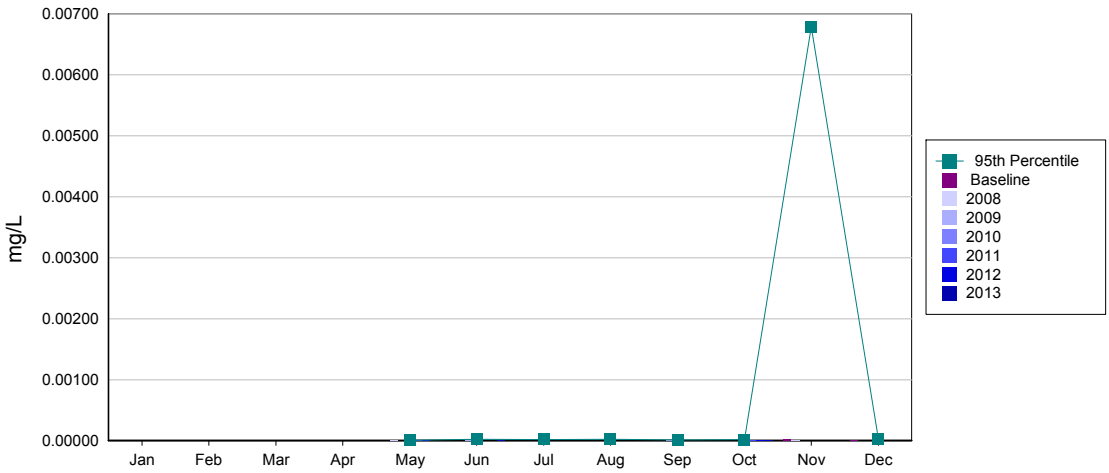
### GW96-2a - Tailings Impoundment East Well (deep) : Diss-Aluminum (Al) (mg/L)




### GW96-2a - Tailings Impoundment East Well (deep) : Diss-Arsenic (As) (mg/L)




### GW96-2a - Tailings Impoundment East Well (deep) : Diss-Cadmium (Cd) (mg/L)



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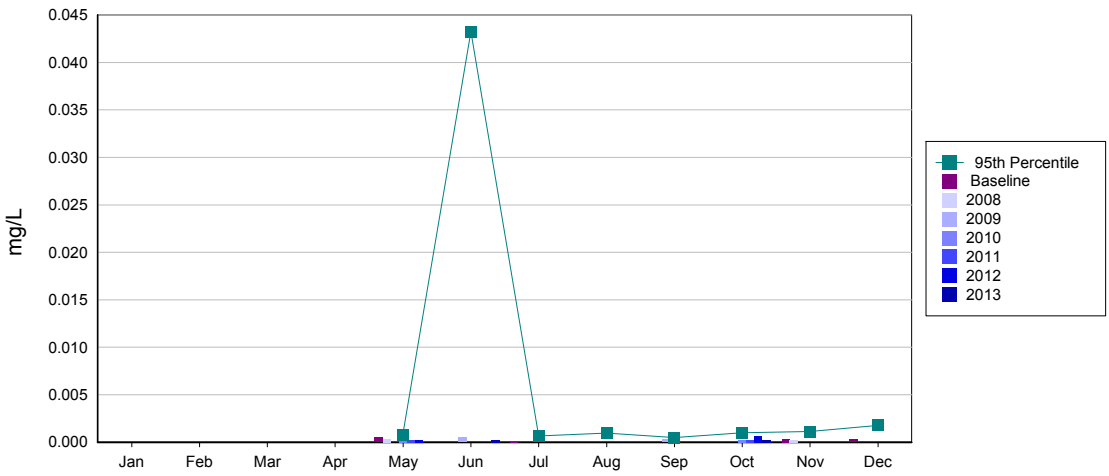
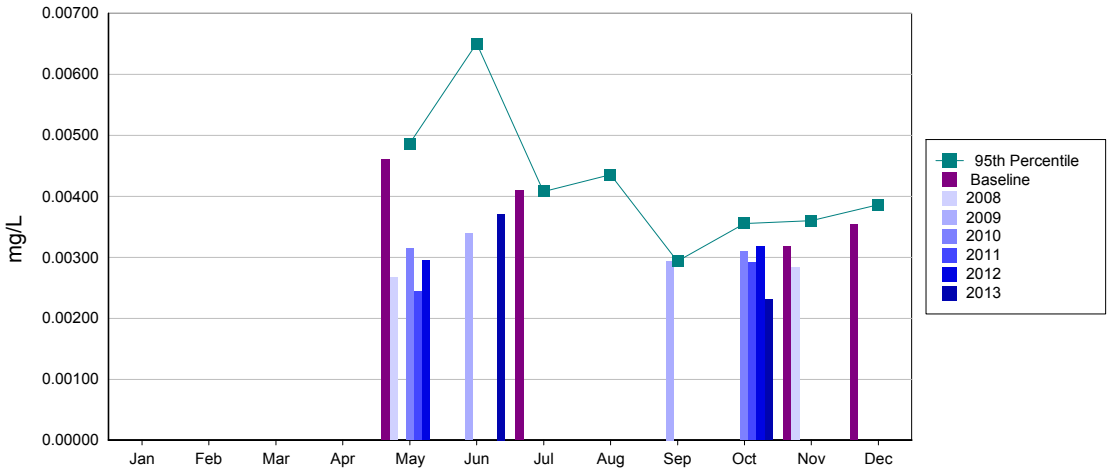
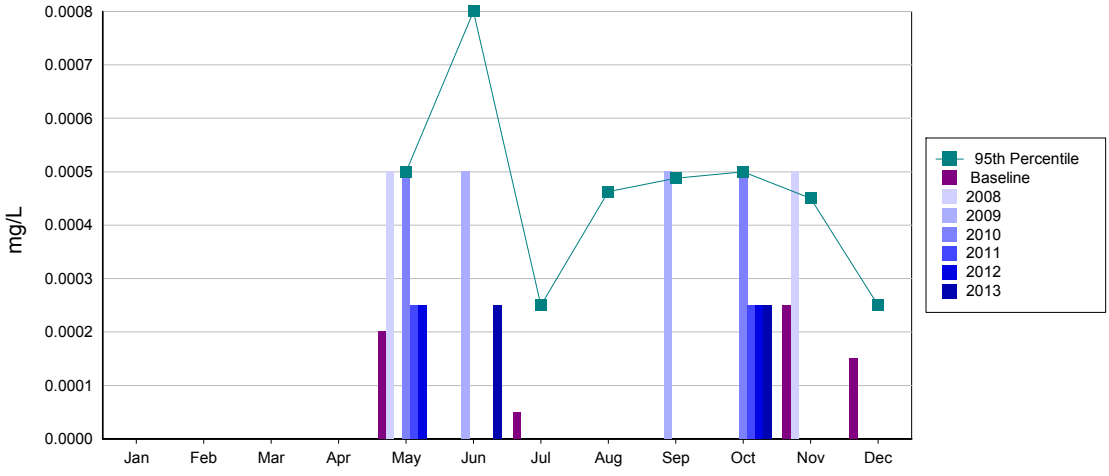
### GW96-2a - Tailings Impoundment East Well (deep) : Diss-Copper (Cu) (mg/L)




### GW96-2a - Tailings Impoundment East Well (deep) : Diss-Molybdenum (Mo) (mg/L)




### GW96-2a - Tailings Impoundment East Well (deep) : Diss-Selenium (mg/L)



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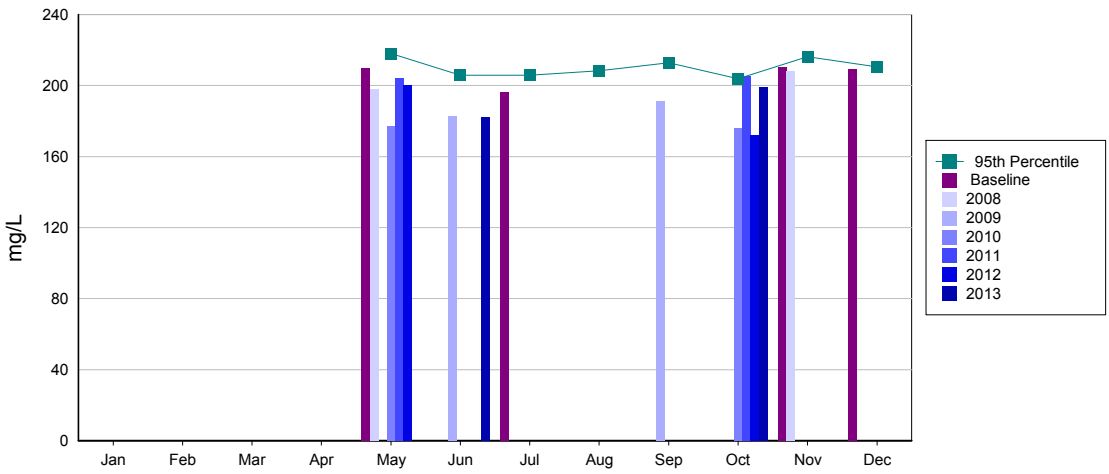
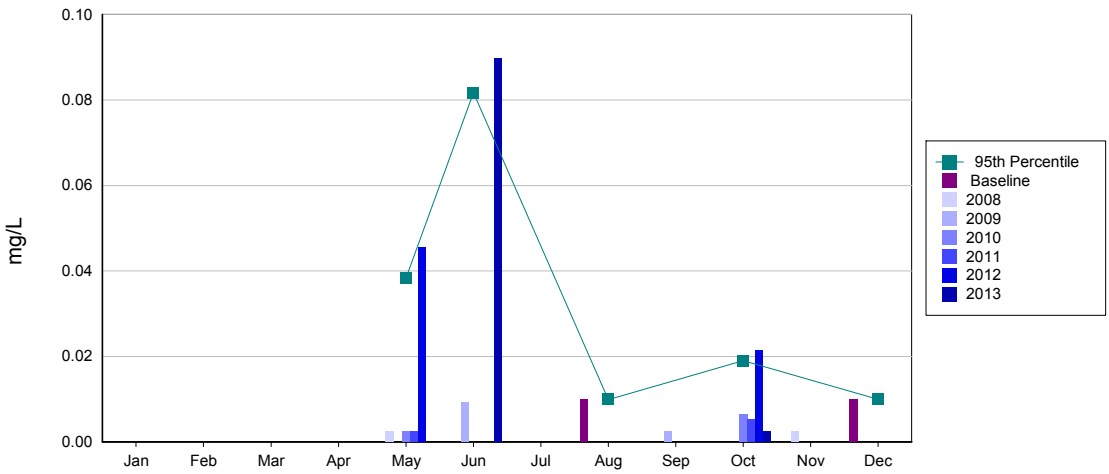
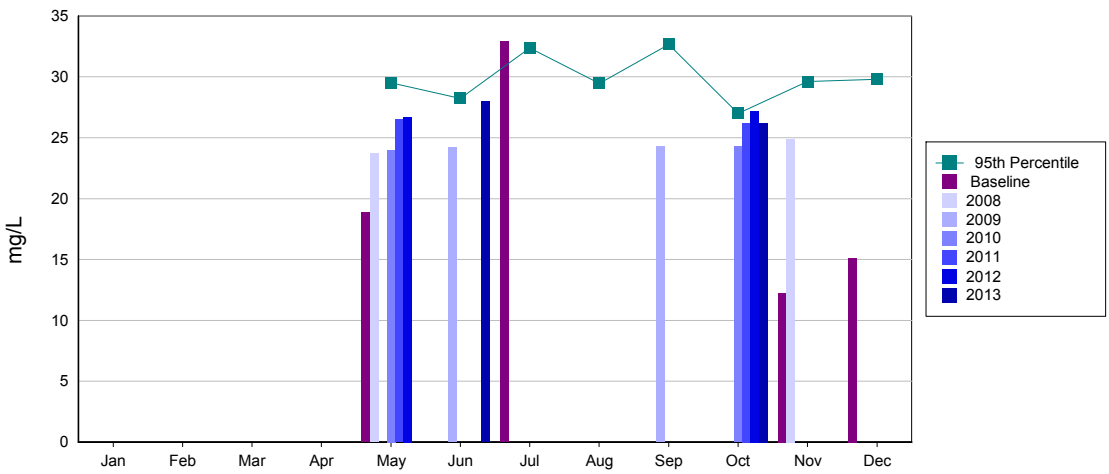
### GW96-2a - Tailings Impoundment East Well (deep) : Hardness (mg/L)




### GW96-2a - Tailings Impoundment East Well (deep) : Nitrate (N) (mg/L)




### GW96-2a - Tailings Impoundment East Well (deep) : Sulphate (mg/L)



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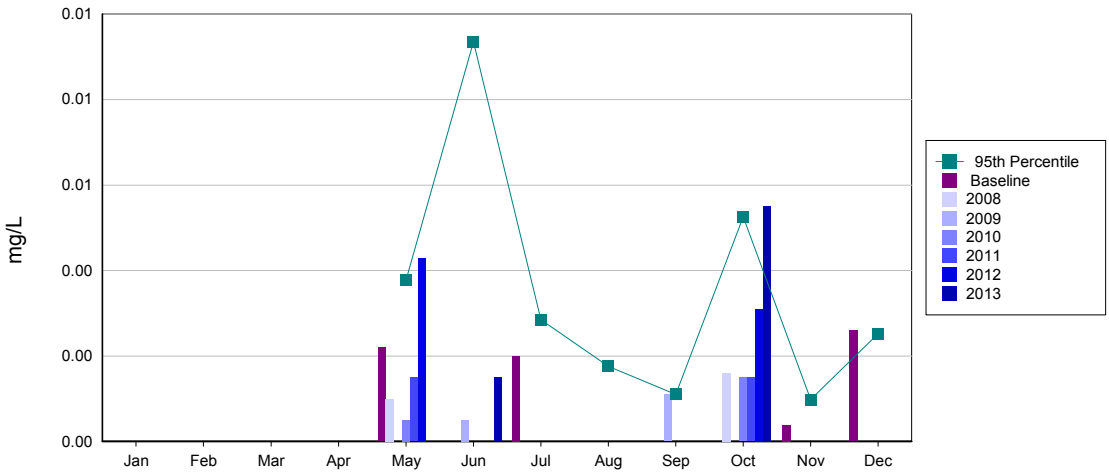
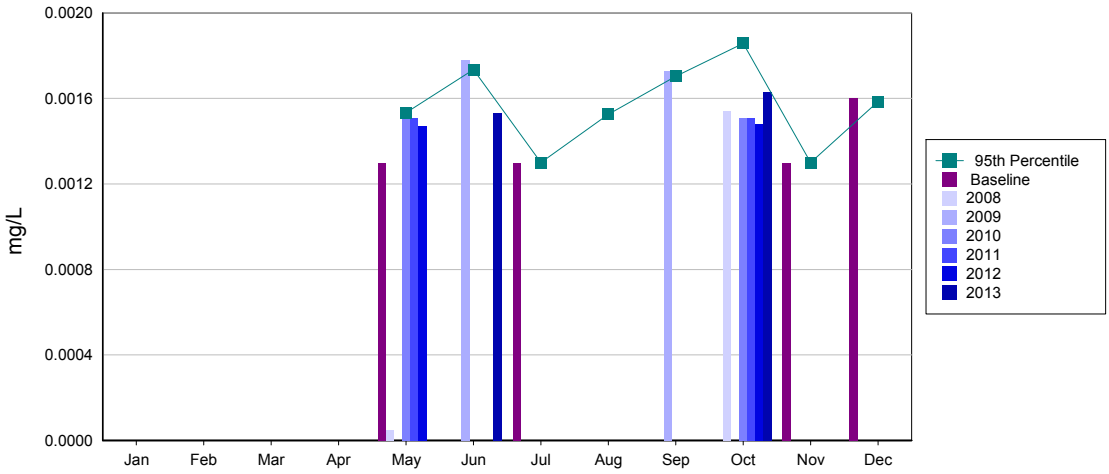
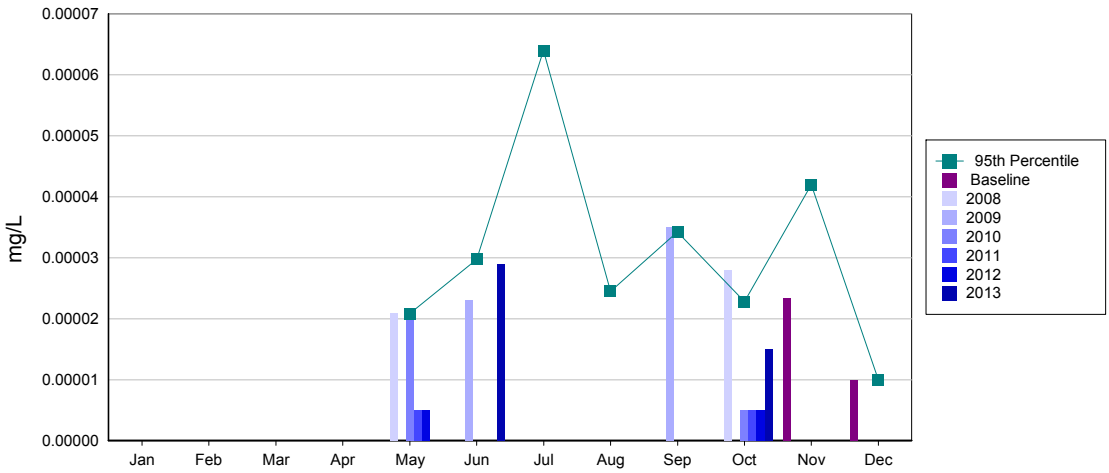
### GW96-2b - Tailings Impoundment East Well (shallow) : Diss-Aluminum (Al) (mg/L)




### GW96-2b - Tailings Impoundment East Well (shallow) : Diss-Arsenic (As) (mg/L)




### GW96-2b - Tailings Impoundment East Well (shallow) : Diss-Cadmium (Cd) (mg/L)



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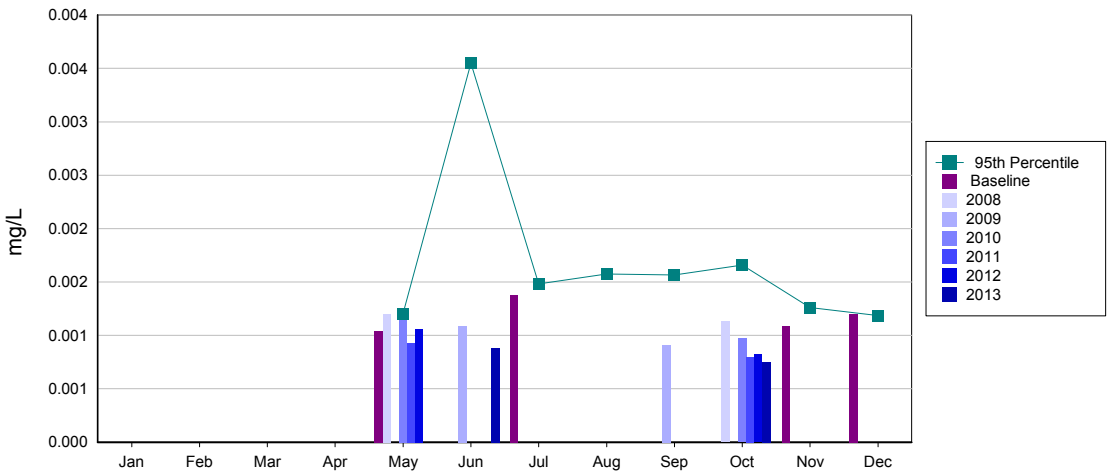
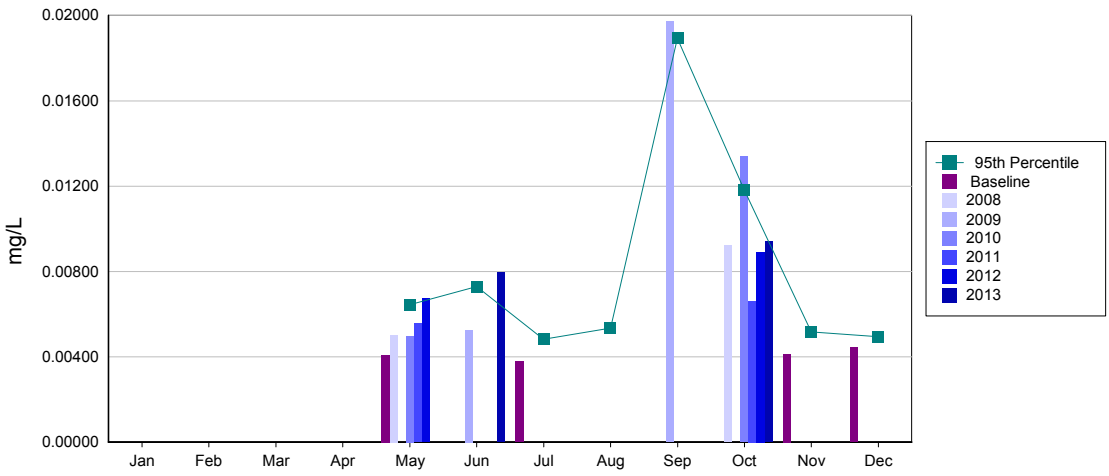
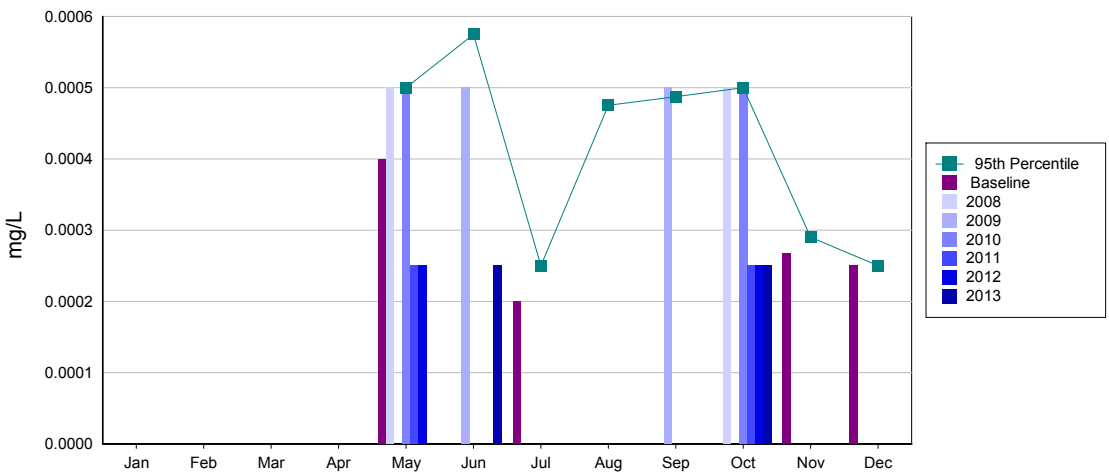
### GW96-2b - Tailings Impoundment East Well (shallow) : Diss-Copper (Cu) (mg/L)




### GW96-2b - Tailings Impoundment East Well (shallow) : Diss-Molybdenum (Mo) (mg/L)




### GW96-2b - Tailings Impoundment East Well (shallow) : Diss-Selenium (mg/L)



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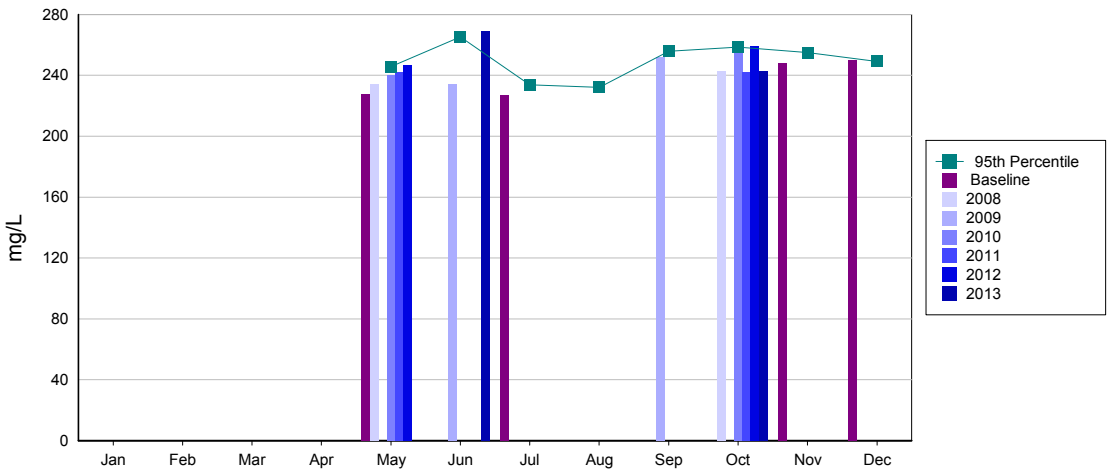
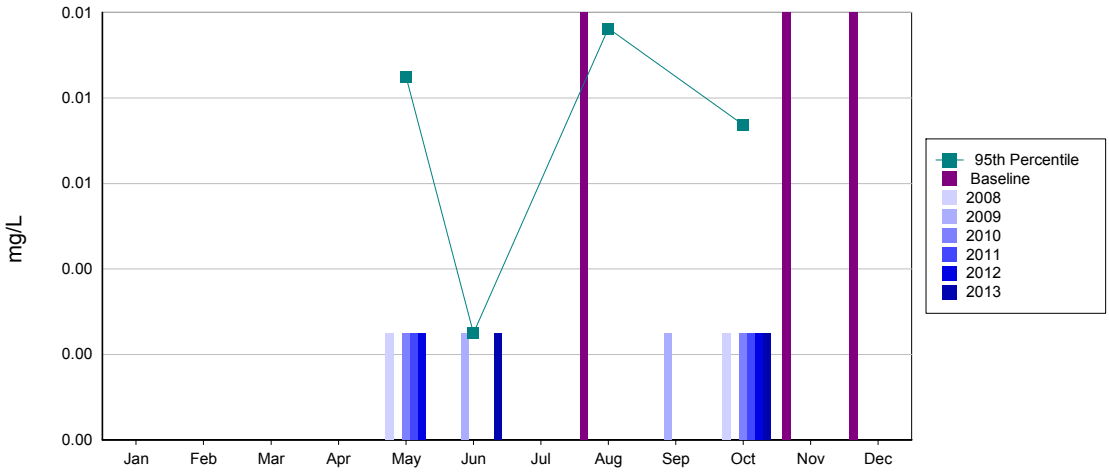
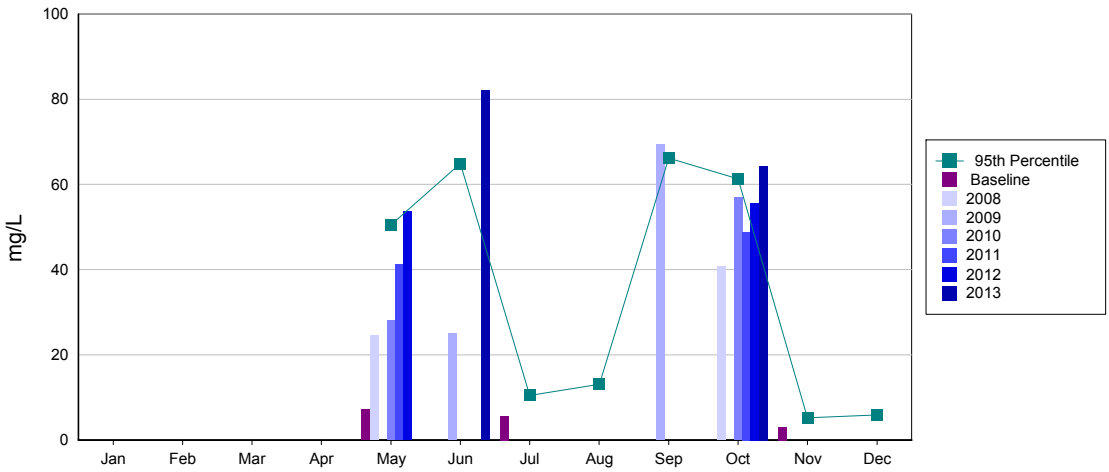
### GW96-2b - Tailings Impoundment East Well (shallow) : Hardness (mg/L)




### GW96-2b - Tailings Impoundment East Well (shallow) : Nitrate (N) (mg/L)




### GW96-2b - Tailings Impoundment East Well (shallow) : Sulphate (mg/L)



# Water Quality Report

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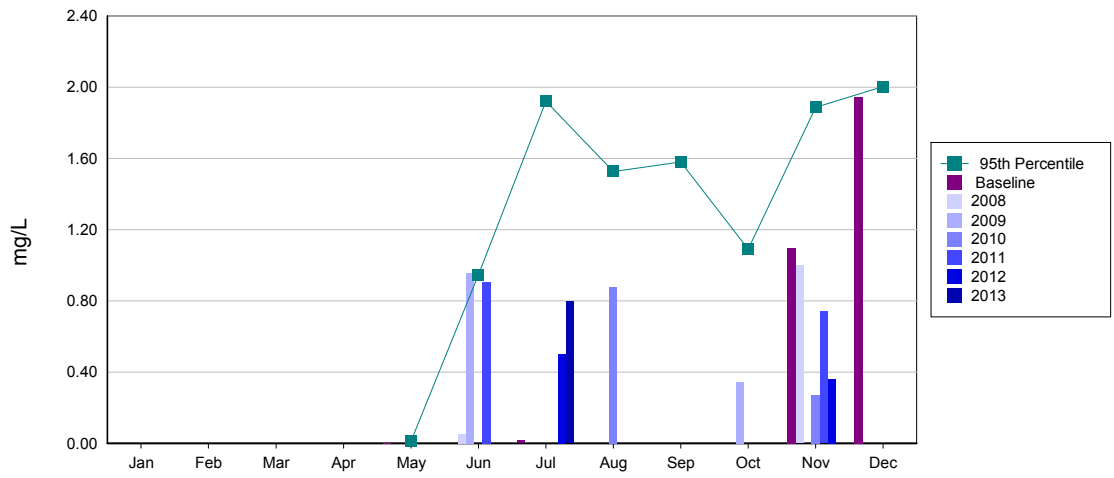
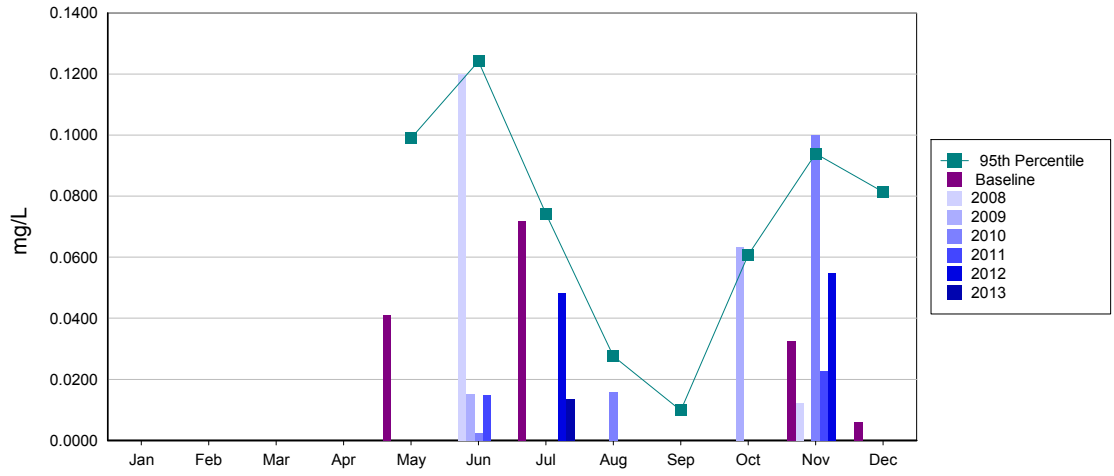
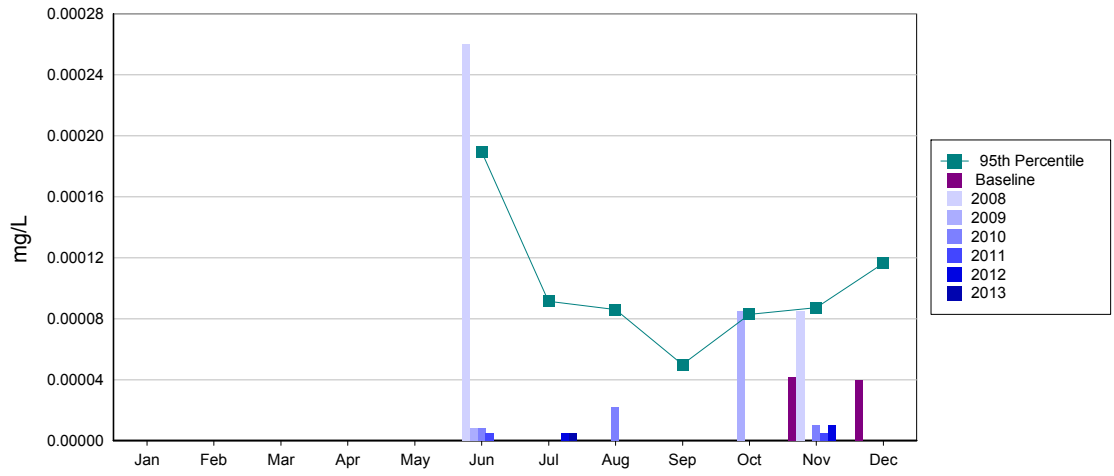
### GW96-3a - Tailings Impoundment SE Well (deep) : Diss-Aluminum (Al) (mg/L)




### GW96-3a - Tailings Impoundment SE Well (deep) : Diss-Arsenic (As) (mg/L)




### GW96-3a - Tailings Impoundment SE Well (deep) : Diss-Cadmium (Cd) (mg/L)



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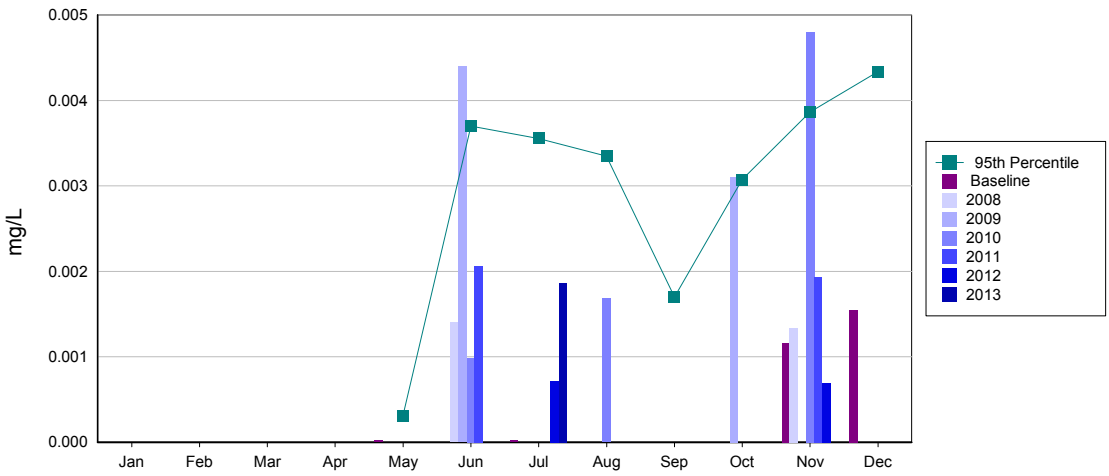
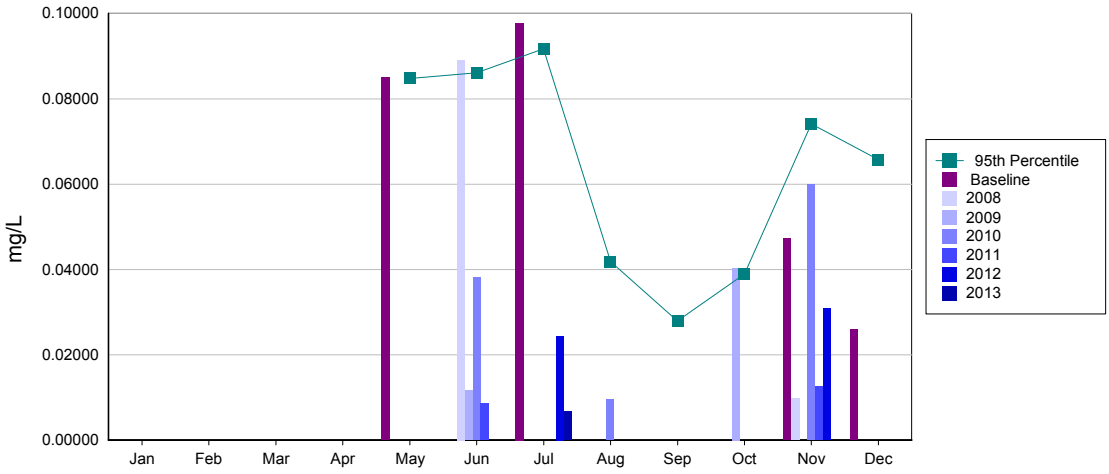
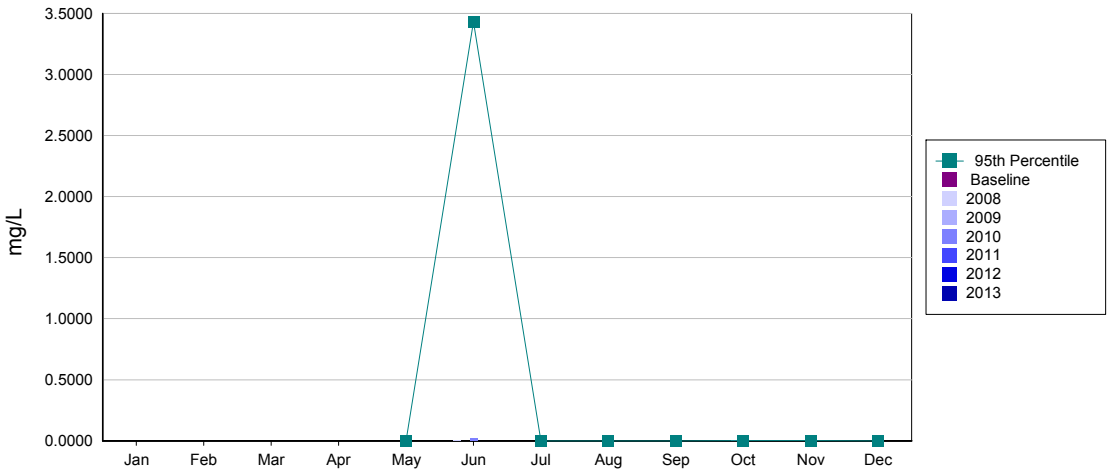
### GW96-3a - Tailings Impoundment SE Well (deep) : Diss-Copper (Cu) (mg/L)




### GW96-3a - Tailings Impoundment SE Well (deep) : Diss-Molybdenum (Mo) (mg/L)




### GW96-3a - Tailings Impoundment SE Well (deep) : Diss-Selenium (mg/L)



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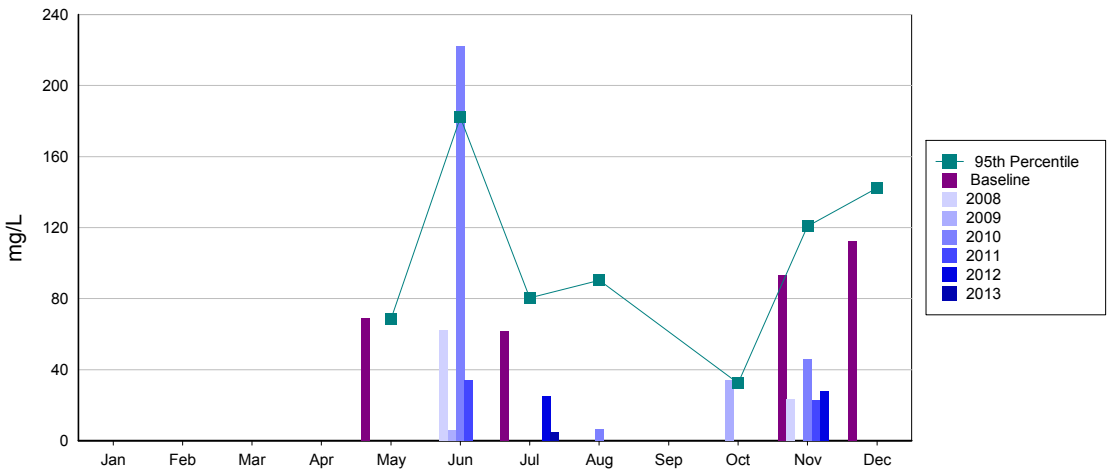
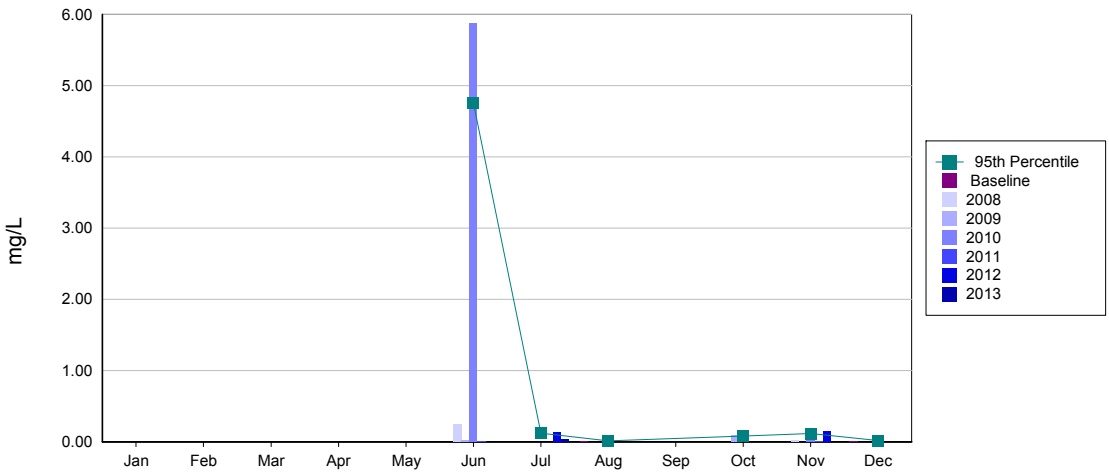
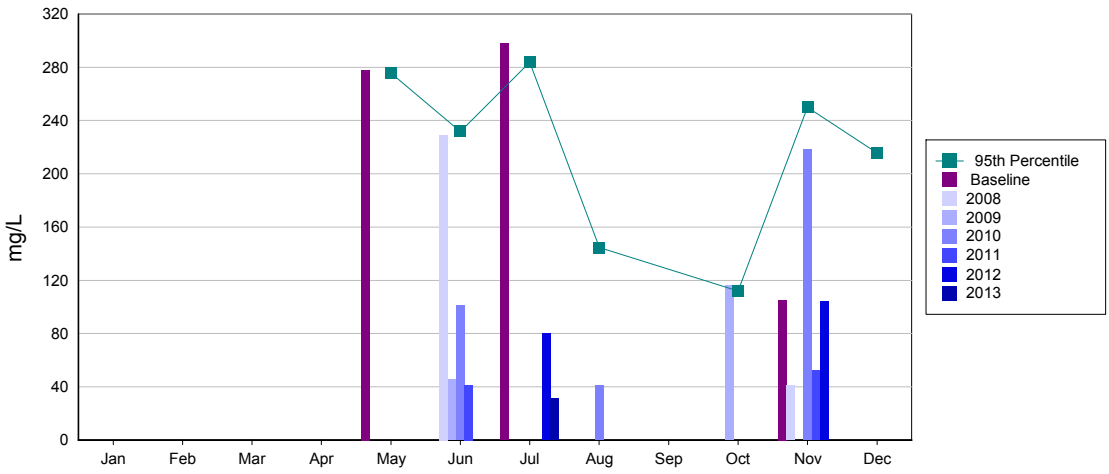
### GW96-3a - Tailings Impoundment SE Well (deep) : Hardness (mg/L)




### GW96-3a - Tailings Impoundment SE Well (deep) : Nitrate (N) (mg/L)




### GW96-3a - Tailings Impoundment SE Well (deep) : Sulphate (mg/L)



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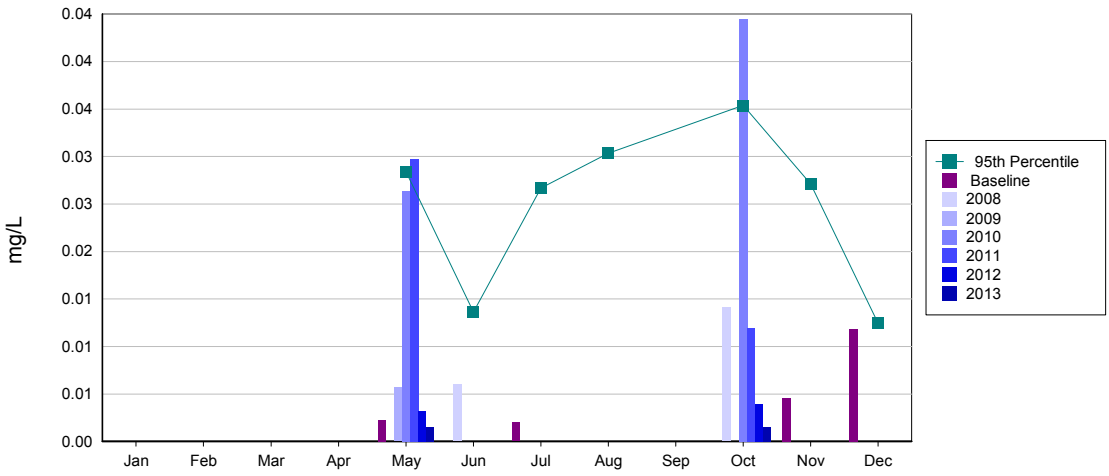
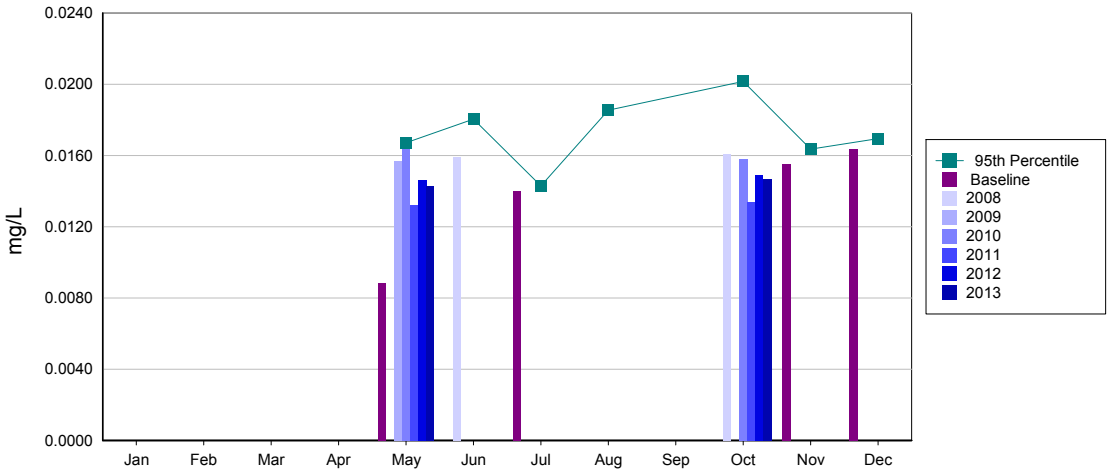
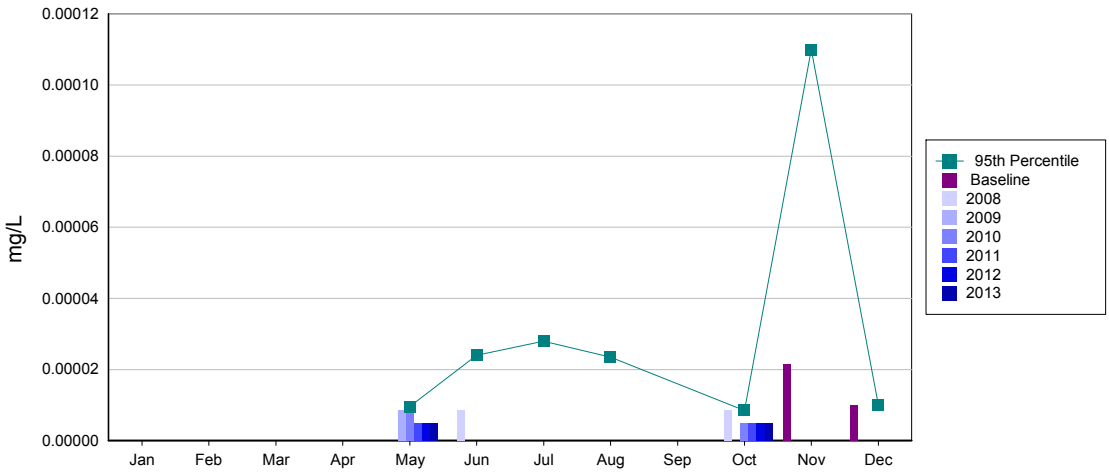
### GW96-3b - Tailings Impoundment SE Well (shallow) : Diss-Aluminum (Al) (mg/L)




### GW96-3b - Tailings Impoundment SE Well (shallow) : Diss-Arsenic (As) (mg/L)




### GW96-3b - Tailings Impoundment SE Well (shallow) : Diss-Cadmium (Cd) (mg/L)



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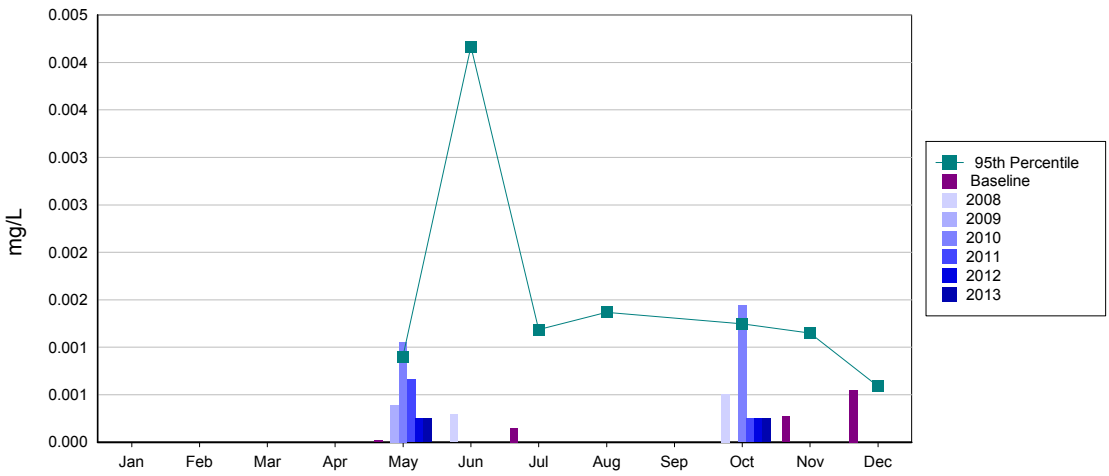
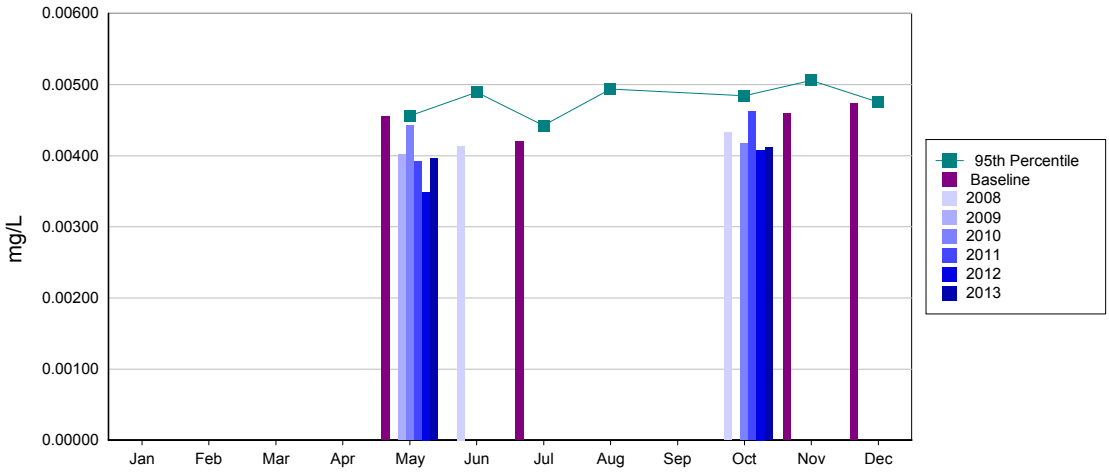
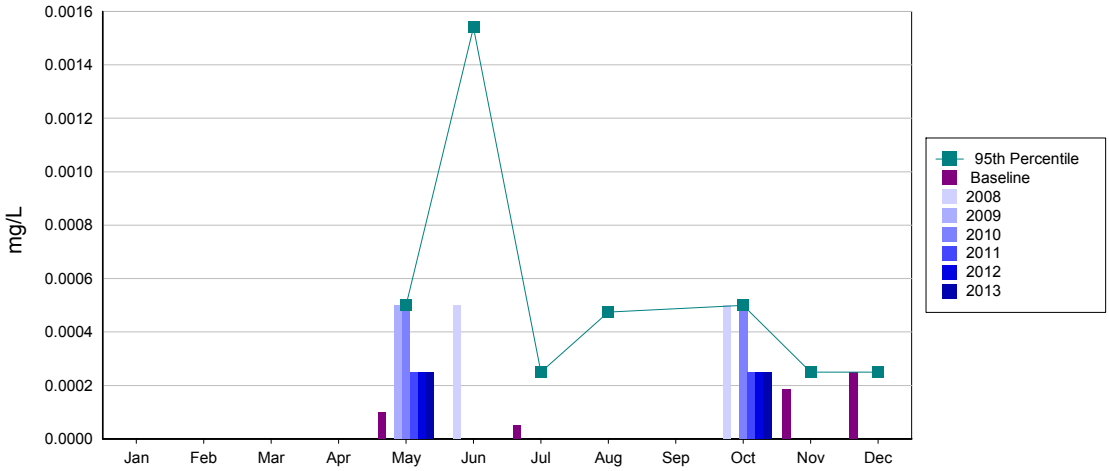
### GW96-3b - Tailings Impoundment SE Well (shallow) : Diss-Copper (Cu) (mg/L)




### GW96-3b - Tailings Impoundment SE Well (shallow) : Diss-Molybdenum (Mo) (mg/L)




### GW96-3b - Tailings Impoundment SE Well (shallow) : Diss-Selenium (mg/L)



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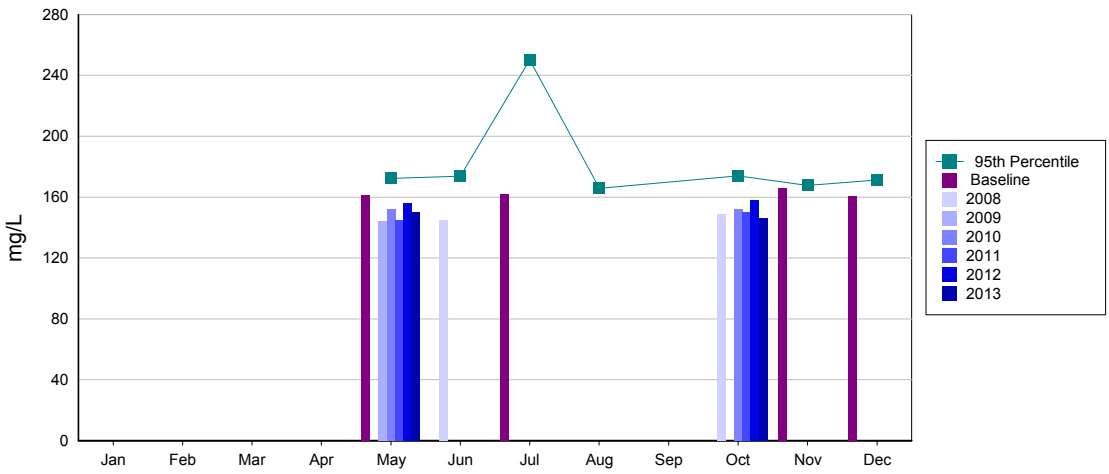
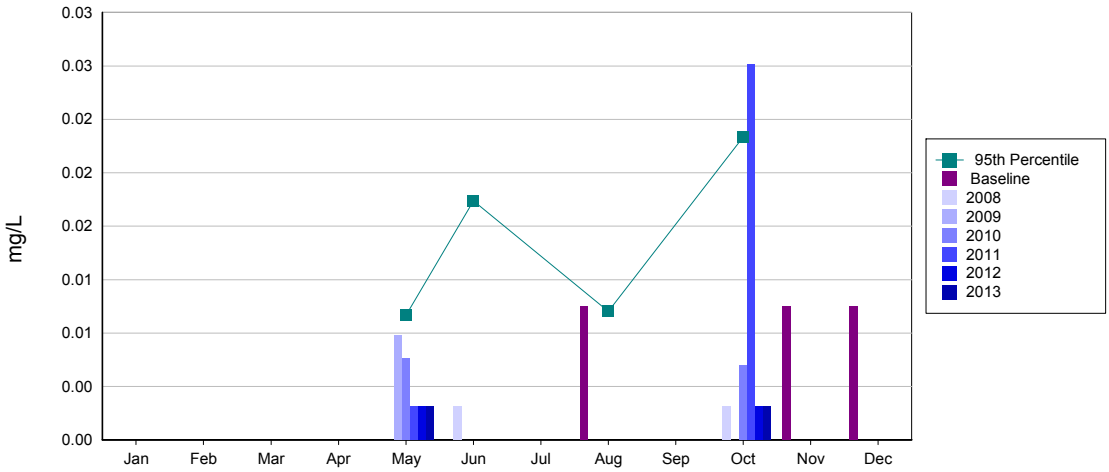
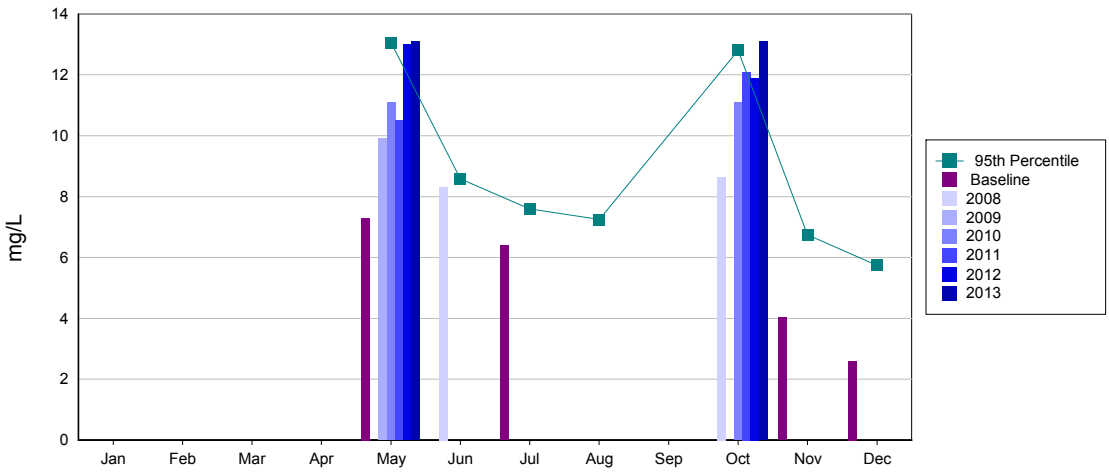
### GW96-3b - Tailings Impoundment SE Well (shallow) : Hardness (mg/L)




### GW96-3b - Tailings Impoundment SE Well (shallow) : Nitrate (N) (mg/L)




### GW96-3b - Tailings Impoundment SE Well (shallow) : Sulphate (mg/L)



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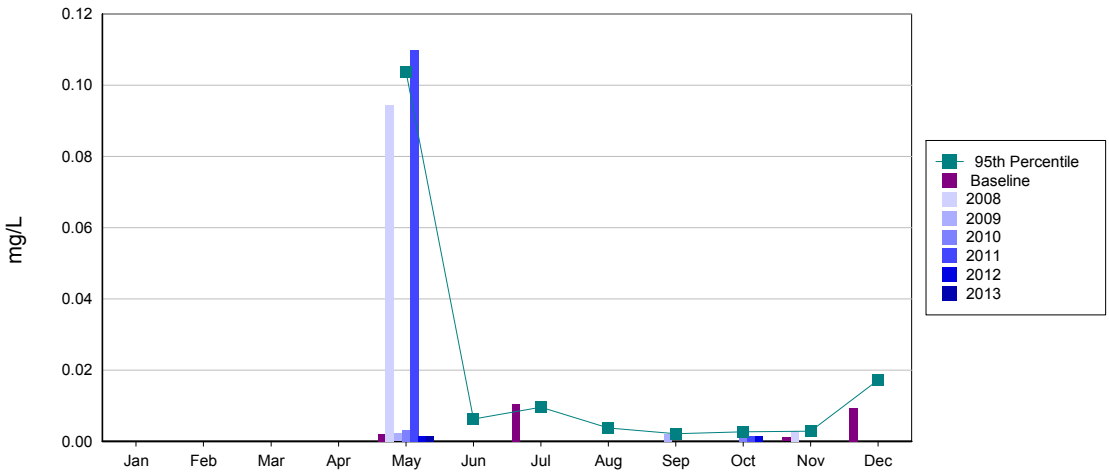
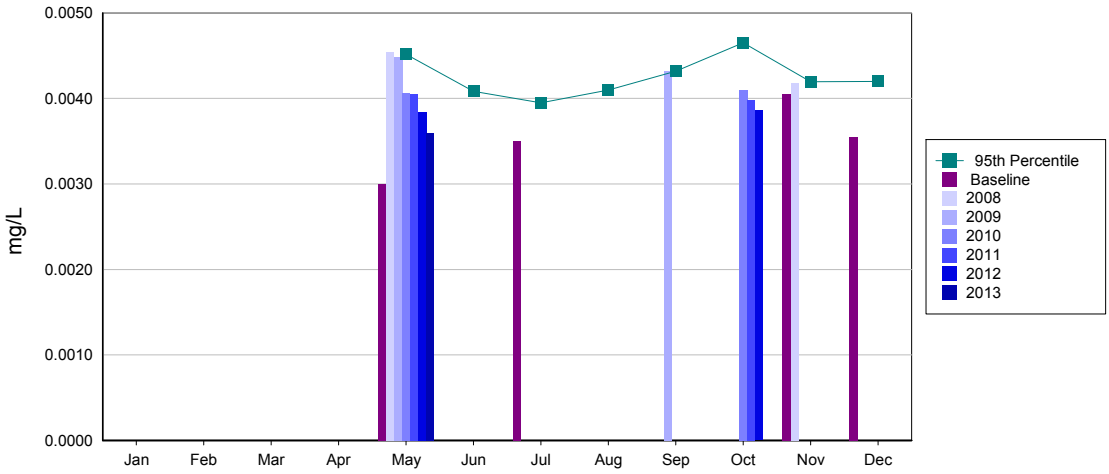
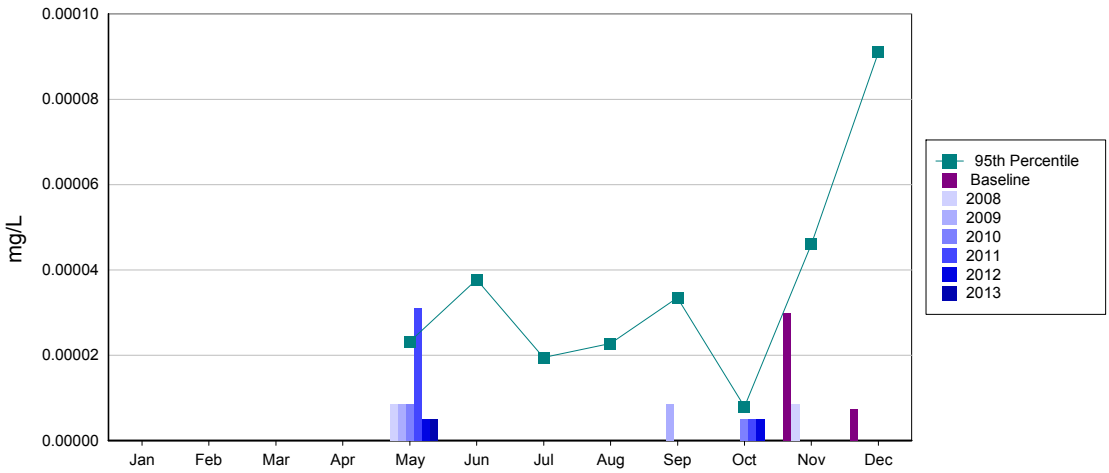
### GW96-4a - Tailings Impoundment SW Well (deep) : Diss-Aluminum (Al) (mg/L)




### GW96-4a - Tailings Impoundment SW Well (deep) : Diss-Arsenic (As) (mg/L)




### GW96-4a - Tailings Impoundment SW Well (deep) : Diss-Cadmium (Cd) (mg/L)



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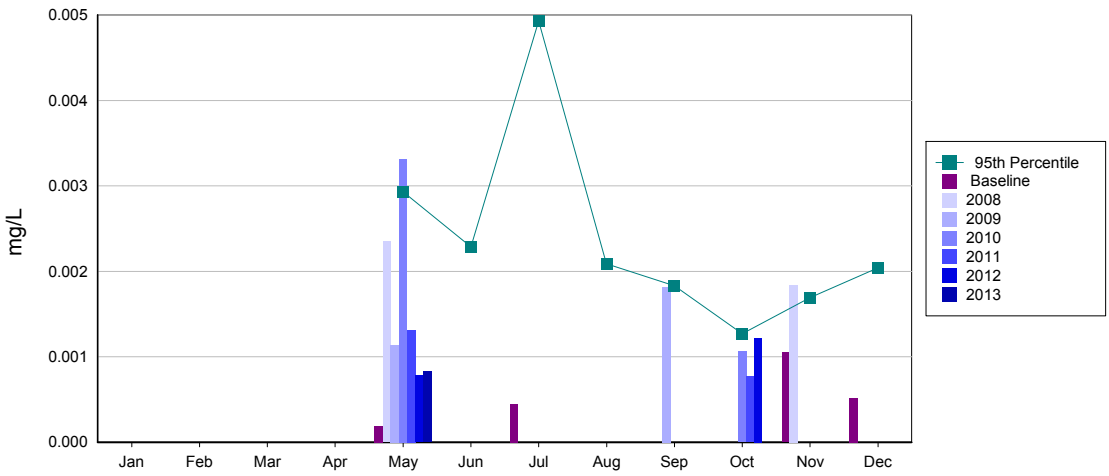
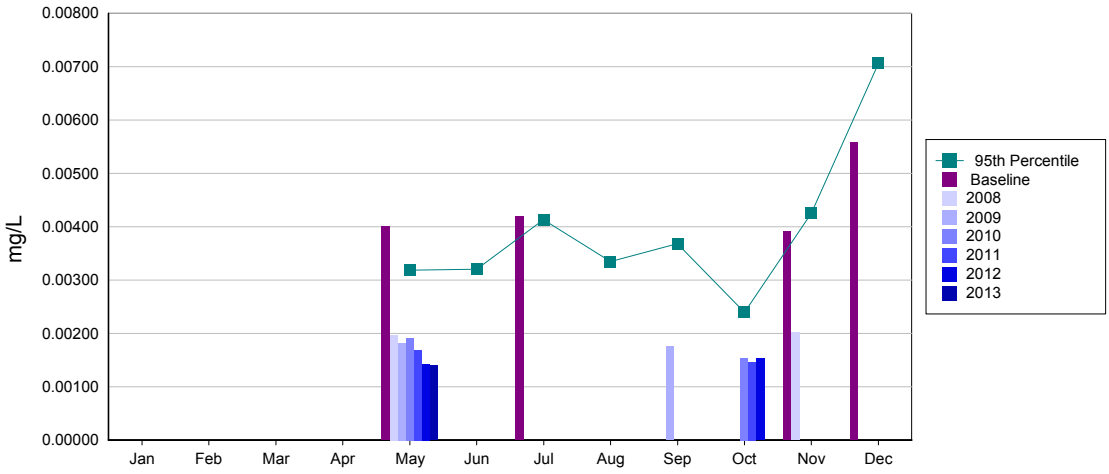
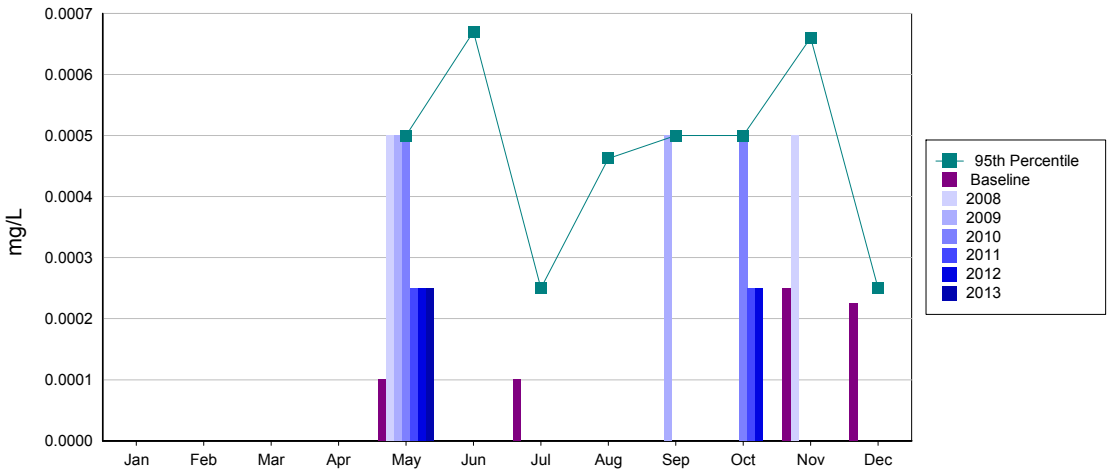
### GW96-4a - Tailings Impoundment SW Well (deep) : Diss-Copper (Cu) (mg/L)




### GW96-4a - Tailings Impoundment SW Well (deep) : Diss-Molybdenum (Mo) (mg/L)




### GW96-4a - Tailings Impoundment SW Well (deep) : Diss-Selenium (mg/L)



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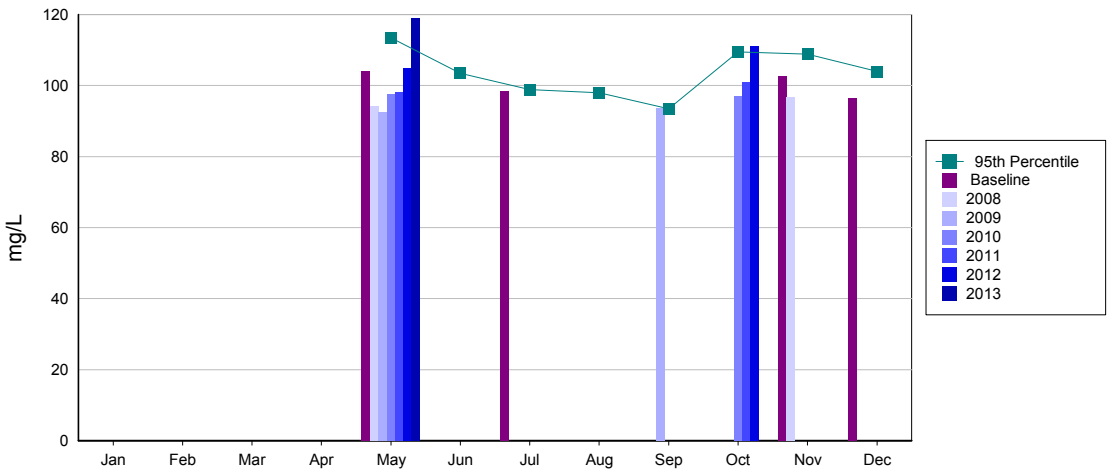
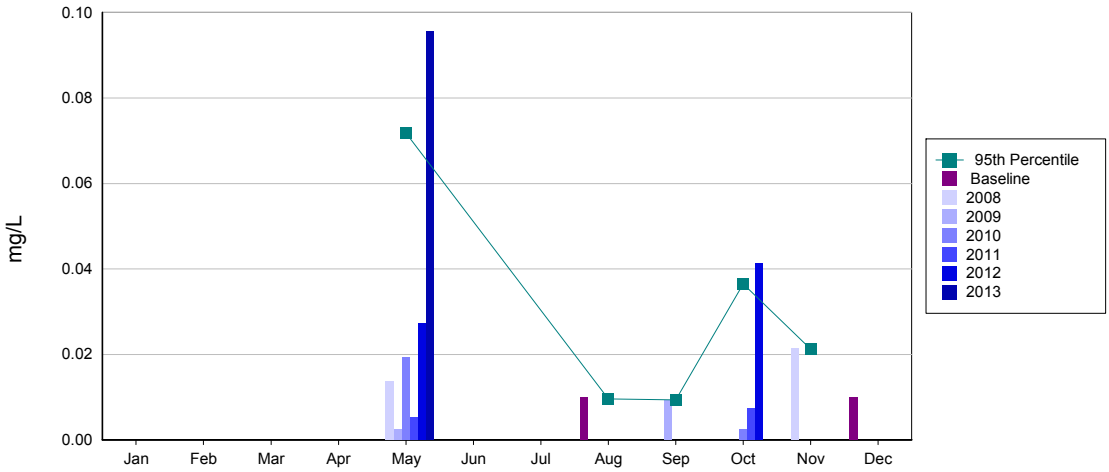
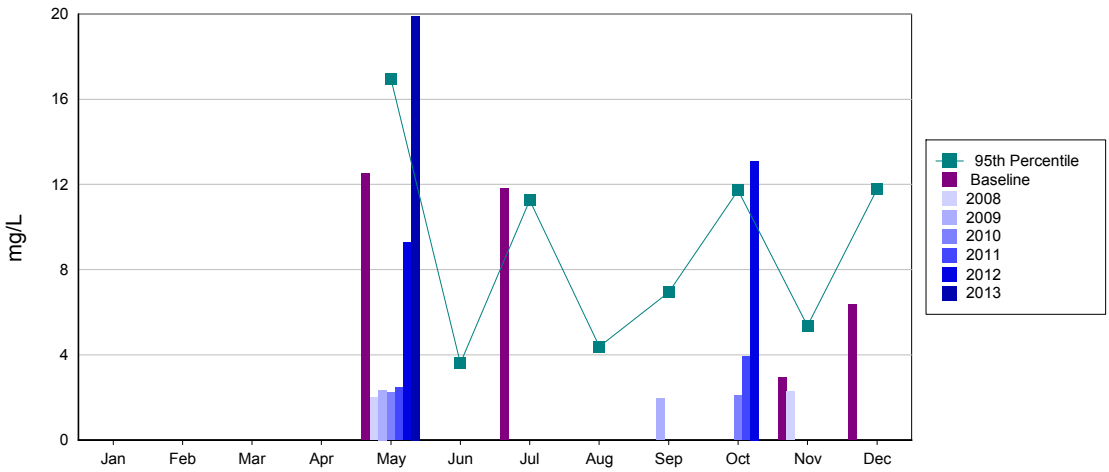
### GW96-4a - Tailings Impoundment SW Well (deep) : Hardness (mg/L)




### GW96-4a - Tailings Impoundment SW Well (deep) : Nitrate (N) (mg/L)




### GW96-4a - Tailings Impoundment SW Well (deep) : Sulphate (mg/L)



# Water Quality Report

## Annual Report - Groundwater Graphs

**Mount Polley**

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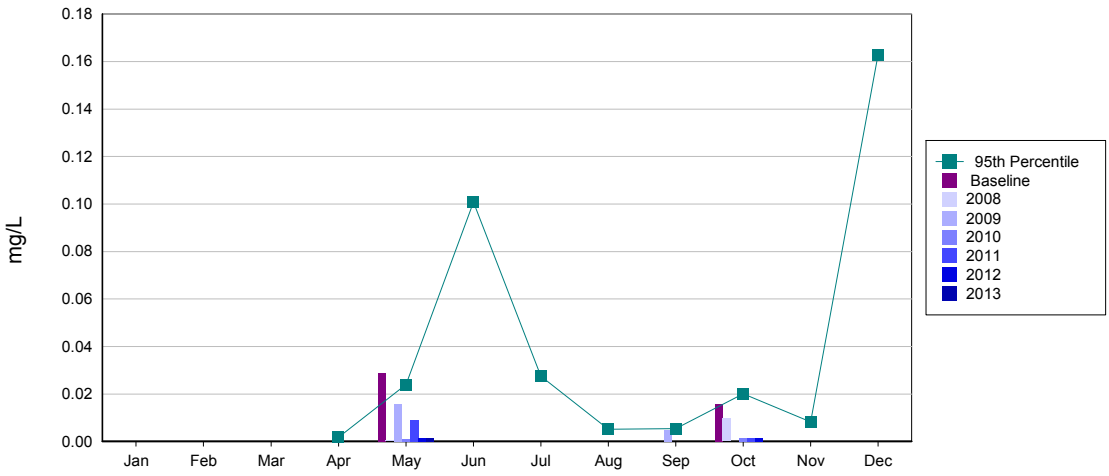


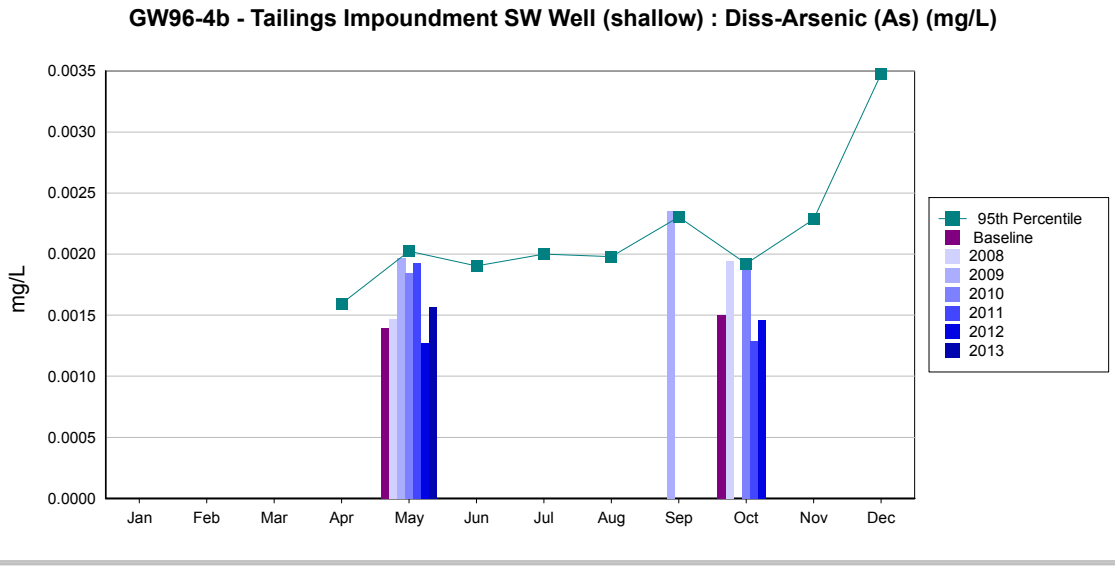


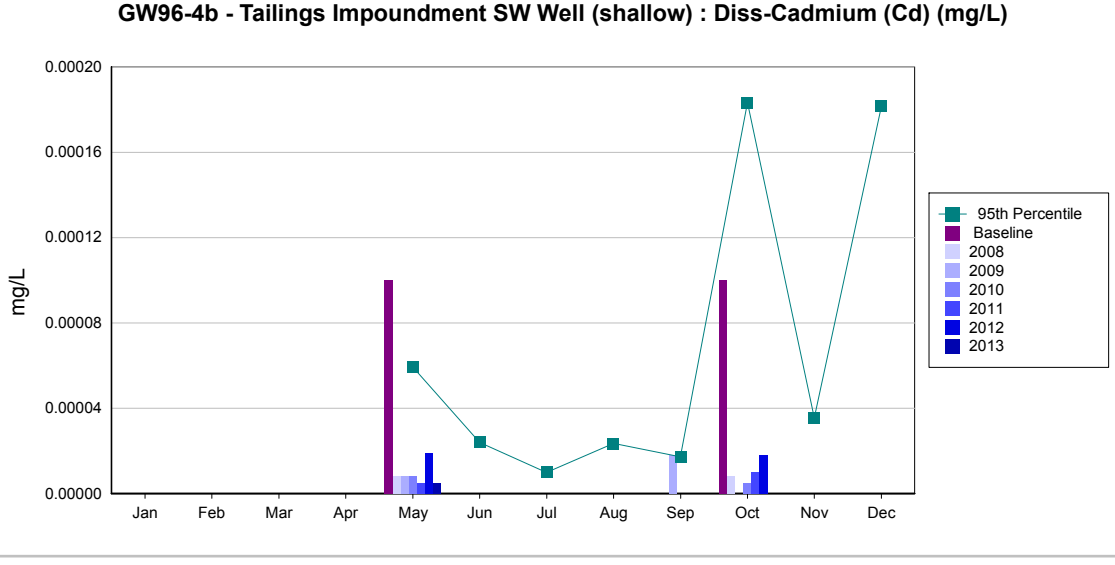

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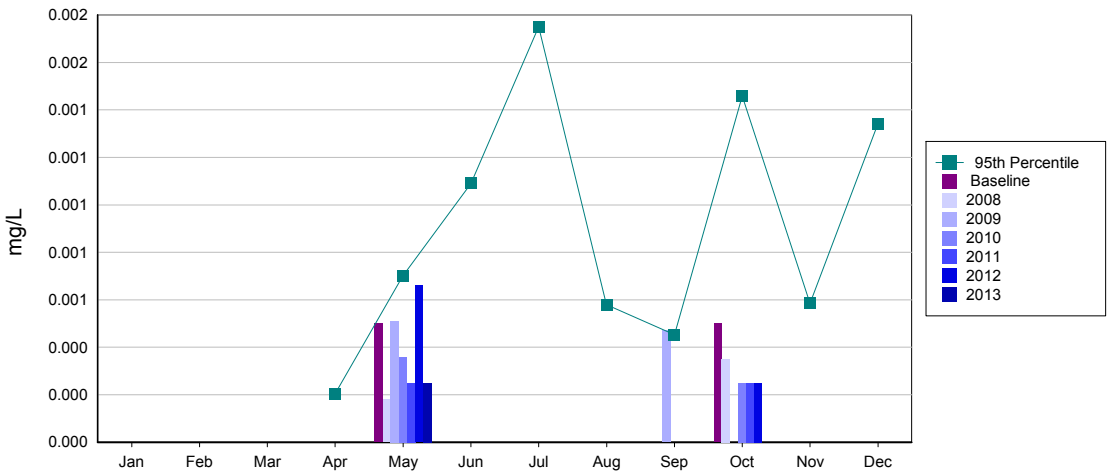
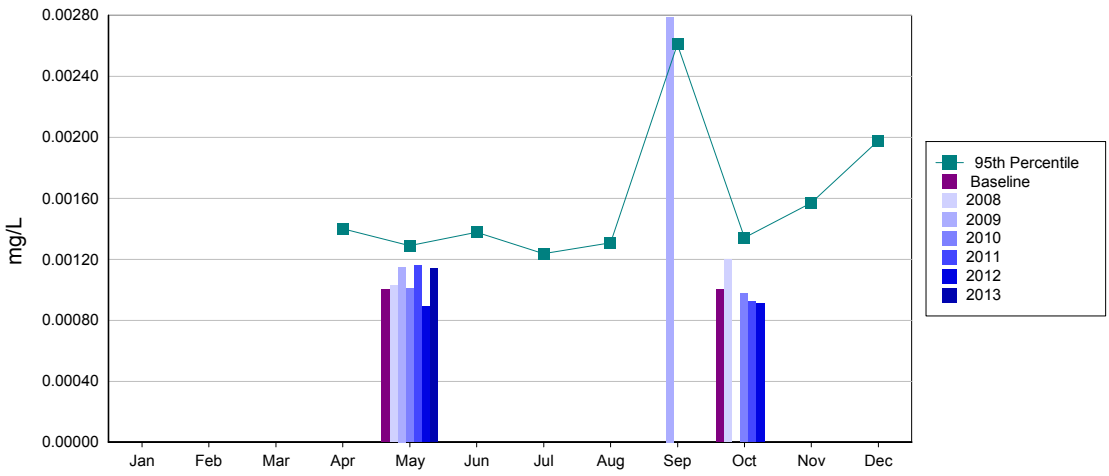
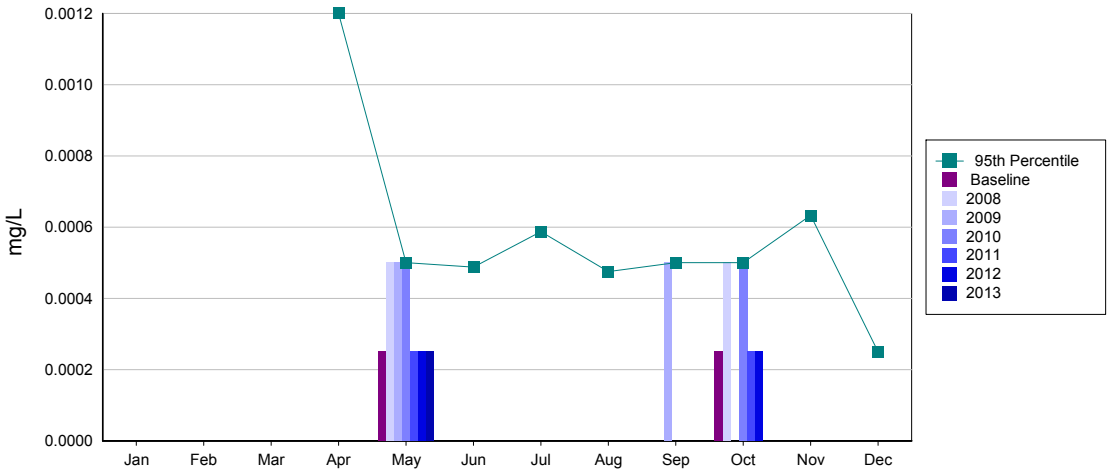
### GW96-4b - Tailings Impoundment SW Well (shallow) : Diss-Copper (Cu) (mg/L)




### GW96-4b - Tailings Impoundment SW Well (shallow) : Diss-Molybdenum (Mo) (mg/L)




### GW96-4b - Tailings Impoundment SW Well (shallow) : Diss-Selenium (mg/L)



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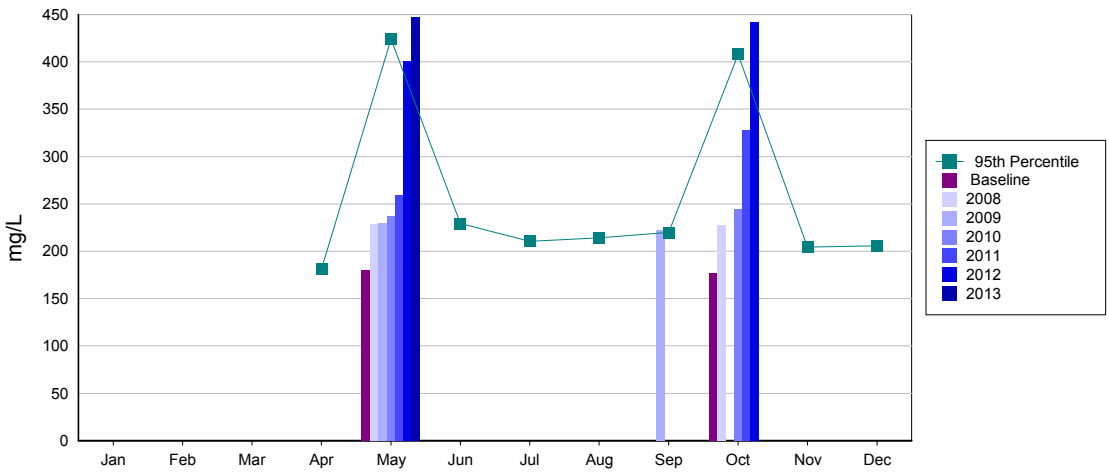
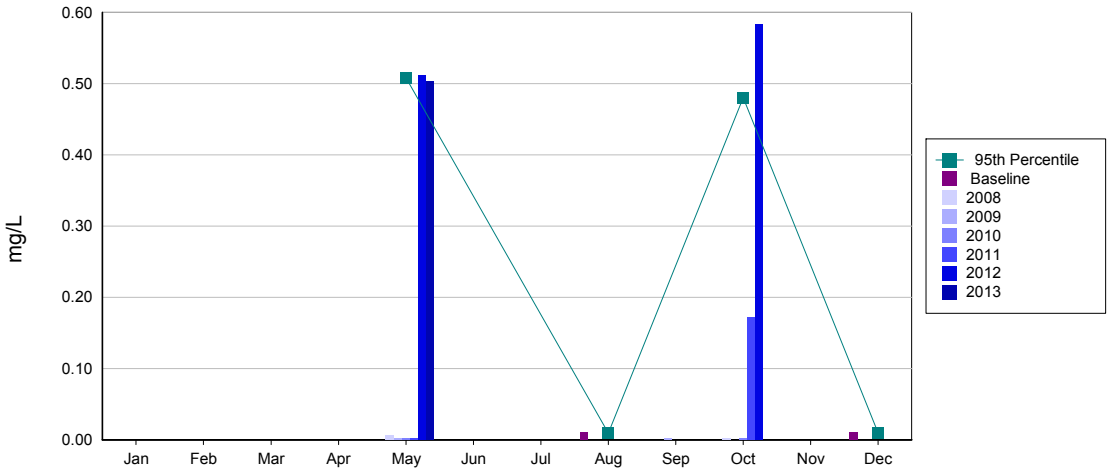
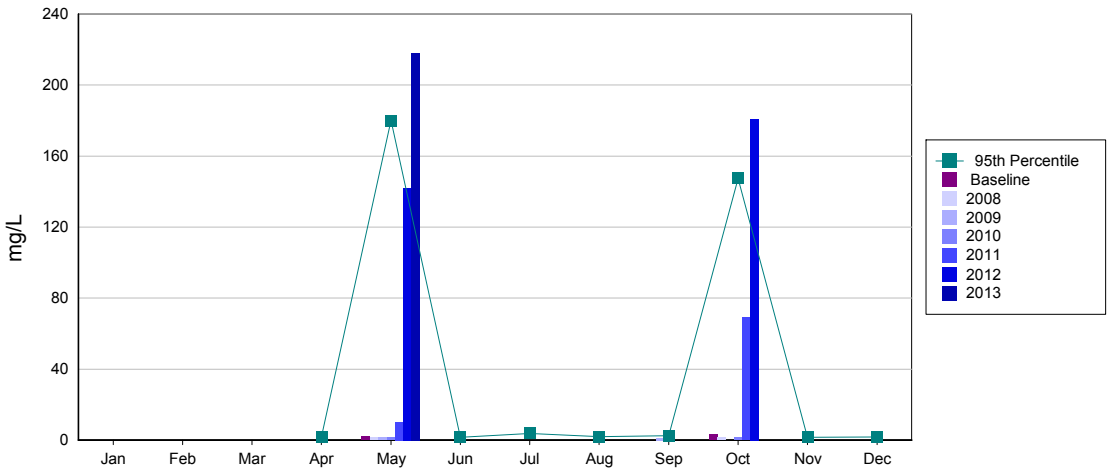
### GW96-4b - Tailings Impoundment SW Well (shallow) : Hardness (mg/L)




### GW96-4b - Tailings Impoundment SW Well (shallow) : Nitrate (N) (mg/L)




### GW96-4b - Tailings Impoundment SW Well (shallow) : Sulphate (mg/L)



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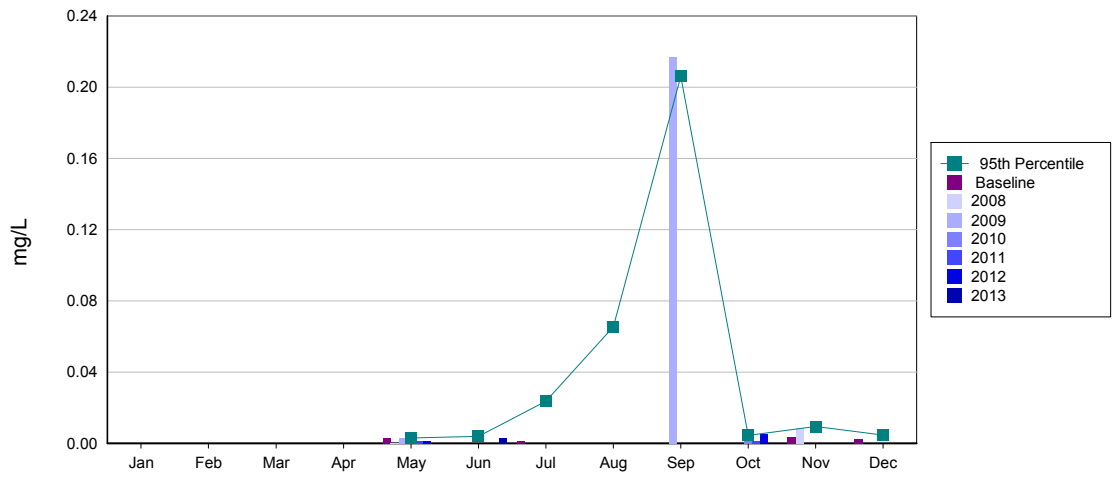
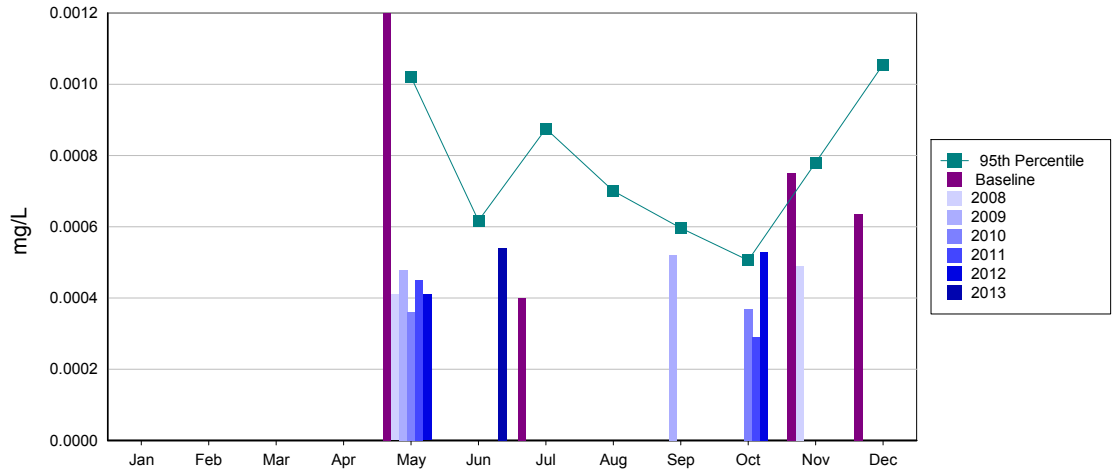
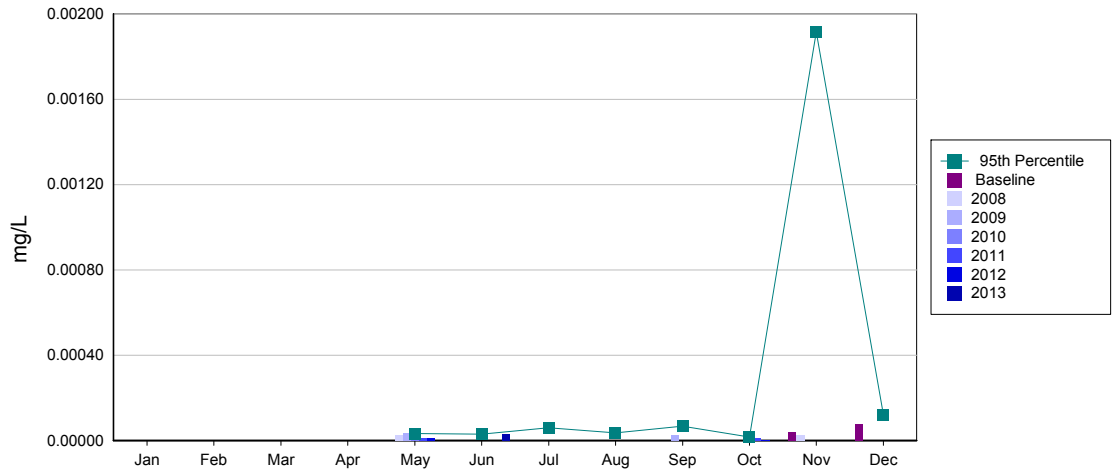
### GW96-5a - Tailings Impoundment Background Well (de : Diss-Aluminum (Al) (mg/L)




### GW96-5a - Tailings Impoundment Background Well (de : Diss-Arsenic (As) (mg/L)




### GW96-5a - Tailings Impoundment Background Well (de : Diss-Cadmium (Cd) (mg/L)



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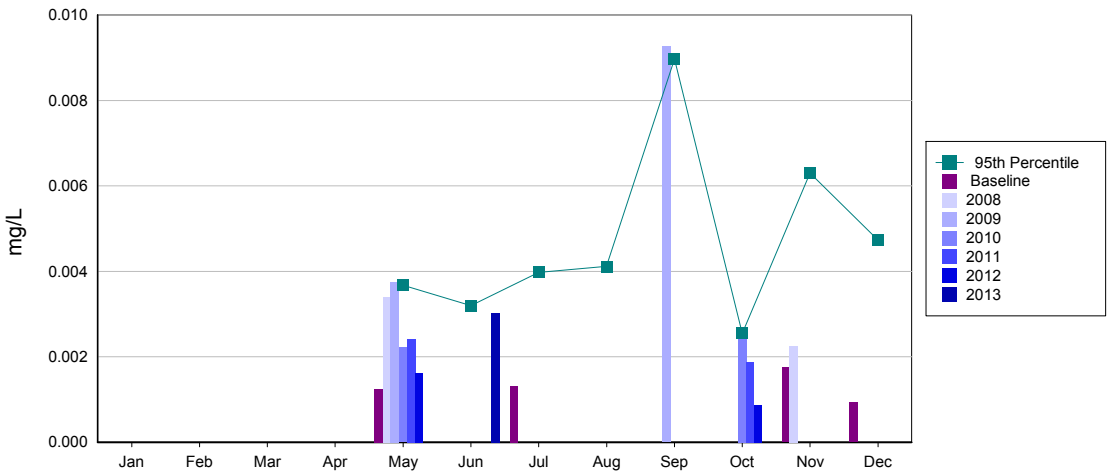
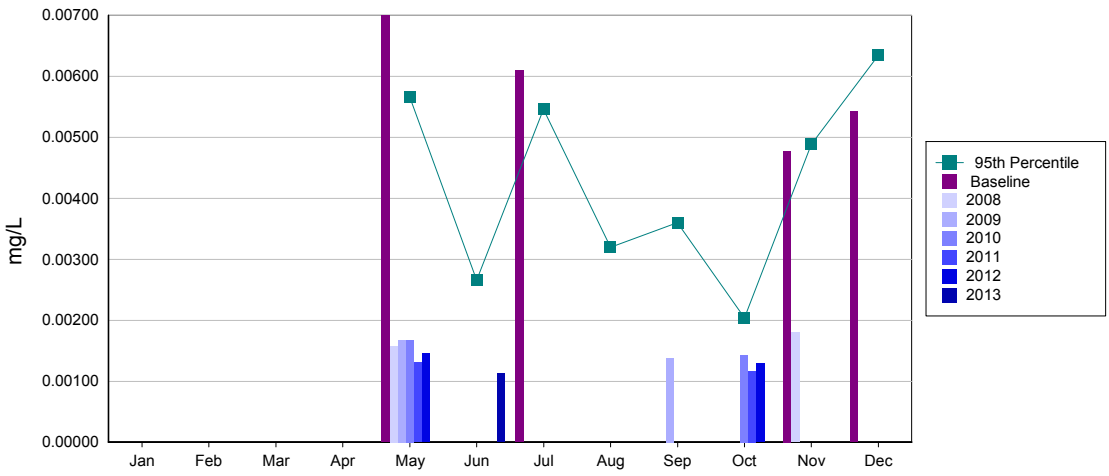
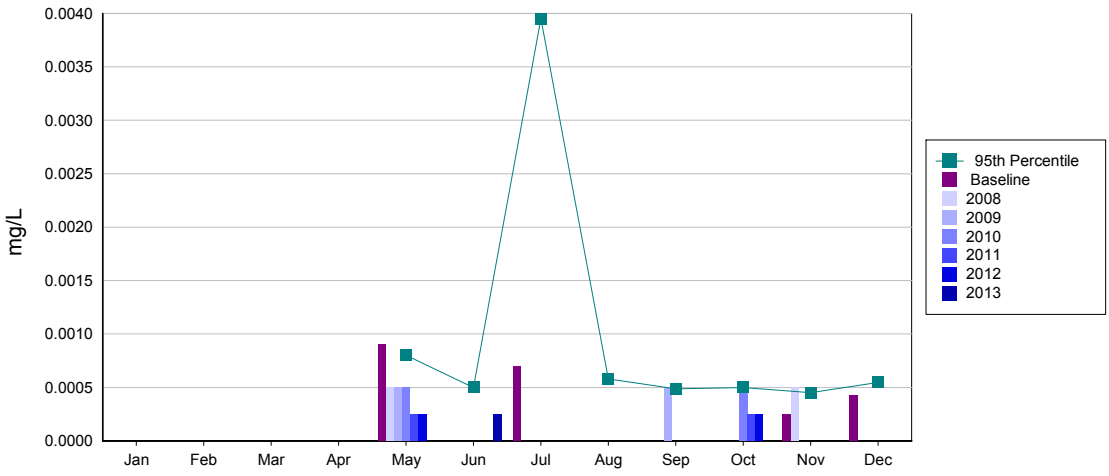
### GW96-5a - Tailings Impoundment Background Well (de : Diss-Copper (Cu) (mg/L)




### GW96-5a - Tailings Impoundment Background Well (de : Diss-Molybdenum (Mo) (mg/L)




### GW96-5a - Tailings Impoundment Background Well (de : Diss-Selenium (mg/L)



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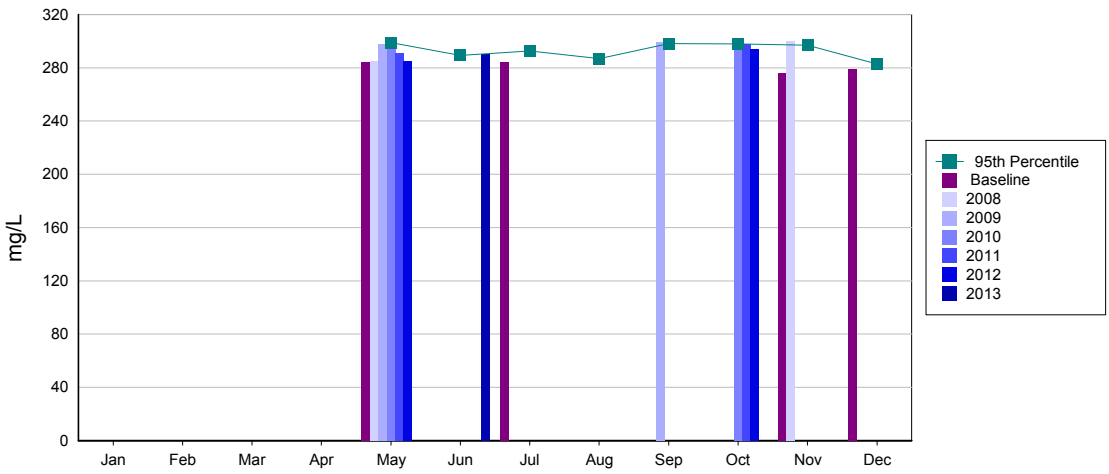
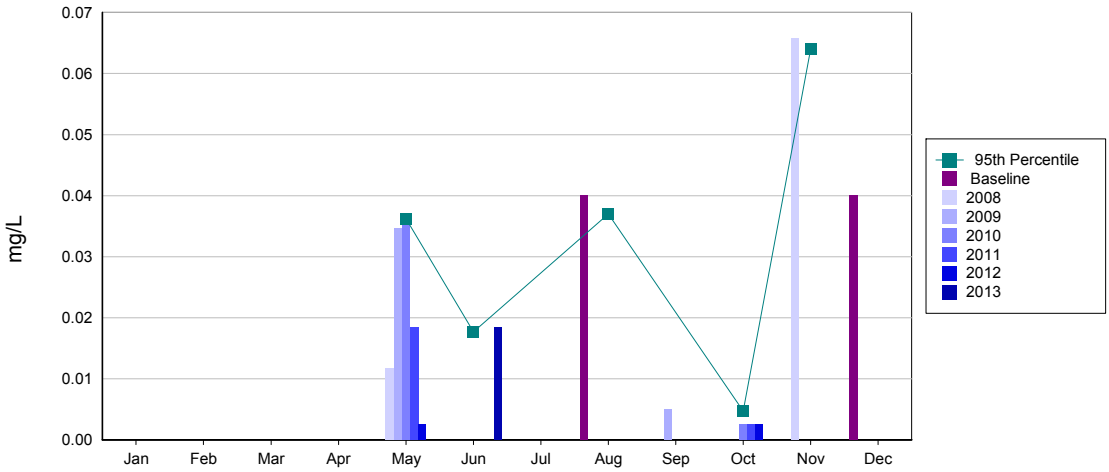
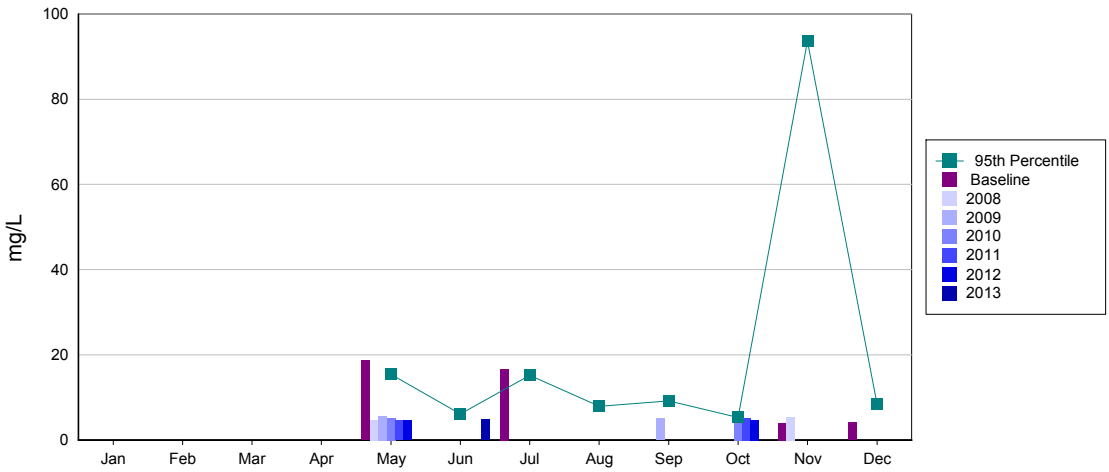
### GW96-5a - Tailings Impoundment Background Well (de : Hardness (mg/L)




### GW96-5a - Tailings Impoundment Background Well (de : Nitrate (N) (mg/L)




### GW96-5a - Tailings Impoundment Background Well (de : Sulphate (mg/L)



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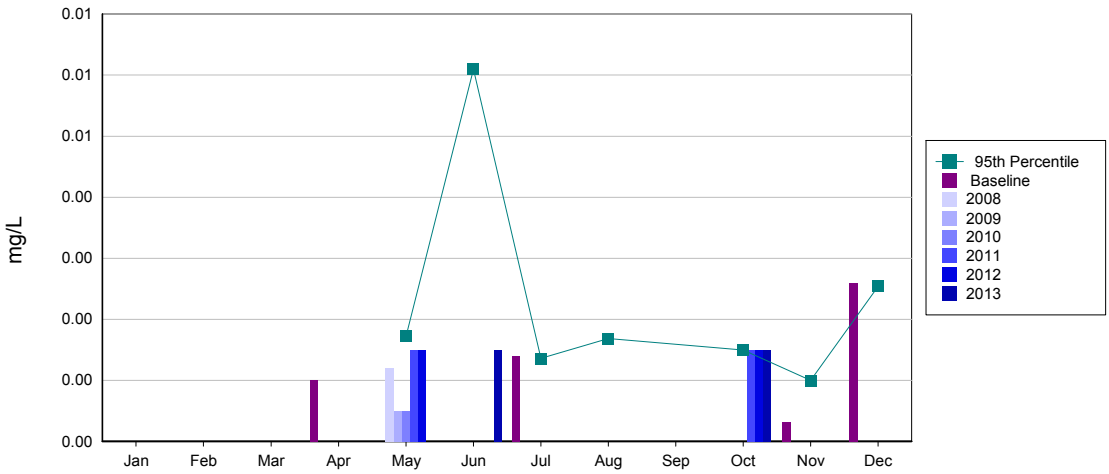
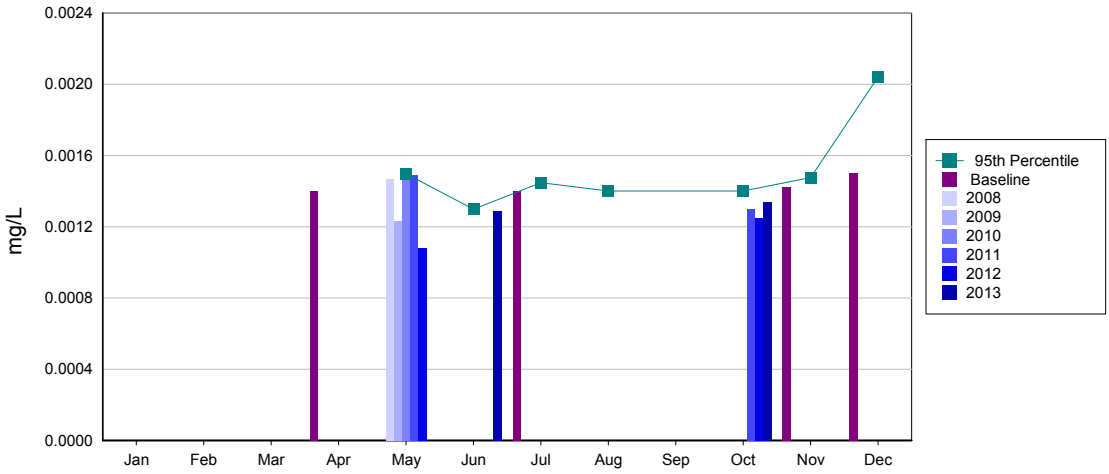
IMPERIAL METALS CORPORATION

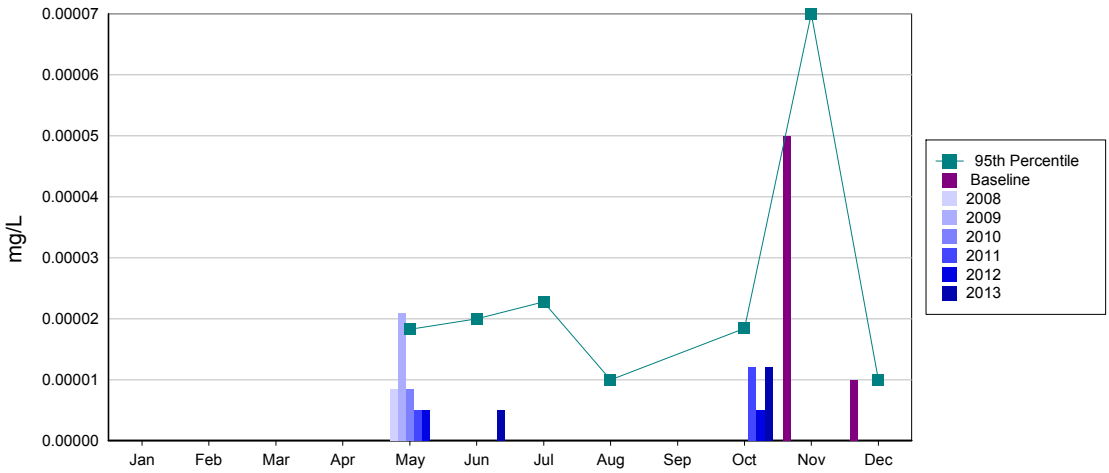
### GW96-7 - SE Sed Pond Well : Diss-Aluminum (Al) (mg/L)




### GW96-7 - SE Sed Pond Well : Diss-Arsenic (As) (mg/L)




### GW96-7 - SE Sed Pond Well : Diss-Cadmium (Cd) (mg/L)



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**Mount Polley**

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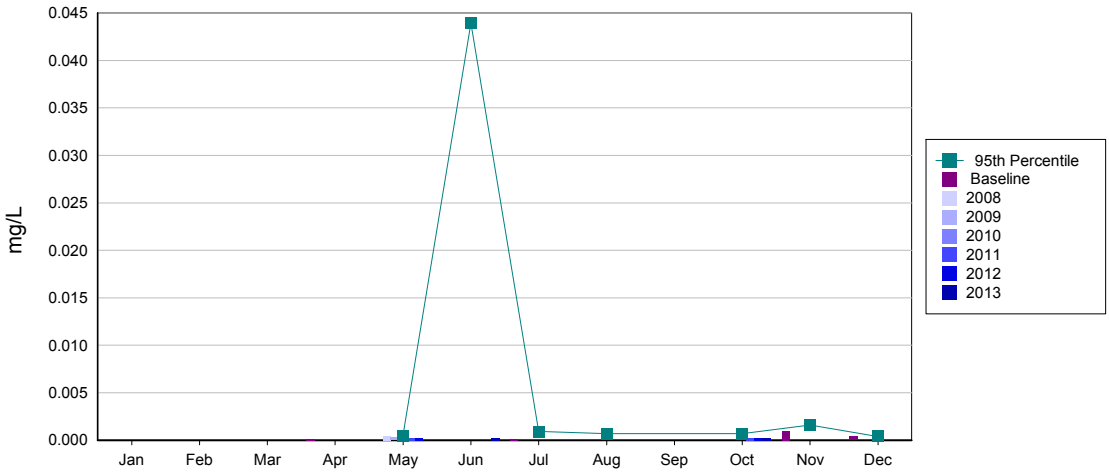


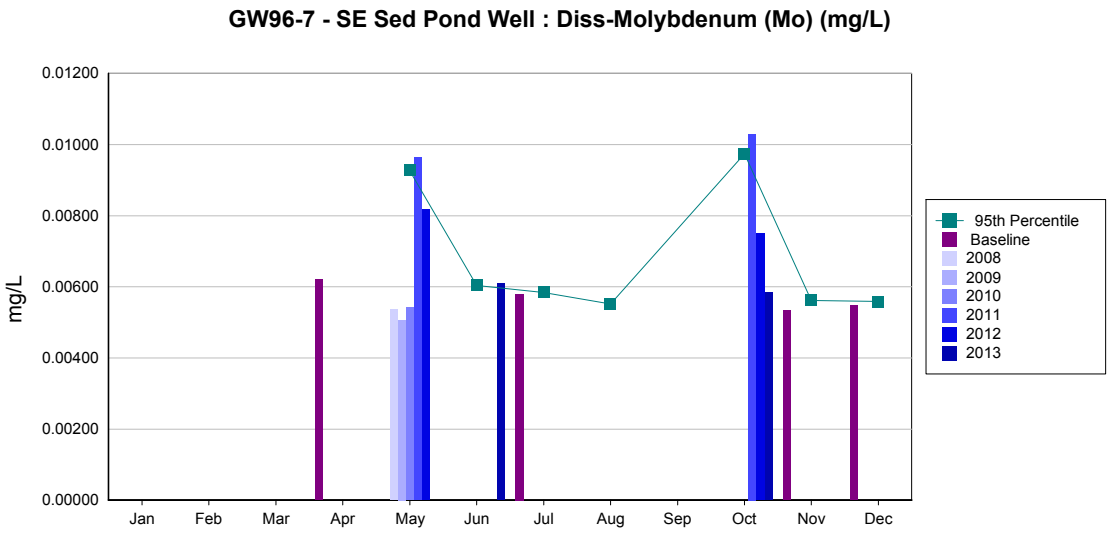


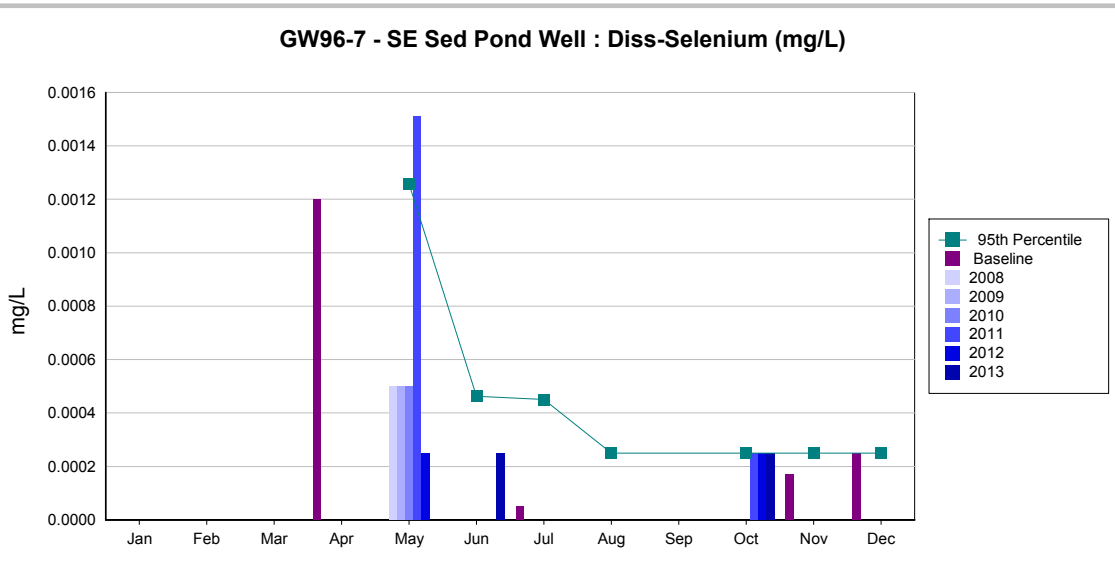

# Water Quality Report

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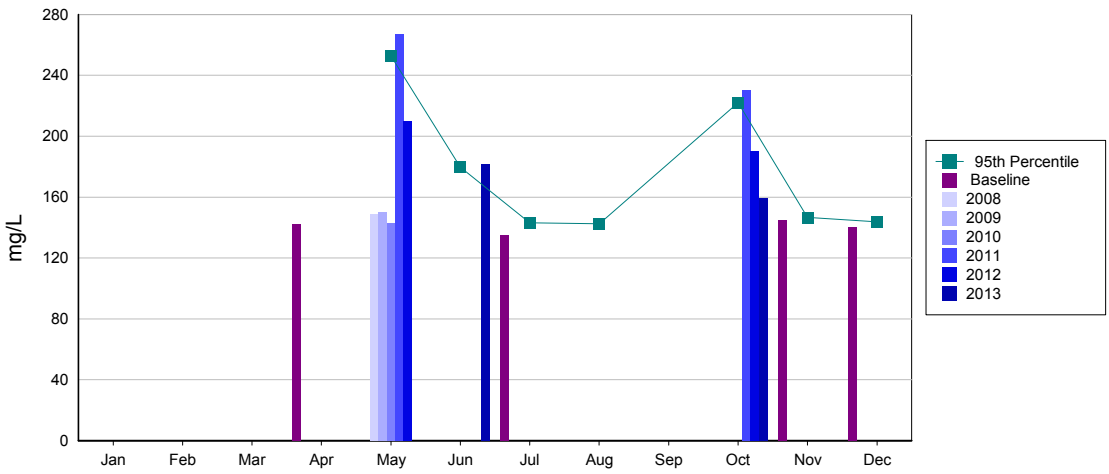


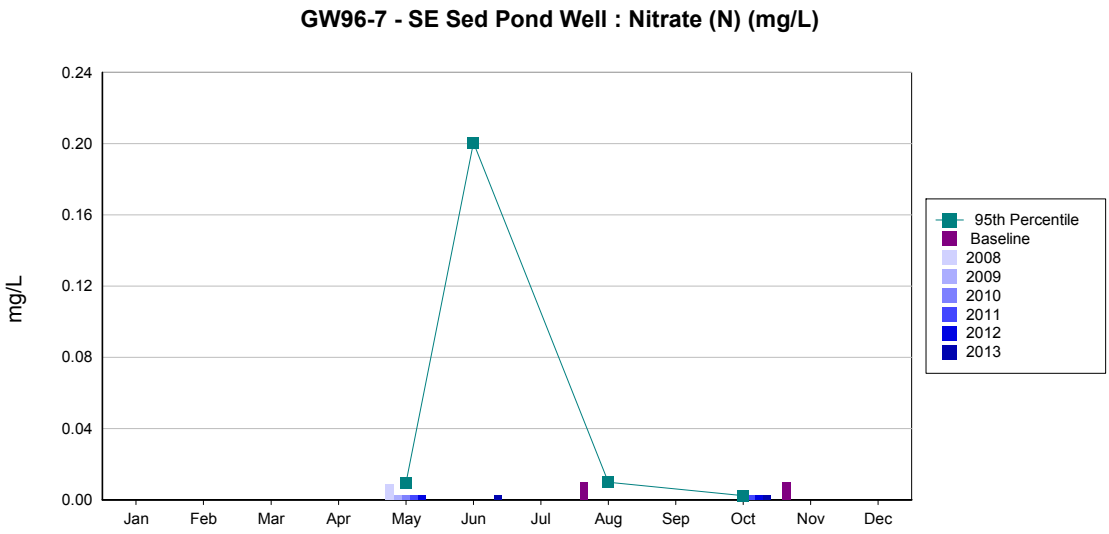


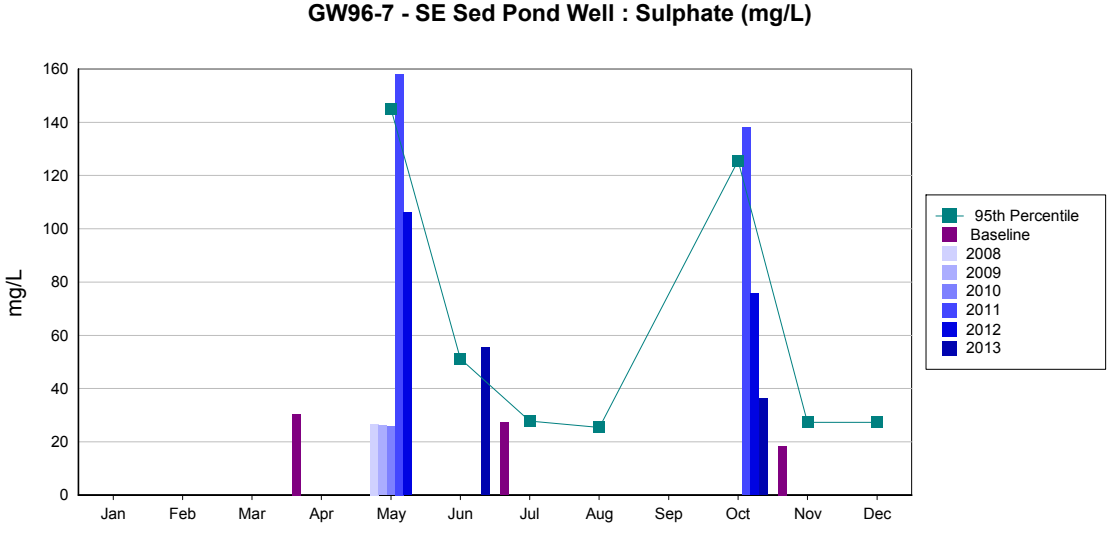

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Mount Polley Mining Corporation
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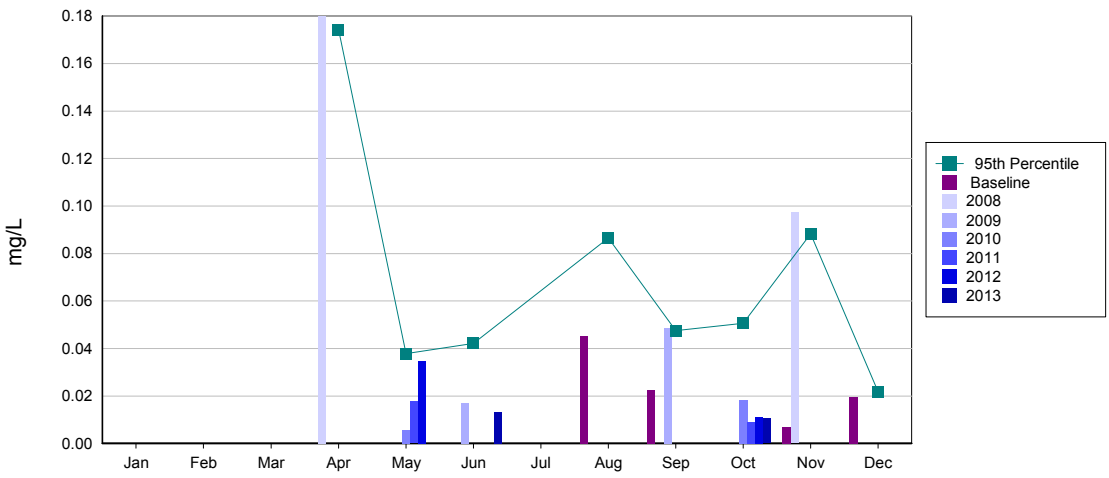
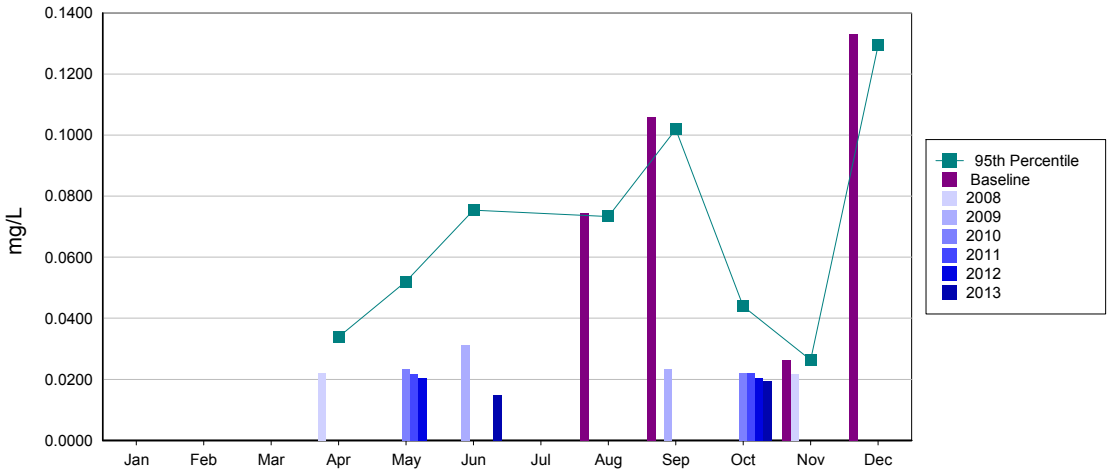
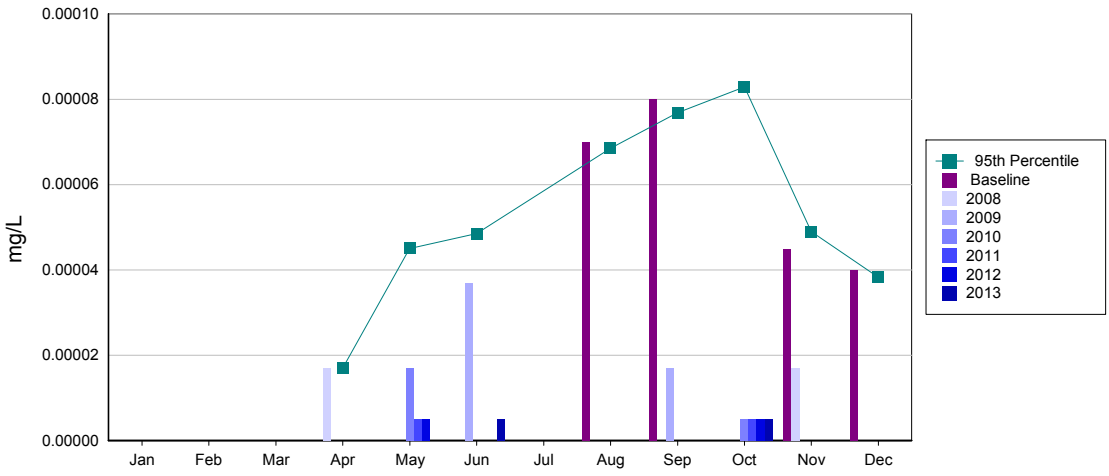
### GW00-1a - Tailings Impoundment West Well (deep) : Diss-Aluminum (Al) (mg/L)




### GW00-1a - Tailings Impoundment West Well (deep) : Diss-Arsenic (As) (mg/L)




### GW00-1a - Tailings Impoundment West Well (deep) : Diss-Cadmium (Cd) (mg/L)



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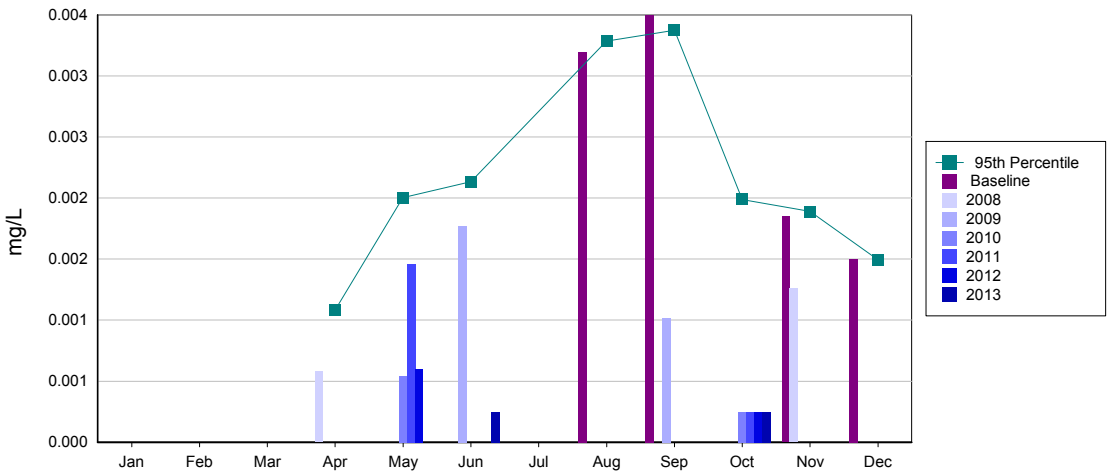
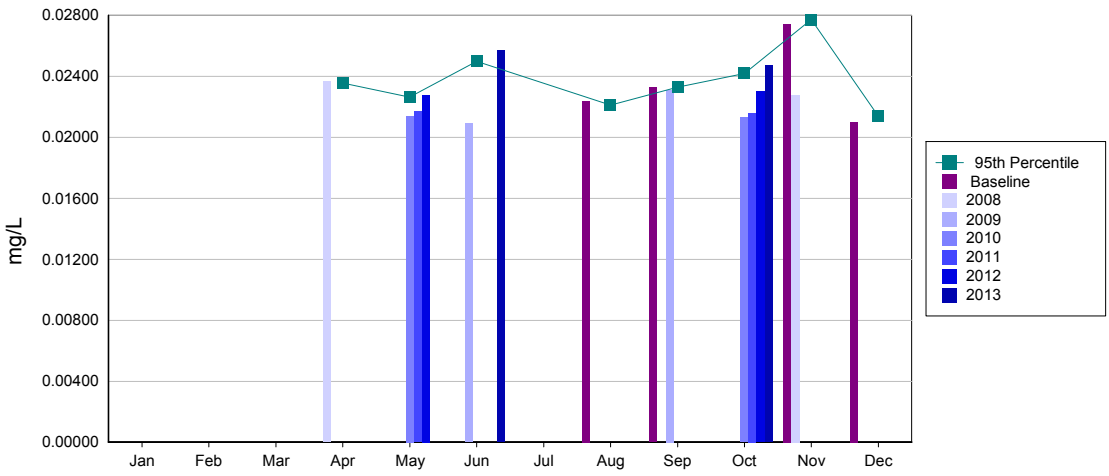
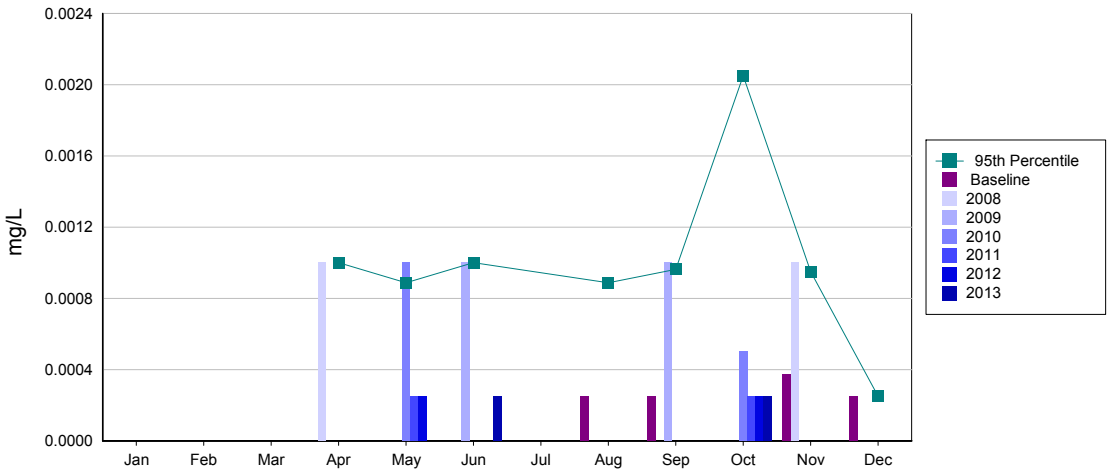
### GW00-1a - Tailings Impoundment West Well (deep) : Diss-Copper (Cu) (mg/L)




### GW00-1a - Tailings Impoundment West Well (deep) : Diss-Molybdenum (Mo) (mg/L)




### GW00-1a - Tailings Impoundment West Well (deep) : Diss-Selenium (mg/L)



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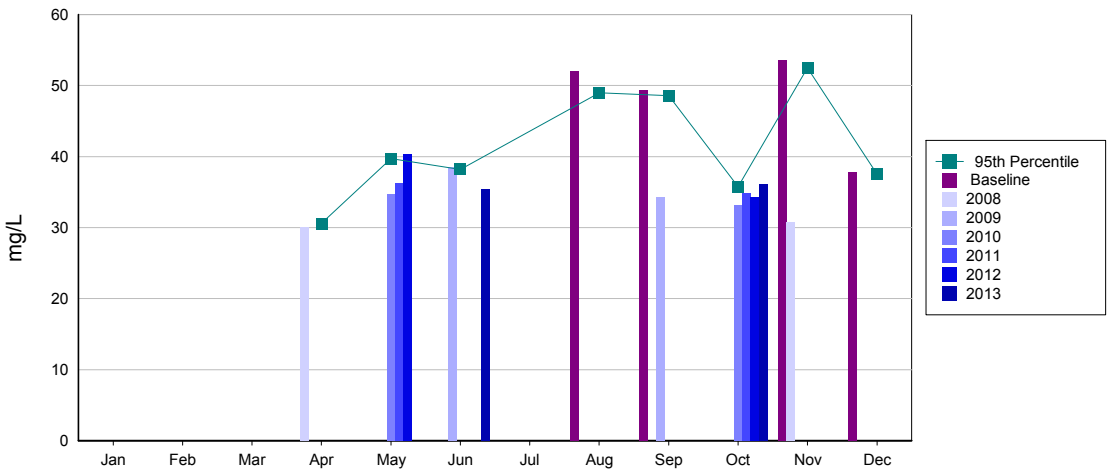
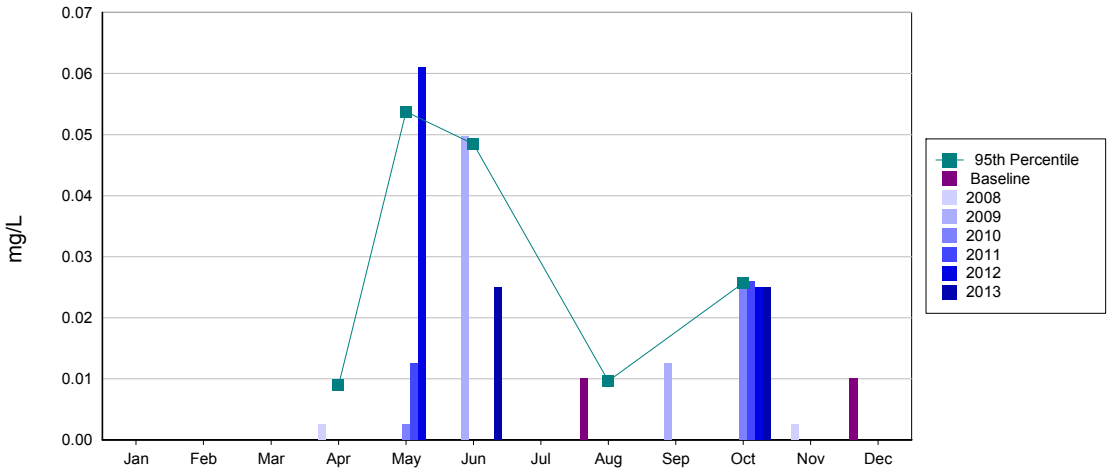
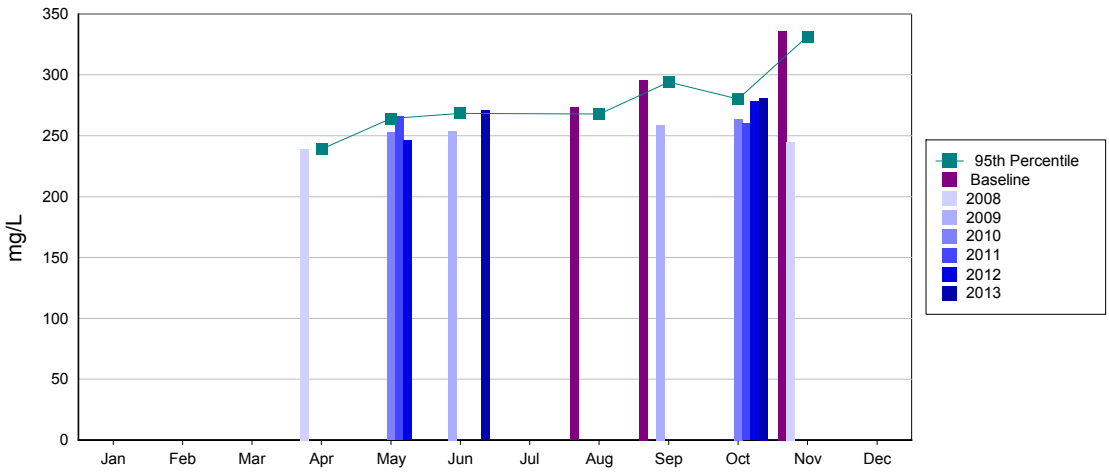
### GW00-1a - Tailings Impoundment West Well (deep) : Hardness (mg/L)




### GW00-1a - Tailings Impoundment West Well (deep) : Nitrate (N) (mg/L)




### GW00-1a - Tailings Impoundment West Well (deep) : Sulphate (mg/L)



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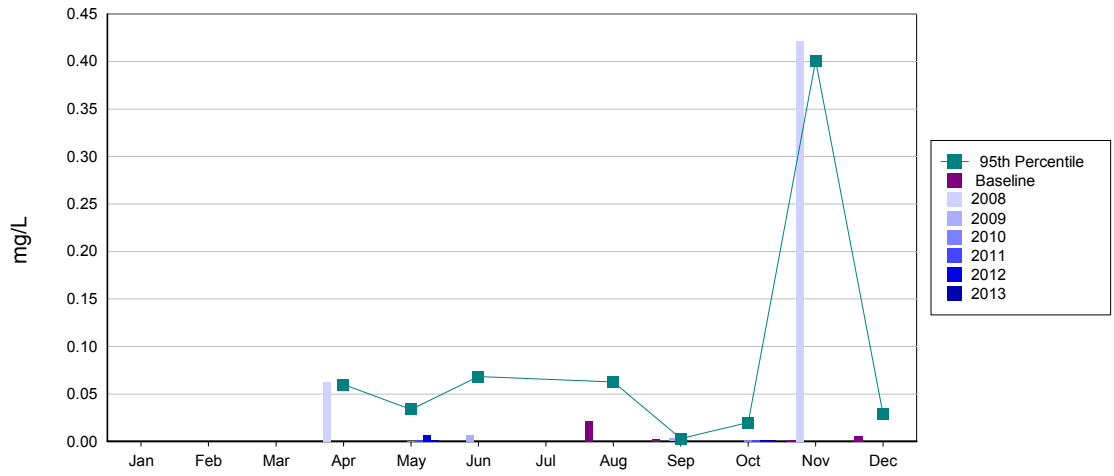
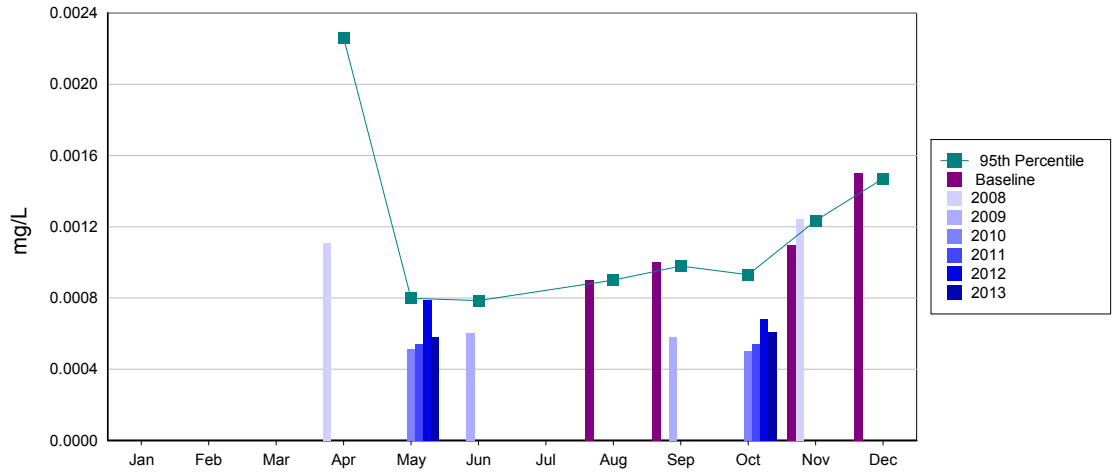
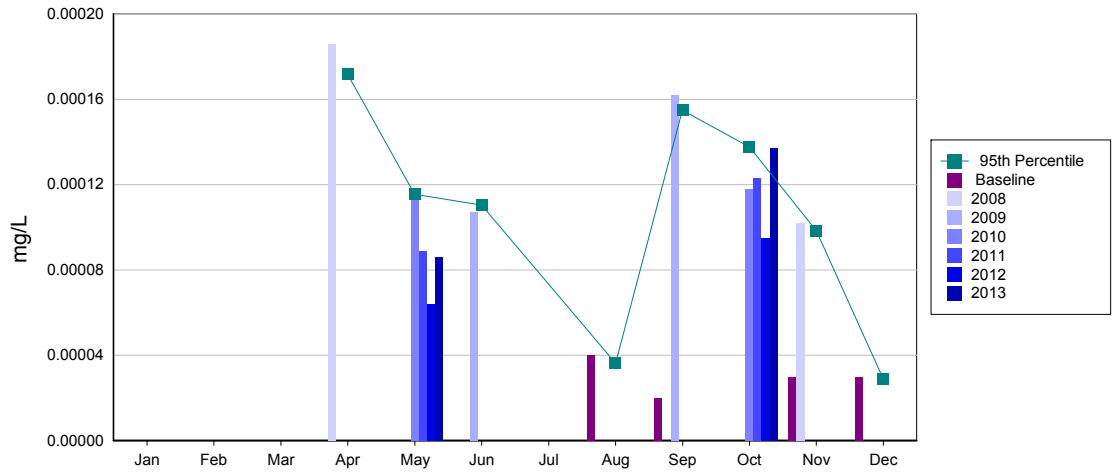
### GW00-1b - Tailings Impoundment West Well (shallow) : Diss-Aluminum (Al) (mg/L)




### GW00-1b - Tailings Impoundment West Well (shallow) : Diss-Arsenic (As) (mg/L)




### GW00-1b - Tailings Impoundment West Well (shallow) : Diss-Cadmium (Cd) (mg/L)



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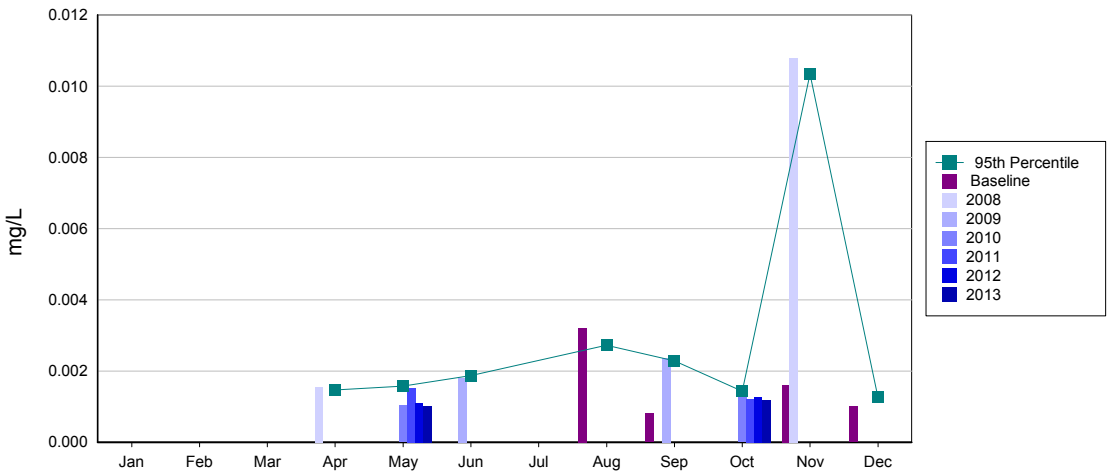
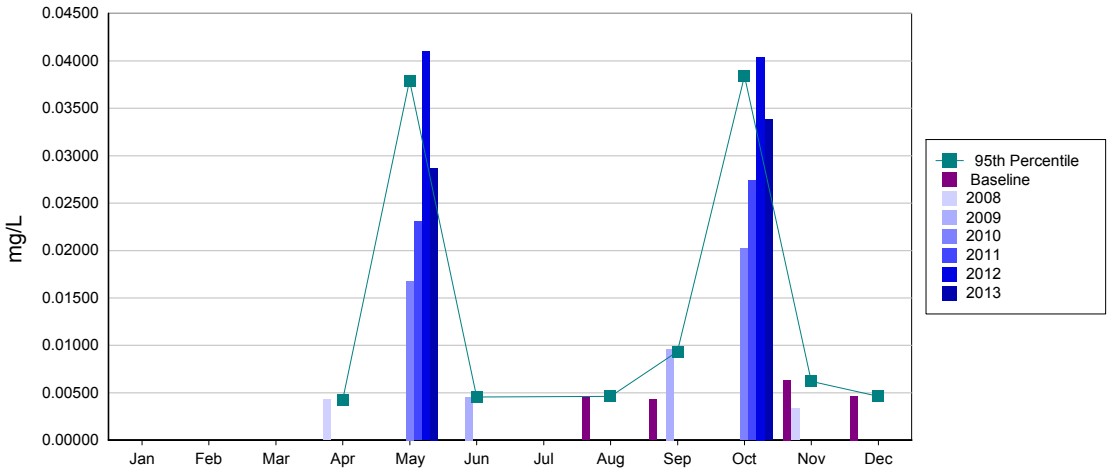
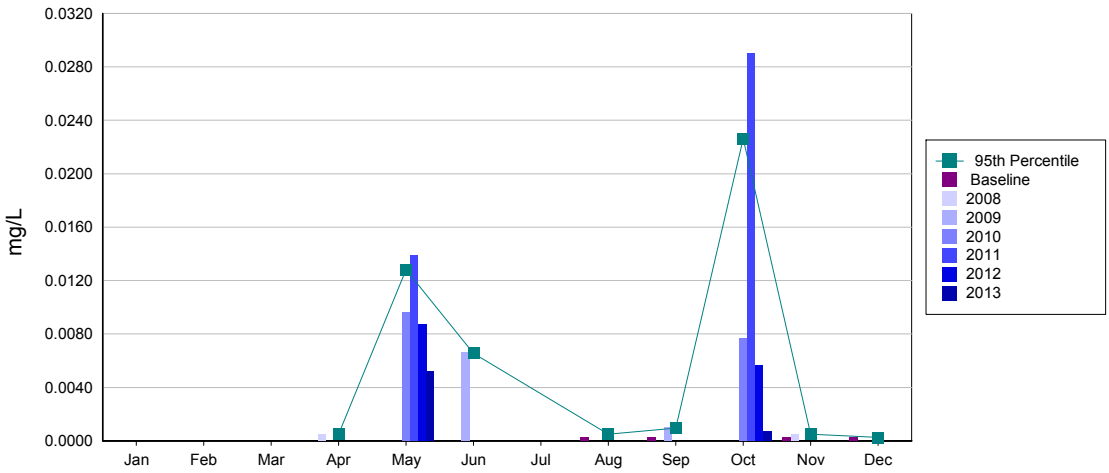
### GW00-1b - Tailings Impoundment West Well (shallow) : Diss-Copper (Cu) (mg/L)




### GW00-1b - Tailings Impoundment West Well (shallow) : Diss-Molybdenum (Mo) (mg/L)




### GW00-1b - Tailings Impoundment West Well (shallow) : Diss-Selenium (mg/L)



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## Annual Report - Groundwater Graphs

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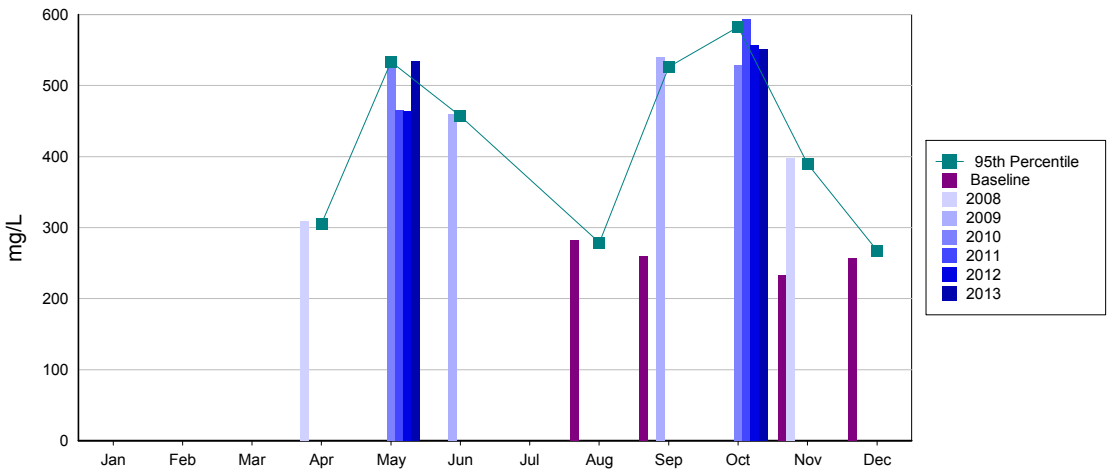
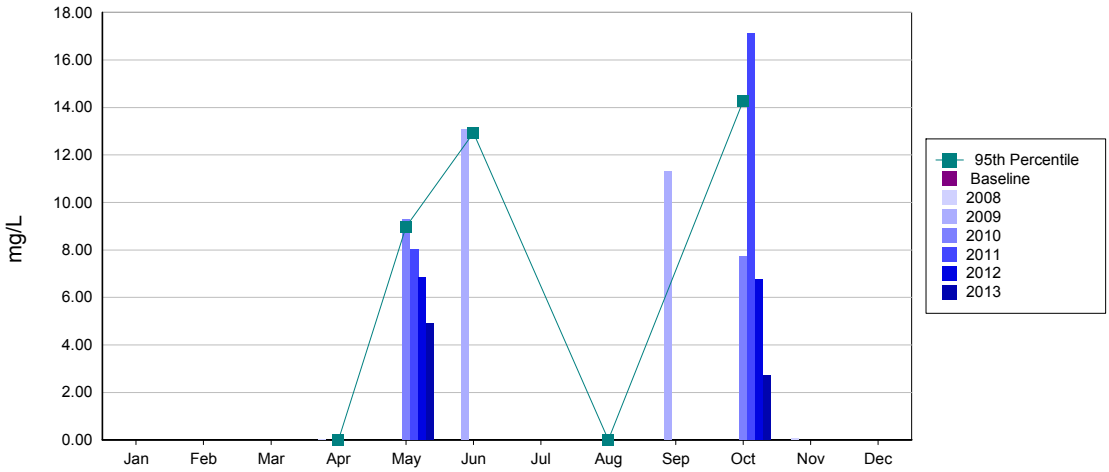
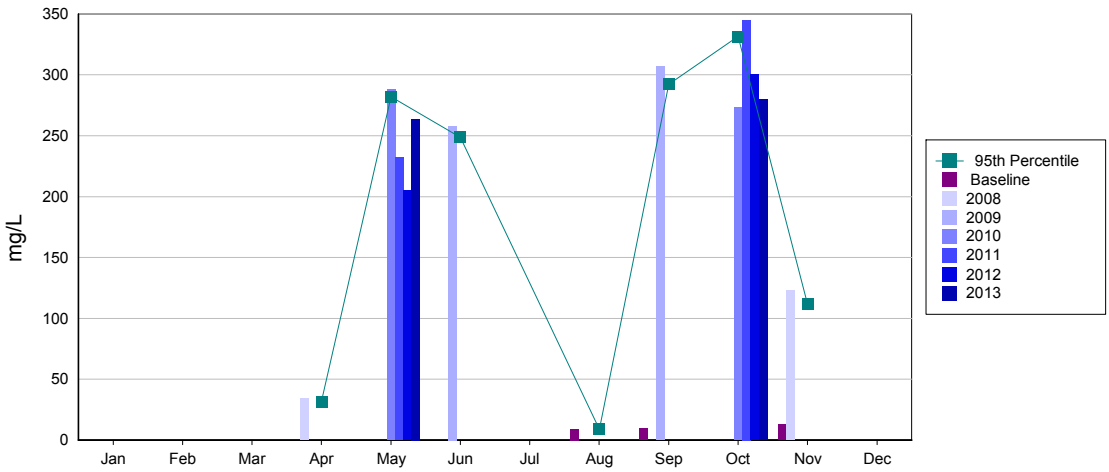
### GW00-1b - Tailings Impoundment West Well (shallow) : Hardness (mg/L)




### GW00-1b - Tailings Impoundment West Well (shallow) : Nitrate (N) (mg/L)




### GW00-1b - Tailings Impoundment West Well (shallow) : Sulphate (mg/L)



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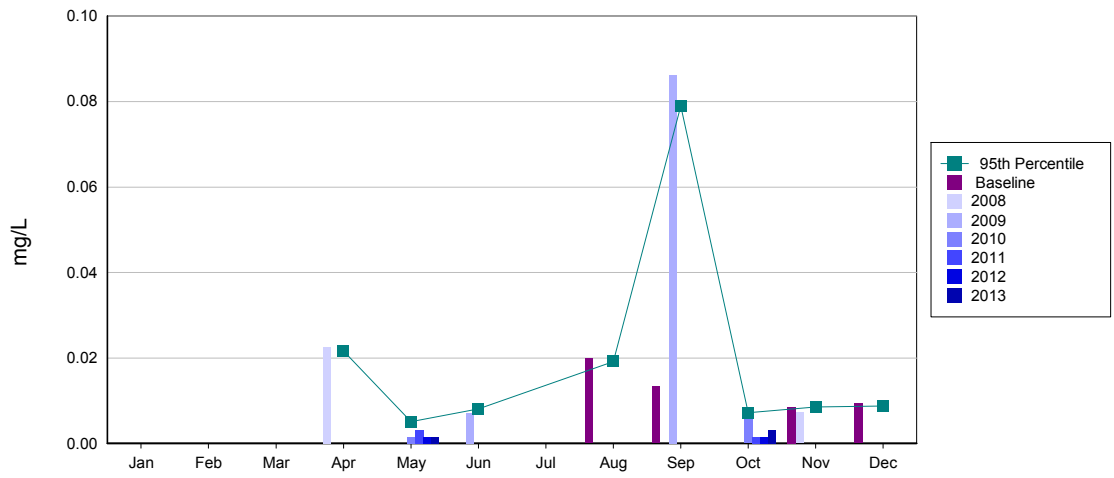
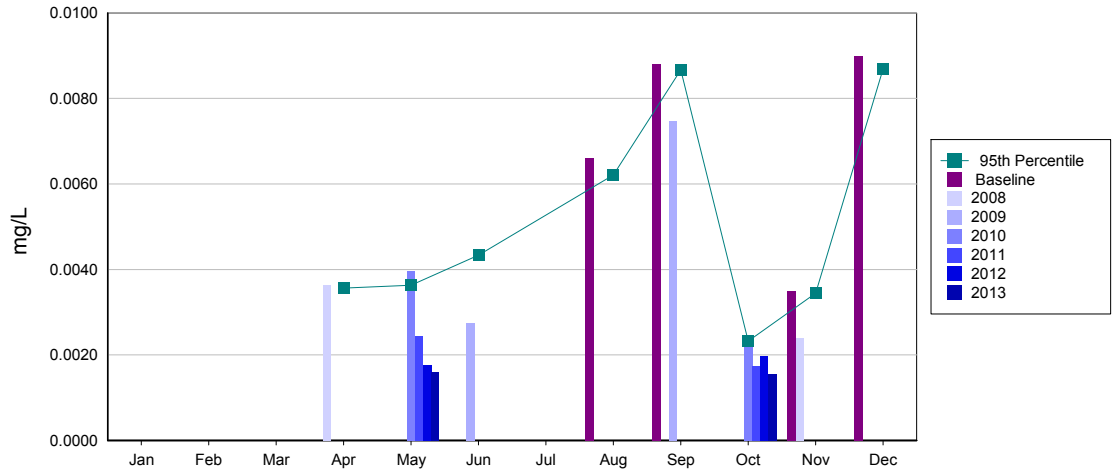
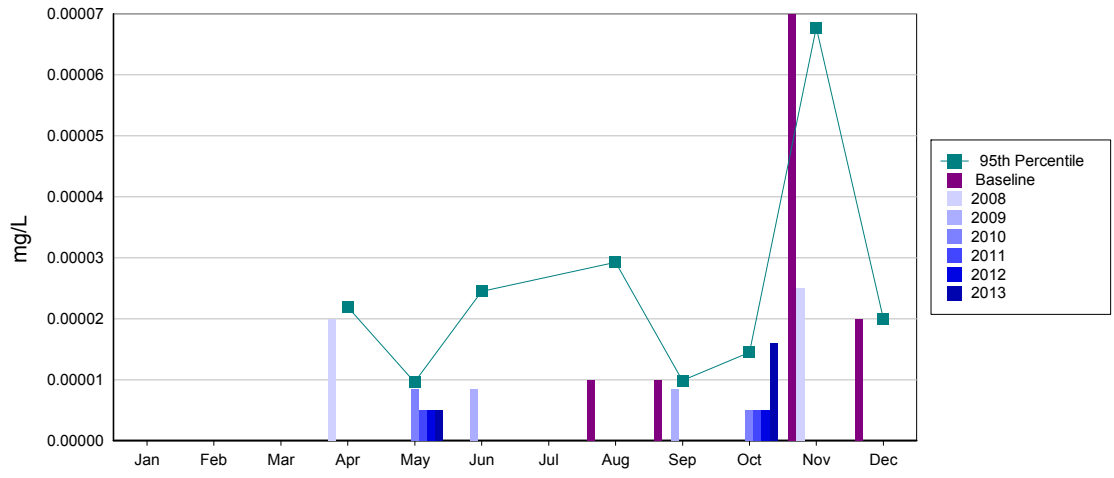
### GW00-2a - Tailings Impoundment West Well (deep) : Diss-Aluminum (Al) (mg/L)




### GW00-2a - Tailings Impoundment West Well (deep) : Diss-Arsenic (As) (mg/L)




### GW00-2a - Tailings Impoundment West Well (deep) : Diss-Cadmium (Cd) (mg/L)



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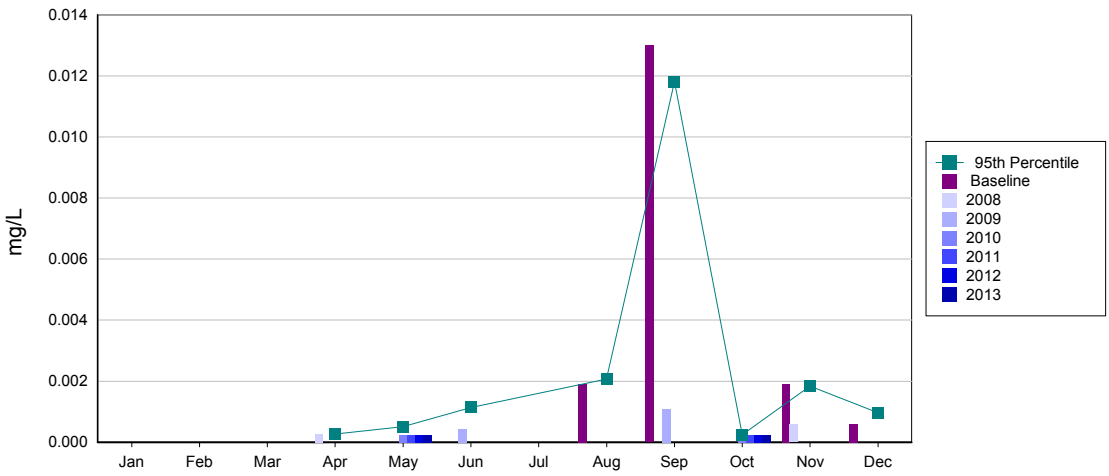
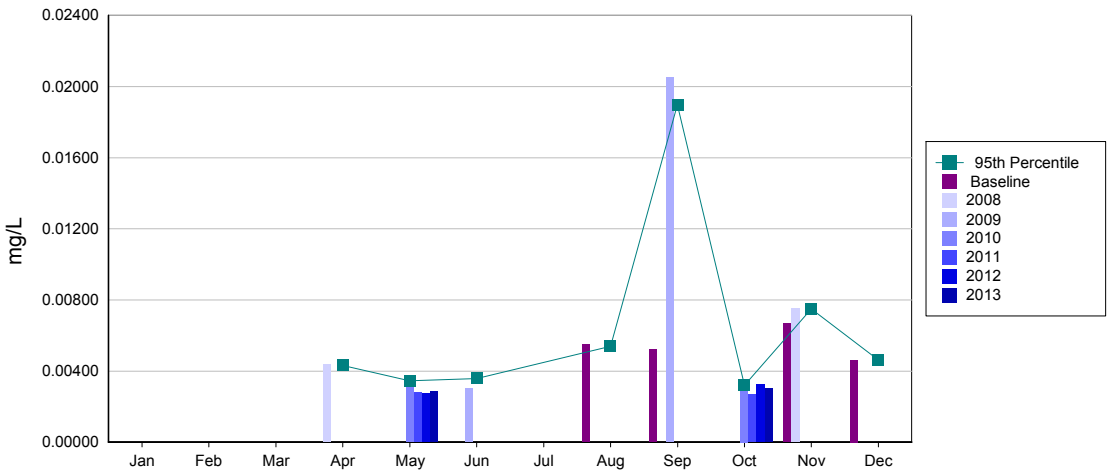
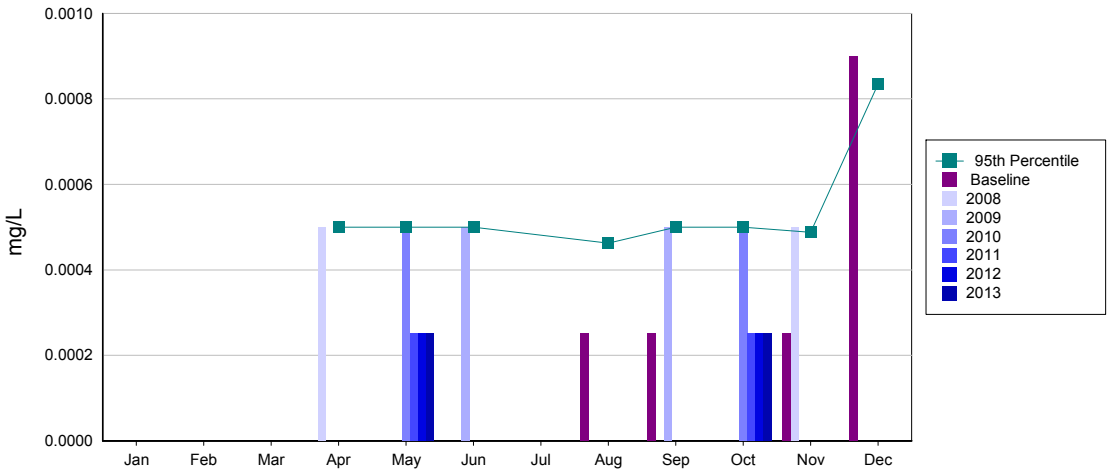
### GW00-2a - Tailings Impoundment West Well (deep) : Diss-Copper (Cu) (mg/L)




### GW00-2a - Tailings Impoundment West Well (deep) : Diss-Molybdenum (Mo) (mg/L)




### GW00-2a - Tailings Impoundment West Well (deep) : Diss-Selenium (mg/L)



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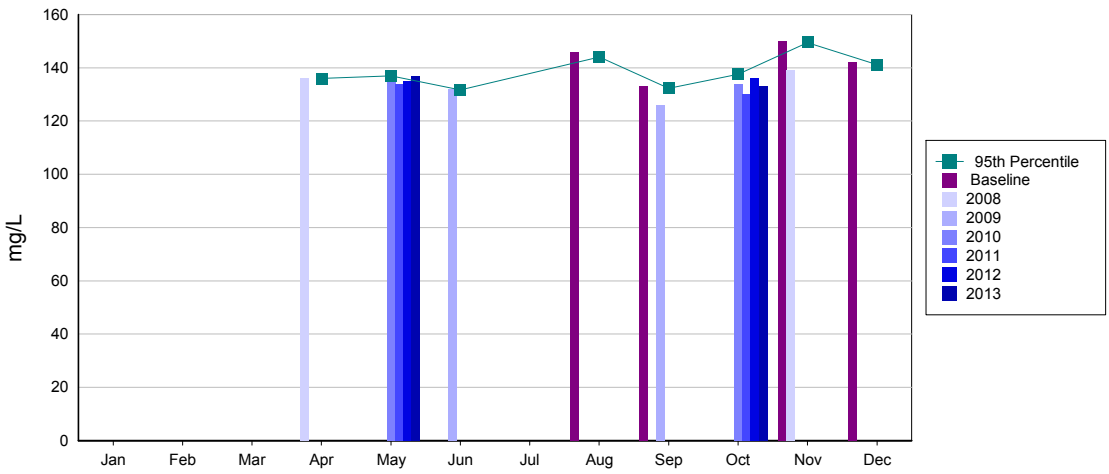
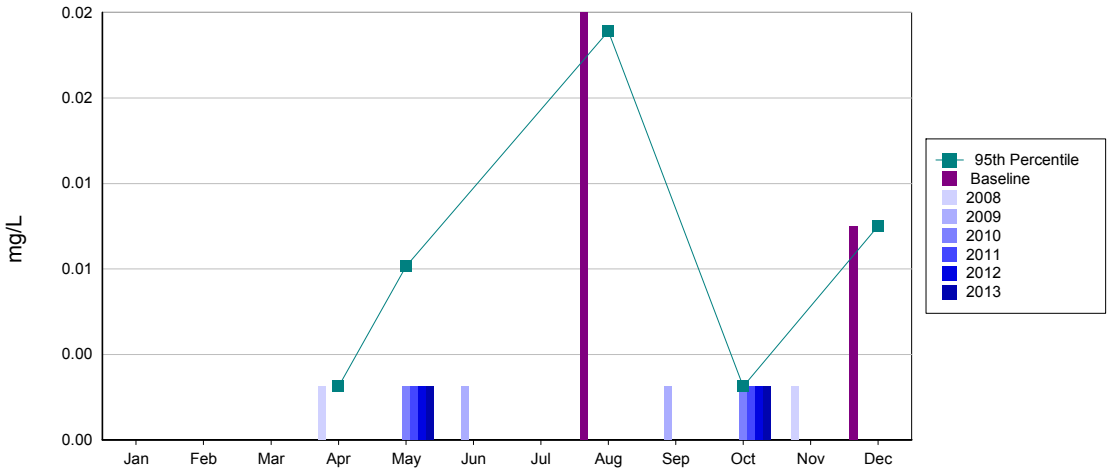
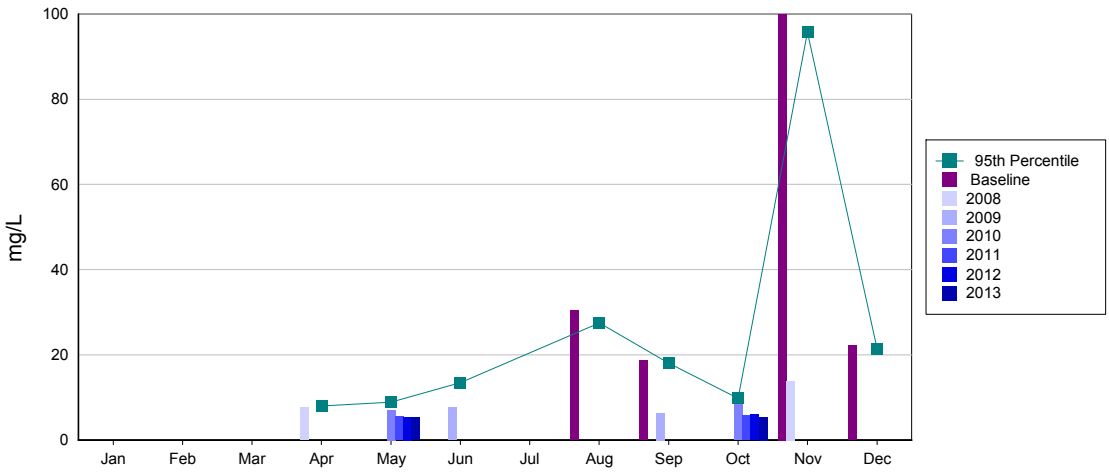
### GW00-2a - Tailings Impoundment West Well (deep) : Hardness (mg/L)




### GW00-2a - Tailings Impoundment West Well (deep) : Nitrate (N) (mg/L)




### GW00-2a - Tailings Impoundment West Well (deep) : Sulphate (mg/L)



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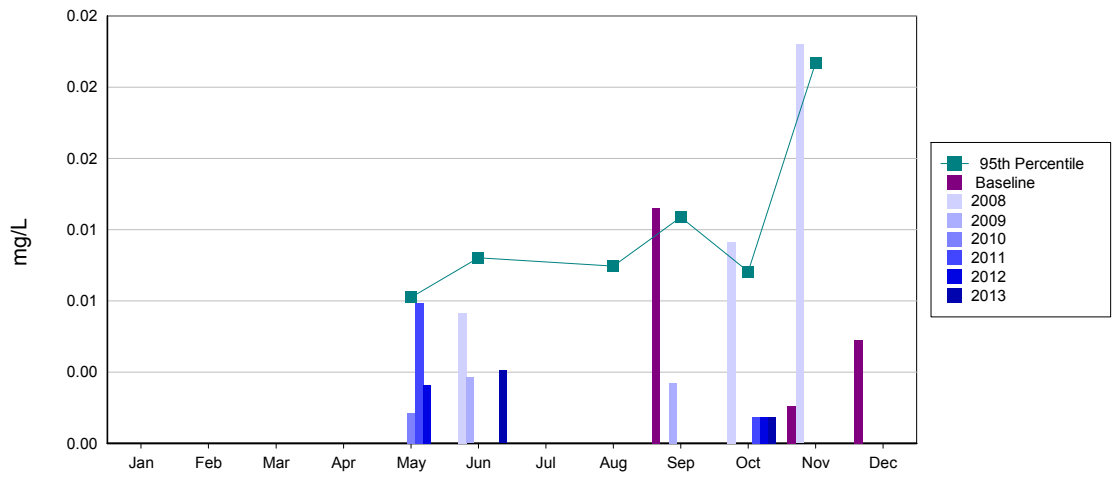
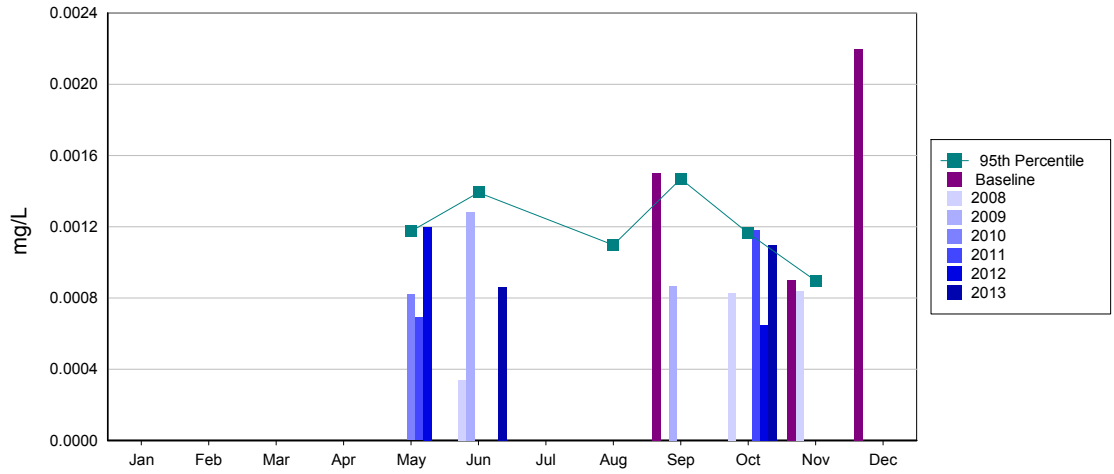
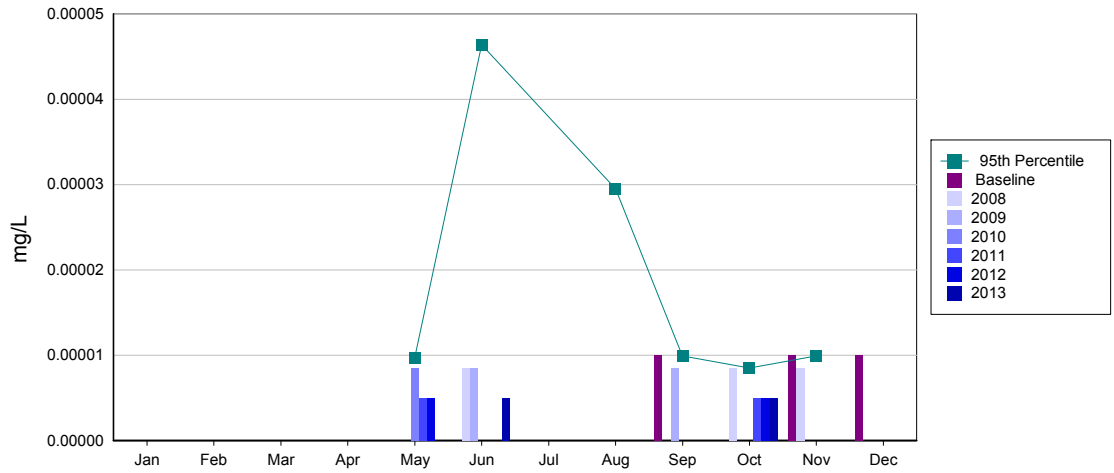
### GW00-3a - Tailings Impoundment West Well (deep) : Diss-Aluminum (Al) (mg/L)




### GW00-3a - Tailings Impoundment West Well (deep) : Diss-Arsenic (As) (mg/L)




### GW00-3a - Tailings Impoundment West Well (deep) : Diss-Cadmium (Cd) (mg/L)



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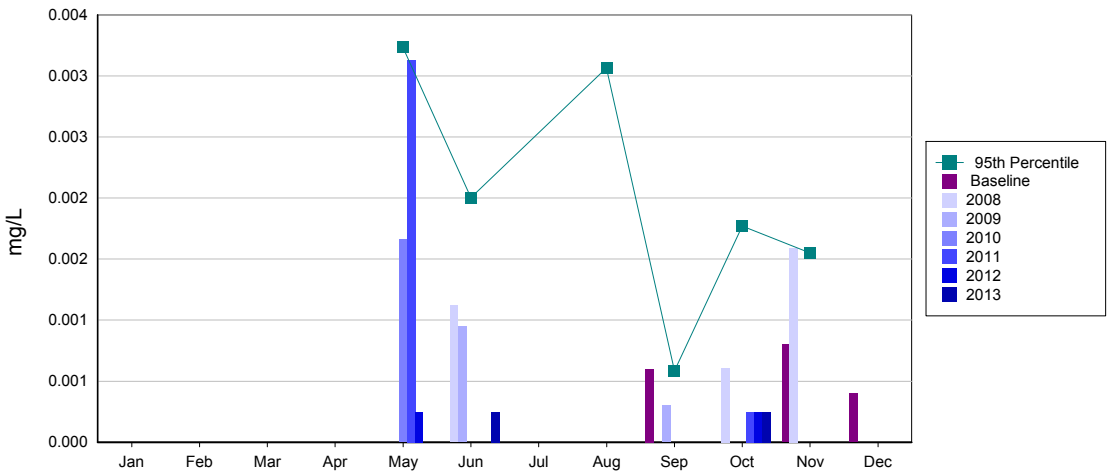
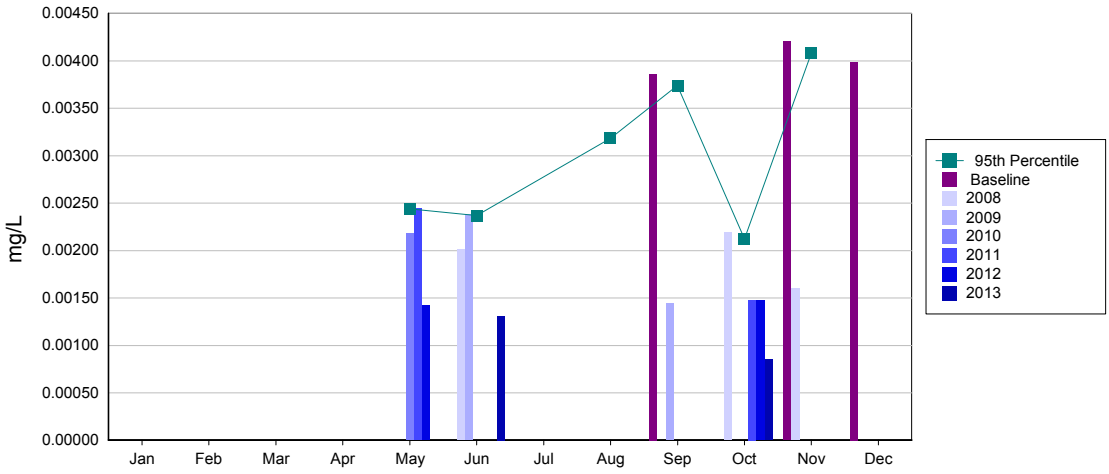
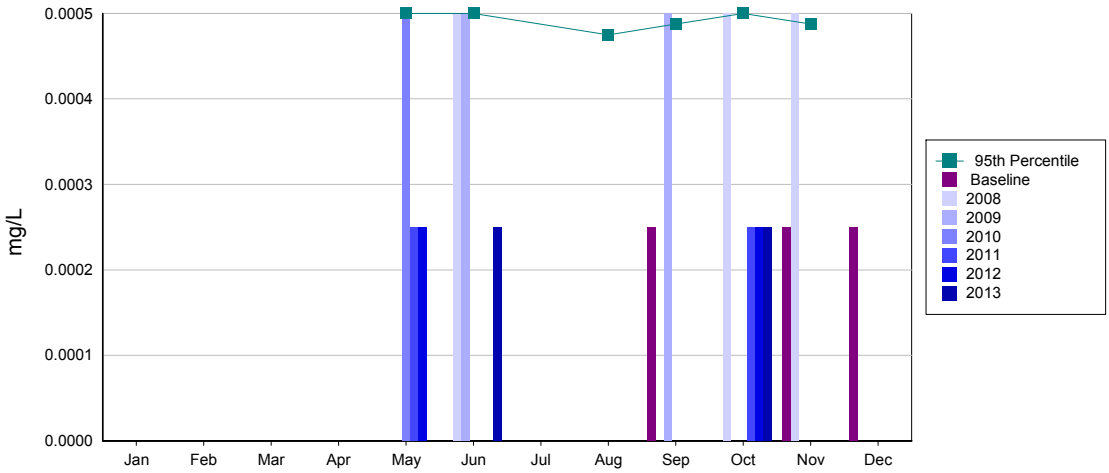
### GW00-3a - Tailings Impoundment West Well (deep) : Diss-Copper (Cu) (mg/L)




### GW00-3a - Tailings Impoundment West Well (deep) : Diss-Molybdenum (Mo) (mg/L)




### GW00-3a - Tailings Impoundment West Well (deep) : Diss-Selenium (mg/L)



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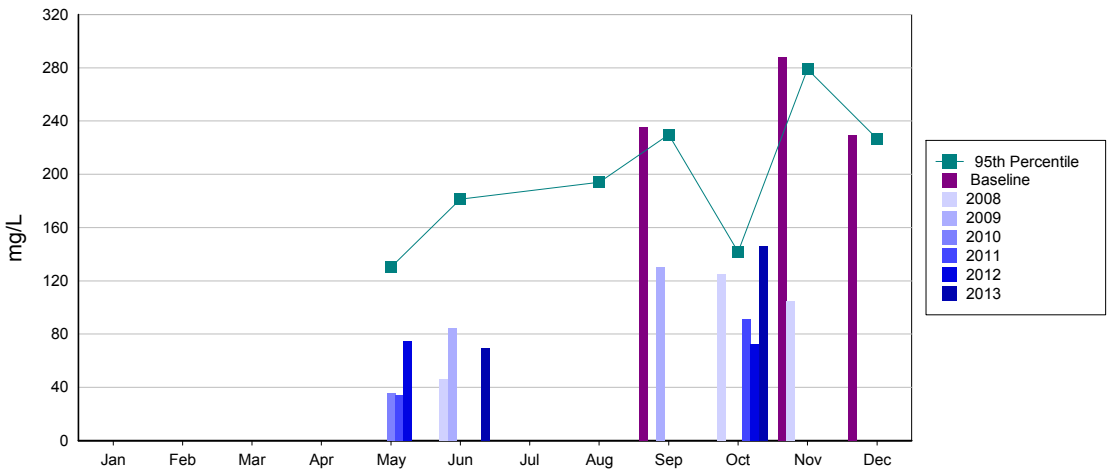
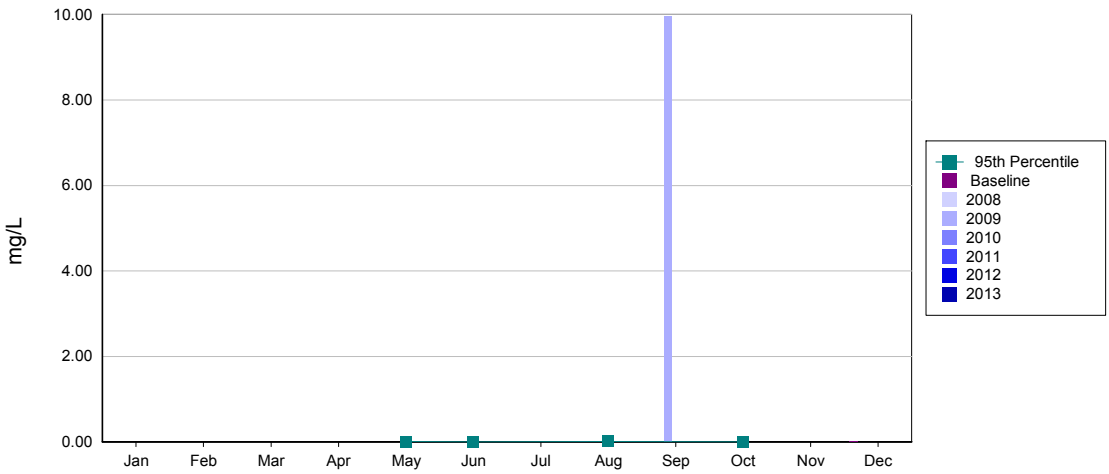
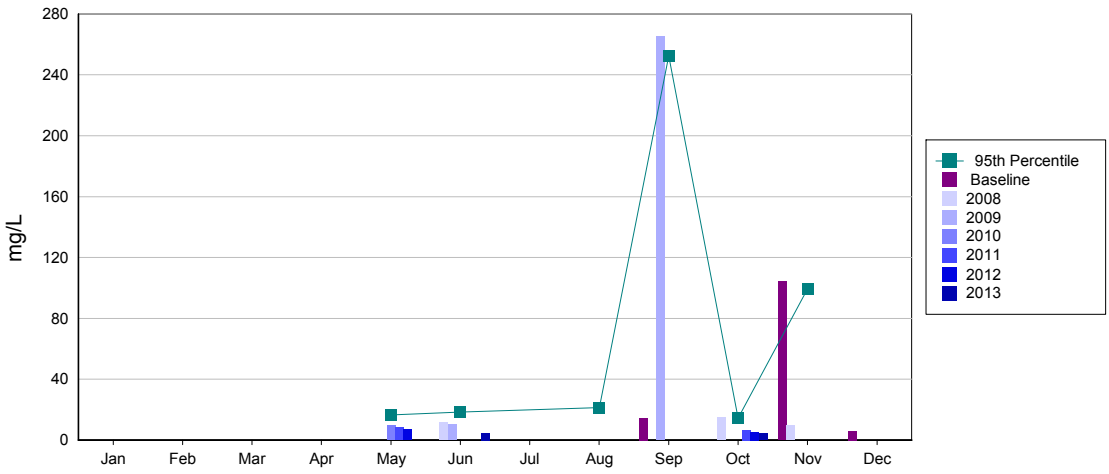
### GW00-3a - Tailings Impoundment West Well (deep) : Hardness (mg/L)




### GW00-3a - Tailings Impoundment West Well (deep) : Nitrate (N) (mg/L)




### GW00-3a - Tailings Impoundment West Well (deep) : Sulphate (mg/L)



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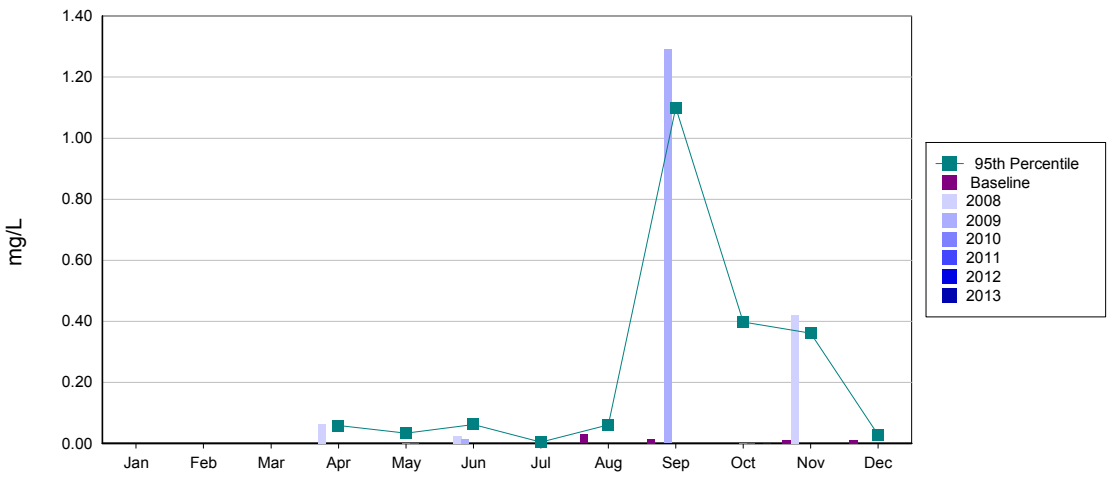
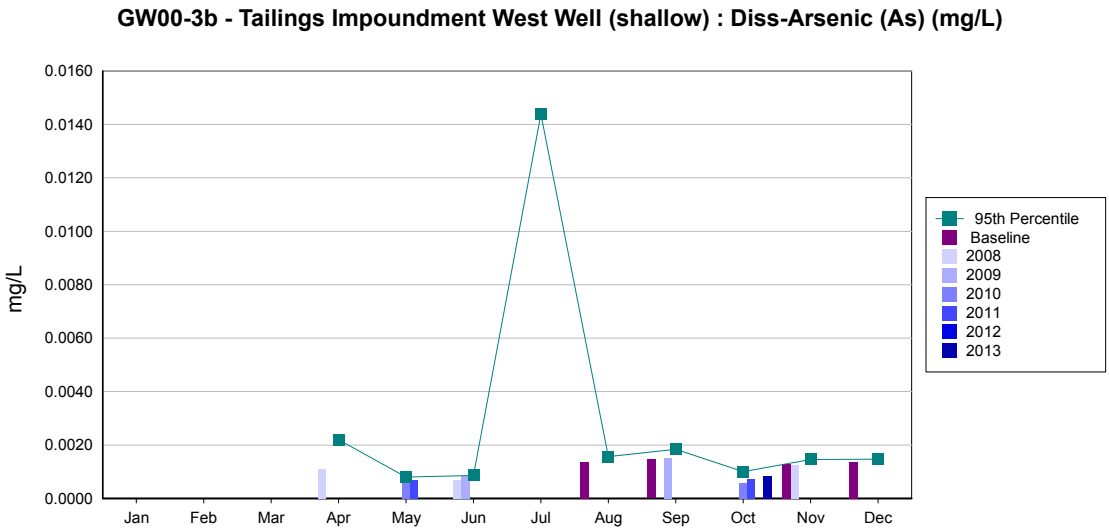
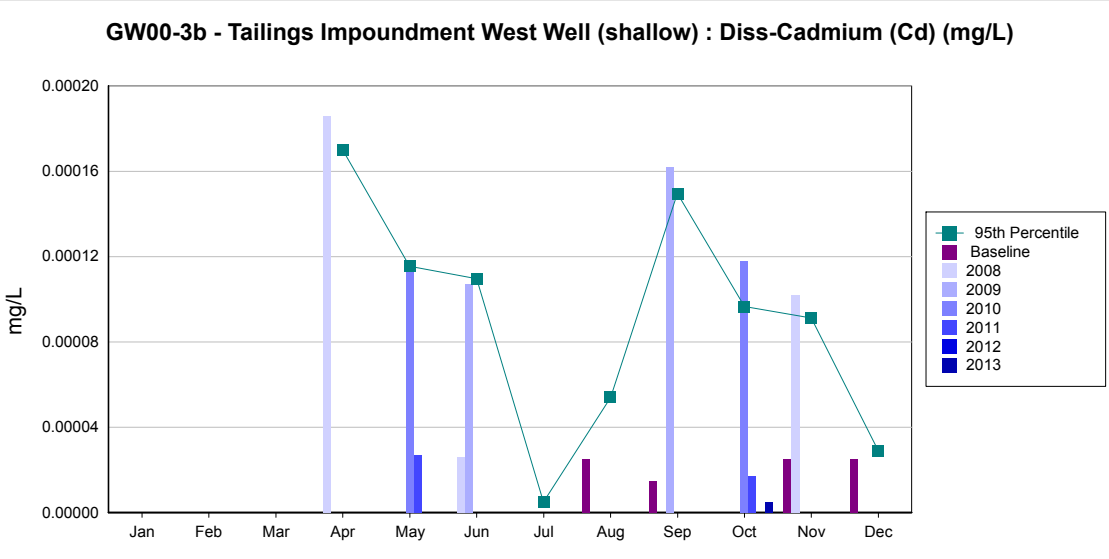
IMPERIAL METALS CORPORATION



# Water Quality Report

## Annual Report - Groundwater Graphs

**Mount Polley**

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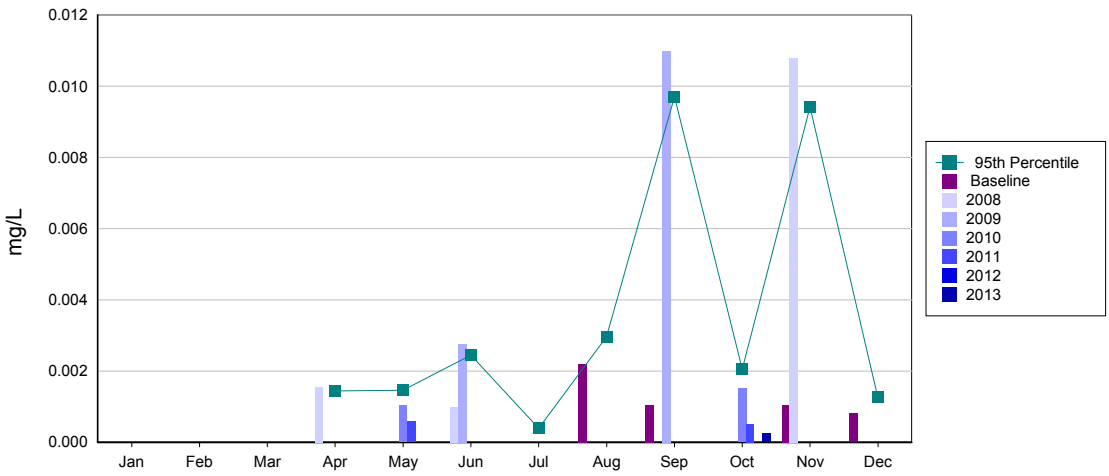
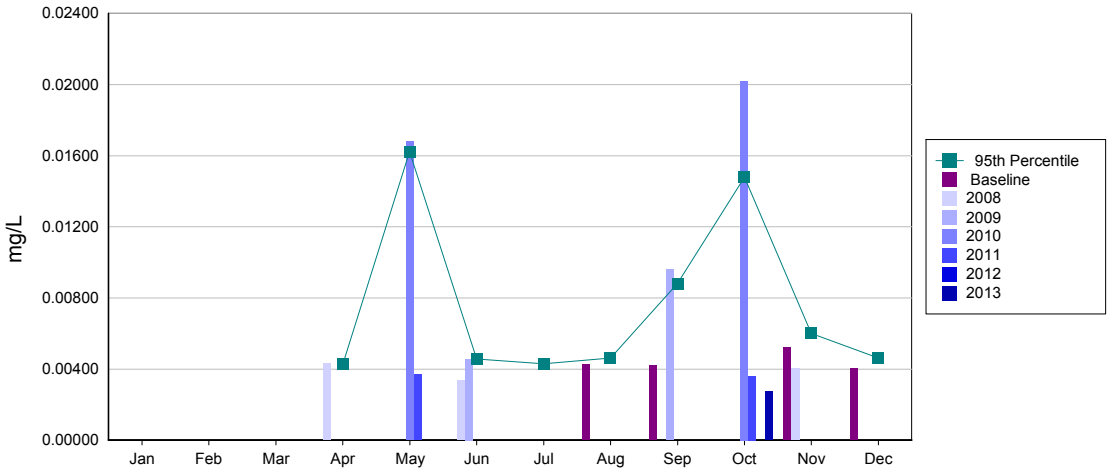
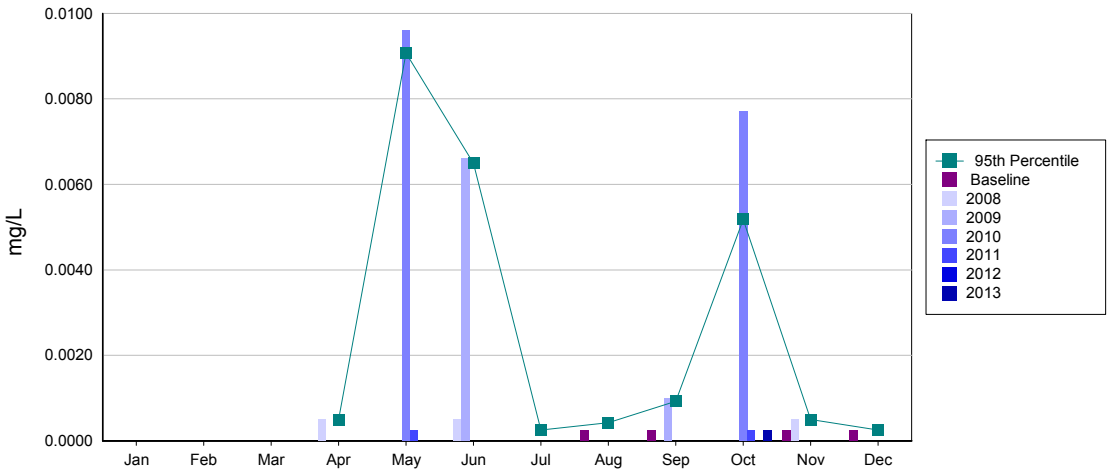
### GW00-3b - Tailings Impoundment West Well (shallow) : Diss-Copper (Cu) (mg/L)




### GW00-3b - Tailings Impoundment West Well (shallow) : Diss-Molybdenum (Mo) (mg/L)




### GW00-3b - Tailings Impoundment West Well (shallow) : Diss-Selenium (mg/L)



# Water Quality Report

## Annual Report - Groundwater Graphs

Mount Polley Mining Corporation
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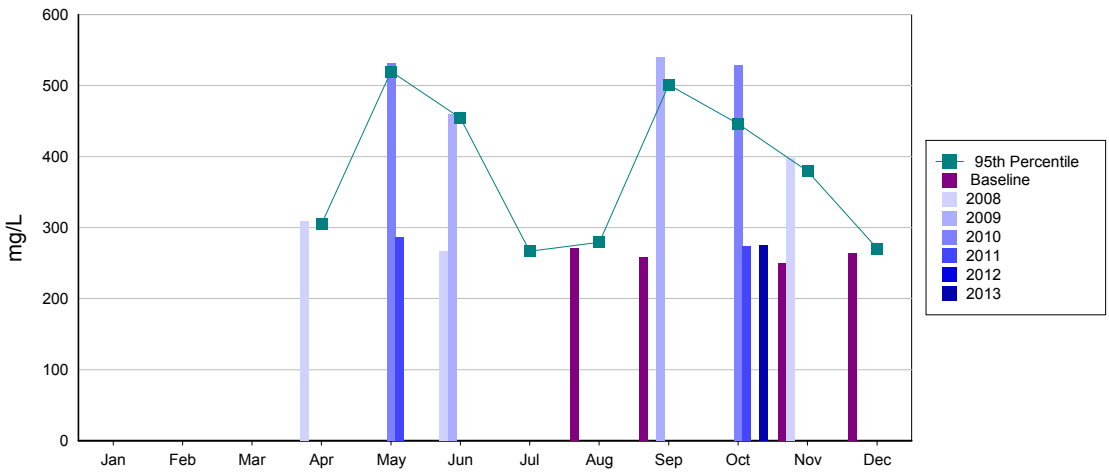
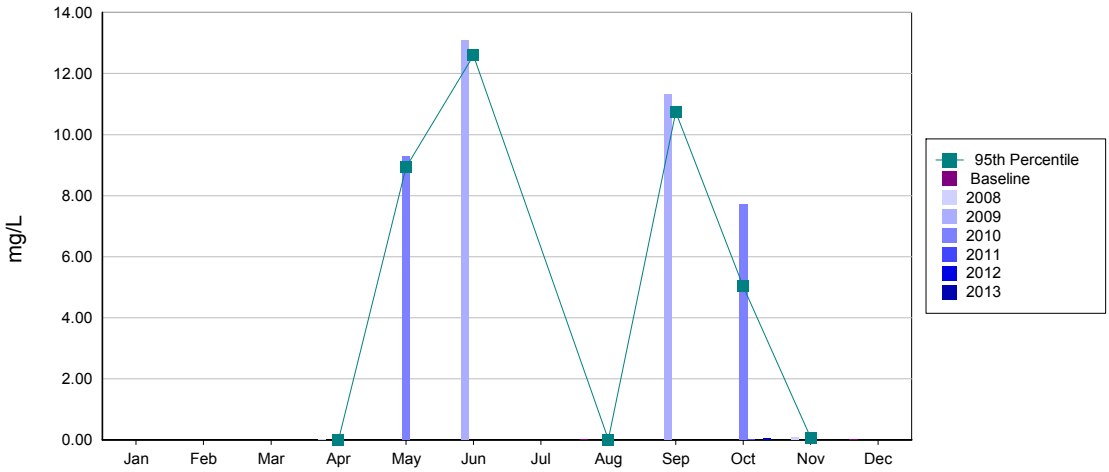
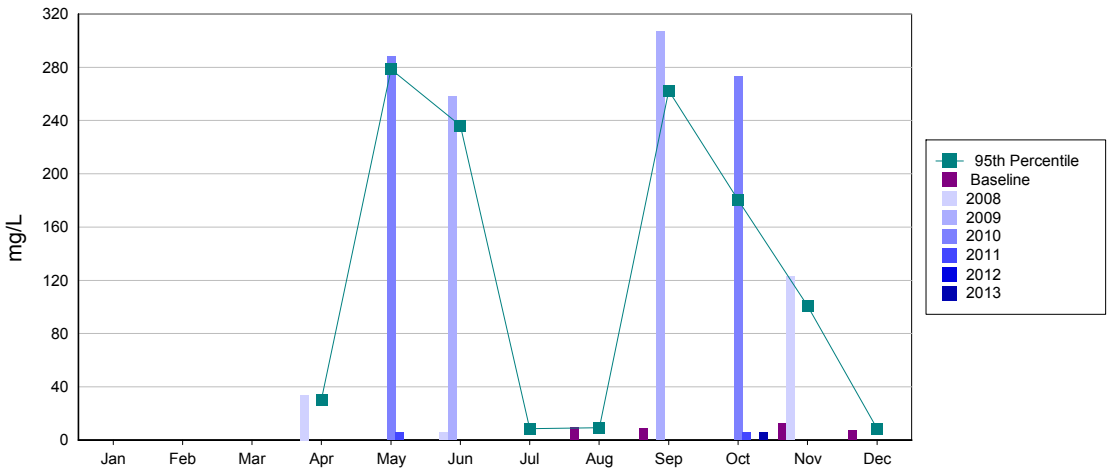
### GW00-3b - Tailings Impoundment West Well (shallow) : Hardness (mg/L)




### GW00-3b - Tailings Impoundment West Well (shallow) : Nitrate (N) (mg/L)




### GW00-3b - Tailings Impoundment West Well (shallow) : Sulphate (mg/L)



# Water Quality Report

## Annual Report - Groundwater Graphs

**Mount Polley**

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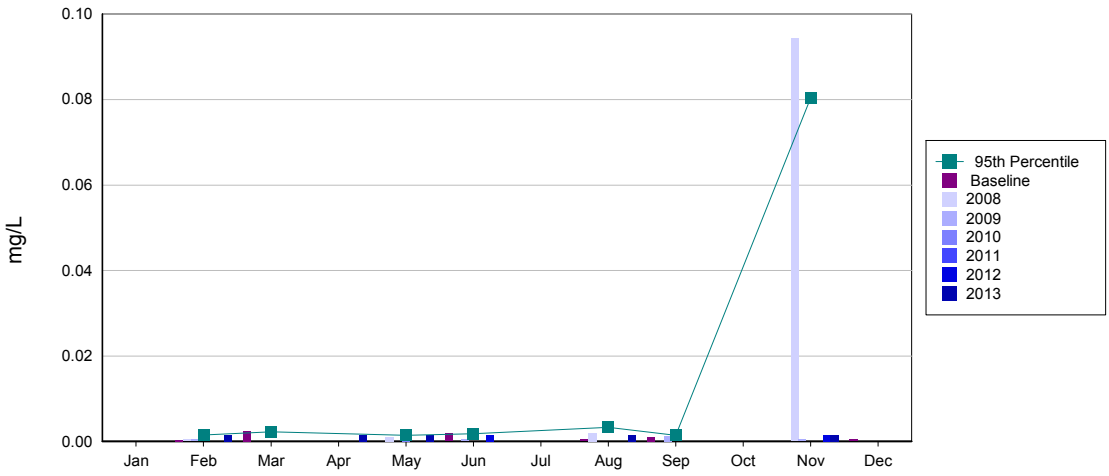
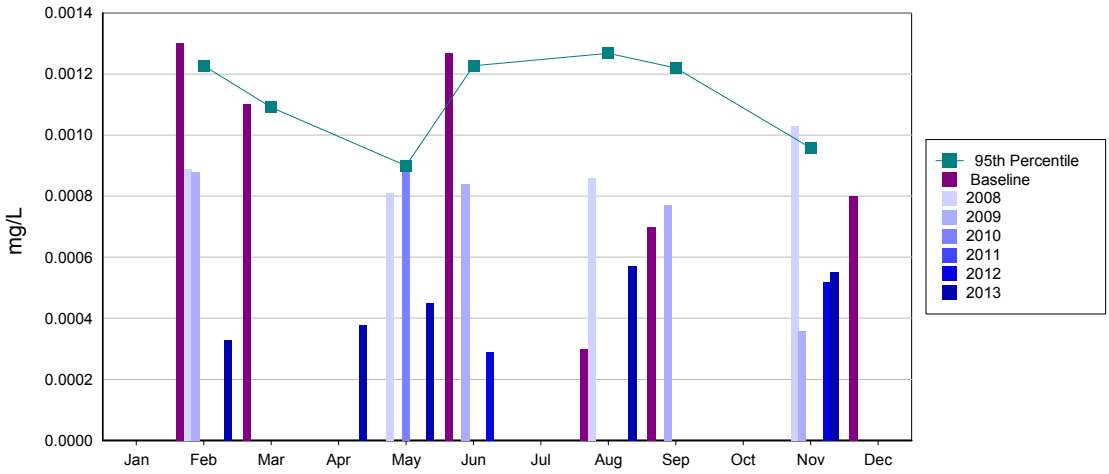
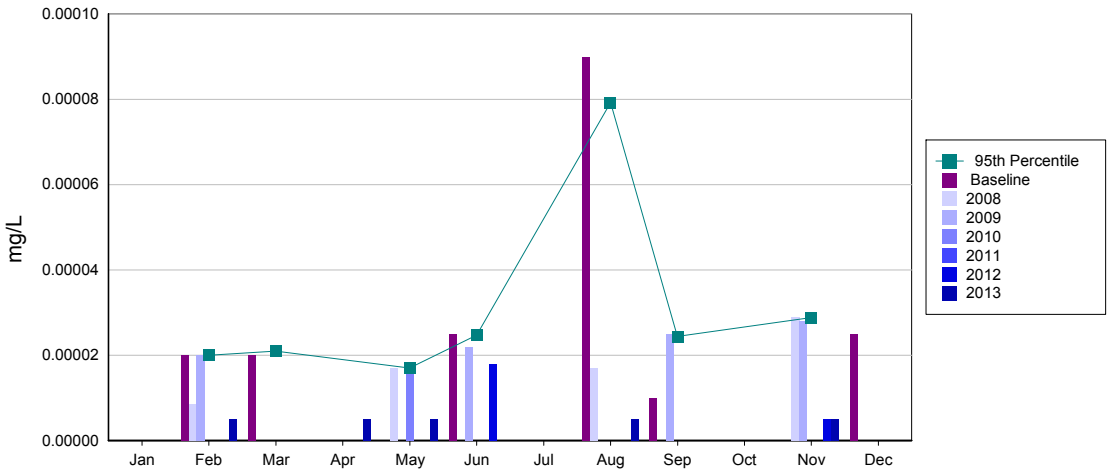
### GW05-01 - Wight Pit/Polley Lake Interface Well : Diss-Aluminum (Al) (mg/L)




### GW05-01 - Wight Pit/Polley Lake Interface Well : Diss-Arsenic (As) (mg/L)




### GW05-01 - Wight Pit/Polley Lake Interface Well : Diss-Cadmium (Cd) (mg/L)



# Water Quality Report

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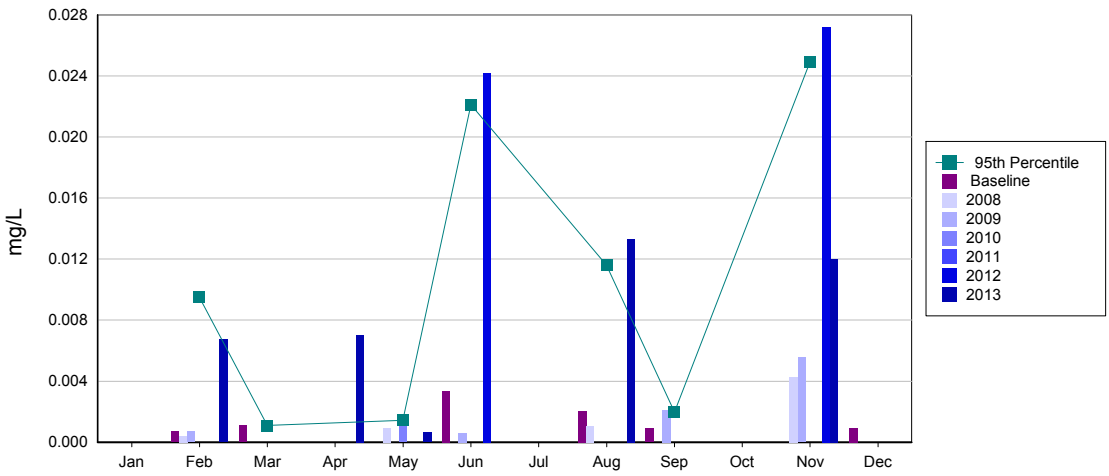
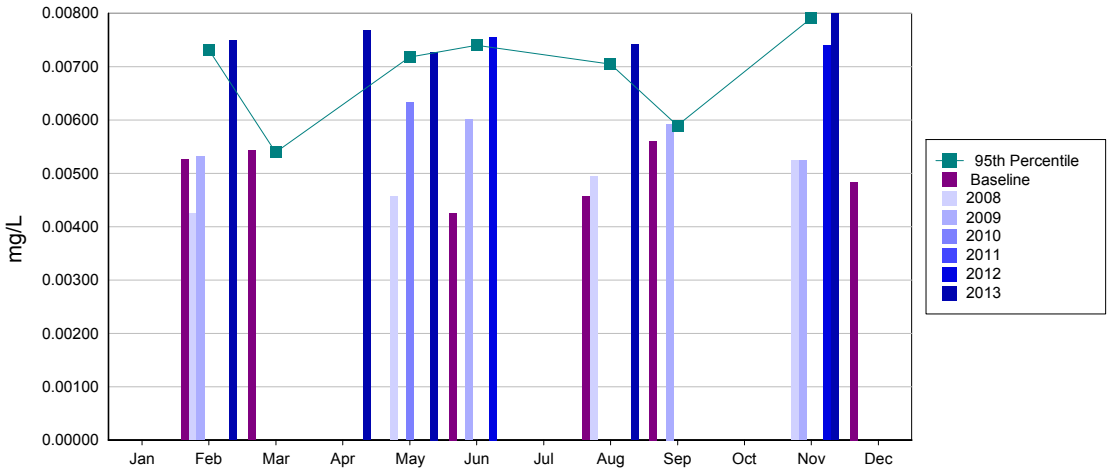
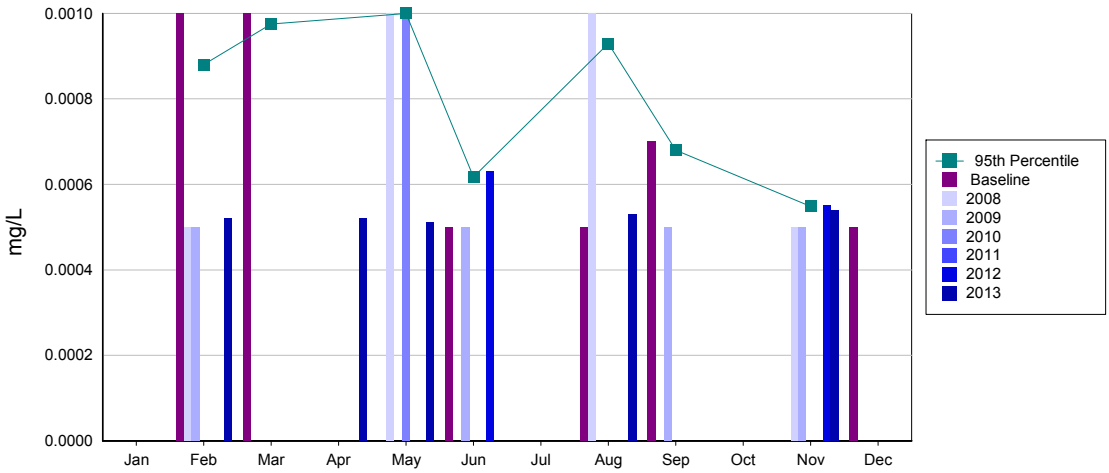
### GW05-01 - Wight Pit/Polley Lake Interface Well : Diss-Copper (Cu) (mg/L)




### GW05-01 - Wight Pit/Polley Lake Interface Well : Diss-Molybdenum (Mo) (mg/L)




### GW05-01 - Wight Pit/Polley Lake Interface Well : Diss-Selenium (mg/L)



# Water Quality Report

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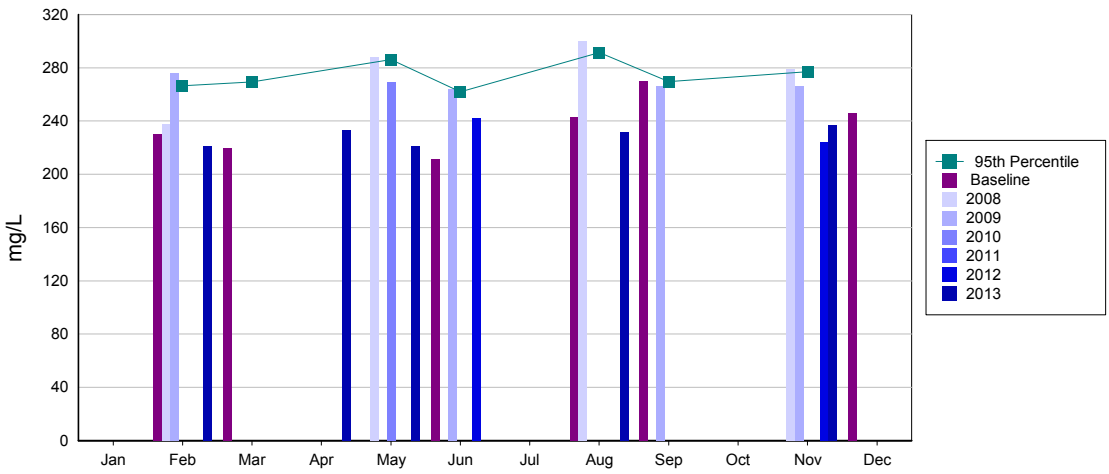
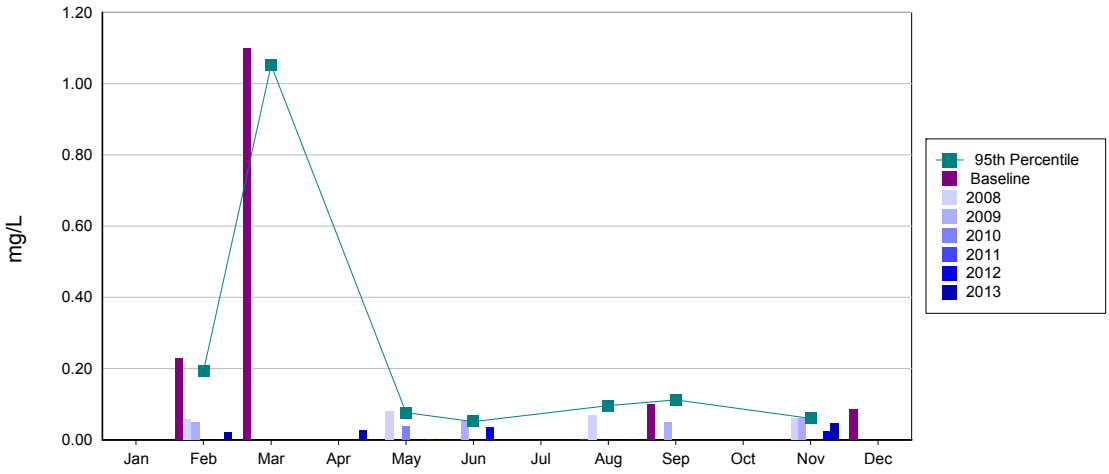
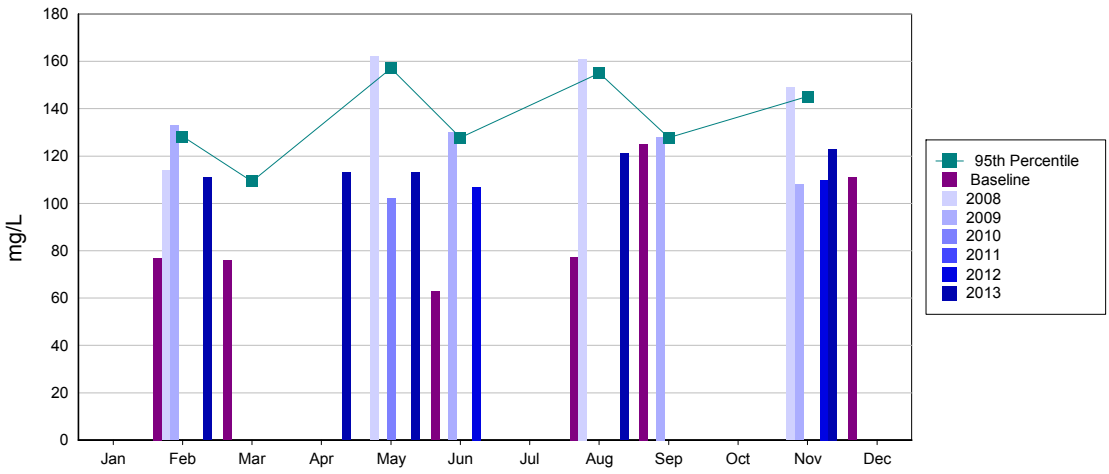
### GW05-01 - Wight Pit/Polley Lake Interface Well : Hardness (mg/L)




### GW05-01 - Wight Pit/Polley Lake Interface Well : Nitrate (N) (mg/L)




### GW05-01 - Wight Pit/Polley Lake Interface Well : Sulphate (mg/L)



# Water Quality Report

## Annual Report - Groundwater Graphs

**Mount Polley**

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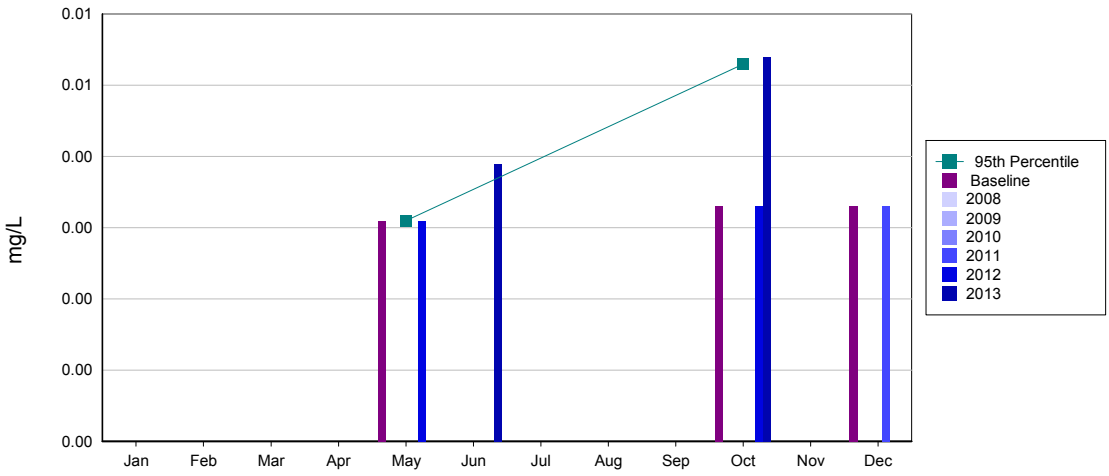


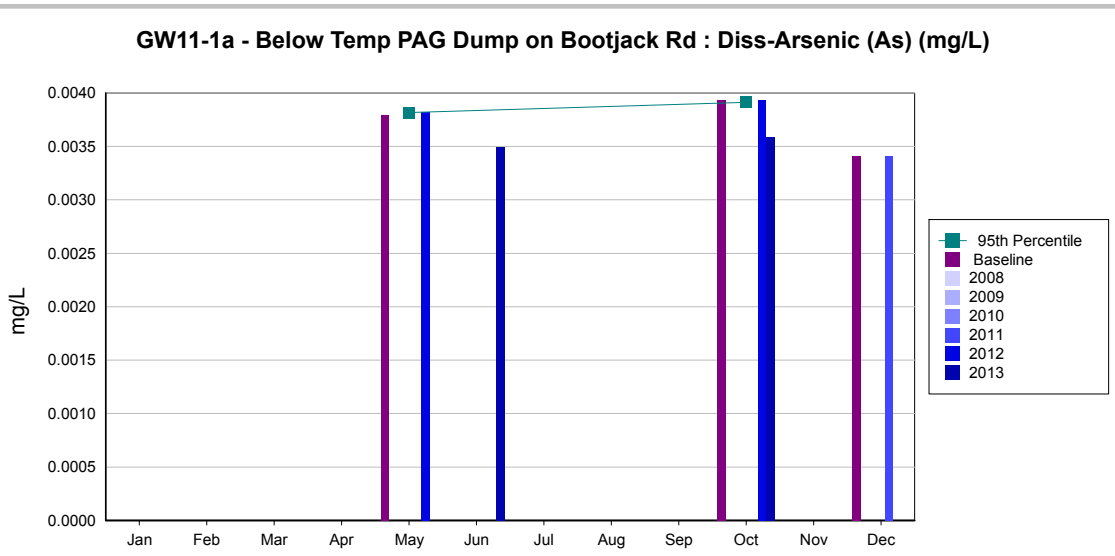


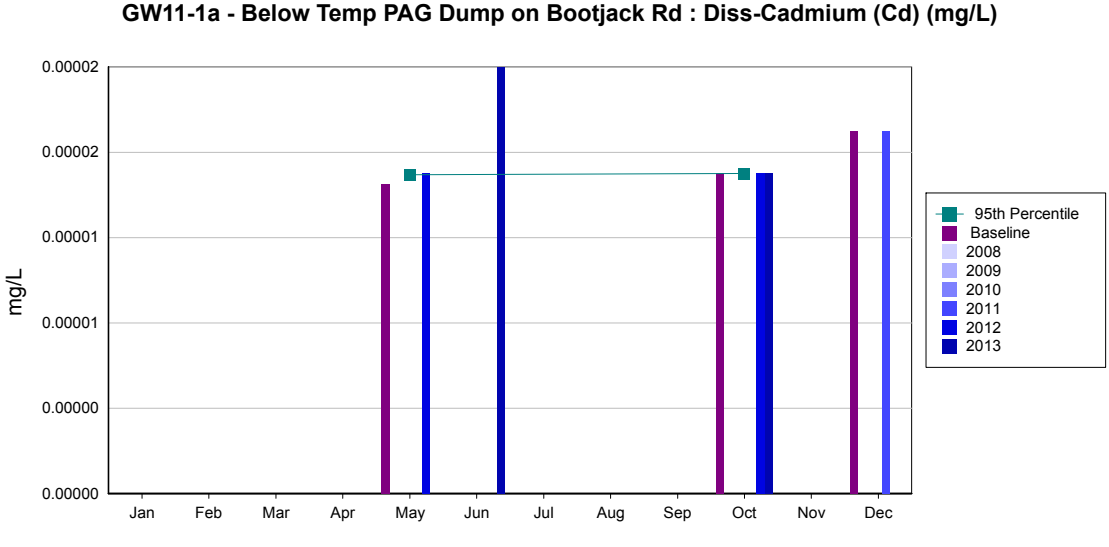

# Water Quality Report

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Mount Polley Mining Corporation
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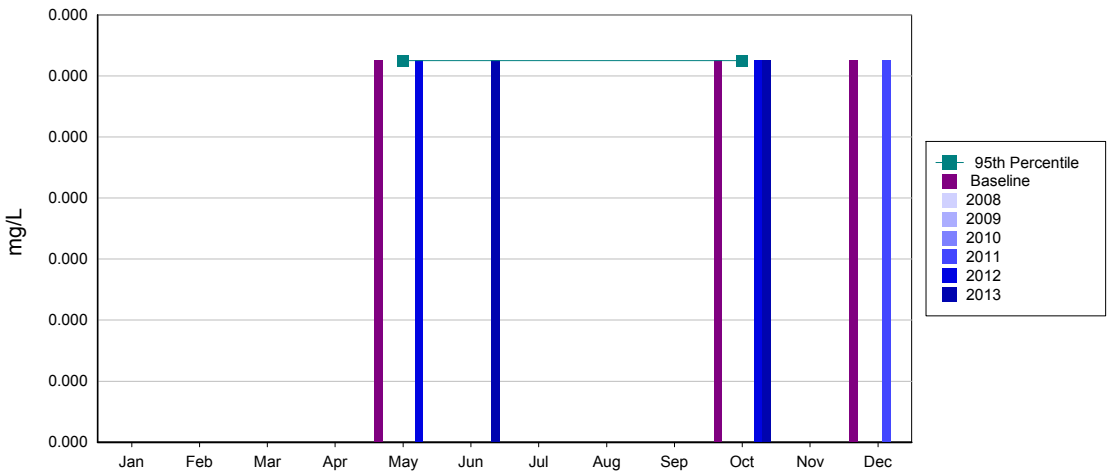
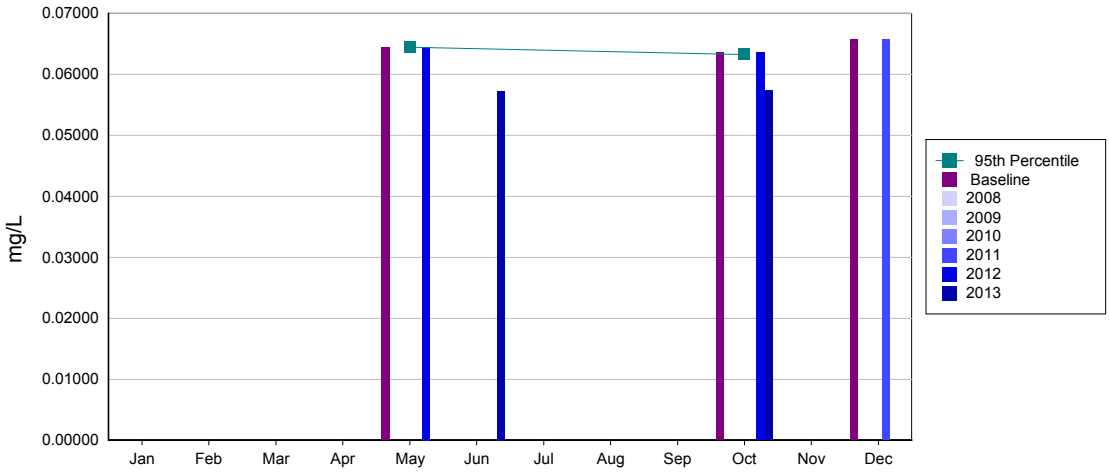
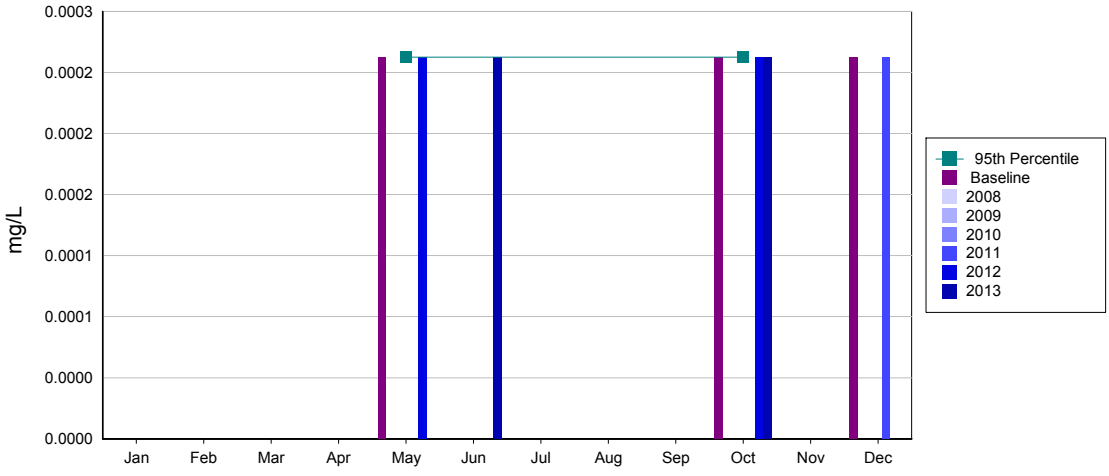
### GW11-1a - Below Temp PAG Dump on Bootjack Rd : Diss-Copper (Cu) (mg/L)




### GW11-1a - Below Temp PAG Dump on Bootjack Rd : Diss-Molybdenum (Mo) (mg/L)




### GW11-1a - Below Temp PAG Dump on Bootjack Rd : Diss-Selenium (mg/L)



# Water Quality Report

## Annual Report - Groundwater Graphs

**Mount Polley**

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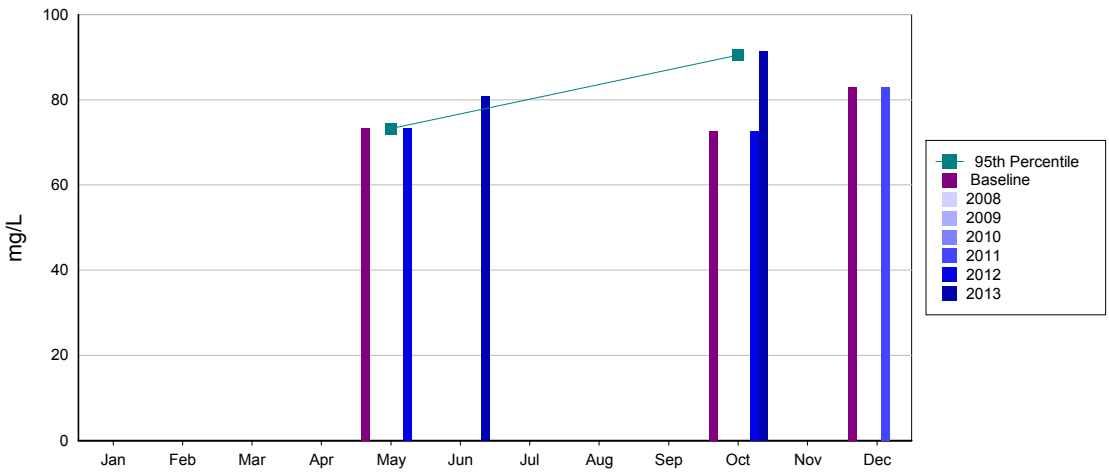
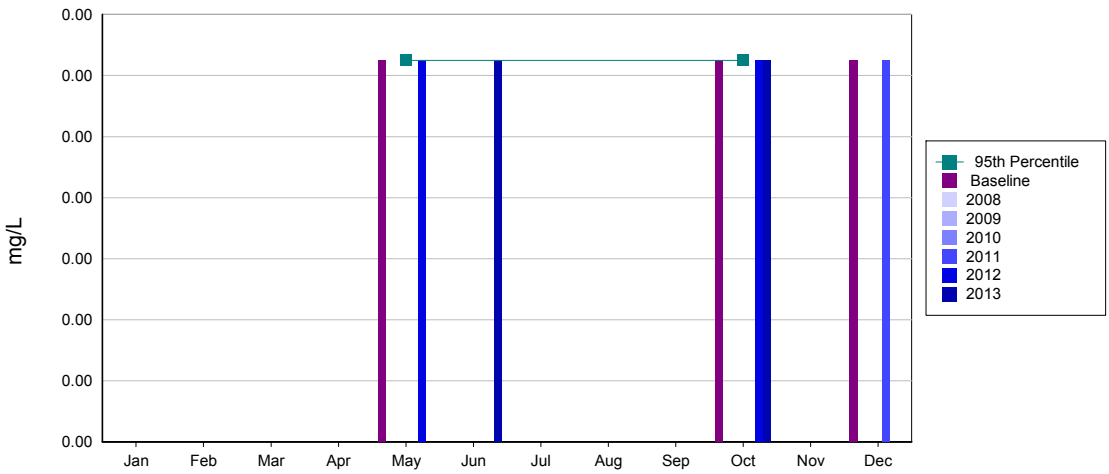
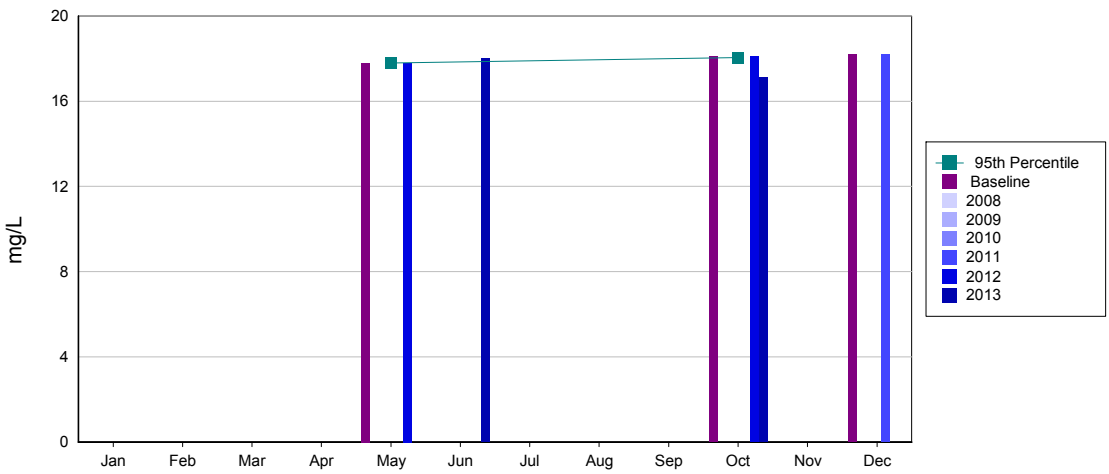
### GW11-1a - Below Temp PAG Dump on Bootjack Rd : Hardness (mg/L)




### GW11-1a - Below Temp PAG Dump on Bootjack Rd : Nitrate (N) (mg/L)




### GW11-1a - Below Temp PAG Dump on Bootjack Rd : Sulphate (mg/L)



# Water Quality Report

## Annual Report - Groundwater Graphs

**Mount Polley**

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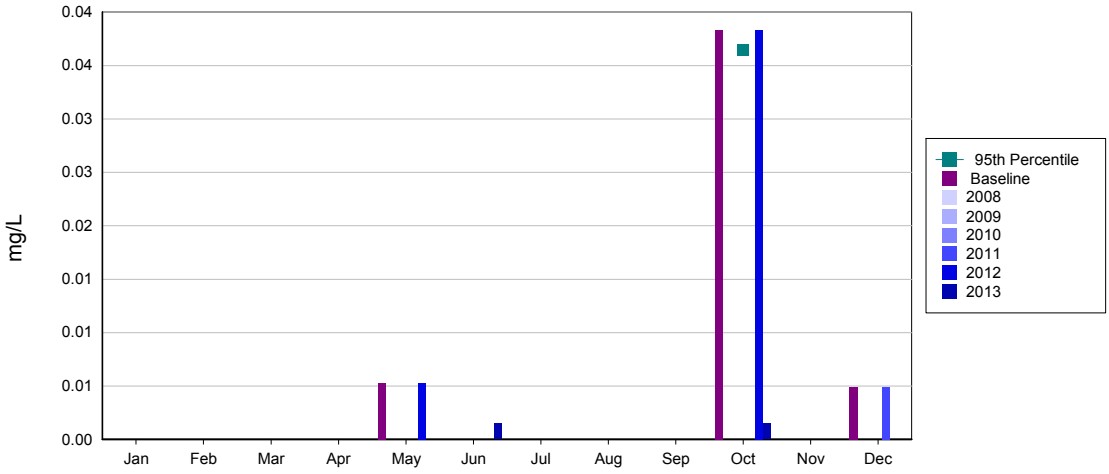


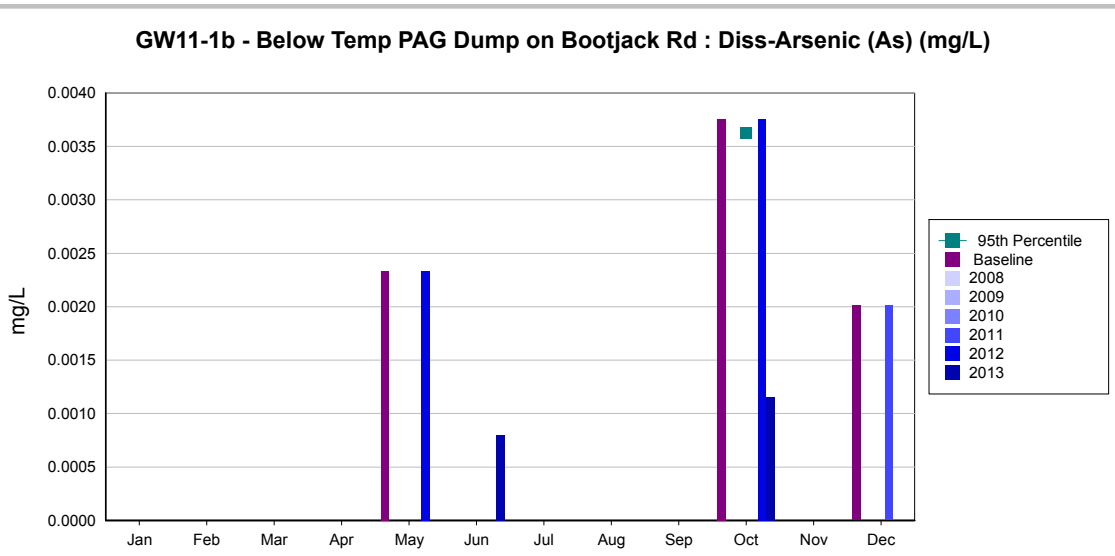


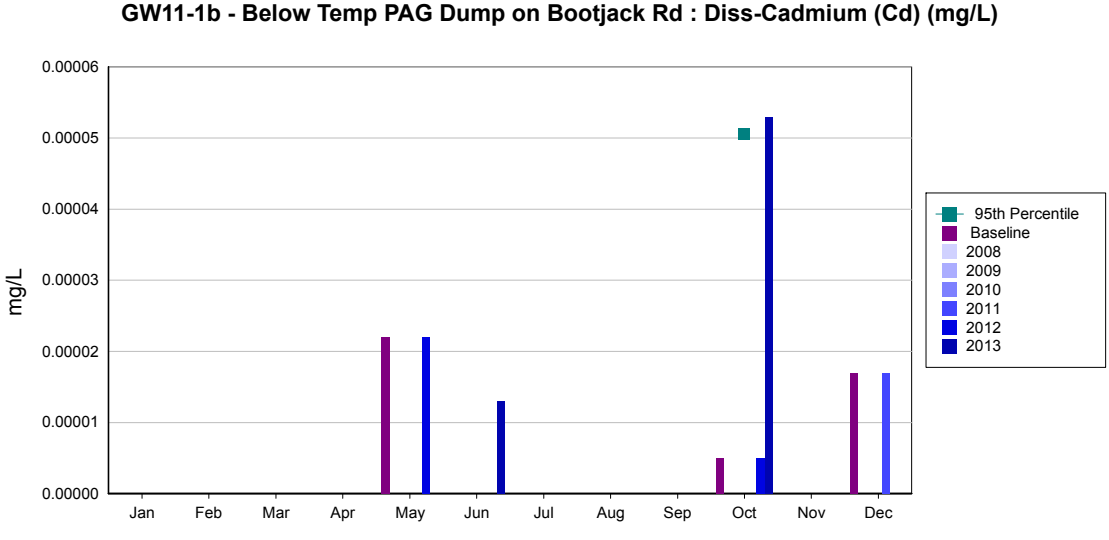

# Water Quality Report

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**Mount Polley**

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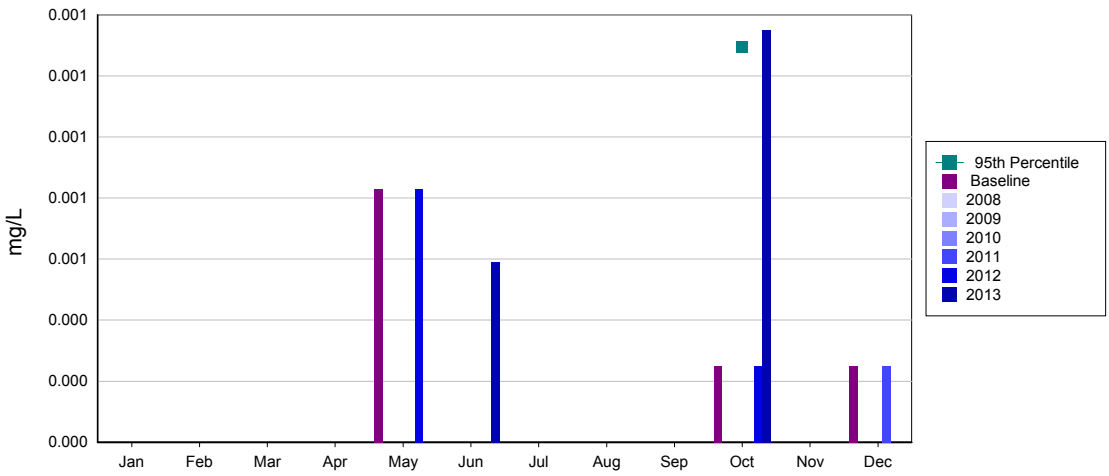
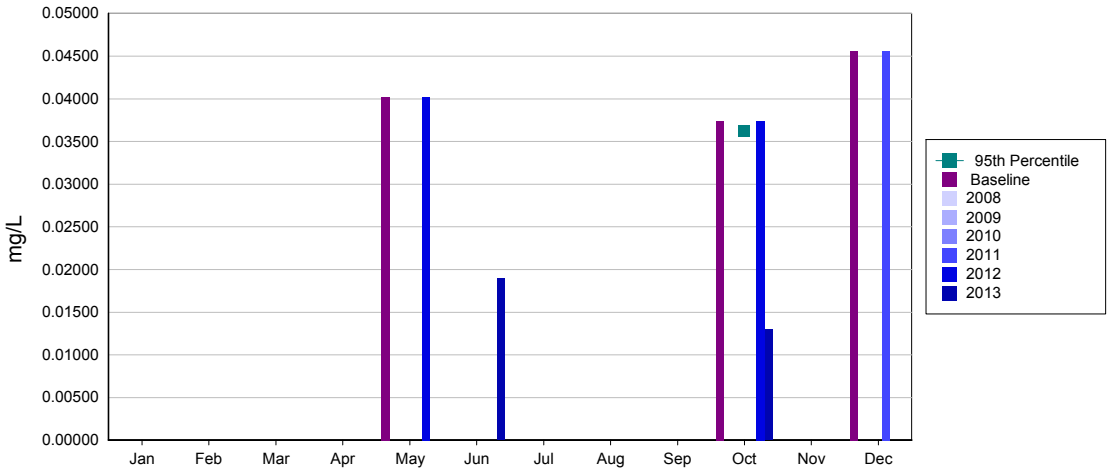
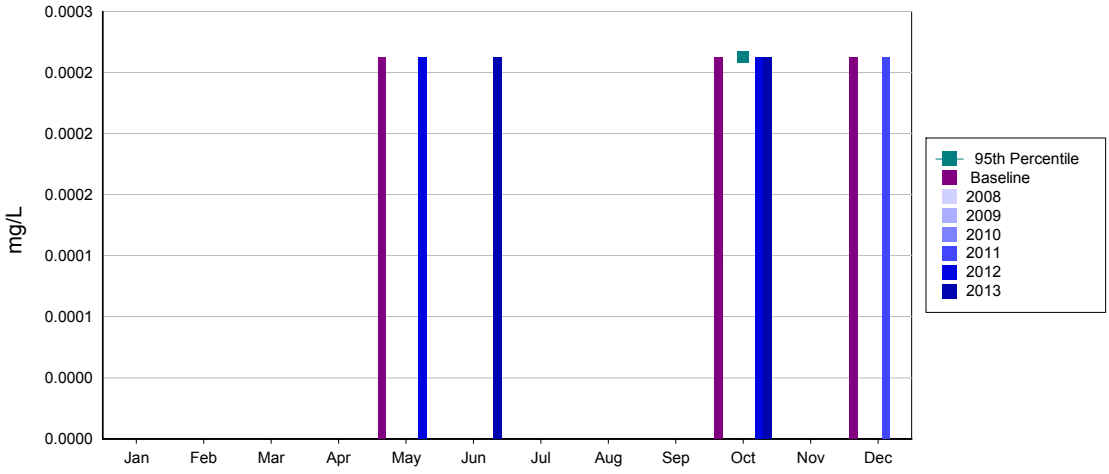
### GW11-1b - Below Temp PAG Dump on Bootjack Rd : Diss-Copper (Cu) (mg/L)




### GW11-1b - Below Temp PAG Dump on Bootjack Rd : Diss-Molybdenum (Mo) (mg/L)




### GW11-1b - Below Temp PAG Dump on Bootjack Rd : Diss-Selenium (mg/L)



# Water Quality Report

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**Mount Polley**

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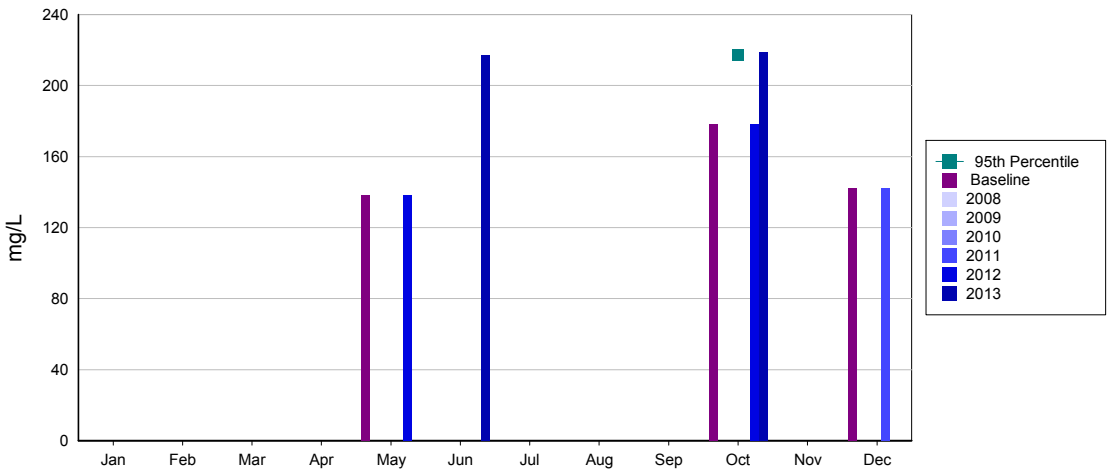
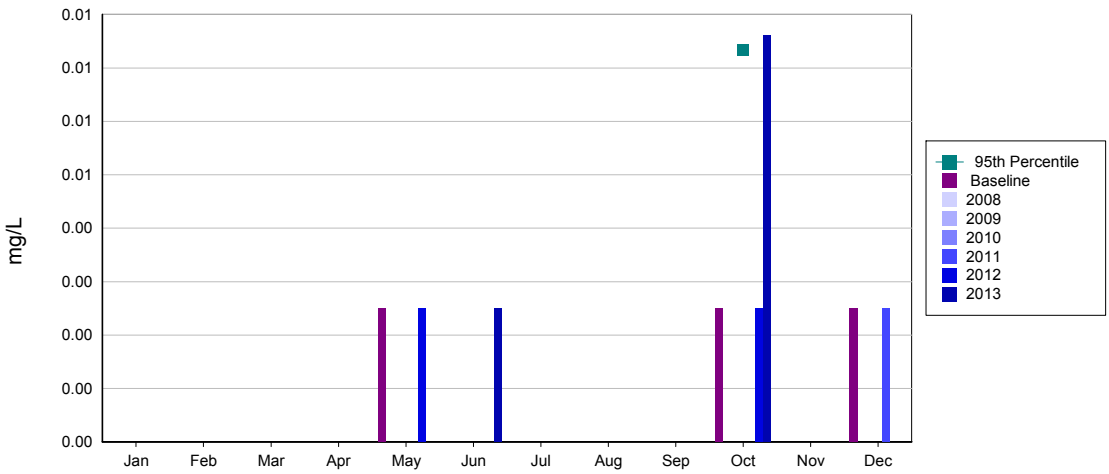
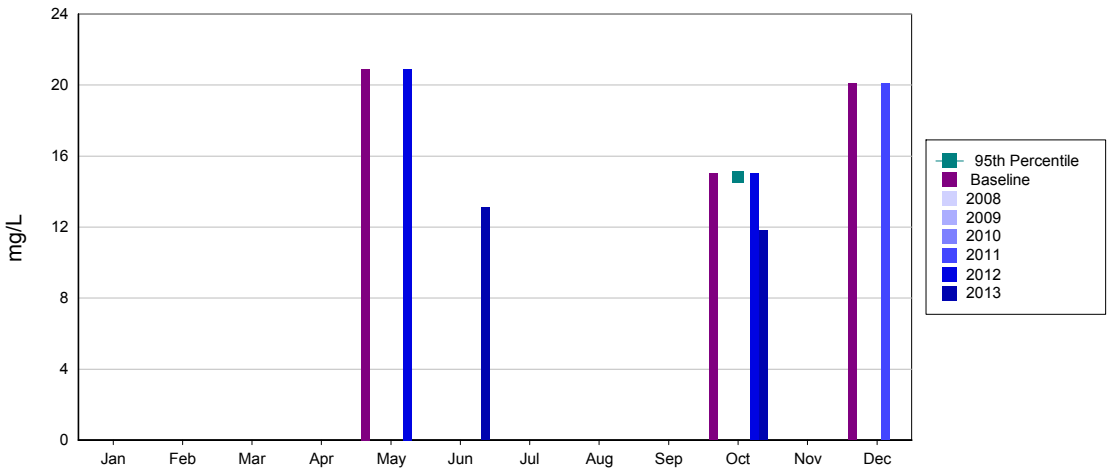
### GW11-1b - Below Temp PAG Dump on Bootjack Rd : Hardness (mg/L)




### GW11-1b - Below Temp PAG Dump on Bootjack Rd : Nitrate (N) (mg/L)




### GW11-1b - Below Temp PAG Dump on Bootjack Rd : Sulphate (mg/L)



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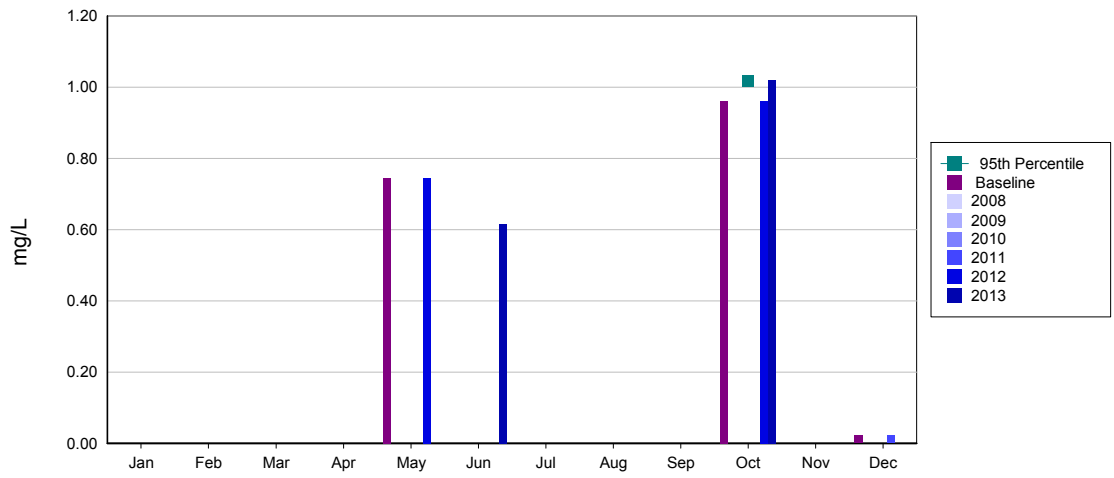
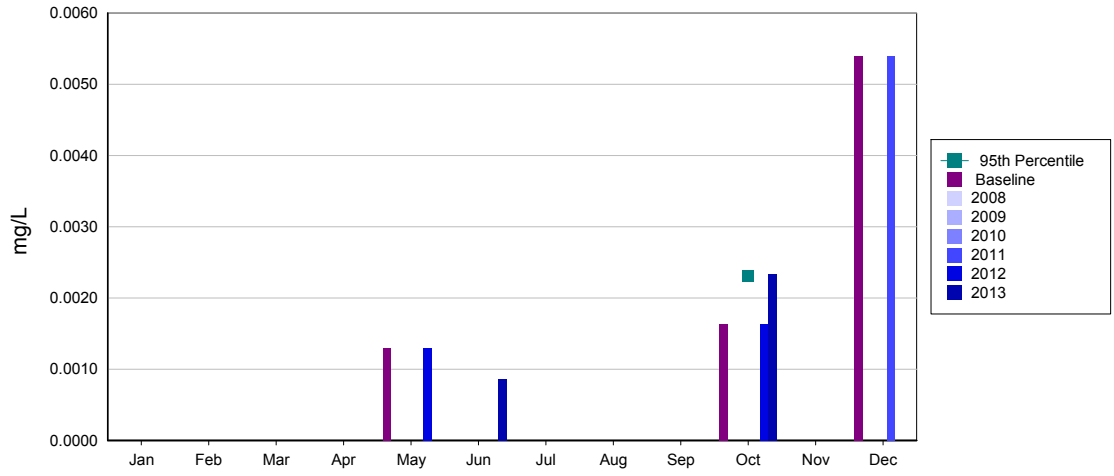
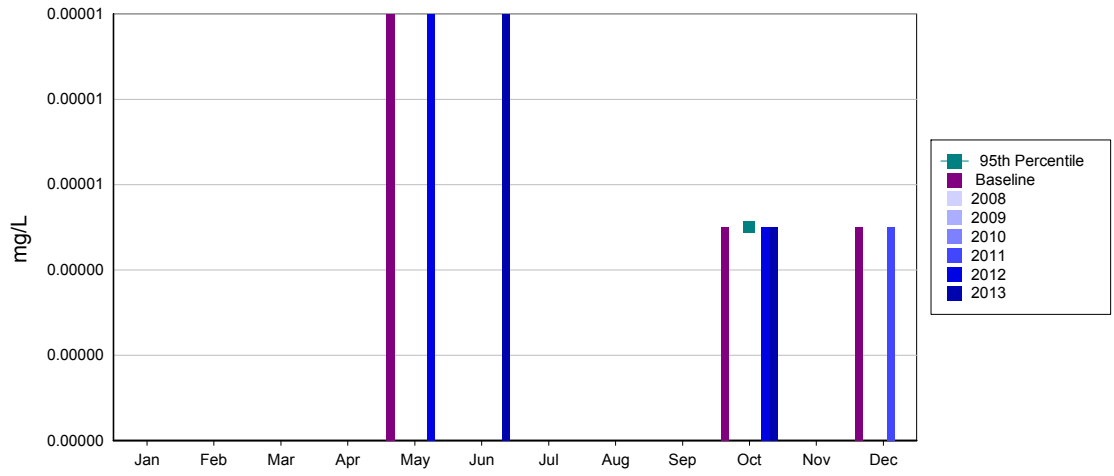
### GW11-2a - Below SERDS on Polley Lake Rd : Diss-Aluminum (Al) (mg/L)




### GW11-2a - Below SERDS on Polley Lake Rd : Diss-Arsenic (As) (mg/L)




### GW11-2a - Below SERDS on Polley Lake Rd : Diss-Cadmium (Cd) (mg/L)



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Mount Polley Mining Corporation
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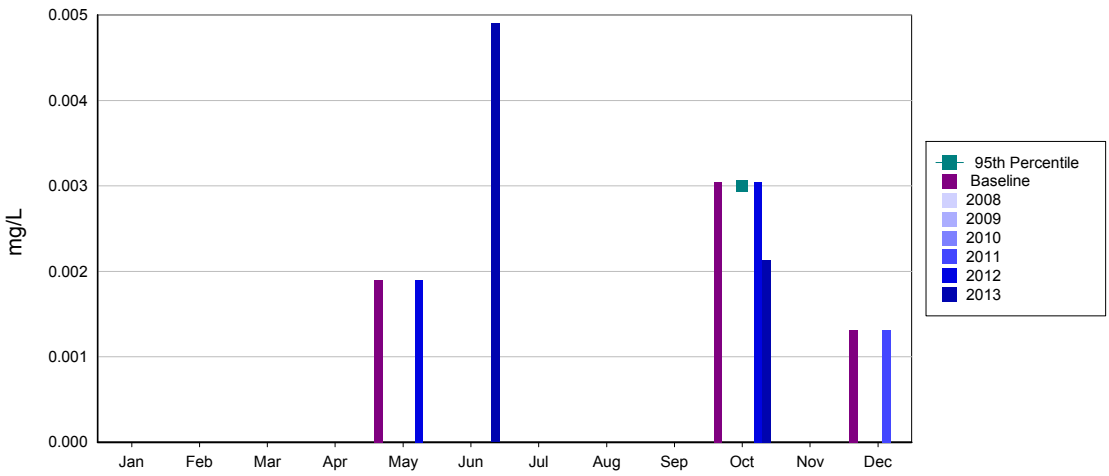
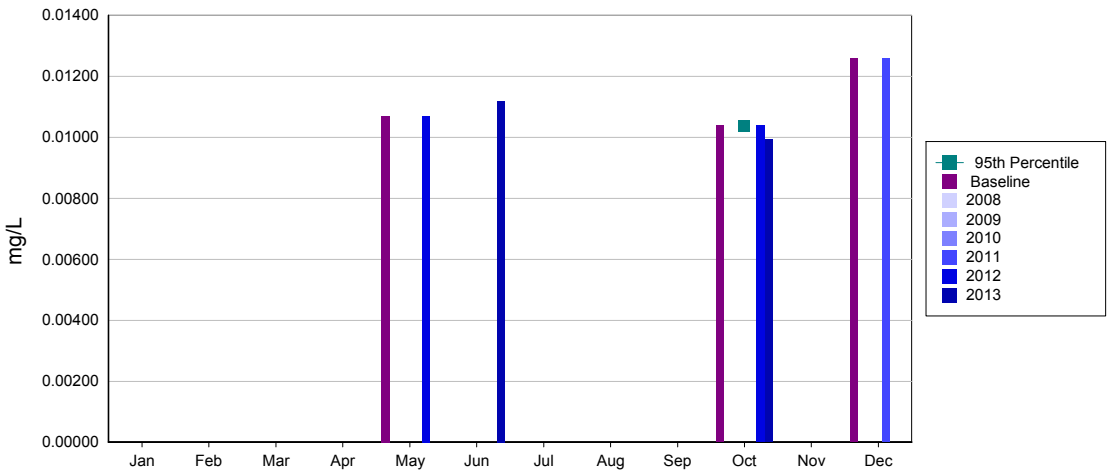
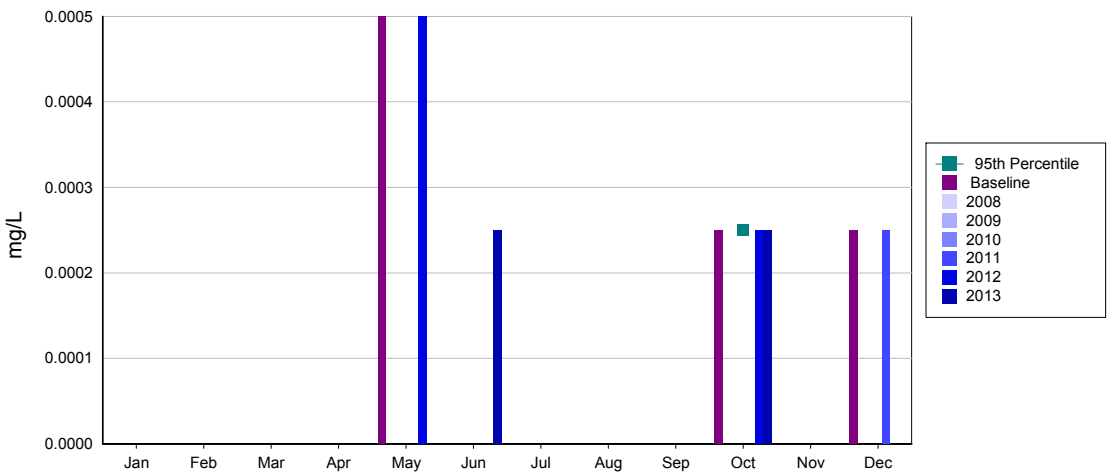
### GW11-2a - Below SERDS on Polley Lake Rd : Diss-Copper (Cu) (mg/L)




### GW11-2a - Below SERDS on Polley Lake Rd : Diss-Molybdenum (Mo) (mg/L)




### GW11-2a - Below SERDS on Polley Lake Rd : Diss-Selenium (mg/L)



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**Mount Polley**

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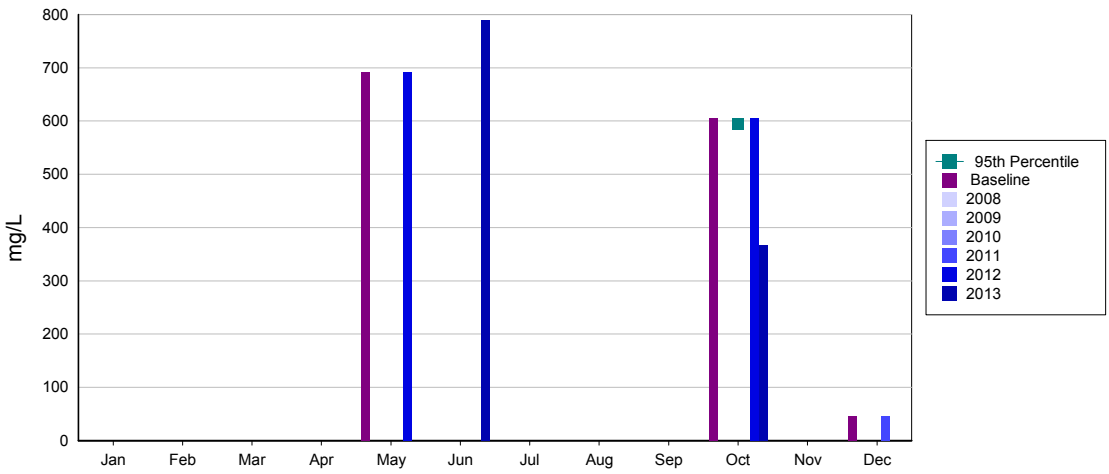
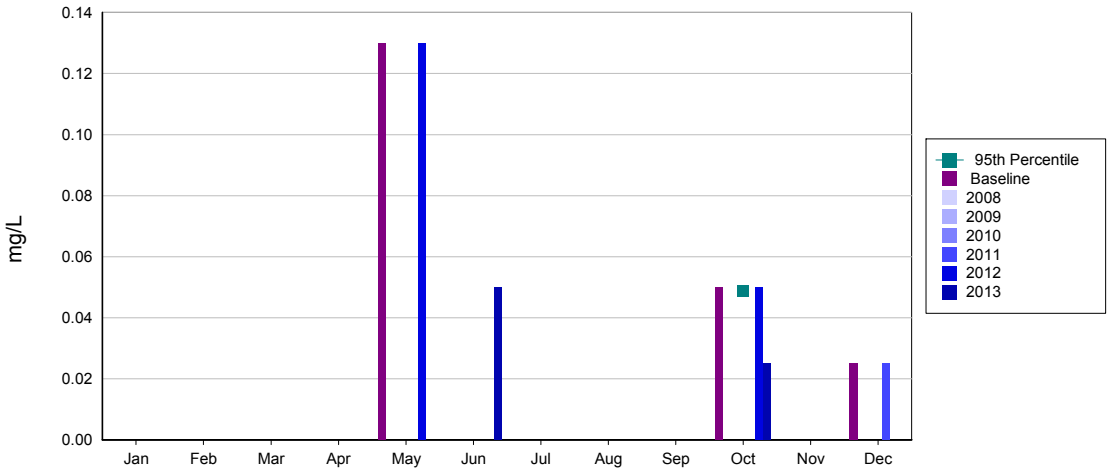
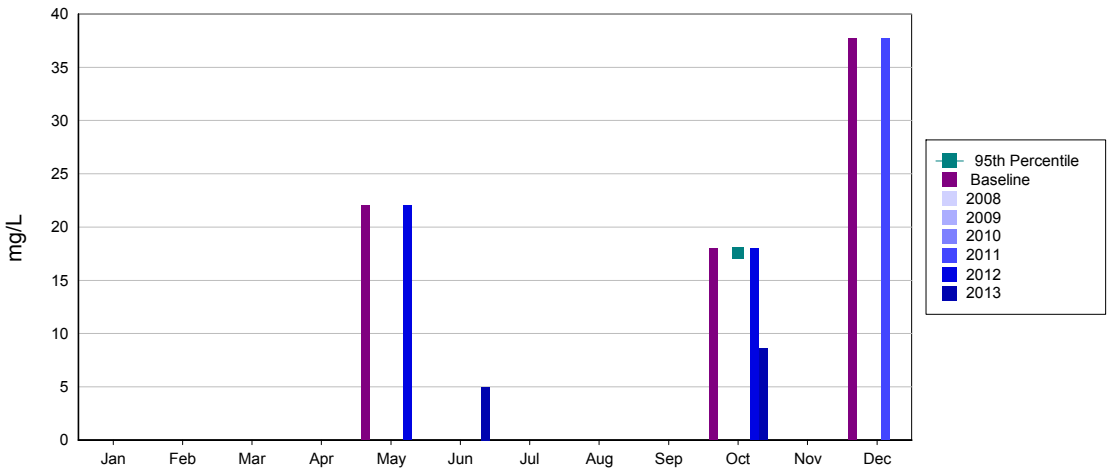
### GW11-2a - Below SERDS on Polley Lake Rd : Hardness (mg/L)




### GW11-2a - Below SERDS on Polley Lake Rd : Nitrate (N) (mg/L)




### GW11-2a - Below SERDS on Polley Lake Rd : Sulphate (mg/L)



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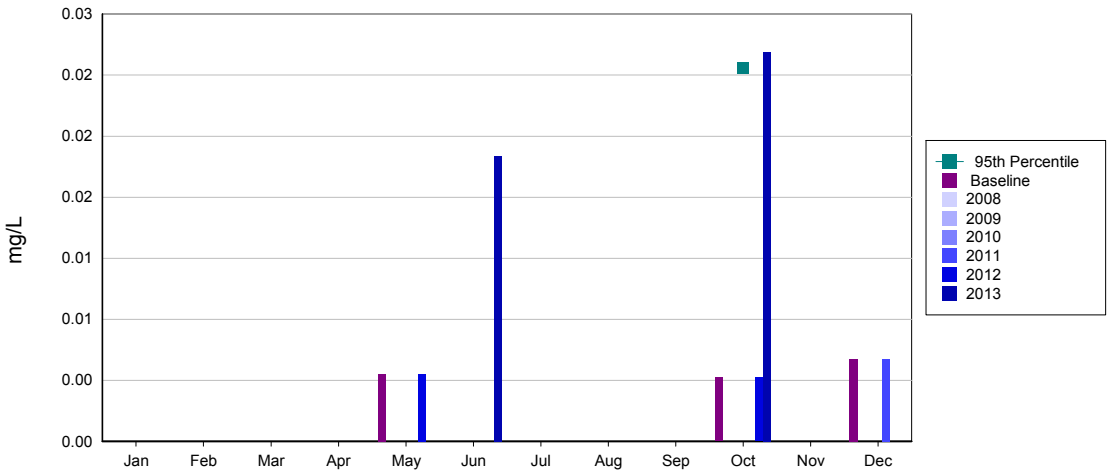
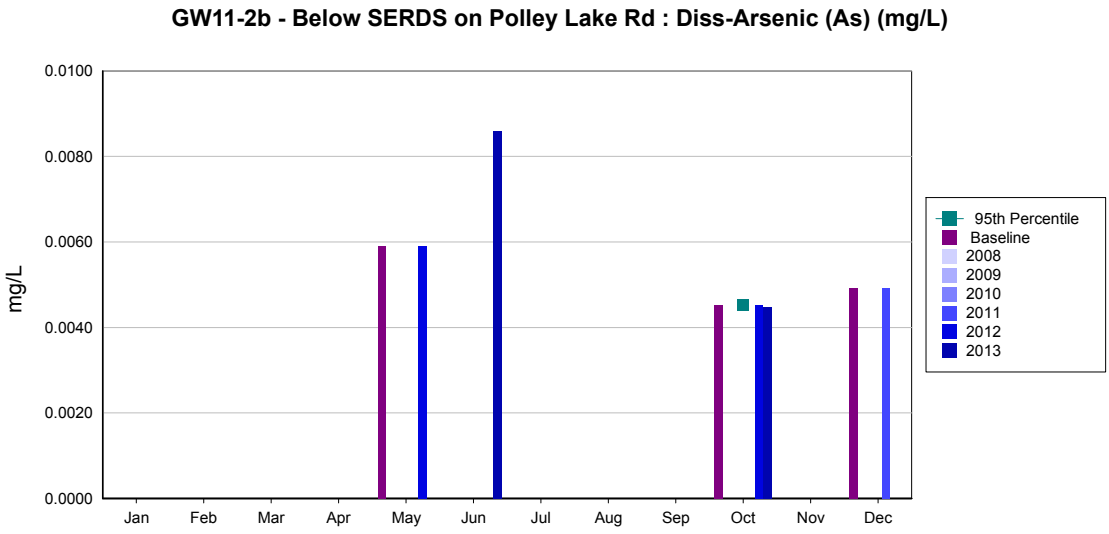
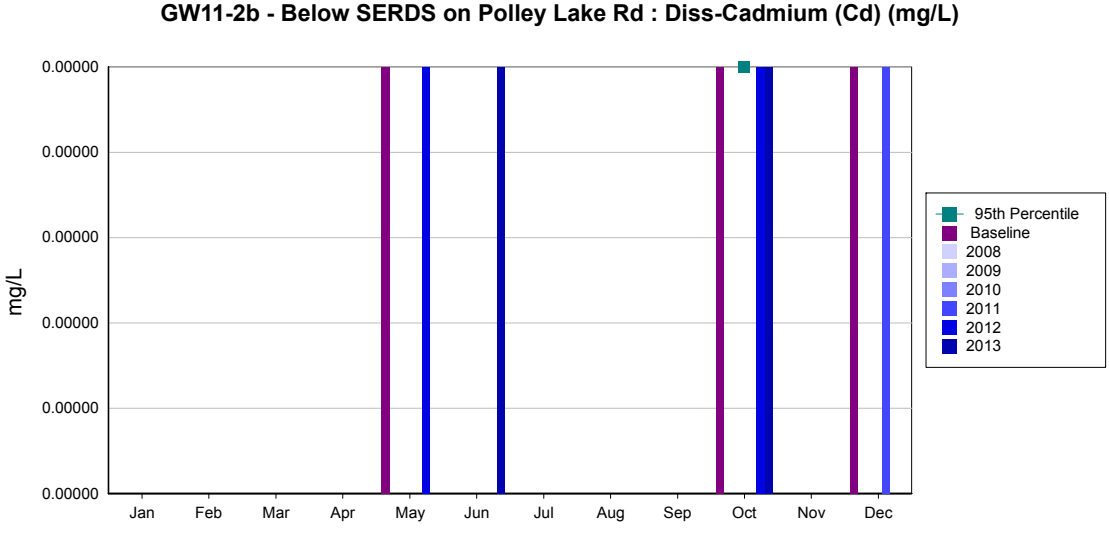


# Water Quality Report

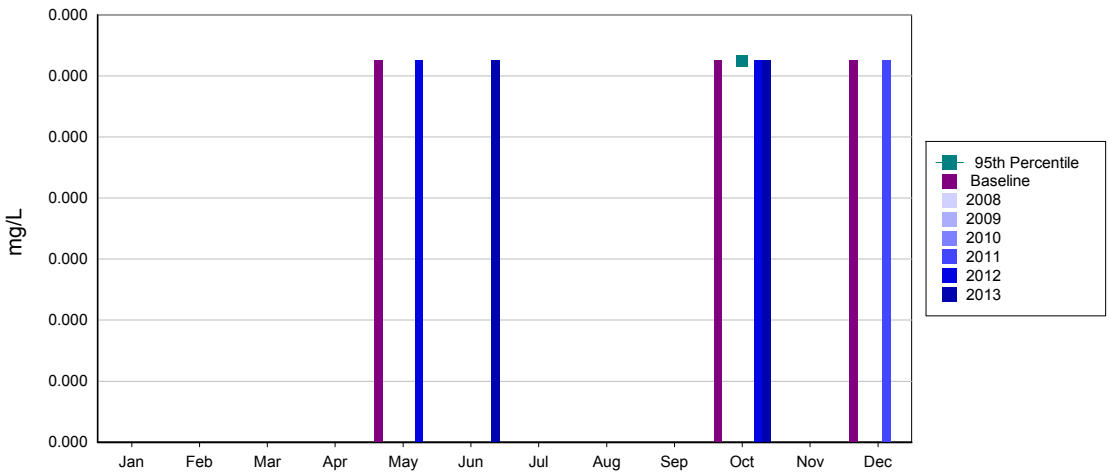
## Annual Report - Groundwater Graphs

**Mount Polley**

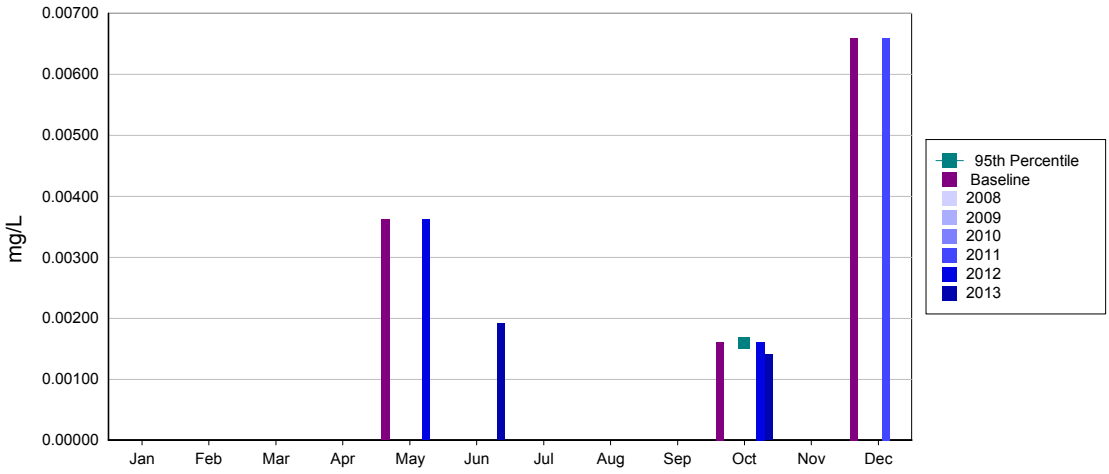
**Mining Corporation**

IMPERIAL METALS CORPORATION

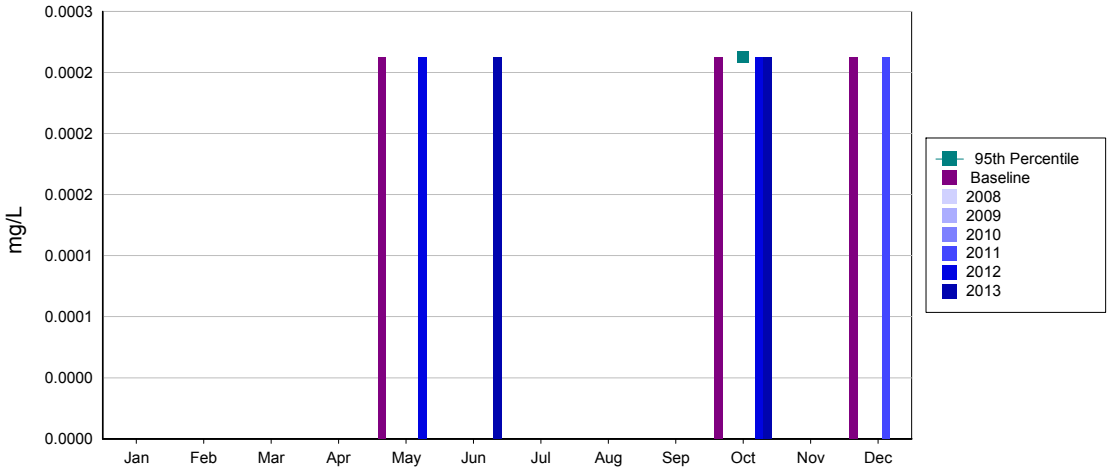
### GW11-2b - Below SERDS on Polley Lake Rd : Diss-Copper (Cu) (mg/L)




### GW11-2b - Below SERDS on Polley Lake Rd : Diss-Molybdenum (Mo) (mg/L)




### GW11-2b - Below SERDS on Polley Lake Rd : Diss-Selenium (mg/L)



# Appendix G

# Annual Discharge Plan 2013

# MPMC 2013 Annual Discharge Plan

Submitted to:

**Ministry of Environment**
**Environmental Protection Division**
**South Interior Region – Cariboo**

and

**Environment Canada**

Prepared by:

**Mount Polley Mining Corporation**
**Environmental Department**

**Box 12, Likely BC**
**V0L 1N0**

**(250) 790-2213**

**Revision Date: March 14, 2013**

## Background Information

In November 2012, Mount Polley Mining Corporation (MPMC) received an amendment to effluent permit PE-11678 issued by the Ministry of Environment (MOE) under the British Columbia *Environmental Management Act*. This amendment authorizes the discharge of dam filtered water from the tailings impoundment drains into Hazeltine Creek.

Once discharge of tailings effluent has commenced, MPMC is governed by the Metal Mining Effluent Regulations (MMER) under the Federal Fisheries Act. These regulations require a notification of our intent to discharge.

This Plan has been developed for submission to MOE and Environment Canada to satisfy the requirements of PE-11678 and the MMER respectively.

## Scope

This 2013 Annual Discharge Plan, required under Section 1.2.6 of PE-11678, provides a detailed description of authorized discharge structures, and confirms that all actions required by the Permit prior to discharge have been complete. This Plan stipulates the expected volume, timing, and duration of effluent released to Hazeltine Creek, and demonstrates how the receiving environment environmental protection guidelines defined in the Permit will be met.

## Pre-discharge Permit Requirements

As per Section 1.2.7 of the Permit, the following requirements have been met.

| **Permit Requirement** | **Date Submitted** | **Submitted to:** |
|---|---|---|
| Traditional Use Study | 21-Jan-2013 | Ministry of Mines |
| QA/QC Manual | 7-Feb-2013 | MOE |
| Communication Plan | 22-Feb-2013 | First Nations |
| Surface and Groundwater Monitoring Plans | 8-Feb-2013 | MOE |
| Lake and Biological Monitoring Plan | 21-Feb-13 | MOE |
| Emergency Response Plan | - | Will be submitted prior to discharging. |

## Discharge Infrastructure and Design

The discharge infrastructure includes a pipeline and tank system, which are authorized works under Section 1.2.8 of the Permit. These works will be completed and in operation prior to the date discharge is planned to commence, as required by Section 1.2.9 of the Permit.

The Discharge system is designed using all potable water standard equipment and infrastructure. Details of the discharge system structure and design are included in Appendix 1, and include: sequence of operation; materials and construction method; and schematics of each of the two designed tanks.

The communication and controls for this system will be maintained using a microwave link between each control site (W7, HD-1, and the Main Containment tank). There will be an Ethernet connection at each site and these will operate on a separate network that communicates to the MMI Network at the mill. Details of the system, included in Appendix 1, outline all the Fail Safe systems for automatic shutdown should the system lose communication. The final as built drawings and design for the entire system will be included in an updated version of the QA/QC manual and submitted to MOE.

### *History of Discharge Location*

MPMC is located 56 kilometers Northeast of Williams Lake, in central British Columbia (~N52O33'24", W121O38'08"). The final discharge point into Hazeltine Creek is located at N52 31.208, W121 35.140.

The location for the discharge was originally scoped by Knight Piésold prior to the submission of the PE-11678 Permit Amendment Application in 2007. The final location was chosen during a field program conducted by Minnow Environmental in 2010. The details of this program were published in the MPMC Annual Environmental and Reclamation Report 2011. The outlet of the discharge system was designed by Knight Piésold.

The final discharge structure was constructed in the fall of 2012. The construction plan included a Section 9 authorization from MOE, a guidance letter from Department of Fisheries and Oceans (DFO), a License of Occupation under the Lands Act, and a License to Cut from Ministry of Forests (MOF).

## Discharge Plan

The effluent discharge will be entirely composed of water from the Tailings Storage Facility (TSF) Main Toe Drain (MTD). MTD water is TSF supernatant that filters through the Main Embankment of the dam and is collected by a pipe system. The supernatant sources are: concentrator tailings slurry from the milling of ore or contaminated soil; mill site runoff; rock disposal site runoff; open pit water; and septic tank effluent (all from Mount Polley copper/gold mining and milling operations).

The following sections outline expected volume, timing, and duration of effluent released based on predicted water quality and flow rates of the MTD and Hazeltine Creek.

### *Hazeltine Creek Flow Predictions*

Hazeltine Creek flows are predominantly snowmelt driven, with the majority of annual runoff occurring in late spring. Thus, creek flow predictions (and corresponding discharge volumes) are primarily based on snowpack data from the Mount Polley Mine site, and regional automated snow pillow stations run by the BC Ministry of Forests, Lands and Natural Resources River Forecast Centre. As of March 1, 2013, the River Forecast Centre Snow Survey and Water Supply Bulletin reported the snowpack to be 88% of the average for this time of year in the Middle Fraser Basin (BC River Forecast Centre, 2013). At Mount Polley Mine, the average snowpack from three sample locations on February 22, 2013 was 84% of the

site average (based on data from 2000 to 2013). Given these statistics, the conservative estimate is that in 2013 Hazeltine Creek flow will be 84% of average Hazeltine Creek Flow. Average monthly flows (based on data from 1995 to 2008 compiled by Knight Piésold, and data from 2010 to 2012 collected by MPMC staff), and the anticipated 84% flows are presented in Table 1. Note that these predictions may be altered slightly as additional site specific and River Forecast Centre snowpack data becomes available this spring.

*Table 1 Average and 2013 projected (84%) flow rates for Hazeltine Creek.*

| Month | Average Flow ($m^3/s$) | 84 % of Average ($m^3/s$) |
|---|---|---|
| April | 0.737 | 0.619 |
| May | 0.652 | 0.548 |
| June | 0.201 | 0.169 |
| July | 0.096 | 0.080 |
| August | 0.033 | 0.028 |
| September | 0.023 | 0.019 |
| October | 0.023 | 0.019 |

### *Projected Discharge Volumes*

To calculate the discharge volumes, MTD water quality was based on samples taken between April 2010 and November 2012 (refer to Appendix 2). These sample results were averaged because MTD water quality does not fluctuate significantly seasonally due to the filtration and water retention properties of the dam. The only exception was temperature, in which monthly averages were used. For Hazeltine Creek monthly average water quality (to reflect natural seasonal changes) was calculated from 75 samples taken between January 2008 through 2012 at site W7 (refer to Appendix 2).

Calculations were completed based on 84% of average Hazeltine Creek flow rates (as discussed above) and average MTD flow rates (as calculated from 2008, 2009, and 2010 measurements). The maximum MTD discharge rate (as a percentage of Hazeltine Creek flow) that did not exceed any receiving environment guidelines was calculated, assuming proportional mixing. This is a conservative approach, which does not account for the potential of the creek water ameliorating certain parameters in the effluent water (Minnow, 2009).

During freshet months (April and May), the limiting factor for the volume of effluent discharged is the MTD flow rate, as water quality predictions show PE-11678 targets are not at risk of being exceeded even when 100% of the MTD is being discharged. From June to October, water quality predictions show that only a portion of the MTD water may be discharged or receiving environment guidelines will be exceeded. A 25% safety factor has been applied to the predicted maximum allowable MTD discharge for these months.

Table 2 provides the 2013 planned monthly discharge rates, accounting for the 30 day wait period after MOE approval of this Plan. In the discharge system, the allowable MTD discharge as a percentage of

Hazeltine Creek flow will be applied in real-time to actual Hazeltine Creek flow rates. The corresponding effluent discharge rate will be continuously monitored (as required under Section 3.4 of the Permit and MMER Section 19 (3). The monthly discharge volumes are projected values based on the predicted Hazeltine Creek Flow rates (84% of average). An estimated 76, 727 $m^3$ of water will be discharged in 2013 plus an estimated additional 700 $m^3$ during system testing. The total volume of 77, 427 $m^3$ of water discharged does not exceed the permitted maximum of 1.4 million $m^3$ per year.

*Table 2 Planned 2013 discharge rates and volumes*

| Month | Hazeltine Q | MTD Discharge | | Discharge Days | Discharge Volume |
|---|---|---|---|---|---|
| | $m^3/s$ | % | $m^3/s$ | days | $m^3$/month |
| Jan | 0.050 | 0.0 | 0.000 | 0 | - |
| Feb | 0.050 | 0.0 | 0.000 | 0 | - |
| Mar | 0.070 | 0.0 | 0.000 | 0 | - |
| Apr | 0.619 | 0.00 | 0.0000 | 0 | - |
| May | 0.548 | 2.2 | 0.012 | 19 | 19,791 |
| Jun | 0.169 | 4.5 | 0.008 | 30 | 19,712 |
| Jul | 0.081 | 8.9 | 0.007 | 31 | 19,309 |
| Aug | 0.025 | 11.3 | 0.003 | 31 | 7,566 |
| Sep | 0.019 | 11.3 | 0.002 | 30 | 5,565 |
| Oct | 0.019 | 9.4 | 0.002 | 31 | 4,784 |
| Nov | 0.080 | 0.0 | 0.000 | 0 | - |
| Dec | 0.050 | 0.0 | 0.000 | 0 | - |
| | | | | **Total** | **76,727** $m^3$/year |

**Notes:**

**1)** Maxiumum % Effluent in Hazeltine Creek = 35 (as per PE 11678)

**2)** Discharge period is from April - October (as per PE 11678)

**3)** Maximum MTD Discharge = 0.012 $m^3/s$

**4)~** 100 $m^3$/day discharge testing May 6 - 12, 2013 not included in discharge volume calculations

**5)** Full MTD discharge during May 13 - 31 (freshet)

**6)** 25% safety factor applied June - October (only 75% of predicted allowable discharge volume will be discharged)

MPMC maintains a site water balance primarily for monitoring and predicting TSF supernatant levels and assessing dam building requirements. In 2013, the dam will be raised to an elevation deemed appropriate based on historic and projected data. These projections will not take the discharge into account as a conservative measure in the event that MPMC is unable to discharge due to unforeseen circumstances. As of February 28, 2013 there was approximately 6, 300, 000 $m^3$ of supernatant in storage. Comparatively, the discharge volumes are very small, and sufficient supernatant will remain TSF to be reclaimed for milling processes.

### *Discharge Timeline Summary*

- **March 14, 2013:** Submit final Discharge Plan to the MOE.

- **March 15, 2013:** Submit digital copy of final Discharge Plan to the Soda Creek Indian Band and Williams Lake Indian for review.
- **April 1, 2013:** Deadline for First Nations comments on the Discharge Plan.
- **April 1 – 5, 2013:** MPMC to respond to First Nations Comments, allowing MOE to approve the Discharge Plan.
- **May 6, 2013:** Discharge system testing start date (approximately 100 $m^3$/day). Final Discharge Plan to be submitted to the Environment Canada Authorization Officer within 60 days.
- **May 13, 2013:** Full MTD flow discharge (sufficiently diluted by freshet runoff)
- **June 1, 2013:** Discharge start date (using 25% safety factor)
- **October 31, 2013:** Discharge end date

# Protection of Receiving Environment

## *Water Chemistry*

The predicted downstream water quality based on the planned discharge scenario in Table 2 is provided in detail in Appendix 3. Table 3 shows the projected change in Hazeltine Creek water quality at monitoring site W7 (downstream of the discharge) for key parameters of concern. Water quality projections for all parameters in each discharge month are below the guidelines in Table 1 of PE-11678. Note that "Hazeltine (After)" water quality predictions as referred to in Table 3 and Appendix 3 are for monitoring location W7.

*Table 3 Projected receiving environment levels of key parameters of concern*

| Month | Hazeltine (Before) | | | | | | Hazeltine (After) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cd (mg/L) | $SO_4$ (mg/L) | Cu (mg/L) | Se (mg/L) | Temp (°C) | | Cd (mg/L) | $SO_4$ (mg/L) | Cu (mg/L) | Se (mg/L) | Temp (°C) |
| Jan | 0.000007 | 26 | 0.00226 | 0.00077 | 0.1 | | 0.000007 | 26 | 0.002257 | 0.00077 | 0.1 |
| Feb | 0.000007 | 27 | 0.00273 | 0.00074 | 0.1 | | 0.000007 | 27 | 0.002727 | 0.00074 | 0.1 |
| Mar | 0.000007 | 26 | 0.00198 | 0.00072 | 0.5 | | 0.000007 | 26 | 0.001975 | 0.00072 | 0.5 |
| Apr | 0.000009 | 21 | 0.00473 | 0.00044 | 1.3 | | 0.000009 | 21 | 0.004734 | 0.00044 | 1.3 |
| May | 0.000010 | 22 | 0.00345 | 0.00068 | 6.9 | | 0.000012 | 31 | 0.004306 | 0.00072 | 6.9 |
| Jun | 0.000008 | 22 | 0.00416 | 0.00079 | 12.7 | | 0.000012 | 41 | 0.005843 | 0.00086 | 12.5 |
| Jul | 0.000006 | 25 | 0.00273 | 0.00059 | 14.6 | | 0.000014 | 60 | 0.006036 | 0.00074 | 14.0 |
| Aug | 0.000007 | 22 | 0.00154 | 0.00055 | 14.7 | | 0.000016 | 66 | 0.005770 | 0.00074 | 14.1 |
| Sep | 0.000029 | 23 | 0.00157 | 0.00049 | 9.9 | | 0.000036 | 66 | 0.005792 | 0.00069 | 9.7 |
| Oct | 0.000008 | 25 | 0.00246 | 0.00032 | 3.5 | | 0.000016 | 62 | 0.005962 | 0.00050 | 3.9 |
| Nov | 0.000009 | 22 | 0.00408 | 0.00042 | 1.1 | | 0.000009 | 22 | 0.004075 | 0.00042 | 1.1 |
| Dec | 0.000006 | 24 | 0.00270 | 0.00044 | 0.0 | | 0.000006 | 24 | 0.002698 | 0.00044 | 0.0 |

To ensure these predictions are accurate, monitoring will occur throughout the discharge season as outlined in the *MPMC Annual Monitoring Plan – 2013* (MPMC, 2013) submitted to an approved by MOE. Sample site details are provided in Table 4 and their locations are shown in the map in Figure 1. Planned monitoring under PE-11678 and MMER during the discharge season includes:

- Continuous conductivity monitoring of the effluent.

- Weekly sampling at HD-1 to ensure effluent guidelines in PE-11678 Section 1.2.4 and MMER Schedule 4 are not exceeded.
- Weekly sampling at W7 to ensure that guidelines in PE-11678 Section 2.6 are not exceeded. The rolling 30-day mean will be recorded and report to the MOE as per Section 2.6.1.
- Weekly sampling at HD-US to provide Hazeltine Creek water quality prior to mixing with effluent for comparison with W7 results.

*Figure 1 Discharge Monitoring Locations*

*Table 4 Discharge sample locations*

| Site Name | EMS Number | Location |
|---|---|---|
| HD-1 | E289717 | Discharge effluent sampled from mixing tank. |
| HD-US | E291249 | Hazeltine Creek approx. 20 m upstream of the discharge point. |
| W7 | E208038 | Hazeltine Creek approx. 800 m downstream of the discharge point, under the Gavin Lake Forest Service Road bridge. |

## *Water Temperature*

To protect aquatic habitats, the BC Water Quality Guideline for aquatic life is the water temperature should not change greater than 1 °C beyond the optimum range for each life history phase for the most sensitive salmonid present and the hourly rate of change should not exceed 1 °C. As shown in Table 5, the discharge is not projected to change the water temperature in Hazeltine Creek greater than 1 °C for any month, thus maintaining appropriate water temperatures for fish development.

Continuous temperature monitoring of the effluent and of Hazeltine Creek downstream of the discharge (at W7) will be conducted.

*Table 5 Projected effects of MTD discharge on water temperature in the receiving environment*

| Month | MTD | | Hazeltine (before) | | Hazeltine (after) | | BCWQG |
|---|---|---|---|---|---|---|---|
| | Flow | Conc. | Flow | Conc. | Flow | Conc. | |
| Jan | 0.000 | | 0.05 | 0.1 | 0.05 | 0.1 | <1 degree C deviation from optimum range for each life stage |
| Feb | 0.000 | | 0.05 | 0.1 | 0.05 | 0.1 | |
| Mar | 0.000 | | 0.07 | 0.5 | 0.07 | 0.5 | |
| Apr | 0.000 | 6.5 | 0.62 | 1.3 | 0.62 | 1.3 | |
| May | 0.012 | 5.7 | 0.55 | 6.9 | 0.56 | 6.9 | |
| Jun | 0.008 | 8.8 | 0.17 | 12.7 | 0.18 | 12.5 | |
| Jul | 0.007 | 7.8 | 0.08 | 14.6 | 0.09 | 14.0 | |
| Aug | 0.003 | 9.2 | 0.03 | 14.7 | 0.03 | 14.1 | |
| Sep | 0.002 | 8.3 | 0.02 | 9.9 | 0.02 | 9.7 | |
| Oct | 0.002 | 7.3 | 0.02 | 3.5 | 0.02 | 3.9 | |
| Nov | 0.000 | | 0.08 | 1.1 | 0.08 | 1.1 | |
| Dec | 0.000 | | 0.05 | 0 | 0.05 | 0.0 | |

Note: MTD annual averages were used in calculations for all other parameters,
as parameters do not fluctuate seasonally due to the retention and filtration properties of the dam.
Temperature, however, does show slight seasonall fluctuations, and monthly averages were used.

## *Physical Stability*

Section 5.5.1 of the *Mount Polley Mine Technical Assessment Report for a Proposed Discharge of Mine Effluent* (Minnow, 2009) assessed the potential for adverse effects of discharge on channel stability through quantification of erosion potential and regime modelling. Changes associated with the proposed discharge were found to be well within the range of natural variability, and are well below the historical decrease caused by the diversion of Bootjack Creek from Hazeltine Creek to Morehead Creek which represented an approximate 34% reduction in catchment area and associated flow. Nonetheless, to ensure that adverse changes do not occur, ongoing monitoring of erosional and depositional sites

below the discharge point, as outlined in the *Biological Monitoring and Lake Sampling Plan (*MPMC, 2013).

### *Fish Habitat*

In addition to water quality and physical stability monitoring, MPMC will collect additional data to ensure no adverse changes to fish habitat occur:

- Photo documentation at the mouth of Hazeltine Creek will be conducted annually to monitor primary productivity.
- Sediment sampling at a depositional area downstream of the discharge will be completed annually to monitor selenium levels.
- Periphyton sampling will be completed downstream of the discharge (at W7) annually to monitor chlorophyll a and selenium levels.
- Toxicity testing of the effluent at HD-1 (96 hour LC50 rainbow trout toxicity (acute) and 48 hour LC50 Daphnia Magna toxicity (acute) monthly, as well as EC25 rainbow trout embryo/alvin toxicity (chronic) and 7 day *Ceriodaphnia dubia* toxicity (chronic) bi-annually).
- As required under MMER, MPMC will complete an Environmental Effects Monitoring Program in 2014 which will include sublethal toxicity testing on a fish species, invertebrate species, plant species, and algal species.
- As part of the Towards Sustainable Mining Program (developed by the Mining Association of Canada), MPMC is working towards developing a corporate biodiversity policy, and will implement a biodiversity conservation plan. This will encompass the Hazeltine Creek environment.

### *Exceedances*

#### *Ministry of Environment*

- If the effluent quality guidelines in PE-11678 Section 1.2.4 are exceeded, discharge will immediately cease, and will resume only when two subsequent tests meet the effluent requirements (as per Section 1.2.5 of the Permit).
- Any toxicity test failures will be reported to the MOE Environmental Protection Director immediately, and MPMC will make immediate arrangements to complete a re-test.
- If any receiving environment guidelines in PE-11678 Table 1 or the water quality targets outlined in Appendix 3 are exceeded, the MOE Environmental Protection Director will be notified and discharging will cease immediately. The Annual Discharge Plan will then be amended and re-approved by the MOE Environmental Protection Director before discharging resumes (as per Sections 2.6.2. and 2.6.3 of the permit).

#### *Environment Canada*

- As required under MMER Section 24 (1-2), the Inspector will be notified, without delay, if effluent monitoring guidelines in MMER Schedule 4 are exceeded, if the effluent is outside the pH range of 6.5 to 9.5, or if the effluent is acutely lethal. A written report will follow within 30 days of the tests being completed.

- If the effluent is determined to be acutely lethal, the effluent water quality samples will be characterized without delay and additional acute lethality sampling will be conducted as required under MMER Section 15.
- If deposits outside of the normal course of events occur, acute lethality testing will be completed without delay as per MMER Section 14 (1). A written report meeting the requirements outlined in MMER Section 31 (2) will be submitted within 30 days, as required under Section 31 (2).

# Reporting

## *Ministry of Environment*

A summary of the 2013 discharge program and monitoring results will be included in the 2013 Annual Environmental and Reclamation Report (March 31, 2014 deadline). The submission will include a statement outlining any permit breaches or guideline exceedences. This material will be reviewed and audited by a third party (Minnow Environmental), and the audit findings will be appended to the Annual Report.

This Annual Discharge Plan provides the information required under Section 2.6 of PE-11678. Any necessary changes based on outcomes of the 2013 discharge season, and will be incorporated into the 2014 discharge plan.

## *Environment Canada*

An annual report summarizing the effluent monitoring results for the 2013 and meeting the requirements outlined in MMER Schedule 6 will be submitted to Environment Canada by March 31, 2014.

# References

BC River Forecast Center, 2013. Snow Survey and Water Supply Bulletin – February 1st, 2013. Retrieved February 12, 2013 from http://bcrfc.env.gov.bc.ca/bulletins/watersupply/current.htm

Minnow Environmental, 2009. Mount Polley Mine Technical Assessment Report for a Proposed Discharge of Mine Effluent. Report prepared for Mount Polley Mining Corporation, Likely, BC. July 2009.

# Appendix H

# 2013 Biological Monitoring and Lake Sampling Plan

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

# Biological Monitoring and Lake Sampling Plan

Permit: PE-11678

Submitted by: Colleen Hughes, EP

February 21, 2013
Revision date: March 14, 2013

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# 1. Introduction

In November 2012, effluent permit PE-11678 was amended to include the discharge of dam filtered water to Hazeltine Creek. This Monitoring Plan addresses the requirement of Section 3.2 of the amended permit to submit an annual Biological Monitoring and Lake Sampling Plan to the Ministry of Environment (MOE) at least 60 days prior to commencing data collection for approval by the Director.

This 2013 Monitoring Plan was developed by Mount Polley Mining Corporation (MPMC) environmental staff and reviewed by Colleen Hughes, EP, Environmental Technologist, MPMC as the Qualified Professional (QP), as well as by a third party QP - Pierre Stecko (M.Sc., EP, RPBio, Senior Aquatic Scientist, Minnow Environmental Inc (Minnow). This Plan will be reviewed with the Soda Creek and Williams Lake Indian Bands at the next Implementation Committee meeting on March 12, 2013. This Monitoring Plan is dynamic and may change as monitoring progresses. Any changes to this Monitoring Plan will be submitted to the Director for approval.

A review of this Monitoring Plan will be provided in the MPMC 2013 Annual Environmental and Reclamation Report. An updated Monitoring Plan will be provided to the Director for approval in 2014, at least 60 days prior to commencing data collection.

# 2. Objective

The objective of this Monitoring Plan is to provide a strategy for MPMC to monitor and assess the environmental effects of mining activities on the receiving environment. This document outlines biological monitoring and lake sampling that is required under PE-11678.

Additional monitoring complementary to this program will be completed to monitor downstream effects of the discharge in the form of the Environmental Effects Monitoring (EEM) program required under the federal Metal Mining Effluent Regulation (MMER). A comprehensive Study Design Report for EEM will be provided under separate cover (early 2014).

# 3. Scope

This Monitoring Plan guides biological monitoring and lake sampling to be completed by MPMC in 2013, and applies to areas including, but is not limited to, the mine site, Hazeltine Creek, Edney Creek, Bootjack Lake, and Polley Lake (Figure 1).

# 4. Biological Monitoring Plan

The previous version of PE-11678 required biological monitoring only as mandated by the MMER. The amended Permit requires additional monitoring, as outlined in the following sections.

## 4.1 Wildlife Occurrences

Wildlife occurrences are to be recorded throughout the year, both on and off site, by Environmental Department staff, and by other MPMC employees and contractors, when possible. Observations will include wildlife sightings and evidence of wildlife, such as tracks and droppings. Documentation will include the date, initials of the observer, location of the observation, wildlife observed, and comments (for example, size of group, sex, or activity of an animal).

## 4.2 Receiving Environment Monitoring

Results from the 2012 *Mount Polley Mine Selenium Monitoring 2012* report (Minnow, 2012) indicate that selenium concentrations in sediment, periphyton, benthos, and fish tissue are elevated in Polley Lake and Hazeltine Creek compared to baseline and reference concentrations. While there appears to be no current risk of adverse effects, the following sampling program has been developed to closely monitor any changes at these sites and to monitor effects of the effluent discharge on downstream environments.

### 4.2.1 Discharge Receiving Environment

Guidelines for parameters are presented in Table 1 of PE-11678.

Periphyton sampling is to be completed at Hazeltine Creek monitoring site W7 and at W11, a reference site on lower Edney Creek (located below the confluence of Hazeltine and Edney Creeks just before Quesnel Lake). These samples will be collected once annually during the warmest portion of the growing season (late July/early August) and will be analysed for chlorophyll a and selenium.

Sediment sampling is to be completed at the depositional location approximately 200 m upstream of W7. Samples will be collected once annually in late-September/early October and will be analysed for selenium.

Rainbow trout tissue and ovary samples are to be taken at W7 (refer to Figure 1) annually in late April/early May to measure selenium uptake.

A panorama photo survey will to be completed at two stations at the mouth of Hazeltine Creek to document any visible changes in primary productivity. Table 1 provides the UTMs for each site. MPMC will also evaluate bank erosion at a station approximately 20 m downstream of W7 with photo documentation and measurements of the bank width after freshet. Annual photo surveys in late-August have taken place since 2011 and will continue in 2013.

A photo survey location will also be established at the discharge outlet to monitor any physical changes to the rock apron or creek morphology. Annual surveys will be completed in late-August commencing in 2013.

### 4.2.2 Non-discharge Receiving Environments

In 2012 supplemental selenium monitoring was completed on receiving environments outside of Hazeltine Creek, including Bootjack Lake, Polley Lake, Edney Creek, and Quesnel Lake. Frypan Lake and Trio Lake were sampled as reference sites. Changes in selenium levels due to mine activity were primarily noted in Polley Lake.

Given these results, benthic organisms will be sampled for selenium at these sites every 3 years starting in 2014, with fish tissue and sediment being sampled every 6 years or in the event that additional monitoring is triggered by benthic sampling results (which may be the case for Polley Lake). This sampling program may be revised to adequately monitor expansion of the mine.

Note that water quality at reference sites will be monitored concurrently with biological sampling, while water quality at Polley Lake, Bootjack Lake, and Edney Creek will be monitored more frequently as per Section 5 of this document, and as per the 2013 Surface Water and Groundwater Monitoring Plan.

## 4.3 Quality Assurance/Quality Control

Periphyton chlorophyll “a” sampling and sediment selenium sampling will be completed using methodology outlined in the *British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples* (BCWLAP 2003). All samples will be analyzed by ALS Laboratory Group Environmental Division Burnaby laboratory. A sample size of five will be used for both periphyton and sediment, as recommended in the *Metal Mining Environmental Effects Monitoring Technical Guidance* (Environment Canada 2011), to ensure results have enough power to make statistical conclusions.

Fish tissue and ovary sampling will be completed according to the methodology outlined in the *Metal Mining Environmental Effects Monitoring Technical Guidance* (Environment Canada 2011). While previously a sample size of five has been used, power law analysis completed by Minnow. (to be presented in the forthcoming 2012 Annual Environmental and Reclamation Report) indicates a sample size of eight will be sufficient to detect a significant change of ≤30%, and is recommended for repeat collections.

Toxicity sampling will be completed as per the *Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout*, Reference Method EPS 1/RM/13 July 1990; *Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna*, Reference Method EPS 1/RM/14 July 1990; *Biological Test Method: Toxicity Tests Using Early Life Stages of Salmonid Fish (Rainbow Trout)*, Reference Method EPS1/RM/28, July 1998 – Embryo/Alevin, *Biological Test Method: Test of Reproduction and Survival Using the Cladoceran Ceriodaphnia dubia* (Report EPS 1/RM/21), February 1992.

Laboratory analysis of periphyton and sediment samples will be completed by ALS Laboratory in Burnaby BC, and toxicity testing will be carried out by Maxxam Analytics in Burnaby BC.

# 5. Lake Sampling Program

This Lake Sampling Program is designed to identify changes and trends in water quality. It includes water chemistry sampling, and in situ data collection (secchi disk measurements and lake profiles). Monitoring occurs at two stations (the deepest sites at either end of the lake) in both Polley Lake and Bootjack Lake. In Polley Lake, station P1 is located near the Northwest end of the lake while station P2 is near the Southeast end. In Bootjack Lake, station B1 is located at the Northwest end of the lake and station B2 is located at the Southeast end. These locations are shown in Figure 1. Table 2 provides a summary of monitoring requirements for these sites.

## 5.1 Lake Profiles

Dissolved oxygen, temperature, and conductivity in situ profile sampling will be completed at spring and fall overturn. When PE-11678 was amended in 2012, the requirement to complete winter profile sampling was removed.

## 5.2 Secchi Disk Measurements

Secchi disk measurements are to be taken two times a month between spring and fall overturn.

## 5.3 Water Chemistry Samples

Water chemistry samples are to be collected during spring overturn and in mid-late August. This will allow investigation of the lake water quality during turnover and during the summer season (when algal blooms occur). In 2013 samples will be taken at the lake surface and two meters from the bottom, with additional samples been taken every 10 m in the water column when conditions are isothermal, and every 5 m in the water column when conditions are not isothermal. This differs from the previous version of PE-11678, which only required surface and bottom samples during spring and fall turnover. This intensive sampling program is being implemented to monitor changes in Polley Lake water chemistry (particularly phosphorus, which has increased in the past few years) and ensure the water quality of the different strata is characterized. Results will be evaluated at the end of the monitoring season to assess what level of sampling intensity is required to provide meaningful results (i.e. if the number of samples being taken in the water column is appropriate or may be reduced and still suitably monitor water quality).

Table 3 provides a list of parameters for which water chemistry samples are to be analyzed for, and the detection limits to be achieved by the analytical laboratory. The only major change from the analytes required under the previous version of PE-11678 is that dissolved metals will no longer be sampled as they do not provide significant insight into water quality changes. When only total metal values are available, but the water quality guideline is in the dissolved form, the total value will be compared to the dissolved water quality guideline.

## 5.4 Quality Assurance/Quality Control

A complete and updated QA/QC Manual was submitted to the MOE by MPMC in February 2013. This manual provides detailed descriptions of the QA/QC requirements for environmental monitoring at MPMC and is consistent with the *British Columbia Field Sampling Manual for Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples* (BCWLAP 2003).

Procedures for calibrating and using lake sampling equipment, completing secchi disk readings, taking lake water samples, and preserving and shipping samples are included in the QA/QC Manual.

As outlined in *MPMC-SOP-010: Lake Water Monitoring*, when conducting lake water quality sampling, an equipment blank sample is taken with the Van Dorn bottle at the beginning of each sampling event, and travel blanks (supplied by the analytical laboratory) are exposed to the same conditions as water samples during transport to monitor any contamination that may occur. In addition, one semi-blind replicate is collected during each sampling campaign (spring and fall) to evaluate QA/QC surrounding the sampling methods.

All samples are analyzed the ALS Laboratory Group Environmental Division Burnaby laboratory. ALS water sample analysis data quality objectives for are provided each year in the Annual Environmental and Reclamation Report.

# 6. Analysis of Results

Each year, upon completion of scheduled biological and lake monitoring, data will be analysed to assess if the mine has had an effect on the receiving environment.

To analyse water quality data for trends, any parameters that exceed the 95% confidence interval of baseline data will be added to a “watch list” and will be closely monitored in the future. MPMC may choose to compete monitoring at increased frequencies.

Data will also be compared with BC Water Quality Guidelines (BCWQG). While it is difficult to develop generic triggers beyond confidence intervals due to differences among the parameters and site baseline levels, data will be reviewed for increasing trends. An “effect” will be defined as the exceedance of %80 of the BCWQG (unless this is within the natural range for the site), or a strong increasing trend above baseline that has not yet reached this level, but is deemed concerning by an internal or external qualified professional.

When an “effect” is noted, this will trigger further investigations as follows:

1. Develop a Plan to complete additional monitoring in order to identify the source of the change in the receiving environment. Additional monitoring may include, but is not limited to, increasing sample frequency, sampling at supplemental locations, analysing for additional parameters, and completing sampling of other trophic levels.
2. Implement the Plan, adjusting it as necessary, until the source has been identified. Third party consultants with expertise in the area(s) of concern may need to be retained.

3. When the source is identified, take the necessary actions to mitigate its effect(s) on the receiving environment.

MPMC retains a third party consultant to analyse results from the biological monitoring program. Currently, Minnow uses analysis of variance (ANOVA) and the student's t test to detect spatial and temporal trends. Minnow then makes recommendations for further investigation based on their findings.

## 7. Monitoring Plan Revisions

As per Section 3.2 of PE-11678, a Biological Monitoring and Lake Sampling Plan must be submitted to and approved by MOE annually. Revisions to the Monitoring Plan and the corresponding rationales (based on monitoring results and expansion of the mine) will be included in the submission. The Monitoring Plan must be provided a minimum of 60 days prior to commencing data collection which will help ensure that sampling analysis will be consistent for each discharge year.

## References

BCWLAP (British Columbia Ministry of Water, Land and Air Protection). 2003. British Columbia Field Sampling Manual. For Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples. January 2003.

Environment Canada. 2011. Metal Mining Environmental Effects Monitoring (EEM) Technical Guidance Document.

Government of Canada. 2012. Metal Mining Effluent Regulations. Canada Gazette, March 2, 2012.

# Tables

**Table 1** Hazeltine Creek mouth photo survey locations

| Site Name | Easting (m) | Northing (m) | Elevation (m) |
|---|---|---|---|
| Mouth Photo 1 | 5817742 | 601606 | 726 |
| Mouth Photo 2 | 5817738 | 601565 | 726 |

**Table 2** Lake monitoring requirements

| Site Name | BC EMS Code | Site Description | Full Sample Suite Frequency* | Change from previous permit | Secchi Disc (between spring and fall overturn) | In Situ Profile |
|---|---|---|---|---|---|---|
| B1-S | E207972 | Bootjack Lake Site 1 (NW) at surface | Bi-Annually | yes | bi-monthly | Bi-Annually |
| B1-B | E207972 | Bootjack Lake Site 1 (NW) at bottom | Bi-Annually | yes | bi-monthly | Bi-Annually |
| B2-S | E215897 | Bootjack Lake Site 2 (SE) at surface | Bi-Annually | yes | bi-monthly | Bi-Annually |
| B2-B | E215897 | Bootjack Lake Site 2 (SE) at bottom | Bi-Annually | yes | bi-monthly | Bi-Annually |
| P1-S | E207974 | Polley Lake Site 1 (NW) at surface | Bi-Annually | yes | bi-monthly | Bi-Annually |
| P1-B | E207974 | Polley Lake Site 1 (NW) at bottom | Bi-Annually | yes | bi-monthly | Bi-Annually |
| P2-S | E207975 | Polley Lake Site 2 (SE) at surface | Bi-Annually | yes | bi-monthly | Bi-Annually |
| P2-B | E207975 | Polley Lake Site 2 (SE) at bottom | Bi-Annually | yes | bi-monthly | Bi-Annually |

* Full sample suite includes nutrients, anions, physical, and total metals

**Table 3.** Lake water chemistry sample analytes, and their corresponding units and laboratory detection limits

| Parameter | Detection Limits | Units |
|---|---|---|
| **Field Parameters** | | |
| pH | | pH |
| Conductivity | | uS/cm |
| Temperature | | celcius |
| Dissolved Oxygen | | mg/L |
| **Physical Tests** | | |
| Conductivity | 2.0 | uS/cm |
| Hardness (as CaCO3) | 0.50 | mg/L |
| pH | 0.10 | pH |
| Total Suspended Solids | 3.0 | mg/L |
| Total Dissolved Solids | 10 | mg/L |
| Turbidity | 0.10 | NTU |
| **Anions and Nutrients** | | |
| Alkalinity-Total (as CaCO3) | 1.0 | mg/L |
| Ammonia-Total (as N) | 0.0050 | mg/L |
| Chloride | 0.50 | mg/L |
| Nitrate and Nitrite (as N) | 0.0051 | mg/L |
| Nitrate (as N) | 0.0050 | mg/L |
| Nitrite (as N) | 0.0010 | mg/L |
| Total Nitrogen | 0.050 | mg/L |
| Orthophosphate-Dissolved (as P) | 0.0010 | mg/L |
| Phosphorus-Total Dissolved | 0.0020 | mg/L |
| Phosphorus-Total | 0.0020 | mg/L |
| Sulfate | 0.50 | mg/L |
| **Organic / Inorganic Carbon** | | |
| Dissolved Organic Carbon | 0.50 | mg/L |
| **Total Metals** | | |
| Aluminum (Al) | 0.0030 | mg/L |
| Antimony (Sb) | 0.00010 | mg/L |
| Arsenic (As) | 0.00010 | mg/L |
| Barium (Ba) | 0.000050 | mg/L |
| Beryllium (Be) | 0.00010 | mg/L |
| Bismuth (Bi) | 0.00050 | mg/L |
| Boron (B) | 0.010 | mg/L |
| Cadmium (Cd) | 0.000010 | mg/L |
| Calcium (Ca) | 0.050 | mg/L |
| Chromium (Cr) | 0.00050 | mg/L |
| Cobalt (Co) | 0.00010 | mg/L |
| Copper (Cu) | 0.00050 | mg/L |
| Iron (Fe) | 0.030 | mg/L |
| Lead (Pb) | 0.000050 | mg/L |
| Lithium (Li) | 0.00050 | mg/L |
| Magnesium (Mg) | 0.10 | mg/L |
| Manganese (Mn) | 0.000050 | mg/L |
| Molybdenum (Mo) | 0.000050 | mg/L |
| Nickel (Ni) | 0.00050 | mg/L |
| Potassium (K) | 0.050 | mg/L |
| Selenium (Se) | 0.00050 | mg/L |
| Silicon (Si) | 0.050 | mg/L |
| Silver (Ag) | 0.000010 | mg/L |
| Sodium (Na) | 0.050 | mg/L |
| Strontium (Sr) | 0.00020 | mg/L |
| Thallium (Tl) | 0.000010 | mg/L |
| Tin (Sn) | 0.00010 | mg/L |
| Titanium (Ti) | 0.010 | mg/L |
| Uranium (U) | 0.000010 | mg/L |
| Vanadium (V) | 0.0010 | mg/L |
| Zinc (Zn) | 0.0030 | mg/L |

## Figures

B1
P1
B2
Bootjack Lake
Polley Lake
P2
Effluent Discharge Point (Hazeltine Creek)
Tailings Storage Facility
W7 (Hazeltine Creek)
Figure 1. Biological and Lake Monitoring Locations
0 250 500 1,000 1,500 2,000
Meters

# Appendix I

## Selenium Monitoring Update Report

*Appendices for report are in digital format on accompanying CD.*

# APPENDIX A

# SAMPLING LOCATIONS

N
W E
S

1,000 500 0 1,000
Meters

MAP INFORMATION
Map Projection: NAD 1983
Data Source: Department of Natural Resources Canada. All rights reserved.
Created By: J.Wilson
Creation Date: December 2013
Project No.: 2475

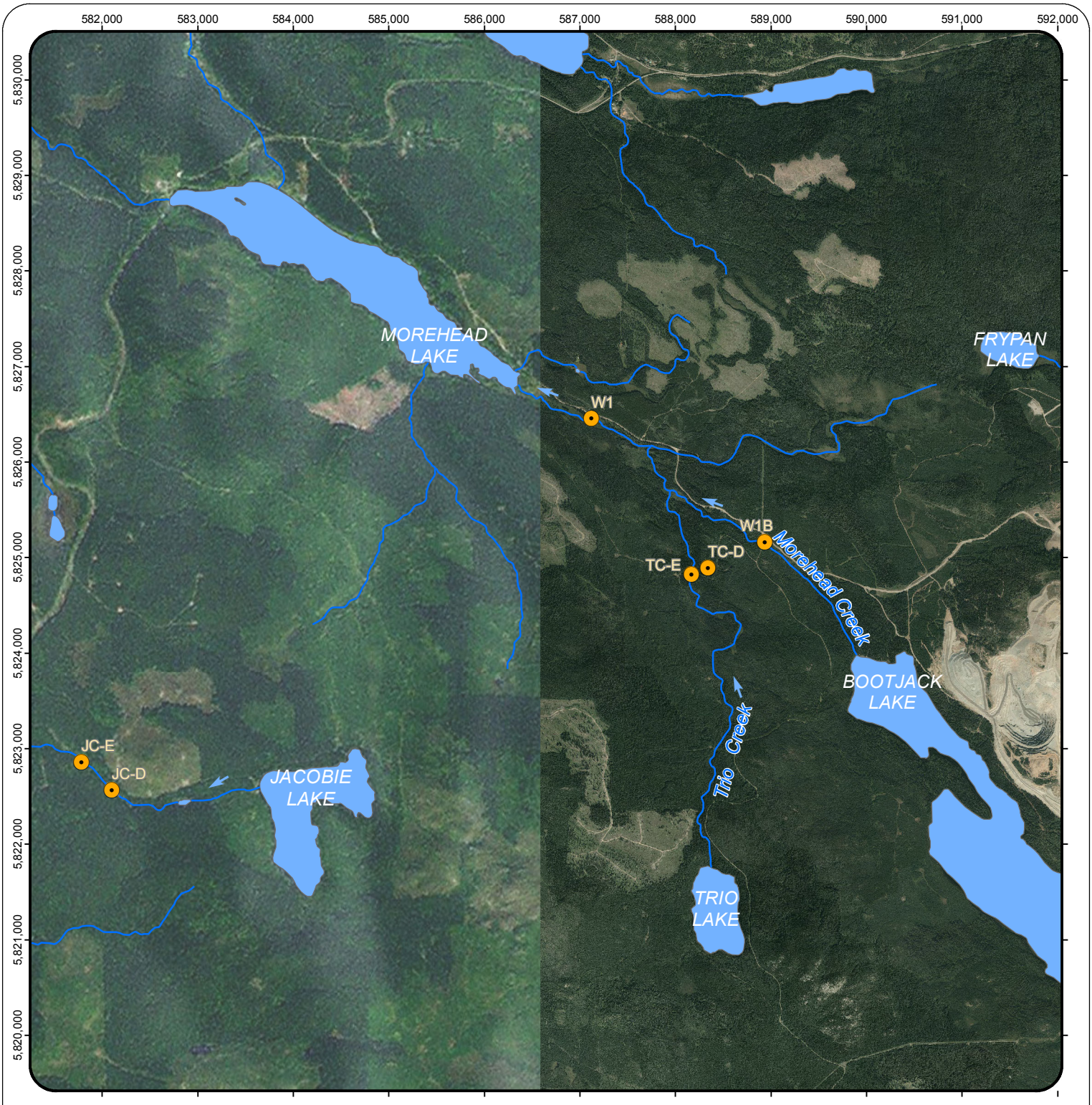
**Mount Polley Sample Locations:**

- 2013 Selenium Sample Location
- Water Flow Direction

**Figure A.1: Hazeltine Creek Sampling Sites for the Mount Polley Selenium Monitoring Program, 2013**

Created by:

minnow environmental inc.




N
W E
S

1,100 550 0 1,100
Meters

MAP INFORMATION
Map Projection: NAD 1983
Data Source: Department of Natural Resources Canada. All rights reserved.
Created By: J.Wilson
Creation Date: December 2013
Project No.: 2475

**Mount Polley Sample Locations:**

- 2013 Selenium Sample Location
- Water Flow Direction

**Figure A.2: Morehead, Trio and Jacobie Creek Sampling Sites for the Mount Polley Selenium Monitoring Program, 2013**

Created by:

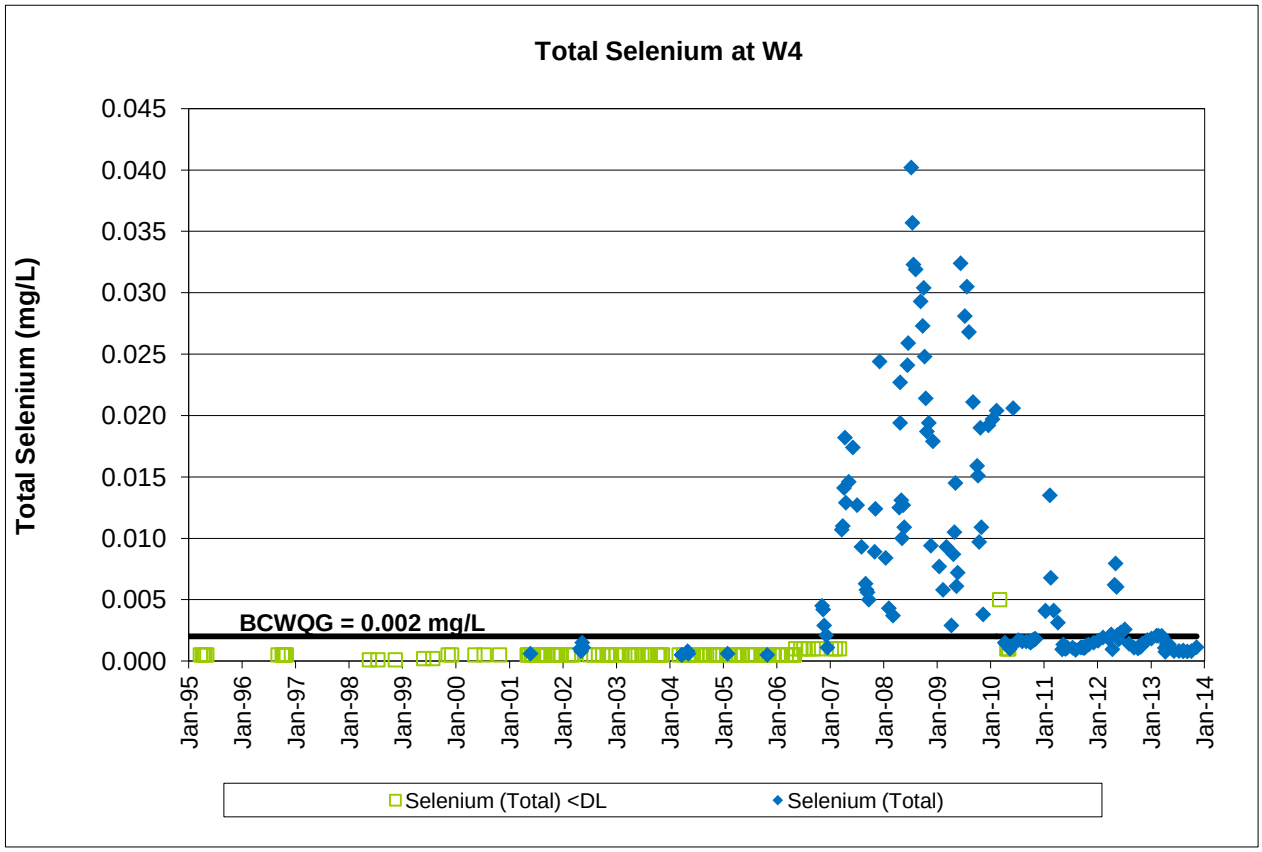
minnow environmental inc.

**Table A.1: Location and sampling date of Mount Polley selenium monitoring stations, 2013**

| Station | | Spring sampling date | Fall sampling date | GPS coordinates (UTM) | |
|---|---|---|---|---|---|
| | | | | Northing | Easting |
| Hazeltine Creek Pond Upstream of Discharge | USW7-Pond | - | 7-Oct-13 | 5820092 | 595749 |
| Hazeltine Creek Upstream of Discharge | USW7 | - | 7-Oct-13 | 5819956 | 595900 |
| Upper Hazeltine Creek Pond | W7 Pond | 13-May-13 | 7-Oct-13 | 5819143 | 596822 |
| Upper Hazeltine Creek | W7 | 13-May-13 | 7-Oct-13 | 5819045 | 596972 |
| Morehead Creek - Depositional | W1 | - | 8-Oct-13 | 5826455 | 587118 |
| Morehead Creek - Erosional | W1B | - | 8-Oct-13 | 5825165 | 588936 |
| Trio Creek - Depositional | TC-D | - | 8-Oct-13 | 5824892 | 588340 |
| Trio Creek - Erosional | TC-E | - | 8-Oct-13 | 5824822 | 588166 |
| Jacobie Creek - Depositional | JC-D | - | 9-Oct-13 | 5822568 | 582099 |
| Jacobie Creek - Erosional | JC-E | - | 9-Oct-13 | 5822862 | 581782 |
| Lower Hazeltine Creek | W11 | - | 9-Oct-13 | 5817534 | 601577 |

# APPENDIX B

# SELENIUM DATA



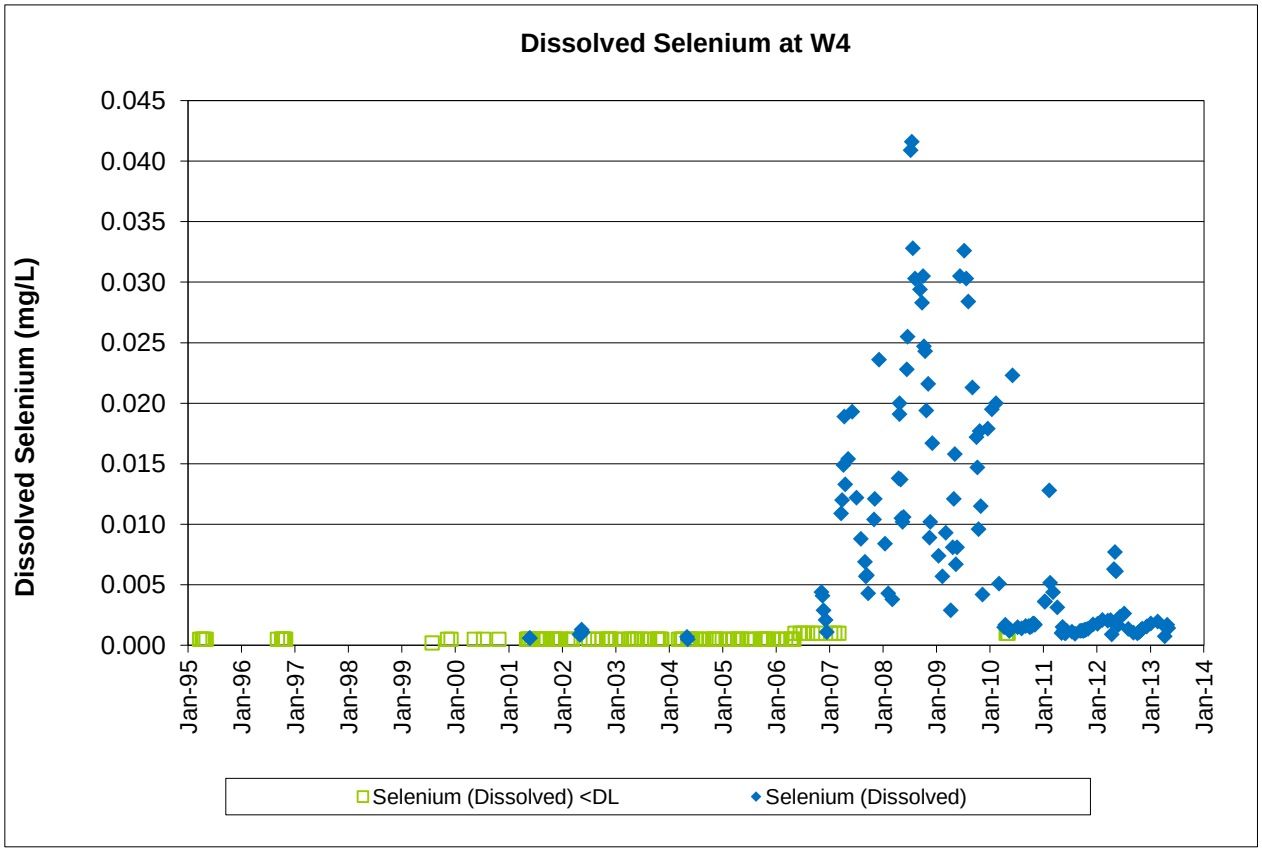
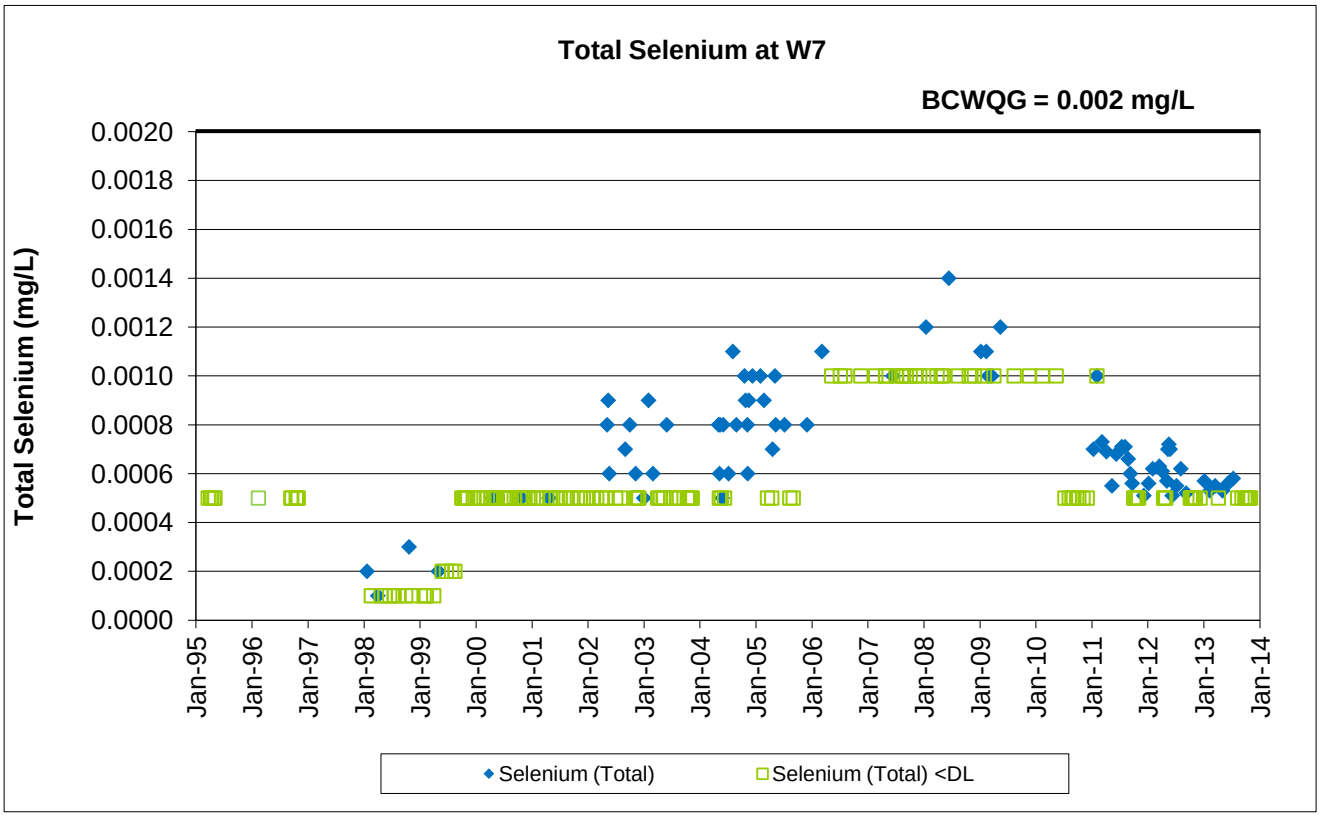




**Figure B.1: Aqueous selenium concentrations in North Dump Creek (W4), 1995-2013.**



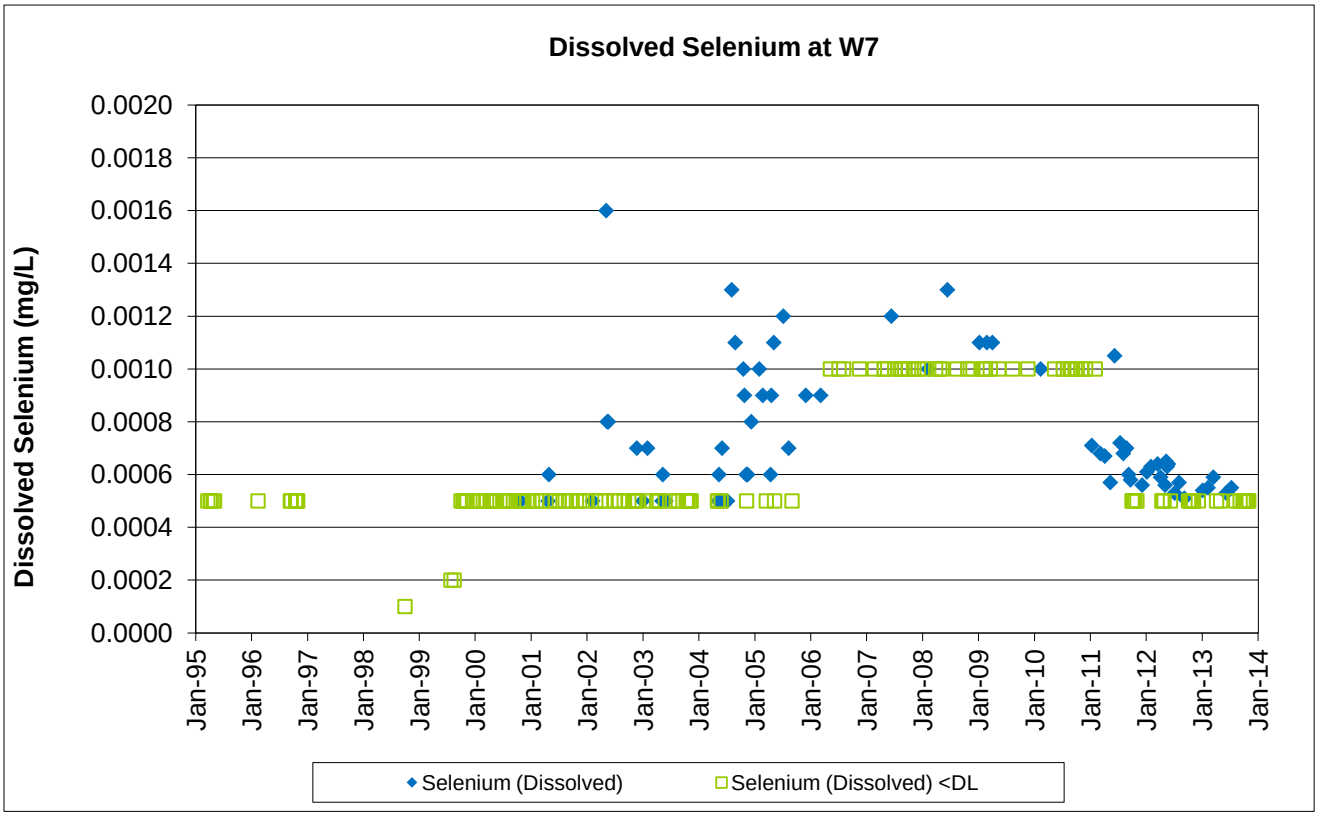
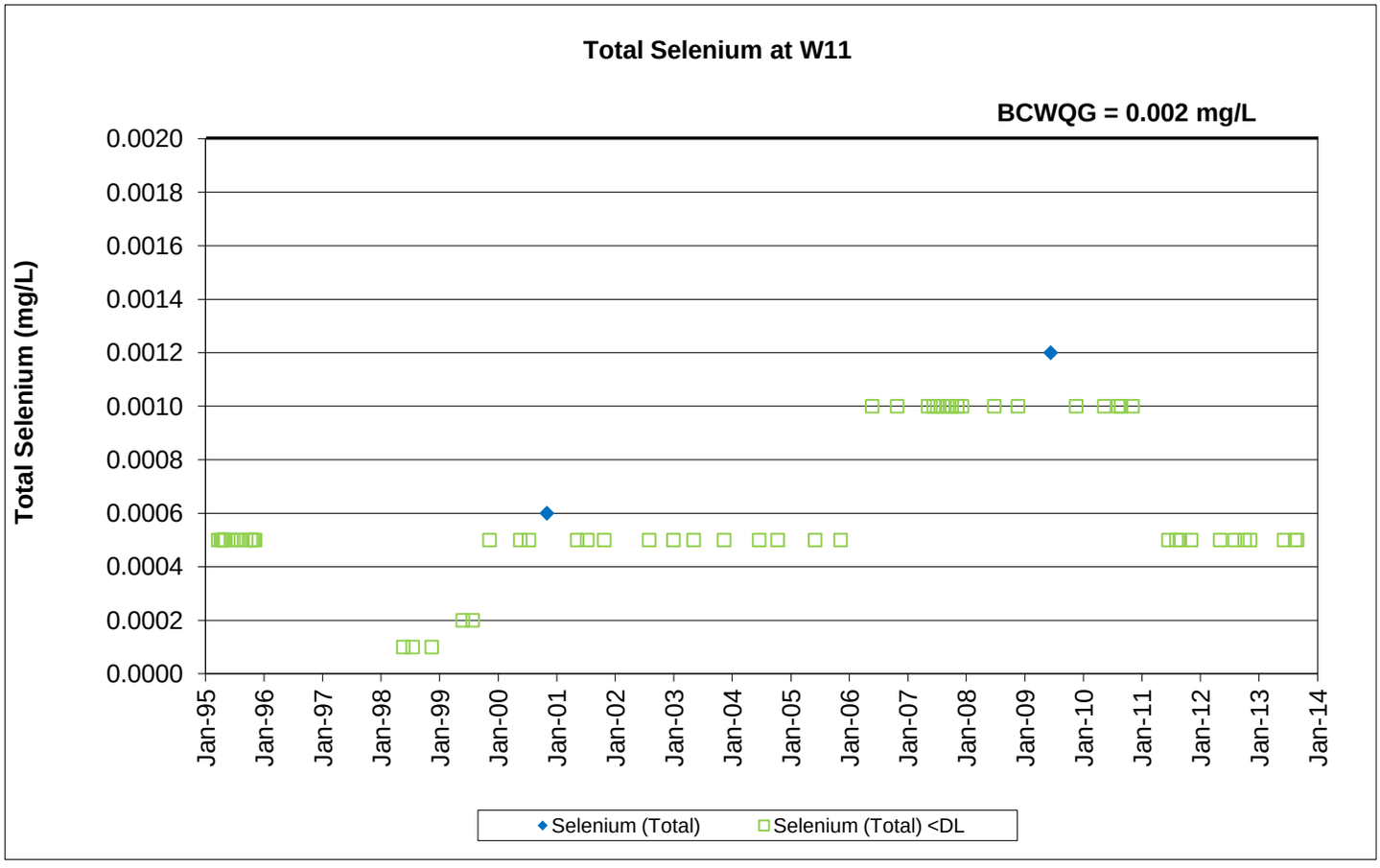




**Figure B.2: Aqueous selenium concentrations in Upper Hazeltine Creek (W7), 1995-2013.**



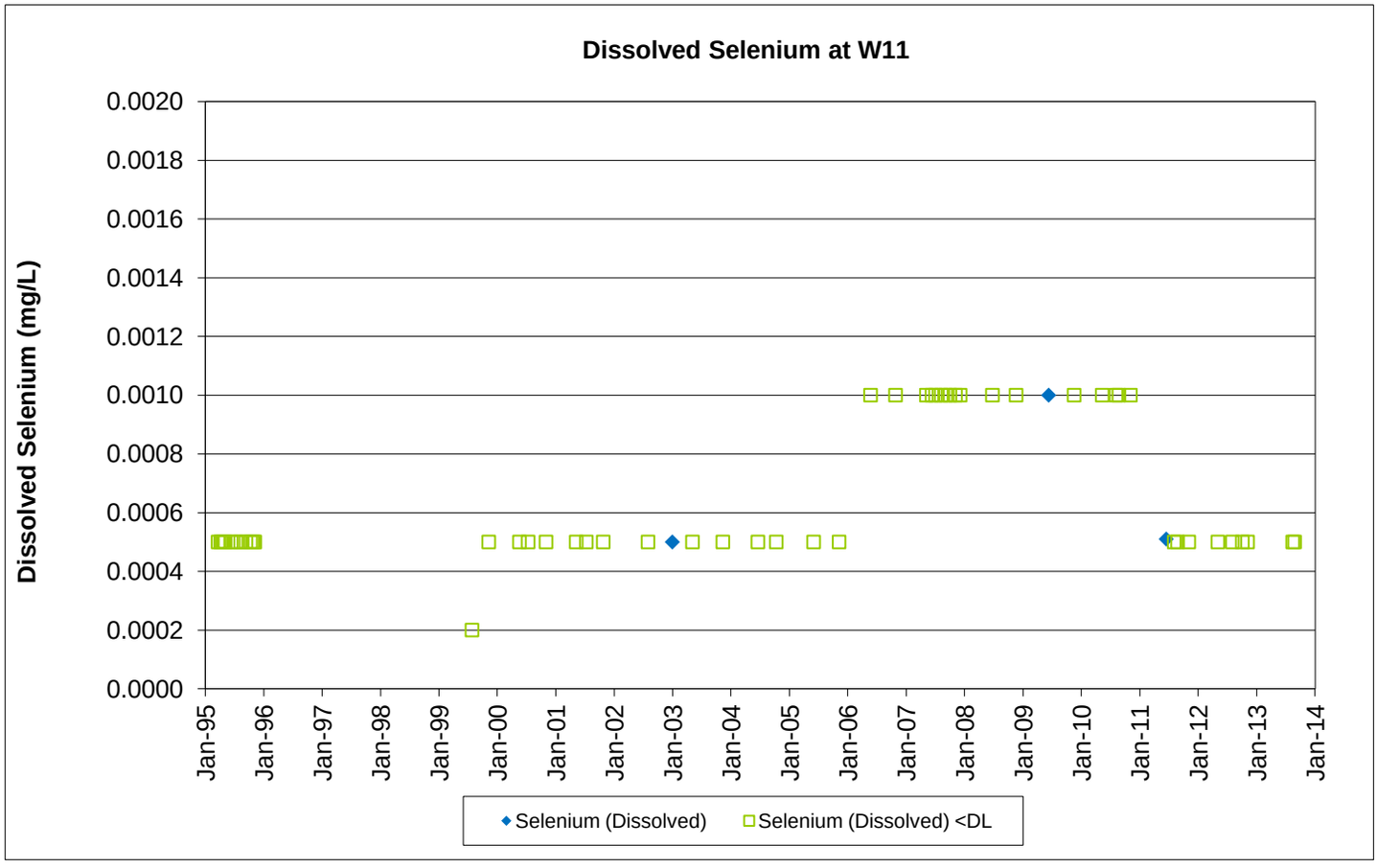
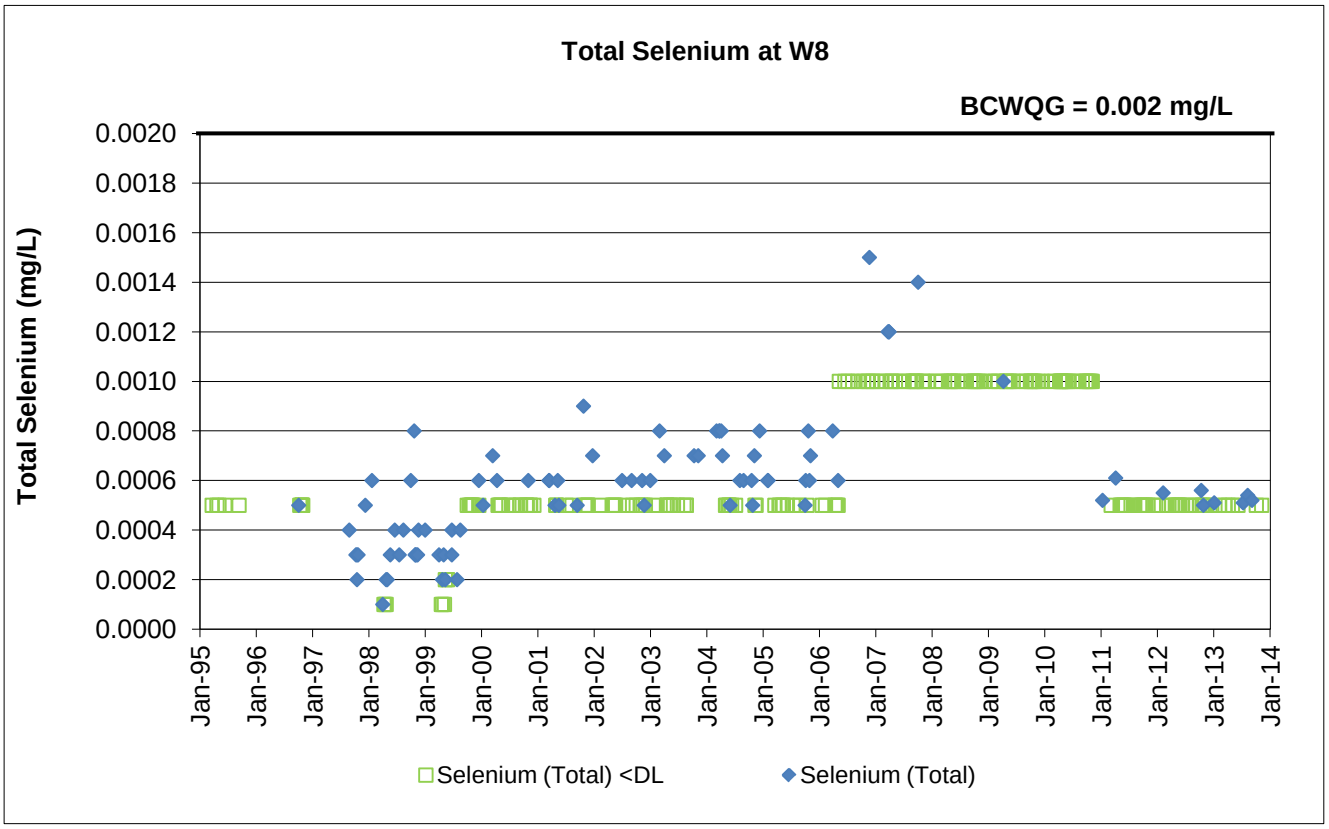




**Figure B.3: Aqueous selenium concentrations in Lower Hazeltine Creek (W11), 1995-2013.**



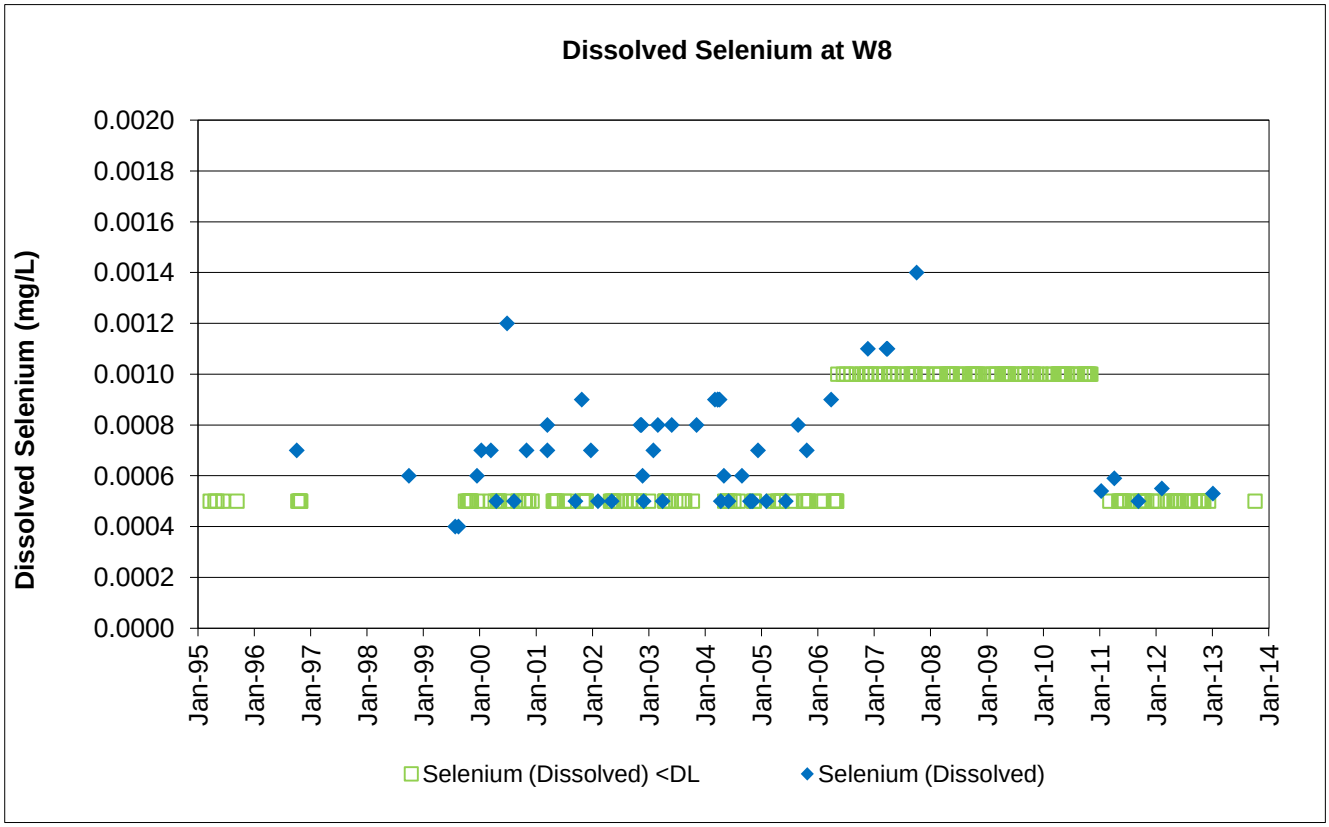
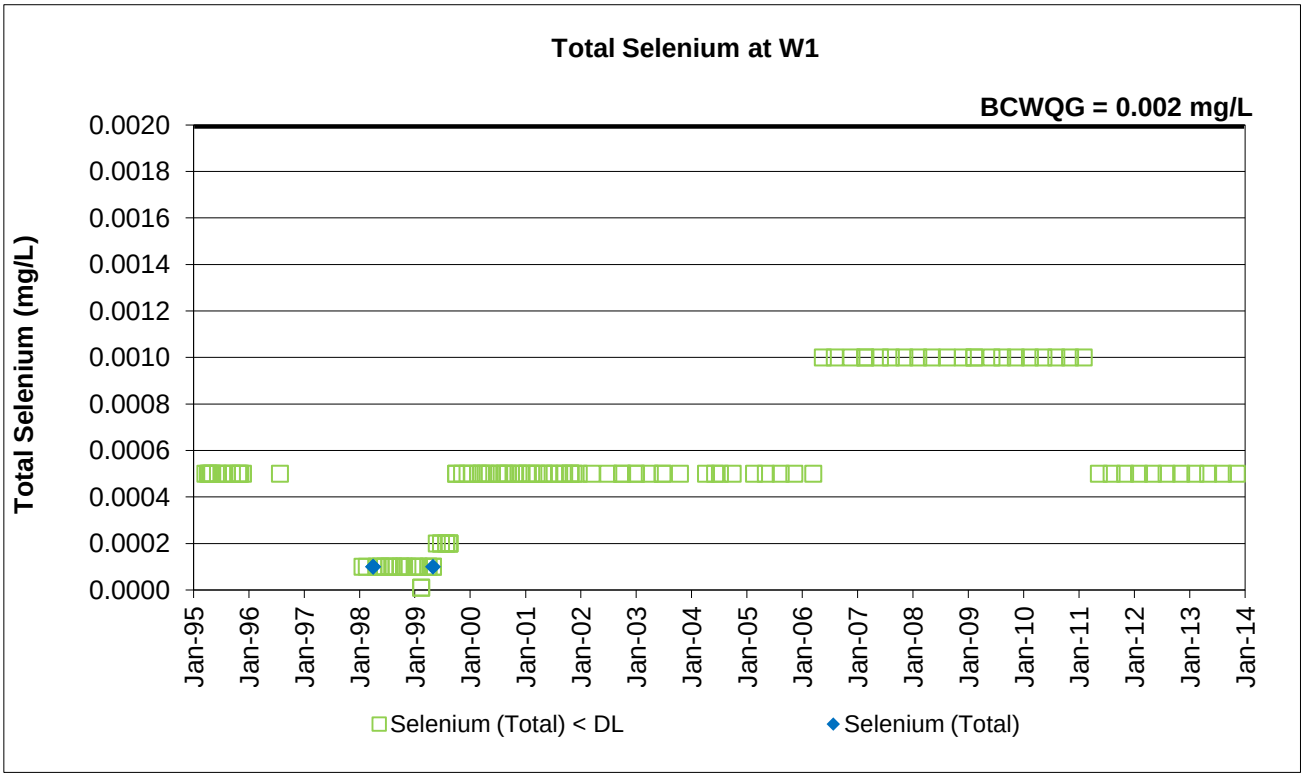




**Figure B.4: Aqueous selenium concentrations in Upper Edney Creek (W8), 1995 - 2013.**



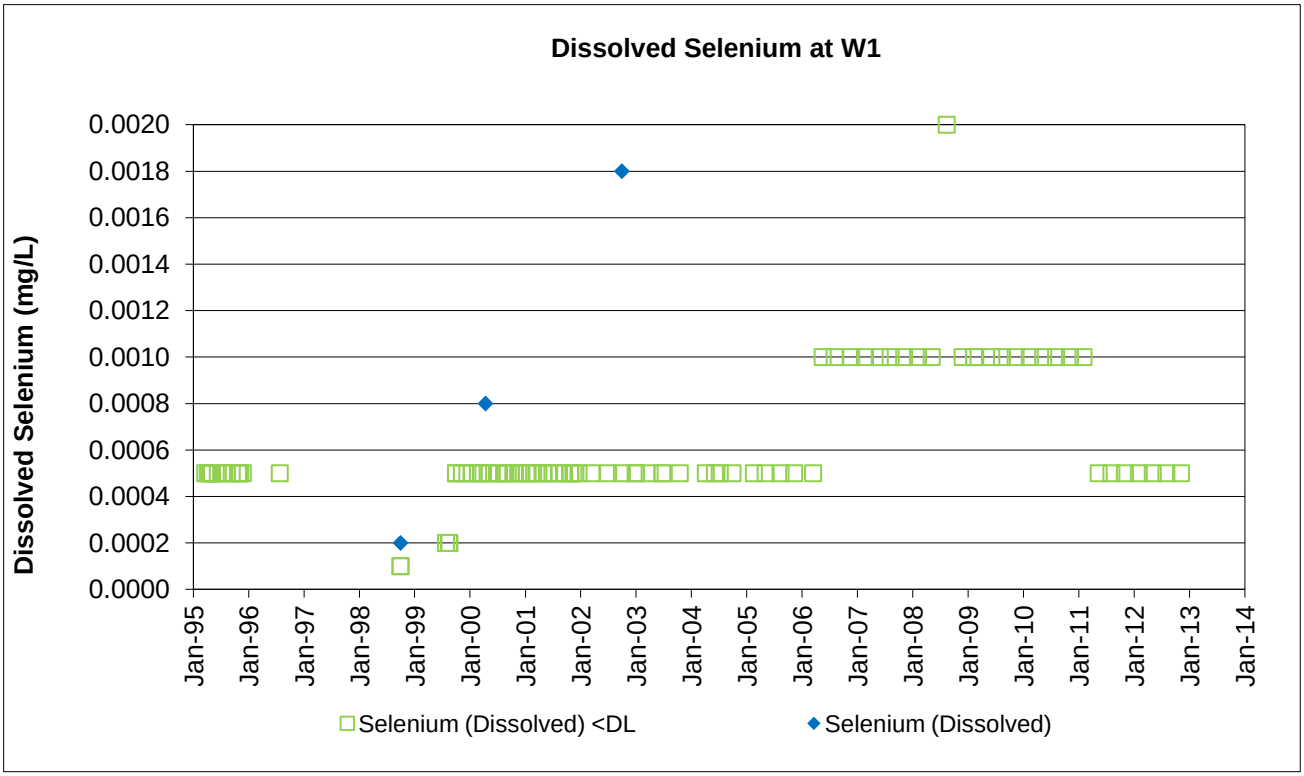
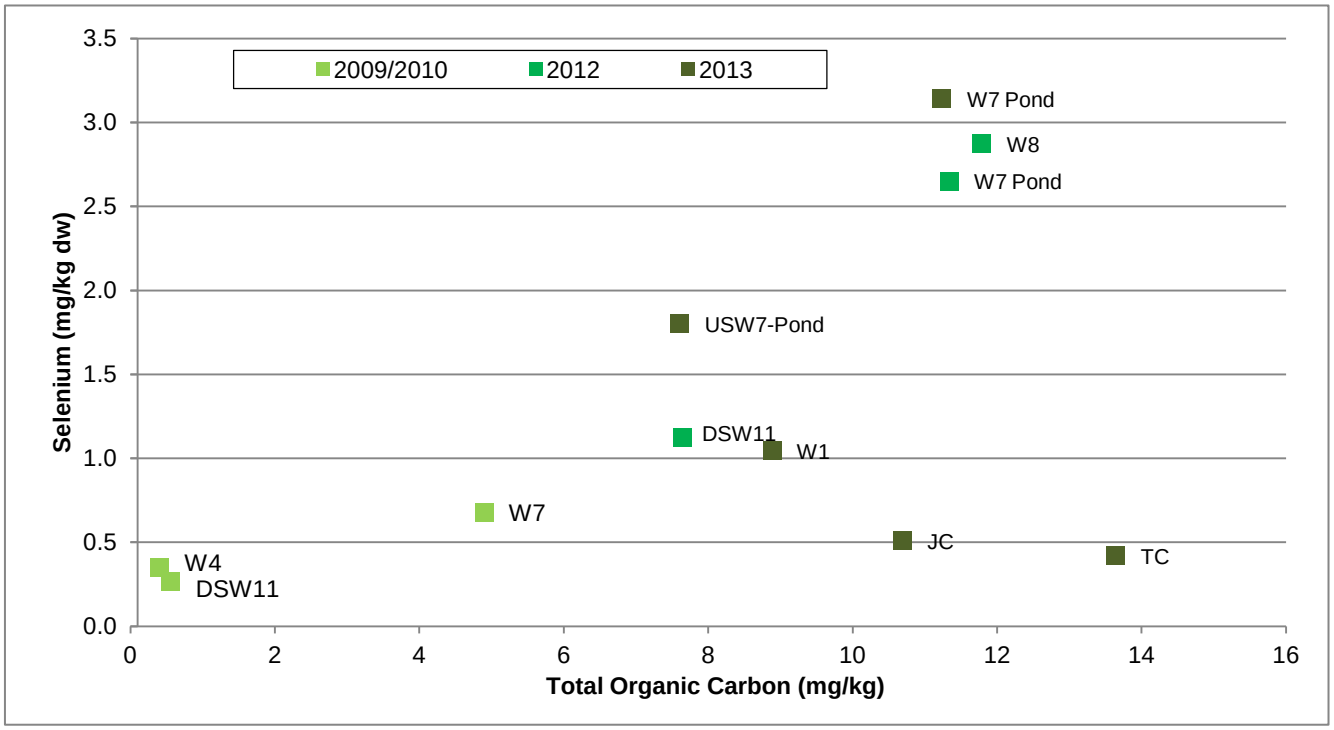




**Figure B.5: Aqueous selenium concentrations in Morehead Creek (W1), 1995 - 2013.**

**a) Area mean values**




**b) Station values**

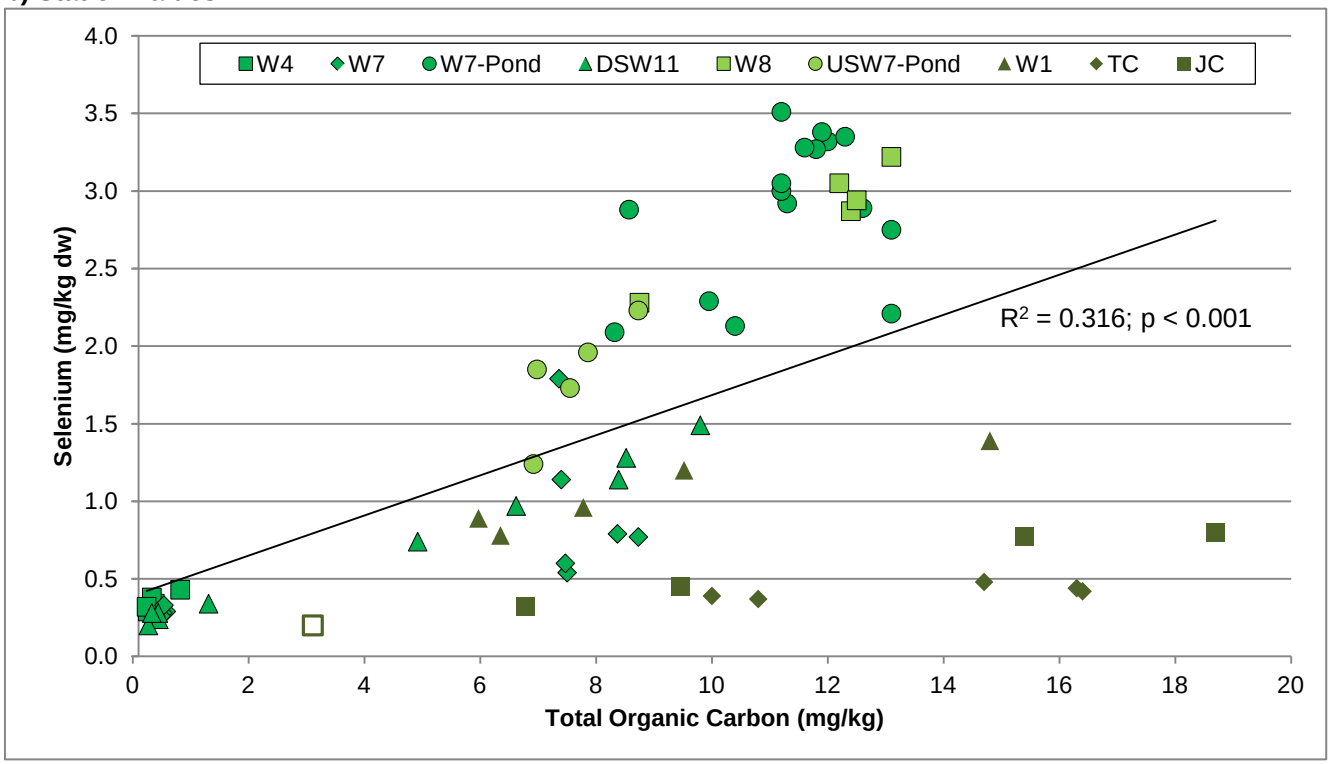



**Figure B.6: Relationship between selenium and total organic carbon concentrations in creek sediment, Mount Polley Selenium Monitoring, 2009/2010, 2012 and 2013.**

Hollow symbol indicates value was < detection limit (DL)

W4= North Dump Creek; W7= Upper Hazeltine Creek; W7 Pond = Upper Hazeltine Creek Pond; W8 = Upper Edney Creek; W1 = Morehead Creek; USW7 Pond = Hazeltine Creek Pond Upstream of Discharge; TC = Trio Creek; JC = Jacobie Creek; DSW11= Hazeltine Creek Delta at Quesnel Lake

**Table B.1: Selenium concentrations by replicate sample - Mount Polley selenium monitoring 2013 (mg/kg dry weight).**

| Compartment | Location | | Sampling Event | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 | Mean | Standard Deviation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sediment | Upper Hazeltine Creek | W7 | Spring 2013 | 2.76 | 3.25 | 2.05 | 3.09 | 3.16 | 2.82 | 2.36 | 2.47 | **2.75** | **0.42** |
| | Upper Hazeltine Creek Pond | W7 Pond | Spring 2013 | 3.08 | 3.04 | 3.15 | 2.67 | 3.24 | 2.85 | 3.07 | 2.74 | **2.98** | **0.20** |
| | Hazeltine Creek Pond Upstream of Discharge | USW7 Pond | Fall 2013 | 1.73 | 1.85 | 2.23 | 1.96 | 1.24 | - | - | - | **1.80** | **0.36** |
| | Upper Hazeltine Creek Pond | W7 Pond | Fall 2013 | 3.38 | 2.92 | 3.35 | 3.27 | 3.00 | 2.88 | 3.28 | 3.05 | **3.14** | **0.20** |
| | Morehead Creek | W1 | Fall 2013 | 0.89 | 0.96 | 1.39 | 0.78 | 1.20 | - | - | - | **1.04** | **0.25** |
| | Trio Creek | TC | Fall 2013 | 0.44 | 0.42 | 0.48 | 0.39 | 0.37 | - | - | - | **0.42** | **0.04** |
| | Jacobie Creek | JC | Fall 2013 | <0.20 | 0.32 | 0.45 | 0.77 | 0.80 | - | - | - | **0.59** | **0.24** |
| Periphyton | Hazeltine Creek Upstream of Discharge | USW7 | Fall 2013 | 4.43 | 3.05 | 3.23 | 2.52 | 3.75 | - | - | - | **3.40** | **0.73** |
| | Upper Hazeltine Creek | W7 | Summer 2013 | 3.35 | 2.02 | 2.01 | 0.91 | 2.74 | - | - | - | **2.21** | **0.91** |
| | Lower Hazeltine Creek | W11 | Summer 2013 | 0.75 | 1.64 | 0.80 | 1.44 | 1.56 | - | - | - | **1.24** | **0.43** |
| | Morehead Creek | W1 | Fall 2013 | 1.75 | 1.70 | 1.34 | 1.88 | 1.81 | - | - | - | **1.70** | **0.21** |
| | Trio Creek | TC | Fall 2013 | 1.01 | 0.95 | 0.78 | 1.11 | 0.81 | - | - | - | **0.93** | **0.14** |
| | Jacobie Creek | JC | Fall 2013 | 0.27 | 0.44 | 0.18 | 0.37 | 0.23 | - | - | - | **0.30** | **0.11** |
| Benthos (erosional) | Hazeltine Creek Upstream of Discharge | USW7 | Fall 2013 | 5.32 | 4.57 | 4.55 | 3.97 | 4.81 | - | - | - | **4.64** | **0.49** |
| | Upper Hazeltine Creek | W7 | Fall 2013 | 3.43 | 3.64 | 3.46 | 3.19 | 4.01 | 4.18 | 4.39 | 3.80 | **3.76** | **0.41** |
| | Lower Hazeltine Creek | W11 | Fall 2013 | 2.37 | 2.20 | 2.22 | 2.62 | 2.10 | - | - | - | **2.30** | **0.20** |
| | Morehead Creek | W1B | Fall 2013 | 2.61 | 2.36 | 2.54 | 2.58 | 3.04 | - | - | - | **2.63** | **0.25** |
| | Trio Creek | TC | Fall 2013 | 0.58 | 0.55 | 0.47 | 0.51 | 0.45 | - | - | - | **0.51** | **0.05** |
| | Jacobie Creek | JC | Fall 2013 | 0.44 | 0.31 | 0.23 | 0.39 | 0.46 | - | - | - | **0.37** | **0.10** |
| Benthos (depositional) | Hazeltine Creek Pond Upstream of Discharge | USW7 Pond | Fall 2013 | 5.58 | 4.37 | 5.17 | 4.98 | 7.33 | - | - | - | **5.49** | **1.12** |
| | Upper Hazeltine Creek Pond | W7 Pond | Fall 2013 | 6.38 | 4.76 | 4.83 | 2.87 | 8.39 | 5.55 | 6.11 | 2.51 | **5.18** | **1.91** |
| | Morehead Creek | W1 | Fall 2013 | 1.93 | | 1.73 | | | - | - | - | **1.83** | **0.14** |
| | Trio Creek | TC | Fall 2013 | 0.60 | | | | | - | - | - | **0.60** | **-** |
| | Jacobie Creek | JC | Fall 2013 | 0.65 | 0.43 | 0.51 | 0.64 | 0.50 | - | - | - | **0.55** | **0.10** |
| Rainbow Trout Muscle | Upper Hazeltine Creek | W7 | Spring 2013 | 3.49 | 3.51 | 3.73 | 3.33 | 3.57 | 3.44 | 3.08 | 3.30 | **3.43** | **0.20** |
| Rainbow Trout Ovary | Upper Hazeltine Creek | W7 | Spring 2013 | 4.99 | 10.00 | 5.85 | 6.01 | 6.26 | 6.49 | 5.60 | 9.71 | **6.86** | **1.90** |

**Table B.2: Selenium concentrations by replicate sample - Mount Polley selenium monitoring 2012 (mg/kg dry weight).**

| Compartment | Location | Sampling Event | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 | Mean | Standard Deviation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sediment | Polley Lake | Spring 2012 | 5.49 | 4.71 | 2.68 | 5.64 | 6.52 | - | - | - | **5.01** | **1.45** |
| | Bootjack Lake | Spring 2012 | 2.24 | 2.46 | 2.88 | 2.44 | 1.78 | - | - | - | **2.36** | **0.40** |
| | Trio Lake | Spring 2012 | 1.32 | 1.24 | 1.32 | 1.14 | 1.12 | - | - | - | **1.23** | **0.10** |
| | Frypan Lake | Spring 2012 | 1.64 | 1.66 | 1.69 | 1.92 | 1.87 | - | - | - | **1.76** | **0.13** |
| | Quesnel Lake | Spring 2012 | 0.39 | 0.32 | 0.41 | 0.40 | 0.32 | - | - | - | **0.37** | **0.04** |
| | Main Embankment Seepage Collection Pond | Spring 2012 | 17.10 | 7.73 | 10.30 | 2.47 | 3.12 | - | - | - | **8.14** | **5.97** |
| | North Dump Creek Delta at Polley Lake | Spring 2012 | 0.96 | 0.61 | 0.74 | 1.31 | 1.49 | - | - | - | **1.02** | **0.37** |
| | Upper Hazeltine Creek Pond | Fall 2012 | 2.09 | 3.32 | 3.51 | 2.75 | 2.89 | 2.29 | 2.21 | 2.13 | **2.65** | **0.56** |
| | Hazeltine Creek Delta at Quesnel Lake | Fall 2012 | 1.28 | 1.49 | 0.74 | 1.14 | 0.97 | - | - | - | **1.12** | **0.29** |
| | Upper Edney Creek | Fall 2012 | 3.22 | 3.05 | 2.87 | 2.28 | 2.94 | - | - | - | **2.87** | **0.36** |
| Periphyton | Upper Hazeltine Creek | Fall 2012 | 3.27 | 4.31 | 5.39 | 4.10 | 4.39 | 4.96 | 5.15 | 3.83 | **4.43** | **0.71** |
| | Lower Hazeltine Creek | Fall 2012 | 3.16 | 3.03 | 3.26 | 3.28 | 2.55 | - | - | - | **3.06** | **0.30** |
| | Upper Edney Creek | Fall 2012 | 5.13 | 6.86 | 5.97 | 6.59 | 4.20 | - | - | - | **5.75** | **1.09** |
| | North Dump Creek | Fall 2012 | 4.75 | - | - | - | - | - | - | - | **4.75** | **-** |
| Benthos (depositional) | Polley Lake | Spring 2012 | 5.67 | 6.71 | 4.93 | 6.15 | 6.66 | - | - | - | **6.02** | **0.74** |
| | Bootjack Lake | Spring 2012 | 3.26 | 1.24 | 2.57 | 2.71 | 2.51 | - | - | - | **2.46** | **0.74** |
| | Trio Lake | Spring 2012 | 0.71 | 0.61 | 0.83 | 0.58 | 0.52 | - | - | - | **0.65** | **0.12** |
| | Frypan Lake | Spring 2012 | 0.70 | 0.60 | 0.64 | 0.66 | 0.51 | - | - | - | **0.62** | **0.07** |
| | Quesnel Lake | Spring 2012 | 2.51 | 2.57 | 1.89 | 2.33 | 1.34 | - | - | - | **2.13** | **0.51** |
| | Main Embankment Seepage Collection Pond | Spring 2012 | 14.70 | 11.50 | 27.70 | 13.90 | 14.40 | - | - | - | **16.44** | **6.42** |
| | Leeches from Main Embankment Seepage Collection Pond | Spring 2012 | 27.60 | 2.74 | - | - | - | - | - | - | **15.17** | **17.58** |
| | North Dump Creek Delta at Polley Lake | Spring 2012 | 7.19 | 6.65 | 5.00 | 7.06 | 9.34 | - | - | - | **7.05** | **1.55** |
| | Upper Hazeltine Creek Pond | Fall 2012 | 2.03 | 0.69 | 0.73 | 0.51 | 1.06 | 8.31 | 3.82 | 5.96 | **2.89** | **2.90** |
| | Hazeltine Creek Delta at Quesnel Lake | Fall 2012 | 1.43 | 1.90 | 1.64 | 1.86 | 1.84 | - | - | - | **1.73** | **0.20** |
| | Upper Edney Creek | Fall 2012 | 0.83 | 1.50 | - | - | - | - | - | - | **1.17** | **0.47** |
| Benthos (erosional) | North Dump Creek | Fall 2012 | 7.33 | 4.27 | 6.47 | 8.00 | 5.24 | - | - | - | **6.26** | **1.52** |
| | Upper Hazeltine Creek | Fall 2012 | 5.34 | 4.88 | 3.34 | 3.84 | 4.35 | 4.64 | 4.95 | 3.74 | **4.39** | **0.69** |
| | Lower Hazeltine Creek | Fall 2012 | 2.43 | 2.23 | 1.74 | 2.23 | 2.48 | - | - | - | **2.22** | **0.29** |
| | Upper Edney Creek | Fall 2012 | 4.47 | 5.87 | 4.01 | 9.69 | 4.26 | - | - | - | **5.66** | **2.37** |
| Rainbow Trout Muscle | Polley Lake | Spring 2012 | 3.61 | 4.07 | 4.46 | 3.93 | 3.50 | - | - | - | **3.91** | **0.38** |
| | Bootjack Lake | Spring 2012 | 1.41 | 1.27 | 1.33 | 1.54 | 1.14 | - | - | - | **1.34** | **0.15** |
| | Trio Lake | Spring 2012 | 0.50 | 0.57 | 0.46 | 0.63 | 0.41 | - | - | - | **0.51** | **0.09** |
| | Frypan Lake | Spring 2012 | 0.60 | 0.60 | 0.49 | 0.50 | 0.73 | - | - | - | **0.58** | **0.10** |
| | Quesnel Lake - North Arm | Spring 2012 | 1.20 | 1.01 | 1.13 | - | - | - | - | - | **1.11** | **0.10** |
| | Upper Hazeltine Creek | Spring 2012 | 3.40 | 3.98 | 4.24 | 3.99 | 4.15 | 3.76 | 4.59 | 4.12 | **4.03** | **0.35** |
| | Hazeltine Creek Delta at Quesnel Lake | Spring 2012 | 1.22 | 1.76 | 1.37 | 1.57 | 1.58 | - | - | - | **1.50** | **0.21** |
| Rainbow Trout Ovary | Polley Lake | Spring 2012 | 7.86 | 8.48 | 7.54 | 6.29 | 7.85 | - | - | - | **7.60** | **0.81** |
| | Bootjack Lake | Spring 2012 | 3.38 | 2.48 | 4.33 | 3.29 | 3.46 | - | - | - | **3.39** | **0.66** |
| | Trio Lake | Spring 2012 | 1.65 | 5.70 | 4.23 | 3.16 | 3.49 | - | - | - | **3.65** | **1.48** |
| | Frypan Lake | Spring 2012 | 3.66 | 3.80 | 3.61 | 4.02 | 3.18 | - | - | - | **3.65** | **0.31** |
| | Quesnel Lake - North Arm | Spring 2012 | 5.59 | 3.27 | 2.06 | - | - | - | - | - | **3.64** | **1.79** |
| | Upper Hazeltine Creek | Spring 2012 | 7.78 | 7.07 | 6.70 | 8.89 | 7.31 | 6.36 | 8.61 | 7.59 | **7.54** | **0.88** |
| | Hazeltine Creek Delta at Quesnel Lake | Spring 2012 | 1.77 | 3.26 | 2.56 | 2.10 | 2.13 | - | - | - | **2.36** | **0.57** |
| Longnose Sucker Muscle | Polley Lake | Spring 2012 | 7.28 | 9.18 | 9.70 | 6.42 | 8.53 | - | - | - | **8.22** | **1.35** |
| | Bootjack Lake | Spring 2012 | 1.73 | 1.96 | 1.63 | 1.56 | 1.48 | - | - | - | **1.67** | **0.19** |
| Longnose Sucker Ovary | Polley Lake | Spring 2012 | 8.38 | 8.87 | 8.46 | 9.36 | 9.12 | - | - | - | **8.84** | **0.42** |
| | Bootjack Lake | Spring 2012 | 2.90 | 3.81 | 2.55 | 3.00 | 2.77 | - | - | - | **3.01** | **0.48** |
| Largescale Sucker Muscle | Quesnel Lake - North Arm | Spring 2012 | 1.25 | 1.06 | - | - | - | - | - | - | **1.16** | **0.13** |
| | Hazeltine Creek Delta at Quesnel Lake | Spring 2012 | 2.57 | 1.78 | 1.63 | 2.13 | 1.85 | - | - | - | **1.99** | **0.37** |
| Largescale Sucker Ovary | Quesnel Lake | Spring 2012 | 2.00 | 2.14 | - | - | - | - | - | - | **2.07** | **0.10** |
| | Hazeltine Creek Delta at Quesnel Lake | Spring 2012 | 4.07 | 3.16 | 3.36 | 3.55 | 3.59 | - | - | - | **3.55** | **0.34** |

**Table B.3: Selenium concentrations by replicate sample - Mount Polley selenium monitoring 2009-2010 (mg/kg dry weight).**

| Compartment | Location | Sampling Event | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Mean | Standard Deviation |
|---|---|---|---|---|---|---|---|---|---|
| Sediment | Polley Lake | Spring 2009 | 0.8 | 0.7 | 1.5 | 1.6 | 1.5 | **1.2** | **0.43** |
| | | Fall 2009 | 0.5 | 2.5 | 0.5 | 0.5 | 3.7 | **1.5** | **1.5** |
| | | **ALL 2009/2010** | | | | | | **1.4** | **1.0** |
| | Bootjack Lake | Fall 2009 | 2.2 | 2.0 | 0.5 | - | - | **1.6** | **0.94** |
| | Trio Lake | Fall 2009 | 1.1 | 1.2 | 0.9 | - | - | **1.1** | **0.12** |
| | Frypan Lake | Fall 2009 | 2.3 | 1.5 | 1.9 | - | - | **1.9** | **0.41** |
| | Main Embankment Seepage Collection Pond | Spring 2009 | 1.2 | 2.0 | 0.91 | 1.9 | 0.8 | **1.4** | **0.55** |
| | North Dump Creek Delta at Polley Lake | Spring 2009 | 0.29 | 0.34 | 0.38 | 0.32 | 0.43 | **0.35** | **0.05** |
| | Upper Hazeltine Creek | Spring 2009 | 0.54 | 0.79 | 1.1 | 0.60 | 0.77 | **0.77** | **0.23** |
| | | Fall 2010 | 1.8 | 0.29 | 0.28 | 0.26 | 0.33 | **0.59** | **0.67** |
| | | **ALL 2009/2010** | | | | | | **0.68** | **0.48** |
| | Hazeltine Creek Delta at Quesnel Lake | Fall 2010 | 0.24 | 0.34 | 0.20 | 0.28 | 0.28 | **0.27** | **0.05** |
| Periphyton | Upper Hazeltine Creek | Summer/Fall 2010 | 3.6 | 5.3 | 3.5 | 6.3 | 5.5 | **4.8** | **1.2** |
| | Lower Hazeltine Creek | Summer/Fall 2010 | 1.3 | 1.2 | 1.5 | 1.7 | 1.3 | **1.4** | **0.20** |
| Benthos (depositional) | Polley Lake | Spring 2009 | 5.7 | 9.7 | 9.1 | 5.7 | 8.5 | **7.8** | **1.9** |
| | Main Embankment Seepage Collection Pond | Spring 2009 | 12.0 | 11.7 | 8.5 | 4.9 | 11.9 | **9.8** | **3.1** |
| Benthos (erosional) | North Dump Creek | Spring 2009 | 6.5 | 5.5 | 5.0 | - | - | **5.7** | **0.77** |
| | Upper Hazeltine Creek | Spring 2009 | 2.9 | 7.3 | 2.1 | 6.4 | 3.8 | **4.5** | **2.2** |
| | | Summer/Fall 2010 | 10.8 | 10.0 | 10.7 | 11.2 | 11.8 | **10.9** | **0.66** |
| | | **ALL 2009/2010** | | | | | | **7.7** | **3.7** |
| | Lower Hazeltine Creek | Summer/Fall 2010 | 3.5 | 3.6 | 3.7 | 3.2 | 3.6 | **3.5** | **0.19** |
| Rainbow Trout Muscle | Polley Lake | Spring 2009 | 4.3 | 3.7 | 3.8 | 4.1 | 4.3 | **4.0** | **0.28** |
| | | Fall 2009 | 4.0 | 3.9 | 3.2 | 4.0 | 3.5 | **3.7** | **0.37** |
| | | Spring 2010 | 4.8 | 5.4 | 4.0 | 4.2 | 5.0 | **4.7** | **0.56** |
| | | **ALL 2009/2010** | | | | | | **4.1** | **0.57** |
| | Bootjack Lake | Fall 2009 | 1.8 | 1.5 | 1.4 | 1.5 | 1.5 | **1.5** | **0.16** |
| | Trio Lake | Fall 2009 | 0.84 | 0.72 | 0.83 | 1.0 | 0.80 | **0.83** | **0.09** |
| | Frypan Lake | Fall 2009 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | **0.58** | **0.03** |
| | Hazeltine Creek Delta at Quesnel Lake | Fall 2009 | 1.6 | 1.9 | 2.2 | 2.1 | 2.5 | **2.1** | **0.33** |
| | | Summer/Fall 2010 | 2.2 | 2.0 | 1.9 | 2.0 | 1.7 | **1.9** | **0.18** |
| | | **ALL 2009/2010** | | | | | | **2.0** | **0.26** |
| | Quesnel Lake - North Arm | Summer/Fall 2010 | 1.8 | 1.7 | 1.6 | 2.2 | 1.8 | **1.8** | **0.25** |
| | Upper Hazeltine Creek | Spring 2009 | 3.6 | 3.7 | 4.8 | 4.5 | 4.6 | **4.2** | **0.54** |
| | | Spring 2010 | 3.6 | 3.7 | 4.9 | 3.9 | 4.5 | **4.1** | **0.54** |
| | | **ALL 2009/2010** | | | | | | **4.2** | **0.51** |
| Rainbow Trout Ovary | Polley Lake | Spring 2009 | 9.4 | 6.4 | 7.0 | 7.5 | 6.5 | **7.4** | **1.2** |
| | Polley Lake | Spring 2010 | 8.8 | 8.0 | 7.0 | 6.9 | 8.8 | **7.9** | **0.92** |
| | Hazeltine Creek Delta at Quesnel Lake | Summer/Fall 2010 | 3.2 | 4.9 | - | - | - | **4.0** | **1.2** |
| | Upper Hazeltine Creek | Spring 2009 | 4.6 | 6.3 | 7.4 | 10.6 | 8.4 | **7.5** | **2.2** |
| | | Spring 2010 | 8.3 | 7.3 | 11.3 | 9.7 | 9.7 | **9.3** | **1.5** |
| | | **ALL 2009/2010** | | | | | | **8.4** | **2.0** |
| Longnose Sucker Muscle | Polley Lake | Spring 2009 | 7.5 | 7.2 | 10.4 | 15.6 | 19.3 | **12.0** | **5.3** |
| | | Spring 2010 | 8.6 | 10.6 | 12.9 | 8.3 | 9.7 | **10.0** | **1.8** |
| | | **ALL 2009/2010** | | | | | | **11.0** | **3.9** |
| | Hazeltine Creek Delta at Quesnel Lake | Summer/Fall 2010 | 3.8 | 2.8 | 4.4 | 3.5 | 3.0 | **3.5** | **0.6** |
| | Quesnel Lake - North Arm | Summer/Fall 2010 | 2.2 | 2.1 | 2.7 | 2.5 | 2.9 | **2.5** | **0.3** |
| Longnose Sucker Ovary | Polley Lake | Spring 2009 | 9.9 | 8.8 | 10.9 | 17.9 | 9.1 | **11.3** | **3.8** |
| | | Spring 2010 | 8.8 | 12.3 | 14.0 | 11.3 | 13.1 | **11.9** | **2.0** |
| | | **ALL 2009/2010** | | | | | | **11.6** | **2.9** |

**Table B.4: Baseline selenium concentrations in sediment and fish (mg/kg dry weight; from HKP 1996,1997; Beak 2000).**

| Compartment | Location | Sampling Event | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 | Rep 9 | Rep 10 | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sediment | Polley Lake 1 | 15-May-95 [1] | 1.7 | 1.6 | 1.9 | - | - | - | - | - | - | - | **1.73** | **0.15** |
| | | 11-May-96 [1] | 2.6 | 2.4 | 2.8 | - | - | - | - | - | - | - | **2.60** | **0.20** |
| | | 31-Oct-96 [1] | 1.8 | 1.6 | 1.7 | - | - | - | - | - | - | - | **1.70** | **0.10** |
| | | 30-Aug-99 [2] | 1.6 | 1.9 | 1.9 | - | - | - | - | - | - | - | **1.80** | **0.17** |
| | Polley Lake 2 | 15-May-95 | 1.8 | 2 | 1.9 | - | - | - | - | - | - | - | **1.90** | **0.10** |
| | | 11-May-96 | 2.5 | 2.3 | 2.4 | - | - | - | - | - | - | - | **2.40** | **0.10** |
| | | 31-Oct-96 | 1.7 | 2.1 | 2.2 | - | - | - | - | - | - | - | **2.00** | **0.26** |
| | | 30-Aug-99 | 1.7 | 1.8 | 1.7 | - | - | - | - | - | - | - | **1.73** | **0.06** |
| | Polley Lake - ALL | **Baseline** | | | | | | | | | | | **1.98** | **0.35** |
| | Bootjack Lake 1 | 15-May-95 | 2.1 | 1.9 | 1.9 | - | - | - | - | - | - | - | **1.97** | **0.12** |
| | | 11-May-96 | 2.4 | 2.2 | 2.3 | - | - | - | - | - | - | - | **2.30** | **0.10** |
| | | 31-Oct-96 | 1.6 | 1.6 | 1.9 | - | - | - | - | - | - | - | **1.70** | **0.17** |
| | | 1-Sep-99 | <1 | <1 | <1 | - | - | - | - | - | - | - | **<1.00** | **0.00** |
| | Bootjack Lake 2 | 15-May-95 | 1.9 | 1.6 | 1.8 | - | - | - | - | - | - | - | **1.77** | **0.15** |
| | | 11-May-96 | 3.1 | 3.1 | 3.0 | - | - | - | - | - | - | - | **3.07** | **0.06** |
| | | 31-Oct-96 | 1.4 | 1.9 | 1.5 | - | - | - | - | - | - | - | **1.60** | **0.26** |
| | | 1-Sep-99 | 1.5 | 1.9 | 1.4 | - | - | - | - | - | - | - | **1.60** | **0.26** |
| | Bootjack Lake - ALL | **Baseline** | | | | | | | | | | | **1.88** | **0.60** |
| | Upper Hazeltine Creek (W7) | 25-Sep-95 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | - | - | - | - | **<0.1** | **0.00** |
| | Upper Hazeltine Creek (W7) | 25-Sep-96 | 0.6 | 0.4 | 0.6 | 1.4 | 0.5 | 0.5 | - | - | - | - | **0.67** | **0.37** |
| | Northeast Edney Tributary (W8) | 25-Sep-95 | 0.2 | 1.3 | 0.1 | 0.2 | 0.2 | 0.9 | - | - | - | - | **0.48** | **0.50** |
| | Northeast Edney Tributary (W8) | 20-Sep-96 | 0.5 | 0.6 | 0.6 | 0.2 | 0.7 | 0.6 | - | - | - | - | **0.53** | **0.18** |
| | Northeast Edney Tributary (W8) | 26-Aug-99 | <1 | <1 | <1 | - | - | - | - | - | - | - | **<1** | **0.00** |
| | Lower Morehead Creek (W1) | 25-Sep-95 | 0.4 | 0.1 | <0.1 | 0.3 | <0.1 | <0.1 | - | - | - | - | **0.18** | **0.13** |
| | Lower Morehead Creek (W1) | 25-Aug-99 | <1 | <1 | <1 | - | - | - | - | - | - | - | **<1** | **0.00** |
| | Lower Hazeltine Creek (W11) | 25-Sep-96 | 0.2 | 0.2 | 0.4 | 0.8 | 0.8 | 0.3 | - | - | - | - | **0.45** | **0.28** |
| Rainbow Trout Muscle | Polley Lake | 1995 | 0.72 | 0.58 | 0.67 | 0.62 | 0.54 | 0.69 | 0.61 | 0.56 | 0.64 | - | **0.63** | **0.06** |
| | Bootjack Lake | 1995 | 1.00 | 1.13 | 1.03 | 0.55 | - | - | - | - | - | - | **0.93** | **0.26** |
| Rainbow Trout Liver | Polley Lake | 1995 | 3.47 | 5.02 | 9.24 | 13.0 | 7.8 | 26.1 | 4.75 | 5.32 | 4.69 | - | **8.82** | **7.13** |
| | Bootjack Lake | 1995 | 21.0 | 12.2 | 7.02 | 7.06 | - | - | - | - | - | - | **11.82** | **6.59** |
| Longnose Sucker Muscle | Polley Lake | 1995 | 1.02 | 0.92 | 0.72 | 0.88 | 1.05 | 0.87 | 0.89 | 0.86 | 0.88 | 0.97 | **0.91** | **0.09** |
| | Bootjack Lake | 1995 | 1.00 | 1.06 | 1.06 | 1.10 | 0.89 | 0.98 | 0.85 | 1.06 | - | - | **1.00** | **0.09** |
| Longnose Sucker Liver | Polley Lake | 1995 | 5.29 | 5.37 | 4.71 | 5.53 | 4.11 | 4.62 | 4.43 | 3.93 | 5.62 | 4.92 | **4.85** | **0.59** |
| | Bootjack Lake | 1995 | 2.97 | 4.28 | 4.67 | 5.1 | 5.39 | 3.16 | 4.08 | 4.07 | - | - | **4.22** | **0.85** |

[1] sediment samples were collected by Eckman grab in 1995 and 1996.

[2] sediment samples were collected by core in 1999.

**Table B.5: Mean selenium concentrations by location - Mount Polley selenium monitoring 2009 to 2013 [1].**

| Compartment | Units | Period | Polley Lake | Hazeltine Creek Pond Upstream of Discharge | Hazeltine Creek Upstream of Discharge | Upper Hazeltine Creek | Upper Hazeltine Creek Pond | Lower Hazeltine Creek | Hazeltine Creek Delta at Quesnel Lake | Upper Edney Creek | Main Embankment Seepage Collection Pond | North Dump Creek | North Dump Creek Delta at Polley Lake | Morehead Creek [4] | Trio Creek | Jacobie Creek | Bootjack Lake | Trio Lake | Frypan Lake | Quesnel Lake - North Arm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PL | USW7 Pond | USW7 | W7 | W7 Pond | W11 | DSW11 | W8 | E4 | W4 | DSW4 | W1 | TC | JC | BL | TL | FL | QL |
| Water - total | mg/L | 2013 Mean | - | - | - | 0.0005 (0.00003) [17] | - | <0.0005 [4] | - | 0.0005 (0.00001) [11] | - | 0.0013 (0.0005) [15] | - | <0.0005 [4] | - | - | - | - | - | - |
| | mg/L | 2013 Maximum | - | - | - | 0.0006 [17] | - | <0.0005 [4] | - | 0.0005 [11] | - | 0.0021 [15] | - | <0.0005 [4] | - | - | - | - | - | - |
| Water - dissolved | mg/L | 2013 Mean | - | - | - | 0.0005 (0.00003) [17] | - | <0.0005 [3] | - | 0.0005 (0.00002) [2] | - | 0.0015 (0.0004) [6] | - | - | - | - | - | - | - | - |
| | mg/L | 2013 Maximum | - | - | - | 0.0006 [17] | - | <0.0005 [3] | - | 0.0005 [2] | - | 0.0020 [6] | - | - | - | - | - | - | - | - |
| Water - total | mg/L | 2012 Mean | 0.0007 (0.0001) [8] | - | - | 0.0006 (0.0001) [23] | <0.0005 [1] | <0.0005 [4] | <0.0005 [1] | 0.0005 (0.00002) [20] | 0.0117 (0.0015) [12] | 0.0023 (0.0019) [22] | - | <0.0005 [4] | - | - | <0.0005 [8] | - | <0.0005 [1] | - |
| | mg/L | 2012 Maximum | 0.0008 [8] | - | - | 0.0007 [23] | - | <0.0005 [4] | - | 0.0006 [20] | 0.0139 [12] | 0.0080 [22] | - | <0.0005 [4] | - | - | <0.0005 [8] | - | - | - |
| Water - dissolved | mg/L | 2012 Mean | 0.0007 (0.0001) [8] | - | - | 0.0005 (0.0001) [23] | <0.0005 [1] | <0.0005 [4] | <0.0005 [1] | 0.0005 (0.00001) [20] | 0.0113 (0.0015) [12] | 0.0023 (0.0019) [22] | - | <0.0005 [4] | - | - | <0.0005 [4] | - | - | - |
| | mg/L | 2012 Maximum | 0.0008 [8] | - | - | 0.0007 [23] | - | <0.0005 [4] | - | 0.0006 [20] | 0.0133 [12] | 0.0077 [22] | - | <0.0005 [4] | - | - | <0.0005 [4] | - | - | - |
| Water - total | mg/L | 2011 Mean | 0.0007 (0.00005) [10] | - | - | 0.0006 (0.0001) [17] | - | <0.0005 [4] | - | 0.0005 (0.00003) [19] | 0.0133 (0.0034) [12] | 0.0024 (0.0029) [22] | - | <0.001 [4] | - | - | <0.0005 [8] | - | - | - |
| | mg/L | 2011 Maximum | 0.0008 [10] | - | - | 0.001 [17] | - | <0.0005 [4] | - | 0.0006 [19] | 0.0214 [12] | 0.0135 [22] | - | <0.001 [4] | - | - | <0.0005 [8] | - | - | - |
| Water - dissolved | mg/L | 2011 Mean | 0.0009 (0.0004) [11] | - | - | 0.0006 (0.0002) [17] | - | <0.0005 [4] | - | 0.0005 (0.00002) [19] | 0.0133 (0.0026) [12] | 0.0024 (0.0026) [22] | - | <0.001 [4] | - | - | <0.0005 [8] | - | - | - |
| | mg/L | 2011 Maximum | 0.0020 [11] | - | - | 0.0011 [17] | - | <0.0005 [4] | - | 0.0006 [19] | 0.0174 [12] | 0.0128 [22] | - | <0.001 [4] | - | - | <0.0005 [8] | - | - | - |
| Water - total | mg/L | 2010 Mean | 0.0010 ( 0 ) [7] | - | - | <0.001 [10] | - | <0.001 [4] | - | <0.001 [20] | 0.0061 (0.0034) [13] | 0.0043 (0.0067) [21] | - | <0.001 [4] | - | - | <0.001 [6] | - | - | - |
| | mg/L | 2010 Maximum | 0.0010 [7] | - | - | <0.001 [10] | - | <0.001 [4] | - | <0.001 [20] | 0.0151 [13] | 0.0206 [21] | - | <0.001 [4] | - | - | <0.001 [6] | - | - | - |
| Water - dissolved | mg/L | 2010 Mean | < 0.0010 [7] | - | - | 0.001 ( 0 ) [10] | - | <0.001 [4] | - | <0.001 [20] | 0.0062 (0.0033) [13] | 0.0044 (0.0069) [21] | - | <0.001 [4] | - | - | <0.001 [6] | - | - | - |
| | mg/L | 2010 Maximum | 0.0010 [7] | - | - | 0.001 [10] | - | <0.001 [4] | - | <0.001 [20] | 0.0149 [13] | 0.0223 [21] | - | <0.001 [4] | - | - | <0.001 [6] | - | - | - |
| Water - total | mg/L | 2009 Mean | 0.0012 (0.0001) [4] | - | - | 0.0010 (0.0001) [9] | - | 0.0011 (0.0001) [2] | - | 0.001 (0) [20] | 0.0056 (0.0025) [14] | 0.0145 (0.0090) [21] | - | <0.001 [4] | - | - | <0.001 [4] | - | - | - |
| | mg/L | 2009 Maximum | 0.0013 [4] | - | - | 0.0012 [9] | - | 0.0012 [2] | - | 0.001 [20] | 0.0101 [14] | 0.0324 [21] | - | <0.001 [4] | - | - | <0.001 [4] | - | - | - |
| Water - dissolved | mg/L | 2009 Mean | 0.0012 (0.0002) [4] | - | - | 0.0010 (0.0001) [9] | - | <0.001 [2] | - | <0.001 [20] | 0.0056 (0.0025) [14] | 0.0149 (0.0092) [21] | - | <0.001 [4] | - | - | <0.001 [4] | - | - | - |
| | mg/L | 2009 Maximum | 0.0014 [4] | - | - | 0.0011 [9] | - | <0.001 [2] | - | <0.001 [20] | 0.0112 [14] | 0.0326 [21] | - | <0.001 [4] | - | - | <0.001 [4] | - | - | - |

[1] mean (standard deviation) [number of samples / replicates].
[2] sediment samples collected by ponar grab.
[3] sediment samples collected by coring.
[4] Erosional samples (periphyton and erosional benthos) collected at site W1B

**Table B.5: Mean selenium concentrations by location - Mount Polley selenium monitoring 2009 to 2013 [1].**

| Compartment | Units | Period | Polley Lake | Hazeltine Creek Pond Upstream of Discharge | Hazeltine Creek Upstream of Discharge | Upper Hazeltine Creek | Upper Hazeltine Creek Pond | Lower Hazeltine Creek | Hazeltine Creek Delta at Quesnel Lake | Upper Edney Creek | Main Embankment Seepage Collection Pond | North Dump Creek | North Dump Creek Delta at Polley Lake | Morehead Creek [4] | Trio Creek | Jacobie Creek | Bootjack Lake | Trio Lake | Frypan Lake | Quesnel Lake - North Arm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PL | USW7 Pond | USW7 | W7 | W7 Pond | W11 | DSW11 | W8 | E4 | W4 | DSW4 | W1 | TC | JC | BL | TL | FL | QL |
| Sediment | mg/kg dw | Spring 2009 [2] | 1.2 (0.4) [5] | - | - | 0.8 (0.2) [5] | - | - | - | - | 1.4 (0.5) [5] | - | 0.4 (0.1) [5] | - | - | - | - | - | - | - |
| | mg/kg dw | Fall 2009 [2] | 1.5 (1.5) [5] | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.6 (0.9) [2] | 1.1 (0.1) [2] | 1.9 (0.4) [2] | - |
| | mg/kg dw | Fall 2010 [2] | - | - | - | 0.6 (0.7) [5] | - | - | 0.27 (0.05) [5] | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Spring 2012 [3] | 5.0 (1.5) [5] | - | - | - | - | - | - | - | 8.1 (6.0) [5] | - | 1.0 (0.4) [5] | - | - | - | 2.4 (0.4) [5] | 1.2 (0.1) [5] | 1.8 (0.1) [5] | 0.4 (0.04) [5] |
| | mg/kg dw | Fall 2012 [3] | - | - | - | - | 2.7 (0.6) [8] | - | 1.1 (0.3) [5] | 2.9 (0.4) [5] | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Spring 2013 [3] | - | - | - | 2.8 (0.4) [8] | 3.0 (0.2) [8] | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Fall 2013 [3] | - | 1.8 (0.4) [5] | - | - | 3.1 (0.2) [8] | - | - | - | - | - | - | 1.0 (0.3) [5] | 0.4 (0.04) [5] | 0.6 (0.2) [5] | - | - | - | - |
| Periphyton | mg/kg dw | Fall 2010 | - | - | - | 4.8 (1.2) [5] | - | 1.4 (0.2) [5] | - | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Fall 2012 | - | - | - | 4.4 (0.7) [8] | - | 3.06 (0.3) [5] | - | 5.8 (1.1) [5] | - | 4.8 [1] | - | - | - | - | - | - | - | - |
| | mg/kg dw | Summer 2013 | - | - | - | 2.2 (0.9) [5] | - | 1.2 (0.4) [5] | - | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Fall 2013 | - | - | 3.4 (0.7) [5] | - | - | - | - | - | - | - | - | 1.7 (0.2) [5] | 0.9 (0.1) [5] | 0.3 (0.1) [5] | - | - | - | - |
| Benthos - erosional | mg/kg dw | Spring 2009 | - | - | - | 4.5 (2.2) [5] | - | - | - | - | - | 5.7 (0.8) [5] | - | - | - | - | - | - | - | - |
| | mg/kg dw | Fall 2010 | - | - | - | 10.9 (0.7) [5] | - | 3.5 (0.2) [5] | - | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Fall 2012 | - | - | - | 4.4 (0.7) [8] | - | 2.2 (0.3) [5] | - | 5.7 (2.4) [5] | - | 6.3 (1.5) [5] | - | - | - | - | - | - | - | - |
| | mg/kg dw | Fall 2013 | - | - | 4.6 (0.5) [5] | 3.8 (0.4) [8] | - | 2.3 (0.2) [5] | - | - | - | - | - | 2.6 (0.3) [5] | 0.5 (0.05) [5] | 0.4 (0.1) [5] | - | - | - | - |
| Benthos - depositional | mg/kg dw | Spring 2009 | 7.8 (1.9) [5] | - | - | - | - | - | - | - | 9.8 (3.1) [5] | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Spring 2012 | 6.0 (0.7) [5] | - | - | - | - | - | - | - | 16.4 (6.4) [5] | - | 7.1 (1.6) [5] | - | - | - | 2.5 (0.7) [5] | 0.7 (0.1) [5] | 0.6 (0.1) [5] | 2.1 (0.5) [5] |
| | mg/kg dw | Fall 2012 | - | - | - | - | 2.9 (2.9) [8] | - | 1.7 (0.2) [5] | 1.2 (0.5) [2] | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Fall 2013 | - | 5.5 (1.1) [5] | - | - | 5.2 (1.9) [8] | - | - | - | - | - | - | 1.8 (0.1) [2] | 0.6 [1] | 0.6 (0.1) [5] | - | - | - | - |
| Rainbow Trout - muscle | mg/kg dw | Spring 2009 | 4.0 (0.3) [5] | - | - | 4.2 (0.5) [5] | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Fall 2009 | 3.7 (0.4) [5] | - | - | - | - | - | 2.1 (0.3) [5] | - | - | - | - | - | - | - | 1.5 (0.2) [5] | 0.8 (0.1) [5] | 0.6 (0.03) [5] | - |
| | mg/kg dw | Spring 2010 | 4.7 (0.6) [5] | - | - | 4.1 (0.5) [5] | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Fall 2010 | - | - | - | - | - | - | 1.9 (0.2) [5] | - | - | - | - | - | - | - | - | - | - | 1.8 (0.2) [5] |
| | mg/kg dw | Spring 2012 | 3.9 (0.4) [5] | - | - | 4.0 (0.4) [8] | - | - | 1.5 (0.2) [5] | - | - | - | - | - | - | - | 1.3 (0.2) [5] | 0.5 (0.1) [5] | 0.6 (0.1) [5] | 1.1 (0.1) [3] |
| | mg/kg dw | Spring 2013 | - | - | - | 3.4 (0.2) [8] | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

[1] mean (standard deviation) [number of samples / replicates].
[2] sediment samples collected by ponar grab.
[3] sediment samples collected by coring.
[4] Erosional samples (periphyton and erosional benthos) collected at site W1B

**Table B.5: Mean selenium concentrations by location - Mount Polley selenium monitoring 2009 to 2013 [1].**

| Compartment | Units | Period | Polley Lake | Hazeltine Creek Pond Upstream of Discharge | Hazeltine Creek Upstream of Discharge | Upper Hazeltine Creek | Upper Hazeltine Creek Pond | Lower Hazeltine Creek | Hazeltine Creek Delta at Quesnel Lake | Upper Edney Creek | Main Embankment Seepage Collection Pond | North Dump Creek | North Dump Creek Delta at Polley Lake | Morehead Creek [4] | Trio Creek | Jacobie Creek | Bootjack Lake | Trio Lake | Frypan Lake | Quesnel Lake - North Arm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | PL | USW7 Pond | USW7 | W7 | W7 Pond | W11 | DSW11 | W8 | E4 | W4 | DSW4 | W1 | TC | JC | BL | TL | FL | QL |
| Rainbow Trout - ovary | mg/kg dw | Spring 2009 | 7.4 (1.2) [5] | - | - | 7.5 (2.2) [5] | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Spring 2010 | 7.9 (0.9) [5] | - | - | 9.3 (1.5) [5] | - | - | 4.0 (1.2) [2] | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Spring 2012 | 7.6 (0.8) [5] | - | - | 7.5 (0.9) [8] | - | - | 2.4 (0.6) [5] | - | - | - | - | - | - | - | 3.4 (0.7) [5] | 3.7 (1.5) [5] | 3.7 (0.3) [5] | 3.6 (1.8) [3] |
| | mg/kg dw | Spring 2013 | - | - | - | 6.9 (1.9) [8] | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Longnose Sucker - muscle | mg/kg dw | Spring 2009 | 12.0 (5.3) [5] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Spring 2010 | 10.0 (1.8) [5] | - | - | - | - | - | 3.5 (0.6) [5] | - | - | - | - | - | - | - | - | - | - | 2.5 (0.3) [5] |
| | mg/kg dw | Spring 2012 | 8.2 (1.4) [5] | - | - | - | - | - | - | - | - | - | - | - | - | - | 1.7 (0.2) [5] | - | - | 1.2 (0.1) [2] |
| Longnose Sucker - ovary | mg/kg dw | Spring 2009 | 11.3 (3.8) [5] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Spring 2010 | 11.9 (2.0) [5] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | mg/kg dw | Spring 2012 | 8.8 (0.4) [5] | - | - | - | - | - | - | - | - | - | - | - | - | - | 3.0 (0.5) [5] | - | - | 2.1 (0.1) [2] |
| Largescale sucker - muscle | mg/kg dw | Spring 2012 | - | - | - | - | - | - | 2.0 (0.4) [5] | - | - | - | - | - | - | - | - | - | - | - |
| Largescale sucker - ovary | mg/kg dw | Spring 2012 | - | - | - | - | - | - | 3.6 (0.3) [5] | - | - | - | - | - | - | - | - | - | - | - |

[1] mean (standard deviation) [number of samples / replicates].
[2] sediment samples collected by ponar grab.
[3] sediment samples collected by coring.
[4] Erosional samples (periphyton and erosional benthos) collected at site W1B

**Table B.6: Tissue selenium concentrations on wet weight basis, Mount Polley selenium monitoring 2013 (mg/kg wet weight).**

| Compartment | Location | Sampling Event | Rep 1 | Rep 2 | Rep 3 | Rep 4 | Rep 5 | Rep 6 | Rep 7 | Rep 8 | Mean | Standard Deviation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Periphyton | Hazeltine Creek Upstream of Discharge (USW7) | Fall 2013 | 0.80 | 0.53 | 0.51 | 0.60 | 0.68 | - | - | - | **0.63** | **0.12** |
| | Upper Hazeltine Creek (W7) | Summer 2013 | 0.05 | 0.04 | 0.02 | 0.04 | 0.03 | - | - | - | **0.04** | **0.01** |
| | Lower Hazeltine Creek (W11) | Summer 2013 | 0.08 | 0.13 | 0.13 | 0.06 | 0.08 | - | - | - | **0.10** | **0.03** |
| | Morehead Creek (W1B) | Fall 2013 | 0.56 | 0.59 | 0.50 | 0.56 | 0.49 | - | - | - | **0.54** | **0.04** |
| | Trio Creek (TC) | Fall 2013 | 0.14 | 0.16 | 0.20 | 0.23 | 0.16 | - | - | - | **0.18** | **0.04** |
| | Jacobie Creek (JC) | Fall 2013 | 0.06 | 0.11 | 0.06 | 0.12 | 0.08 | - | - | - | **0.09** | **0.03** |
| Benthos (depositional) | Hazeltine Creek Pond Upstream of Discharge (USW7-Pond) | Fall 2013 | 0.74 | 0.45 | 0.60 | 0.55 | 0.91 | - | - | - | **0.65** | **0.18** |
| | Upper Hazeltine Creek Pond (W7-Pond) | Fall 2013 | 0.94 | 1.09 | 0.46 | 0.71 | 1.17 | 0.95 | 0.59 | 0.42 | **0.79** | **0.29** |
| | Morehead Creek (W1) | Fall 2013 | 0.22 | | 0.34 | | | - | - | - | **0.28** | **0.09** |
| | Trio Creek (TC) | Fall 2013 | 0.06 | | | | | - | - | - | **0.06** | **n/a** |
| | Jacobie Creek (JC) | Fall 2013 | 0.10 | 0.07 | 0.05 | 0.07 | 0.06 | - | - | - | **0.07** | **0.02** |
| Benthos (erosional) | Hazeltine Creek Upstream of Discharge (USW7) | Fall 2013 | 1.10 | 0.91 | 0.90 | 1.02 | 1.12 | - | - | - | **1.01** | **0.10** |
| | Upper Hazeltine Creek (W7) | Fall 2013 | 0.70 | 0.83 | 0.73 | 0.67 | 0.92 | 0.91 | 0.80 | 0.74 | **0.79** | **0.09** |
| | Lower Hazeltine Creek (W11) | Fall 2013 | 0.55 | 0.51 | 0.44 | 0.56 | 0.54 | - | - | - | **0.52** | **0.05** |
| | Morehead Creek (W1B) | Fall 2013 | 0.50 | 0.42 | 0.44 | 0.47 | 0.54 | - | - | - | **0.47** | **0.05** |
| | Trio Creek (TC) | Fall 2013 | 0.12 | 0.09 | 0.09 | 0.09 | 0.08 | - | - | - | **0.09** | **0.02** |
| | Jacobie Creek (JC) | Fall 2013 | 0.08 | 0.06 | 0.05 | 0.06 | 0.08 | - | - | - | **0.07** | **0.02** |
| Rainbow Trout Muscle | Upper Hazeltine Creek (W7) | Spring 2013 | 0.62 | 0.76 | 0.70 | 0.68 | 0.77 | 0.69 | 0.61 | 0.67 | **0.68** | **0.06** |
| Rainbow Trout Ovary | Upper Hazeltine Creek (W7) | Spring 2013 | 1.78 | 1.71 | 1.85 | 2.41 | 2.51 | 2.58 | 2.01 | 1.67 | **2.07** | **0.38** |

**Table B.7: Estimated sample size requirements for given Critical Effect Size for rainbow trout ovary selenium concentrations from Hazeltine Creek, Mount Polley Mine, 2009-2013.**

| Year | $t_\alpha$ [a] | $t_\beta$ [a] | Mean [Se] (mg/kg dw) | SD | COV [b] | CES [c] | | n [d] |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Percent of Mean (%) | Distinguishable Mean [Se] (mg/kg dw) | |
| 2009 | 1.645 | 1.282 | 7.5 | 2.2 | 29.3 | 10 | 8.3 | 147 |
| | | | | | | 20 | 9.0 | 37 |
| | | | | | | 30 | 9.8 | 16 |
| | | | | | | 40 | 10.5 | 9 |
| | | | | | | 50 | 11.3 | 6 |
| 2010 | 1.645 | 1.282 | 9.3 | 1.5 | 16.1 | 10 | 10.2 | 45 |
| | | | | | | 20 | 11.2 | 11 |
| | | | | | | 30 | 12.1 | 5 |
| | | | | | | 40 | 13.0 | 3 |
| | | | | | | 50 | 14.0 | 2 |
| 2012 | 1.645 | 1.282 | 7.5 | 0.88 | 11.7 | 10 | 8.3 | 23 |
| | | | | | | 20 | 9.0 | 6 |
| | | | | | | 30 | 9.8 | 3 |
| | | | | | | 40 | 10.6 | 1 |
| | | | | | | 50 | 11.3 | 1 |
| 2013 [e] | 1.645 | 1.282 | 6.9 | 1.9 | 27.7 | 10 | 7.6 | 131 |
| | | | | | | 20 | 8.2 | 33 |
| | | | | | | 30 | 8.9 | 15 |
| | | | | | | 40 | 9.6 | 8 |
| | | | | | | 50 | 10.3 | 5 |
| 2009-2013 [e] | 1.645 | 1.282 | 7.6 | 1.8 | 23.1 | 10 | 8.4 | 91 |
| | | | | | | 20 | 9.2 | 23 |
| | | | | | | 30 | 9.9 | 10 |
| | | | | | | 40 | 10.7 | 6 |
| | | | | | | 50 | 11.5 | 4 |

[a] $t_\alpha$ and $t_\beta$ are from t two-tailed and one-tailed t-ditribution tables, respectively, with $\alpha = \beta = 0.1$ and $\infty$ degrees of freedom.

[b] Coefficient of Variation (COV) is expresed as a percentage of the reference mean (COV = SD / reference mean x 100) and is measure of variablity in the sample size calculation.

[c] Critical Effect Size (CES), expressed as percent increase from the mean and as the corresponding distinguishable selenium concentration in mg/kg dw.

[d] n is the number of replicates that would be required to see a significant difference between current selenium concentrations and the CES and is calculated as $n = 2(t_\alpha + t_\beta)^2(COV/CES)^2$ (EEM Technical Guidance Document, Environment Canada 2011).

[e] Untransformed 2013 data was used for sample size calculations although the inverse transform of this data was used in ANOVA analysis (Table B.12). All other data used in the sample size calculations was also untransformed.

**Table B.8: Estimated sample size requirements for given Critical Effect Size for erosional benthic invertebrate selenium concentrations from Upper Hazeltine Creek (W7), Mount Polley Mine, 2009-2013.**

| Year | $t_\alpha$ [a] | $t_\beta$ [a] | Mean [Se] (mg/kg dw) | SD | COV [b] | CES [c] | | n [d] |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Percent of Mean (%) | Distinguishable Mean [Se] (mg/kg dw) | |
| 2009 | 1.645 | 1.282 | 4.5 | 2.2 | 48.9 | 10 | 5.0 | 410 |
| | | | | | | 20 | 5.4 | 102 |
| | | | | | | 30 | 5.9 | 46 |
| | | | | | | 40 | 6.3 | 26 |
| | | | | | | 50 | 6.8 | 16 |
| 2010 | 1.645 | 1.282 | 10.9 | 0.66 | 6.1 | 10 | 12.0 | 6 |
| | | | | | | 20 | 13.1 | 2 |
| | | | | | | 30 | 14.2 | 1 |
| | | | | | | 40 | 15.3 | 0 |
| | | | | | | 50 | 16.4 | 0 |
| 2012 | 1.645 | 1.282 | 4.4 | 0.69 | 15.7 | 10 | 4.8 | 42 |
| | | | | | | 20 | 5.3 | 11 |
| | | | | | | 30 | 5.7 | 5 |
| | | | | | | 40 | 6.1 | 3 |
| | | | | | | 50 | 6.6 | 2 |
| 2013 | 1.645 | 1.282 | 3.8 | 0.4 | 10.9 | 10 | 4.1 | 20 |
| | | | | | | 20 | 4.5 | 5 |
| | | | | | | 30 | 4.9 | 2 |
| | | | | | | 40 | 5.3 | 1 |
| | | | | | | 50 | 5.6 | 1 |
| 2009-2013 | 1.645 | 1.282 | 5.5 | 2.9 | 53.0 | 10 | 6.0 | 482 |
| | | | | | | 20 | 6.6 | 120 |
| | | | | | | 30 | 7.1 | 54 |
| | | | | | | 40 | 7.7 | 30 |
| | | | | | | 50 | 8.2 | 19 |

[a] $t_\alpha$ and $t_\beta$ are from t two-tailed and one-tailed t-ditribution tables, respectively, with $\alpha = \beta = 0.1$ and $\infty$ degrees of freedom.

[b] Coefficient of Variation (COV) is expresed as a percentage of the reference mean (COV = SD / reference mean x 100) and is measure of variablity in the sample size calculation.

[c] Critical Effect Size (CES), expressed as percent increase from the mean and as the corresponding distinguishable selenium concentration in mg/kg dw.

[d] n is the number of replicates that would be required to see a significant difference between current selenium concentrations and the CES and is calculated as

$n = 2(t_\alpha + t_\beta)^2(COV/CES)^2$ (EEM Technical Guidance Document, Environment Canada 2011).

**Table B.9: ANOVA results for spatial comparison of sediment selenium concentrations, Mount Polley 2013.**

| Analyte | Normality | Transformation | | Overall ANOVA | | | post-hoc comparisons | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Site | Type | Significant difference among areas? | p-value | power | Equal Variance | Test Type | (I) Area | (J) Area | Significant difference between areas? | p-value |
| Selenium | Yes | JC<br>TC<br>USW7 Pond<br>W1<br>W7<br>W7 Pond -Fall<br>W7 Pond -Spring | n/a<br>n/a<br>n/a<br>n/a<br>n/a<br>n/a<br>n/a | Yes | <0.001 | 1.00 | No | Tamhane's | JC | TC | | 1.000 |
| | | | | | | | | | USW7 Pond | JC | Yes | 0.006 |
| | | | | | | | | | | TC | Yes | 0.020 |
| | | | | | | | | | | W1 | | 0.123 |
| | | | | | | | | | | W7 | Yes | 0.037 |
| | | | | | | | | | | W7 Pond -Fall | Yes | 0.009 |
| | | | | | | | | | | W7 Pond -Spring | Yes | 0.016 |
| | | | | | | | | | W1 | JC | | 0.210 |
| | | | | | | | | | | TC | | 0.087 |
| | | | | | | | | | | W7 | Yes | 0.000 |
| | | | | | | | | | | W7 Pond -Fall | Yes | 0.000 |
| | | | | | | | | | | W7 Pond -Spring | Yes | 0.000 |
| | | | | | | | | | W7 | JC | Yes | 0.000 |
| | | | | | | | | | | TC | Yes | 0.000 |
| | | | | | | | | | | W7 Pond -Fall | | 0.557 |
| | | | | | | | | | | W7 Pond -Spring | | 0.987 |
| | | | | | | | | | W7 Pond -Fall | JC | Yes | 0.000 |
| | | | | | | | | | | TC | Yes | 0.000 |
| | | | | | | | | | | W7 Pond -Spring | | 0.949 |
| | | | | | | | | | W7PondS | JC | Yes | 0.000 |
| | | | | | | | | | | TC | Yes | 0.000 |

Significant result ($p < 0.05$)

**Table B.10: ANOVA results for temporal comparisons of sediment selenium concentrations, Mount Polley 2013.**

| Area | Analyte | Normality | Transformation | | Overall ANOVA | | | post-hoc comparisons | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Year | Type | Significant difference among years? | p-value | power | Equal Variance | Test Type | (I) Area | (J) Area | Significant difference between areas? | p-value |
| W7** | Selenium | No | 1996<br>2009<br>2010<br>2013 | n/a<br>n/a<br>n/a<br>n/a | n/a (pairwise Mann-Whitney test used) | | | n/a | n/a | 1996 | 2009 | | 0.247 |
| | | | | | | | | | | | 2010 | | 0.126 |
| | | | | | | | | | | | 2013 | Yes | 0.001 |
| | | | | | | | | | | 2009 | 2010 | | 0.151 |
| | | | | | | | | | | | 2013 | Yes | 0.002 |
| | | | | | | | | | | 2010 | 2013 | Yes | 0.002 |
| | | | 1996<br>2009<br>2010<br>2013 | n/a<br>n/a<br>n/a<br>n/a | Yes | <0.001 | 1.00 | Yes | Bonferonni | 1996 | 2009 | | 1.000 |
| | | | | | | | | | | | 2010 | | 1.000 |
| | | | | | | | | | | | 2013 | Yes | 0.000 |
| | | | | | | | | | | 2009 | 2010 | | 1.000 |
| | | | | | | | | | | | 2013 | Yes | 0.000 |
| | | | | | | | | | | 2010 | 2013 | Yes | 0.000 |
| W7 Pond * | Selenium | Yes | 2012<br>2013 -Spring<br>2013 -Fall | n/a<br>n/a<br>n/a | Yes | 0.037 | 0.64 | No | Tamhane's | 2012 | 2013 -Fall | | 0.125 |
| | | | | | | | | | | | 2013 -Spring | | 0.383 |
| | | | | | | | | | | 2013 -Fall | 2013 -Spring | | 0.347 |
| W1** | Selenium | No | 1995<br>2013 | n/a<br>n/a | n/a (pairwise Mann-Whitney test used) | | | n/a | n/a | 1995 | 2013 | Yes | 0.004 |
| | | | 1995<br>2013 | n/a<br>n/a | Yes | <0.001 | 1.00 | Yes | n/a | n/a | n/a | n/a | n/a |

Significant result ($p < 0.05$)

* The ANOVA detected a difference among years, however Tamhane's pot-hoc comparison did not report significant differences among the pairwise comparisons.

** Data were not normalized with transformation, therefore a non-parametric Mann-Whitney test was used to determine pairwise temporal differences. Significant differences found using ANOVA for the data agree with those found using a pairwise Mann-Whitney test. ANOVA results are also shown below non-parametric results.

**Table B.11: ANOVA results for spatial comparison of periphyton tissue selenium, Mount Polley 2013**

| Analyte | Normality | Transformation | | Overall ANOVA | | | post-hoc comparisons | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Site | Type | Significant difference among areas? | p-value | power | Equal Variance | Test Type | (I) Area | (J) Area | Significant difference between areas? | p-value |
| Selenium | Yes | JC<br>TC<br>USW7<br>W1<br>W11<br>W7 | n/a<br>n/a<br>n/a<br>n/a<br>n/a<br>n/a | Yes | <0.001 | 1.00 | No | Tamhane's | JC | TC | Yes | 0.001 |
| | | | | | | | | | USW7 | JC | Yes | 0.009 |
| | | | | | | | | | | TC | Yes | 0.019 |
| | | | | | | | | | | W1 | | 0.070 |
| | | | | | | | | | | W11 | Yes | 0.014 |
| | | | | | | | | | | W7 | | 0.564 |
| | | | | | | | | | W1 | JC | Yes | 0.000 |
| | | | | | | | | | | TC | Yes | 0.004 |
| | | | | | | | | | | W11 | | 0.700 |
| | | | | | | | | | | W7 | | 0.994 |
| | | | | | | | | | W11 | JC | | 0.096 |
| | | | | | | | | | | TC | | 0.959 |
| | | | | | | | | | | W7 | | 0.707 |
| | | | | | | | | | W7 | JC | | 0.129 |
| | | | | | | | | | | TC | | 0.412 |

**Table B.12: ANOVA results for temporal comparison of periphyton tissue selenium, Mount Polley 2013**

| Area | Analyte | Normality | Transformation | | Overall ANOVA | | | post-hoc comparisons | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Site | Type | Significant difference among areas? | p-value | power | Equal Variance | Test Type | (I) Area | (J) Area | Significant difference between areas? | p-value |
| W7 | Selenium | Yes | 2010 | n/a | Yes | 0.001 | 0.98 | Yes | Bonferonni | 2010 | 2012 | | 1.000 |
| | | | 2012 | n/a | | | | | | | 2013 | Yes | 0.001 |
| | | | 2013 | n/a | | | | | | 2012 | 2013 | Yes | 0.002 |
| W11 | Selenium | Yes | 2010 | n/a | Yes | <0.001 | 1.00 | Yes | Bonferonni | 2010 | 2012 | Yes | 0.000 |
| | | | 2012 | n/a | | | | | | | 2013 | | 1.000 |
| | | | 2013 | n/a | | | | | | 2012 | 2013 | Yes | 0.000 |

Significant result ($p < 0.05$)

**Table B.13: ANOVA results for spatial comparison of erosional benthic invertebrate tissue selenium, Mount Polley 2013.**

| Analyte | Normality | Transformation | | Overall ANOVA | | | post-hoc comparisons | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Site | Type | Significant difference among areas? | p-value | power | Equal Variance | Test Type | (I) Area | (J) Area | Significant difference between areas? | p-value |
| Selenium | Yes | JC<br>TC<br>USW7<br>W1<br>W11<br>W7 | n/a<br>n/a<br>n/a<br>n/a<br>n/a<br>n/a | Yes | <0.001 | 1.00 | No | Tamhane's | JC | TC | | 0.298 |
| | | | | | | | | | USW7 | JC | Yes | 0.000 |
| | | | | | | | | | | TC | Yes | 0.001 |
| | | | | | | | | | | W1 | Yes | 0.003 |
| | | | | | | | | | | W11 | Yes | 0.002 |
| | | | | | | | | | | W7 | | 0.152 |
| | | | | | | | | | W1 | JC | Yes | 0.000 |
| | | | | | | | | | | TC | Yes | 0.000 |
| | | | | | | | | | | W11 | | 0.580 |
| | | | | | | | | | | W7 | Yes | 0.001 |
| | | | | | | | | | W11 | JC | Yes | 0.000 |
| | | | | | | | | | | TC | Yes | 0.000 |
| | | | | | | | | | | W7 | Yes | 0.000 |
| | | | | | | | | | W7 | JC | Yes | 0.000 |
| | | | | | | | | | | TC | Yes | 0.000 |

**Table B.14: ANOVA results for temporal comparison of erosional benthic invertebrate tissue selenium, Mount Polley 2013.**

| Area | Analyte | Normality | Transformation | | Overall ANOVA | | | post-hoc comparisons | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Site | Type | Significant difference among areas? | p-value | power | Equal Variance | Test Type | (I) Area | (J) Area | Significant difference between areas? | p-value |
| W7 | Selenium | Yes | 2009<br>2010<br>2012<br>2013 | n/a<br>n/a<br>n/a<br>n/a | Yes | <0.001 | 1.00 | No | Tamhane's | 2009 | 2010 | Yes | 0.013 |
| | | | | | | | | | | | 2012 | | 1.000 |
| | | | | | | | | | | | 2013 | | 0.984 |
| | | | | | | | | | | 2010 | 2012 | Yes | 0.000 |
| | | | | | | | | | | | 2013 | Yes | 0.000 |
| | | | | | | | | | | 2012 | 2013 | | 0.266 |
| W11 | Selenium | Yes | 2010<br>2012<br>2013 | n/a<br>n/a<br>n/a | Yes | <0.001 | 1.00 | Yes | Bonferonni | 2010 | 2012 | Yes | 0.000 |
| | | | | | | | | | | | 2013 | Yes | 0.000 |
| | | | | | | | | | | 2012 | 2013 | | 1.000 |

Significant result ($p < 0.05$)

**Table B.15: ANOVA results for spatial comparison of depositional benthic invertebrate tissue selenium, Mount Polley 2013**

| Analyte | Normality | Transformation | | Overall ANOVA | | | post-hoc comparisons | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Site | Type | Significant difference among areas? | p-value | power | Equal Variance | Test Type | (I) Area | (J) Area | Significant difference between areas? | p-value |
| Selenium | Yes | JC | n/a | Yes | <0.001 | 1.00 | No | Tamhane's | JC | USW7 Pond | Yes | 0.002 |
| | | USW7 Pond | n/a | | | | | | | W7 Pond | Yes | 0.001 |
| | | W7 Pond | n/a | | | | | | USW7 Pond | W7 Pond | | 0.978 |

**Table B.16: ANOVA results for temporal comparison of depositional benthic invertebrate tissue selenium, Mount Polley 2013**

| Area | Analyte | Normality | Transformation | | Overall ANOVA | | | post-hoc comparisons | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Site | Type | Significant difference among areas? | p-value | power | Equal Variance | Test Type | (I) Area | (J) Area | Significant difference between areas? | p-value |
| W7 Pond | Selenium | Yes | 2012 | n/a | No | 0.08 | 0.41 | n/a | n/a | n/a | n/a | n/a | n/a |
| | | | 2013 | n/a | | | | | | | | | |

**Table B.17: ANOVA results for temporal comparison of selenium concentrations in rainbow trout muscle and ovary tissue, Mount Polley 2013.**

| Tissue | Analyte | Normality | Transformation | | Overall ANOVA | | | post-hoc comparisons | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Year | Type | Significant difference among areas? | p-value | Power | Equal Variance | Test Type | (I) Area | (J) Area | Significant difference between areas? | p-value |
| Ovary | Selenium | Yes | 2009 | Inverse | No | 0.111 | 0.492 | n/a | n/a | n/a | n/a | n/a | n/a |
| | | | 2010 | Inverse | | | | | | | | | |
| | | | 2012 | Inverse | | | | | | | | | |
| | | | 2013 | Inverse | | | | | | | | | |
| Muscle | Selenium | Yes | 2009 | n/a | Yes | 0.005 | 0.906 | No | Tamhane's | 2009 | 2010 | | 1.000 |
| | | | 2010 | n/a | | | | | | | 2012 | | 0.976 |
| | | | 2012 | n/a | | | | | | | 2013 | | 0.142 |
| | | | 2013 | n/a | | | | | | 2010 | 2012 | | 1.000 |
| | | | | | | | | | | | 2013 | | 0.237 |
| | | | | | | | | | | 2012 | 2013 | Yes | 0.009 |

Significant result ($p < 0.05$)

# APPENDIX C

# DATA QUALITY ASSESSMENT

# APPENDIX C: DATA QUALITY ASSESSMENT

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# C1.0 INTRODUCTION

Data Quality Assessment (DQA) was conducted on data collected as part of the Mount Polley selenium monitoring study in spring and fall of 2013. The objective of DQA is to define the overall quality of the data presented in the report, and, by extension, the confidence with which the data can be used to derive conclusions.

## C1.1 Background

A variety of factors can influence the chemical and biological measurements made in an environmental study and thus affect the accuracy and/or precision of the data. Inconsistencies in sampling or laboratory methods, use of instruments that are inadequately calibrated or which cannot measure to the desired level of accuracy or precision, and contamination of samples in the field or laboratory are just some of the potential factors that can lead to the reporting of data that do not accurately reflect actual environmental conditions. Depending on the magnitude of the problem, inaccuracy or imprecision have the potential to affect the reliability of any conclusions made from the data. Therefore, it is important to ensure that monitoring programs incorporate appropriate steps to control the non-natural sources of data variability (i.e., minimize the variability that does not reflect natural spatial and temporal variability in the environment) and thus assure the quality of the data.

Data quality as a concept is meaningful only when it relates to the intended use of the data. That is, one must know the context in which the data will be interpreted in order to establish a relevant basis for judging whether or not the data set is adequate. DQA involves comparison of actual field and laboratory measurement performance to data quality objectives (DQOs) established for a particular study, such as evaluation of method detection limits, blank sample data, data precision (based on field and laboratory duplicate samples), and data accuracy (based on matrix spike recoveries and/or analysis of standards or certified reference materials).

DQOs were established at the outset of the field program that reflect reasonable and achievable performance expectations (Table C.1). Programs involving a large amount of samples and analytes usually result in some results that exceed the DQOs. Overall, the intent of comparing data to DQOs was not to reject any measurement that did not meet the DQO, but to ensure any questionable data received more scrutiny to determine what effect, if any, this had on interpretation of results within the context of this project.

**Table C.1: Data quality objectives for environmental samples.**

| Quality Control Measure | Quality Control Sample Type | Study Component | | | |
|---|---|---|---|---|---|
| | | **Sediment Quality** | **Periphyton Tissue Quality** | **Benthic Tissue Quality** | **Fish Tissue Quality** |
| **Method Detection Limits (MDL)** | Comparison actual MDL versus target MDL | MDL for each variable should be at least as low as applicable guidelines, ideally ≤1/10th guideline value[a] | MDL for each variable should be at least as low as applicable guidelines, ideally ≤1/10th guideline value[a] | MDL for each variable should be at least as low as applicable guidelines, ideally ≤1/10th guideline value[a] | MDL for each variable should be at least as low as applicable guidelines, ideally ≤1/10th guideline value[a] |
| **Blank Analysis** | Laboratory Blank | ≤two-times the laboratory MDL | ≤two-times the laboratory MDL | ≤two-times the laboratory MDL | ≤two-times the laboratory MDL |
| **Field Precision** | Field Duplicates | ≤40% RPD[b] | ≤25% RPD | ≤25% RPD | ≤25% RPD |
| **Laboratory Precision** | Laboratory Duplicates | ≤35% RPD | ≤30% RPD | ≤30% RPD | ≤30% RPD |
| **Accuracy** | Recovery of Certified Reference Material, QC Standards | 70-130% | 70-130% | 70-130% | 70-130% |

[a] or below predictions, if applicable and no guideline exists for the substance.

[b] RPD - Relative Percent Difference

n/a - not applicable

## C1.2 Types of Quality Control Samples

Several types of quality control (QC) samples were assessed based on samples collected (or prepared) in the field and laboratory. These samples, and a description of each, include the following:

- **Blanks** are samples of de-ionized water and/or appropriate reagent(s) that are handled and analyzed the same way as regular samples. These samples will reflect any contamination of samples occurring in the field (in the case of field or trip blanks) or the laboratory (in the case of laboratory or method blanks). Analyte concentrations should be non-detectable although a data quality objective of twice the method detection limit allows for slight "noise" around the detection limit.

- **Field Duplicates** are replicate samples collected from a randomly selected field station using identical collection and handling methods that are then analyzed separately in the laboratory. For fish tissue samples, the field duplicate samples represent two different samples taken from the same randomly selected fish. The duplicate samples are handled and analyzed in an identical manner in the laboratory. The data from field replicate samples reflect natural variability, as well as the variability associated with sample collection methods, and therefore provide a measure of field precision.

- **Laboratory Duplicates** are replicate sub-samples created in the laboratory from randomly selected field samples which are sub-sampled and then analyzed independently using identical analytical methods. For tissue samples, laboratory duplicates represent separate aliquots of material collected after sample homogenization. The laboratory duplicate sample results reflect any variability introduced during laboratory sample handling and analysis and thus provide a measure of laboratory precision.

- **Certified Reference Materials and QC Standards** are samples containing known chemical concentrations that are processed and analyzed along with batches of environmental samples. The sample results are then compared to target results to provide a measure of analytical accuracy. The results are reported as the percent of the known amount that was recovered in the analysis. Reference materials of known metal concentrations (obtained from the National Research Council of Canada [NRC], the Canada Center for Mineral and Energy Technology [CANMET], and the National Institute of Standards and Technology [NIST]) were processed and analyzed as regular samples to support the analyses of sediment and biological tissues.

# C2.0 SEDIMENT SAMPLES

## C2.1 Method Detection Limits

Target laboratory method detection limits (MDL) for sediment sample analyses were established at levels below potentially applicable sediment quality guidelines (2mg/kg dw in the case of selenium). All reported laboratory MDLs were at the target concentrations (0.2 mg/kg dw for selenium) indicating acceptable analytical resolution.

## C.2.2 Laboratory Blank Sample Analysis

The blank samples analyzed contained non-detectable analyte concentrations indicating no inadvertent contamination of samples within the laboratory during analysis (Table C.3).

## C2.3 Data Precision

### Field Duplicate Samples

No field duplicate sediment samples were collected for this project.

### Laboratory Duplicate Samples

The laboratory duplicate samples for moisture, total organic carbon, and particle size were all well below the data quality objective of ≤35% relative percent difference, as was the laboratory duplicate sample reported for selenium in sediment samples collected in the fall (Table C.4). The laboratory precision was considered to be good.

## C2.4 Data Accuracy

Recoveries of all laboratory control standards, internal reference materials, and certified reference materials met the data quality objective of 70 – 130% recovery (Table C.5). This data indicated excellent analytical accuracy associated with the analysis of sediment samples.

**Table C.2: Laboratory blank results associated with analyses of sediment samples. Highlighted values did not meet the data quality objective of≤ 2x the method detection limit.**

| | Analytes | Units | ALS Job Number (May) L1301825 | | | | ALS Job Number (October) L1379754 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Method Detection Limit | Method Blank | Method Detection Limit | Method Blank | Method Detection Limit | Method Blank | Method Detection Limit | Method Blank | Method Detection Limit | Method Blank | Method Detection Limit | Method Blank |
| Non-metal | Moisture | % | - | - | 0.25 | ND | - | - | - | - | - | - | - | - |
| Non-metal | Total Organic Carbon (TOC) | % | - | - | - | - | - | - | - | - | 0.1 | ND | 0.1 | ND |
| Metal | Selenium (Se) | mg/kg | 0.20 | ND | - | - | 0.20 | ND | 0.20 | ND | - | - | - | - |

ND - Non-Detectable; indicates analyte concentrations that were less than the MDL during analysis.

**Table C.3: Relative percent difference (RPD) of laboratory duplicate results for analysis of sediment samples. Highlighted values did notmeet the data quality objective of≤ 35% relative percent difference**.

| | Analytes | ALS Job Number (May) L1301825 | | ALS Job Number (October) L1379754 | | | |
|---|---|---|---|---|---|---|---|
| Non-metal | Moisture | 0.8 | - | - | - | - | - |
| Non-metal | Total Organic Carbon (TOC) | - | - | - | 1.8 | 0.6 | - |
| Particle Size | % Gravel (>2mm) | - | 0 | - | - | - | NA |
| Particle Size | % Sand (2.0mm - 0.063mm) | - | 4.3 | - | - | - | 9.8 |
| Particle Size | % Silt (0.063mm - 4µm) | - | 1.8 | - | - | - | 3.3 |
| Particle Size | % Clay (<4µm) | - | 2.2 | - | - | - | 10.9 |
| Metal | Selenium (Se) | <30* | <30* | 7.0 | - | - | - |

NA - Not applicable since replicate results were below the method detection limit.

* Laboratory duplicate results were not reported for samples within this job number, however other samples within the analysis batch met the DQO of < 30% RPD set by ALS.

**Table C.4: Analytical accuracy of sediment moisture, total organic carbon, particle size, and selenium results based on percent recovery of reference materials. Highlighted values did not meet the data quality objective of 70 - 130% recovery.**

| Analyte | Quality Control Type | ALS Job Number (May) |
|---|---|---|
| | | L1301825 |
| Moisture | LCS | 99.0 |

| Analyte | Quality Control Type | ALS Job Number (May) | ALS Job Number (October) | | |
|---|---|---|---|---|---|
| | | L1301825 | L1379754 | | |
| Total Organic Carbon (TOC) | IRM | - | - | 92.7 | 81.8 |
| Sand (2.00mm - 0.063mm) | IRM | 96.5 | 97.1 | - | - |
| Silt (0.063mm - 4 µm) | IRM | 103.8 | 101.5 | - | - |
| Clay (<4 µm) | IRM | 98.9 | 101.5 | - | - |

| Analyte | Quality Control Type | Reference Material | ALS Job Number (May) | ALS Job Number (October) | | | |
|---|---|---|---|---|---|---|---|
| | | | L1301825 | L1379754 | | | |
| Selenium | CRM | VA-CANMET-TILL1 | 109.4 | 100.0 | - | 115.6 | - |
| | | VA-NRC-STSD1 | - | - | 103.3 | - | 102.6 |

CRM = Certified Reference Material
IRM = Internal Reference Material
LCS = Laboratory Control Standard

# C3.0 FISH, BENTHIC INVERTEBRATE AND PERIPHYTON TISSUE

## C3.1 Method Detection Limits

The achieved method detection limit (MDL) for periphyton, benthic invertebrate, and fish tissue was 0.10 mg/kg dw. Selenium was detectable in all tissue samples therefore the achieved MDLs were adequate for the purpose of this project. High resolution analysis was applied to achieve the given MDLs, without which higher MDLs would have been achieved.

## C3.2 Laboratory Blank Sample Analysis

Analysis of laboratory blanks prepared in conjunction with the tissue analyses resulted in non-detectable selenium (Table C.5).

## C3.3 Data Precision

### Field Duplicate Samples

One duplicate muscle and duplicate ovary sample was collected from one of the eight rainbow trout sampled. The relative percent difference (RPD) of selenium concentrations and % moisture within the muscle duplicate were well below 25%, however were above 25% within the ovary tissue duplicate (Table C.6). It is uncertain why the variability was relatively high within the ovary tissue, given the consistent results within muscle tissue from the same fish. This may reflect field variability, as the range of difference between the eight replicate ovary samples was consistent with the difference observed between the field duplicates. However, the variability observed between the ovary duplicates should be considered during the interpretation of results associated with this tissue.

### Laboratory Duplicate Samples

The analytical laboratory reported 7 duplicate sample results for selenium and % moisture in tissue. Relative percent difference between the duplicates was generally low (0 – 23%), indicating good precision (Table C.7).

## C3.4 Data Accuracy

Recoveries of all certified reference materials (CRM) met the data quality objective of 70 – 130% recovery (Table C.8), with the exception of one sample whose % recovery was 12% above the data quality objective range. The % recovery of an additional CRM analysed within the same laboratory job number, however, was well within the data quality objectives. Therefore, overall the reported recoveries of CRMs indicate good analytical accuracy.

**Table C.5: Laboratory blank results associated with analyses of fish, benthic invertebrate and sediment samples. Highlighted values did not meet the data quality objective of≤ 2x the method detection limit.**

| Analyte | Units | ALS Job Number (May) | | | | ALS Job Number (Aug) | | | | ALS Job Number (Oct) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L1304587 | | | | L1354401 | | | | L1379761 | | | | L1379756 | | | | | | | | |
| | | Method Detection Limit | Method Blank | Method Blank | Method Blank | Method Detection Limit | Method Blank | Method Blank | Method Blank | Method Detection Limit | Method Blank | Method Blank | Method Blank | Method Detection Limit | Method Blank | Method Blank | Method Blank | Method Blank | Method Blank | Method Blank | Method Blank | Method Blank |
| Selenium | mg/kg | 0.10 | ND | ND | ND | 0.10 | ND | ND | ND | 0.10 | ND | ND | ND | 0.10 | ND | ND | ND | ND | ND | ND | ND | ND |

ND - Non-Detectable; indicates analyte concentrations that were less than the MDL during analysis.
* Method blank results were unavailable for samples analysed within this ALS Job Number

**Table C.6: Relative percent difference of field duplicate results for analysis of Rainbow trout muscle and ovary samples. Highlighted values did not meet the data quality objective of≤ 25% relative percent difference.**

| Analyte | | Muscle tissue | | | Ovary tissue | | |
|---|---|---|---|---|---|---|---|
| | | Replicate 1 | Replicate 2 | RPD | Replicate 1 | Replicate 2 | RPD |
| **Non-metal** | % Moisture | 78.5 | 79.0 | 1 | 82.9 | 60.4 | 31 |
| **Metal** | Selenium | 3.51 | 3.47 | 1 | 10.0 | 5.69 | 55 |

RPD = Relative percent difference and is units of %

**Table C.7: Relative percent difference of laboratory duplicate results for analysis of fish, benthic invertebrate and sediment samples. Highlighted values did not meet the data quality objective of≤ 30% relative percent difference.**

| Analyte | | ALS Job Number | ALS Job Number | ALS Job Number | ALS Job Number (Oct) | | | |
|---|---|---|---|---|---|---|---|---|
| | | L1304587 | L1354401 | L1379761 | L1379756 | | | |
| **Non-metal** | % Moisture | 0.1 | 3.6 | 1.3 | 1 | 0.4 | 1 | 5.2 |
| **Metal** | Selenium | 2.8 | 8.3 | 6.1 | 3.8 | 23 | 4.6 | 0 |

**Table C.8: Analytical accuracy of fish, benthic invertebrate and sediment sample results based on percent recovery of certified reference materials. Highlighted values did not meet the data quality objective of 70 - 130% recovery.**

| Analyte | Reference Material | ALS Job Number (May) | ALS Job Number (Aug) | ALS Job Number (Oct) | | | |
|---|---|---|---|---|---|---|---|
| | | L1304587 | L1354401 | L1379761 | L1379756 | | |
| Selenium | VA-NIST-1566B | 95 | 98 | 92 | 95 | 83 | 98 |
| | VA-NRC-TORT3 | 96 | - | - | 78 | 83 | 96 |
| | VA-NIST-1547 | - | - | 142 | - | - | - |

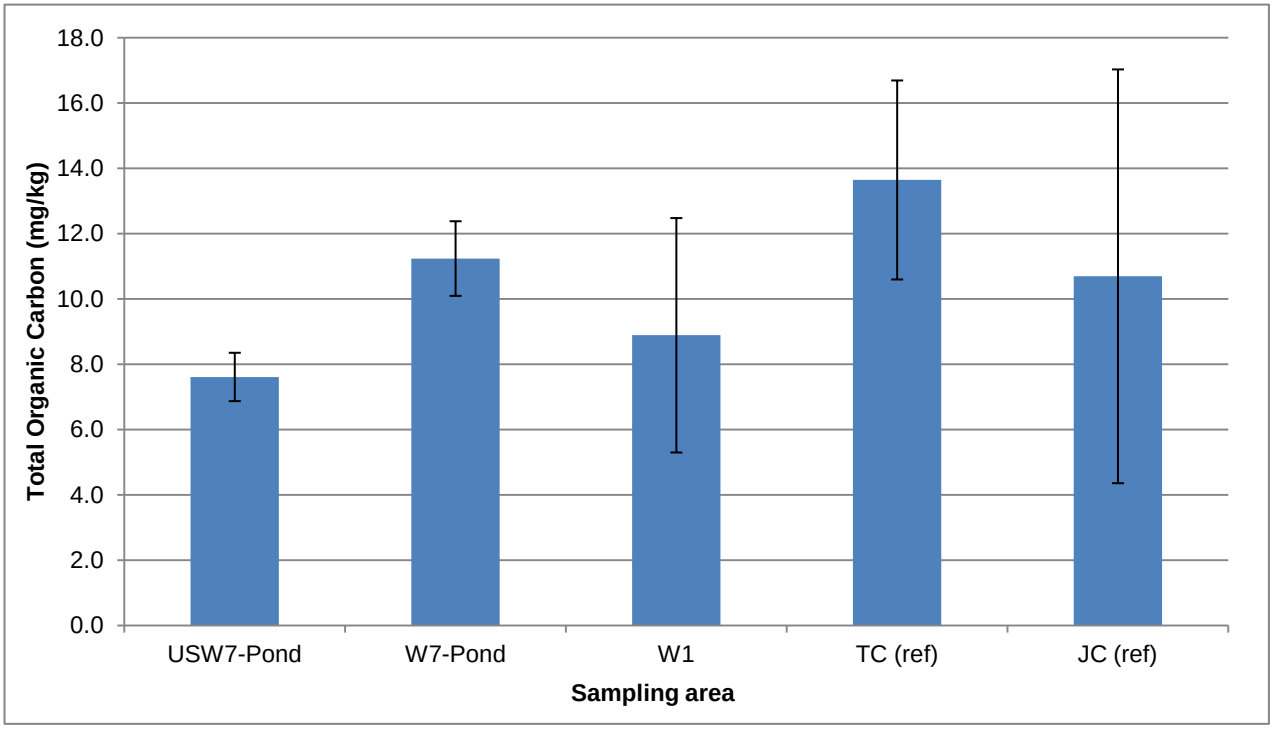
# C4.0 DATA QUALITY STATEMENT

Overall, the quality of data for the Mount Polley selenium monitoring program was sufficient to serve the project objectives.

# APPENDIX D

# SUPPORTING DATA

**a) Total organic carbon**




**b) Particle size**

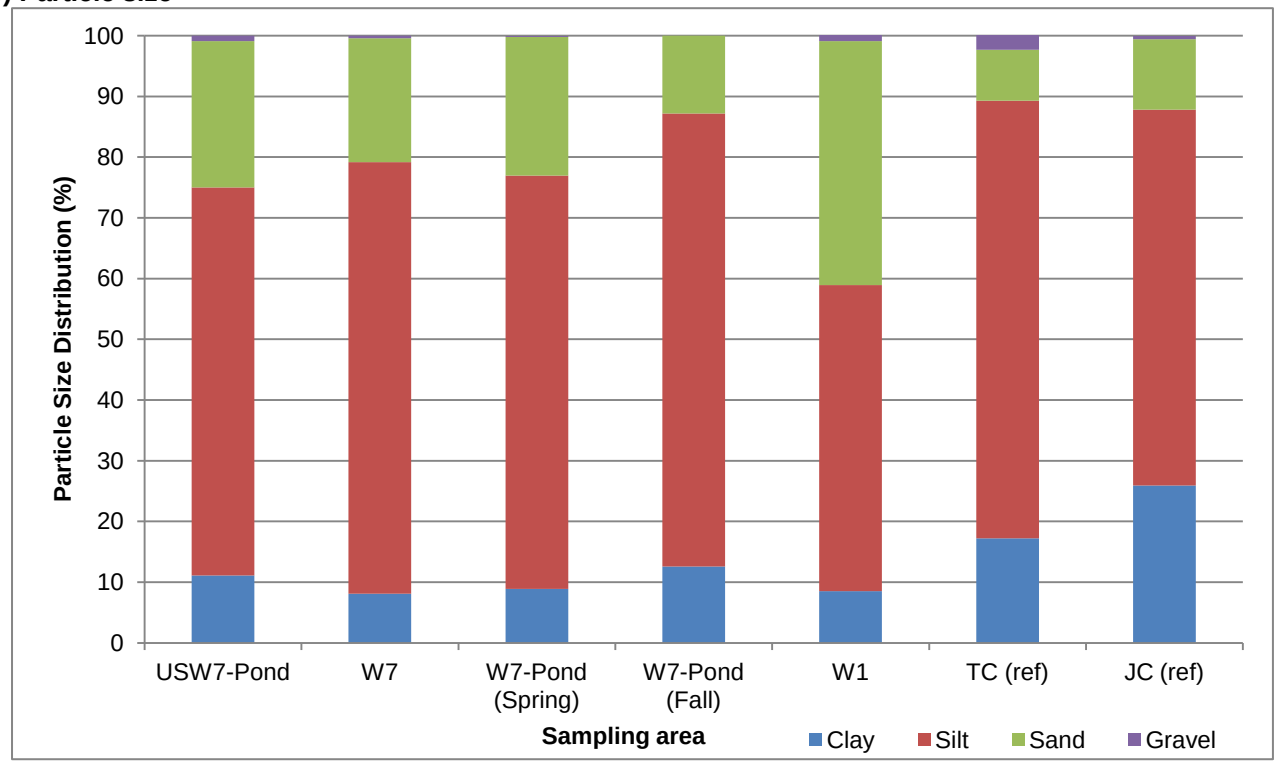



**Figure D.1: Total organic carbon content (mean ± standard deviation) and particle size distribution of sediment samples, Mount Polley Mine, 2013**

USW7 Pond = Hazeltine Creek Pond Upstream of Discharge; W7 Pond = Upper Hazeltine Creek Pond; W1 = Morehead Creek; TC = Trio Creek; JC = Jacobie Creek

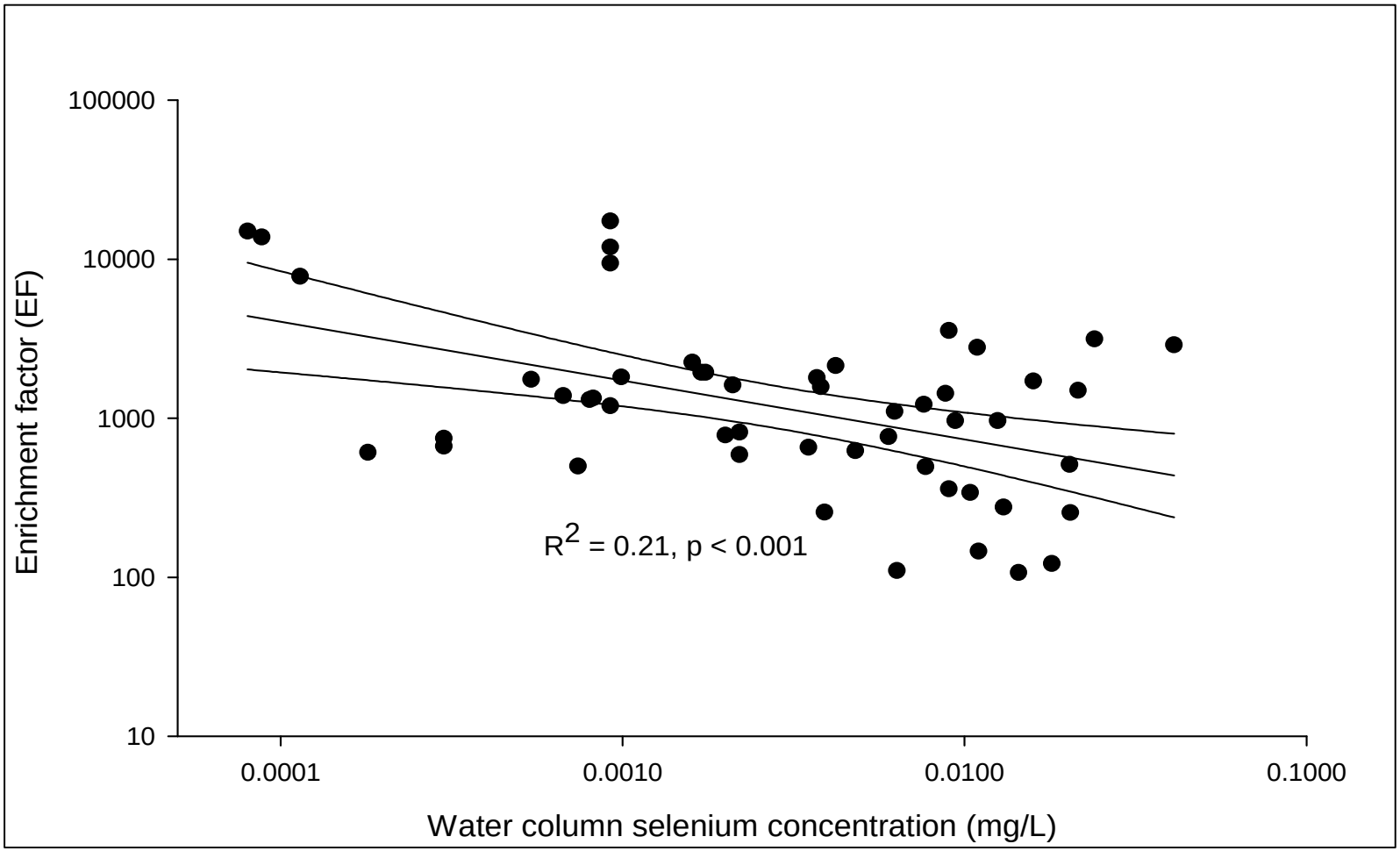



**Figure D.2: Enrichment factors reported at the base of the food chain in relation to selenium concentrations in the water column.**

Enrichment factors and water selenium concentration data were obtained from Presser and Luoma (2010); Supplemental Table A.
Enrichment factors (or Kd as termed by Presser and Luoma (2010)) represent the transfer of selenium from water to particulate at the base of the food chain (phytoplankton, periphyton, detritus, inorganic suspended material, biofilm, sediment, or attached vascular plants)
Linear equation: $Log_{10}(EF) = (-0.3701*(Log_{10}(\text{Water selenium concentration in } \mu g/L))+3.2371$

**Table D.1: In-situ water quality data collected during the Mount Polley selenium monitoring, 2013**

| Station | | Sampling date | GPS coordinates (UTM) | | Temperature (°C) | Dissolved oxygen | | pH | Specific conductivity (µS/cm) | Conductivity (µS) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Northing | Easting | | mg/L | % | | | |
| Hazeltine Creek Pond Upstream of Discharge | USW7-Pond | 7-Oct-13 | 5820092 | 595749 | - | - | - | - | - | - |
| Hazeltine Creek Upstream of Discharge | USW7 | 7-Oct-13 | 5819956 | 595900 | - | - | - | - | - | - |
| Upper Hazeltine Creek Pond | W7 Pond | 7-Oct-13 | 5819143 | 596822 | - | - | - | - | - | - |
| Upper Hazeltine Creek | W7 | 7-Oct-13 | 5819045 | 596972 | 5.19 | 10.95 | 86.0 | 8.01 | 226 | 140 |
| Morehead Creek - Depositional | W1 | 8-Oct-13 | 5826455 | 587118 | 4.47 | 11.70 | 90.4 | 7.87 | 179 | 108 |
| Morehead Creek - Erosional | W1B | 8-Oct-13 | 5825165 | 588936 | 3.90 | 12.01 | 91.2 | 7.39 | 149 | 89 |
| Trio Creek - Depositional | TC-D | 8-Oct-13 | 5824892 | 588340 | 4.58 | 4.86 | 37.7 | 7.90 | 84 | 51 |
| Trio Creek - Erosional | TC-E | 8-Oct-13 | 5824822 | 588166 | 3.66 | 12.52 | 94.6 | 8.03 | 154 | 91 |
| Jacobie Creek - Depositional | JC-D | 9-Oct-13 | 5822568 | 582099 | 1.12 | 13.82 | 97.6 | 8.47 | 223 | 121 |
| Jacobie Creek - Erosional | JC-E | 9-Oct-13 | 5822862 | 581782 | 2.92 | 11.78 | 87.4 | 7.97 | 157 | 91 |
| Lower Hazeltine Creek | W11 | 9-Oct-13 | 5817534 | 601577 | 5.47 | 11.51 | 91.4 | 7.38 | 270 | 169 |

**Table D.2: Fishing summary for Upper Hazeltine Creek at W7, Mount Polley 2013.**

| **Date** | **16-May-13** |
|---|---|
| Northing | 5819045 |
| Easting | 596972 |
| Length of pass (m) | 35 |
| Width of pass (m) | 4 |
| Effort (s) | 305 |
| Voltage (V) | 400 |
| Cycle frequency (Hz) | 80 |
| Creek temperature (°C) | 8.7 |
| Creek conductivity (µS/cm$^2$) | 135 |
| Species | Rainbow trout |
| Caught | 40 |
| Retained | 8 |
| Released alive | 32 |
| Mortalities other than retained | 0 |
| Overall CPUE [a] | 0.13 |

[a] Electrofishing catch per unit effort (# caught / s)

**Table D.3: Detailed fish measurements for Upper Hazeltine Creek at W7, Mount Polley 2013.**

| Species | Processing date | Fish ID number | Total length (mm) | Fork length (mm) | Body weight (g) | Age structure collected [a] | Age | Sex | Gonad weight (g) | Liver weight (g) | Tissue collected | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Muscle | Ovary |
| Rainbow Trout | 17-May-13 | 1 | 300 | 292 | 210 | O | 5 | F | 7.06 | 2.70 | x | x |
| | | 2 | 312 | 306 | 275 | O | 5 | F | 2.16 | 5.24 | x | x |
| | | 3 | 310 | 300 | 260 | O | 5 | F | 7.20 | 2.59 | x | x |
| | | 4 | 312 | 300 | 230 | O | 4 (estimate) | F | 1.34 | 3.23 | x | x |
| | | 5 | 299 | 286 | 222 | O | 4 | F | 6.99 | 3.14 | x | x |
| | | 6 | 318 | 305 | 263 | O | 5 | F | 12.98 | 3.85 | x | x |
| | | 7 | 308 | 299 | 255 | O | 5 | F | 11.12 | 3.11 | x | x |
| | | 8 | 308 | 292 | 248 | O | 5 | F | 4.13 | 4.60 | x | x |

[a] O = otoliths

**Table D.4: Sediment sampling techniques employed during Mount Polley Mine environmental baseline monitoring, 1995 -1996**

| Sampling Year | Month sampled | Sampling equipment | Depth sampled | Number of replicates per area * | Sediment fraction analysed for total metals | Reference |
|---|---|---|---|---|---|---|
| **1995** | September | coffee can sampler (volume = 235 $cm^3$) | 10 cm | 6 | fine fraction (<63µm) | HKP, 1996 |
| **1996** | September | core sampler (area = 86.59 $cm^2$) | 10 cm | 6 | fine fraction (<63µm) | HKP, 1997 |

*For both sampling years, "inter-replicate sites were chosen to be as similar as possible with respect to substrate composition, flows and other physical parameters" (HKP, 1996).

# Mount Polley Mine
# Selenium Monitoring
# 2013 Update Report

**Report Prepared for:**

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**December, 2013**

# Mount Polley Mine
# Selenium Monitoring
# 2013 Update Report

**Report Prepared for:**

**Mount Polley Mining Corp.**

**Report Prepared by:**

**Minnow Environmental Inc.**

**Katharina Batchelar, M.Sc.**
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# 1.0 INTRODUCTION

## 1.1 Background

The Mount Polley Mining Corporation (MPMC), a division of the Imperial Metals Corporation, owns and operates the Mount Polley copper-gold mine located 56 kilometres north-east of Williams Lake, British Columbia (Figure 1.1). The mine operated from August 1997 to September 2001, was placed on care and maintenance from September 2001 to March 2005, and was re-opened in March 2005. Currently, mine life is expected to extend to 2026. Since March 2005, mining has been active at six open pits (Cariboo, Springer, Southeast, Wight, Pond Zone and Boundary Zone; Figure 1.1), with several additional areas identified as targets for future development (North Springer Zone, WX Zone and C2 Zone) and a number of additional areas under exploration. The Mount Polley Mine site also includes a crusher and mill (concentrator), a Tailings Storage Facility (TSF), seepage collection ponds, a surface water collection system, and access roads (Figure 1.1).

Mount Polley mill tailings and site water are discharged into the environmentally-secure TSF, with supernatant from the TSF recycled for re-use in the milling process. Due to accumulation of water within the TSF, MPMC applied and received approval (under the British Columbia *Environmental Management Act*) for the discharge of dam-filtered TSF supernatant to Hazeltine Creek (Figure 1.1). Discharge of the dam-filtered TSF supernatant was initiated on September 20$^{th}$, 2013 and continued until October 31$^{st}$, 2013, with approximately 1,824 m$^3$ of the supernatant discharged to Hazeltine Creek during this time. Under the amended permit (11678), target levels for a number of analytes in Hazeltine Creek, including selenium, were specified. In the case of selenium, British Columbia Water Quality Guidelines (BCWQGs) for water, sediment, and rainbow trout muscle tissue (BCMOE 2001a; BCMOE 2001b) were identified as target levels. Site investigations by MPMC have shown that the principal source of selenium is runoff from waste rock dumps (not mill or tailings water). Furthermore, routine water quality monitoring conducted by MPMC also showed that, starting in late 2006, the North Waste Rock Dump was contributing selenium to North Dump Creek (maximum 0.040 mg/L), which flows into Polley Lake (Figure 1.1). This source to a receiving environment was controlled in late 2009 by the construction of a collection system. However, two breaches of the collection system prompted improvements to the collection system and no breaches have occurred since 2011. MPMC conducts regular monitoring of all ditches and sumps, including a thorough annual inspection of the long ditch.

In light of the commencement of discharge of dam-filtered TSF supernatant to Hazeltine Creek in September 2013, and some elevated selenium concentrations observed upstream,

585,500 590,500 595,500 600,500

5,824,000

5,819,000

MOREHEAD LAKE
FRYPAN LAKE
Quarry Zone
Boundary Zone
Wight Pit
Morehead Creek
Trio Creek
Junction Zone
North Waste Rock Dump
North Springer Zone
Springer Pit
Caribou Pit
WZ Zone
East Waste Rock Dump
Northeast Waste Rock Dump
CZ Zone
POLLEY LAKE
Jacobie Creek
JACOBIE LAKE
BOOTJACK LAKE
Southeast Pit
Pond Pit
Ace Zone
TRIO LAKE
Bootjack Creek
QUESNEL LAKE
Hazeltine Creek
Tailings Storage Facility
Main Embankment
Borrow Pit
Main Embankment Seepage Collection Pond

N
W E
S

1,500 750 0 1,500
Meters

MAP INFORMATION
Map Projection: NAD 1983
Data Source: Department of Natural Resources Canada.
All rights reserved.
Created By: J.Wilson Creation Date: December 2013
Project No.: 2475

**Mount Polley Mine Feature:**

Water Flow Direction

**Figure 1.1: Overview of the Mount Polley Mine Site**

Created by:

minnow environmental inc.

as well current scientific understanding of mechanisms by which selenium can cause adverse effects, MPMC has continued the collection of selenium concentration data in local creeks and lakes (i.e., concentrations in water, sediment, periphyton, benthic macroinvertebrates and fish). In aquatic environments, selenium is taken up from water by primary producers (e.g., algae and bacteria) and transferred up food webs to aquatic invertebrates and vertebrates (Stewart et al. 2010). This uptake and transfer is highly site-specific, and dependent on such factors as hydrology, productivity, and food web structure. At sufficiently high dietary concentrations, selenium causes reproductive effects among egg-laying vertebrates via maternal deposition in eggs and subsequent mortality or deformities among progeny (Janz et al. 2010; Young et al. 2010). Due to the high site-specificity of selenium incorporation into the aquatic food web and transfer through the aquatic food web, water-based guidelines for selenium are poor predictors of potential adverse effects to aquatic life (e.g., Luoma and Presser 2009; Janz et al. 2010; Stewart et al. 2010; Hodson et al. 2010; Ohlendorf et al. 2011; DeForest et al. 2012). Rather, scientific consensus is that the best available predictor of potential adverse effects are selenium concentrations in ripe ovaries or eggs (Luoma and Presser 2009; Janz et al. 2010; Stewart et al. 2010; Ohlendorf et al. 2011; Orr et al. 2012; DeForest et al. 2012).

In accordance with recommendations provided in previous selenium monitoring reports (Minnow 2011; Minnow 2013) and comments from the British Columbia Ministry of Environment (Cariboo Region), MPMC retained Minnow Environmental Inc. (Minnow) to continue selenium monitoring at selected locations in order to characterize current conditions (2013), assure the availability of an adequate quantity of pre-discharge selenium data for future receiving environments, document spatial and temporal differences, and examine apparent enrichment and trophic transfer relationships. This brief report of the results was prepared as part of that mandate.

## 1.2 Project Objectives

The objectives of this study were: 1) to characterize selenium concentrations in relevant compartments of the aquatic environment in the vicinity of the Mount Polley Mine in 2013; 2) to compare concentrations spatially and temporally to determine if concentrations in water bodies near the mine have been influenced by mine activity; 3) to compare observed concentrations to published effect thresholds for aquatic biota as well as to examine enrichment and trophic transfer factors, thereby characterizing the risk of adverse effect; and 4) to utilize the collected information to inform the development of future monitoring plans.

## 1.3 Report Organization

Methods associated with the collection, compilation and analysis of selenium data are provided in Section 2.0 of this report. Section 3.0 provides the results of the selenium monitoring program, including spatial and temporal comparison of concentrations in water, sediment, periphyton, benthic invertebrates and fish, and comparisons to guidelines and effect thresholds. Section 3.0 also provides an examination of apparent relationships among selenium concentrations in the monitored environmental compartments. Conclusions of the monitoring are provided in Section 4.0 and form the basis for recommendations for future monitoring (also in Section 4.0). All references cited throughout this report are listed in Section 5.0.

# 2.0 METHODS

Selenium monitoring at the Mount Polley Mine in 2013 included water, sediment, periphyton, benthic invertebrates and fish (fish muscle and ovary tissue; Table 2.1; Figure 2.1). Water quality has been routinely monitored by the MPMC since before the initiation of mine operations in 1997 (i.e., since 1995). Samples for the characterization of selenium concentrations in other compartments were collected on four different occasions in 2013. Sediment samples were collected in Hazeltine Creek by Minnow and the MPMC Environment Department on May 11th, 2013. Rainbow trout muscle and ovary tissue were collected in Hazeltine Creek by Cariboo Environmental Quality Consulting and the MPMC Environment Department on May 17th, 2013. Periphyton samples were collected at two sites in Hazeltine Creek by the MPMC Environment Department on August 26th, 2013. Lastly, samples of sediment, periphyton, and benthic invertebrates were collected from erosional and depositional habitats of Hazeltine and reference creeks between October 7th to 9th, 2013 by Minnow, with sorting of depositional benthic invertebrate samples and sample submission by the MPMC Environment Department. Detailed maps of the sample collection locations, as well as GPS coordinates and sample collection dates, are provided in Appendix A.

## 2.1 Water

Water is routinely monitored by the MPMC Environment Department at a number of stations, including stations in Upper Hazeltine Creek, Lower Hazeltine Creek, and Morehead Creek (Table 2.1; Figure 2.1). Water samples are submitted to ALS Laboratory Group in Burnaby, BC for chemical analysis. Data returned from the analytical laboratory are managed by MPMC and were provided to Minnow in MSExcel format and used to plot aqueous selenium concentrations (Appendix B). Given the focus of this selenium monitoring program on sediment and biota, and the fact that selenium concentrations in water at routine monitoring sites are generally non-detectable (<0.0005 mg/L), additional water samples were not collected during the field program.

## 2.2 Sediment

Sediment samples were collected in May and October 2013 at five replicate stations within each depositional creek area (Table 2.1; Figure 2.1; Appendix A), with the exception of the Upper Hazeltine Creek pond (W7-pond) and Upper Hazeltine Creek (W7) sampling areas where eight replicate sediment samples were collected in recognition of the importance of these locations due to their close proximity to the effluent discharge located a short distance upstream. Sediment samples for selenium and total organic carbon analysis were collected

## Table 2.1: Summary of the 2013 Mount Polley Mine selenium monitoring program

| Samples | Hazeltine Creek Upstream of Discharge | Hazeltine Creek Pond Upstream of Discharge | Upper Hazeltine Creek Pond | Upper Hazeltine Creek | Lower Hazeltine Creek | Morehead Creek | Trio Creek | Jacobie Creek |
|---|---|---|---|---|---|---|---|---|
| | USW7 | USW7-Pond | W7 Pond | W7 | W11 | W1 | TC | JC |
| Water - routine * | ✘ | ✘ | ✘ | ✓ | ✓ | ✓ | ✘ | ✘ |
| Water - extra spot | ✘ | ✘ | ✘ | ✘ | ✘ | ✘ | ✘ | ✘ |
| Sediment | ✘ | n=5 | n=8<br>n=8 | n=8 | ✘ | n=5 | n=5 | n=5 |
| Periphyton | n=5 | ✘ | ✘ | n=5 ** | n=5 ** | n=5 | n=5 | n=5 |
| Benthos - erosional | n=5 | ✘ | ✘ | n=8 | n=5 | n=5 | n=5 | n=5 |
| Benthos - depositional | ✘ | n=5 | n=8 | ✘ | ✘ | n=5 | n=5 | n=5 |
| Rainbow Trout - muscle | ✘ | ✘ | ✘ | n=8 | ✘ | ✘ | ✘ | ✘ |
| Rainbow Trout - ovary | ✘ | ✘ | ✘ | n=8 | ✘ | ✘ | ✘ | ✘ |

* Routine water sampling is mine's responsibility

** Samples collected in mid-August 2013

**Spring (May) 2013**

**Fall (October) 2013**

585,500 590,500 595,500 600,500

5,824,000 5,819,000

MOREHEAD LAKE
W1
FRYPAN LAKE
Quarry Zone
Boundary Zone
Wight Pit
W1B
TC-E
TC-D
Morehead Creek
Trio Creek
Junction Zone
North Dump Creek (W4)
DSW4
North Waste Rock Dump
North Springer Zone
Springer Pit
Caribou Pit
WX Zone
C2 Zone
Northeast Waste Rock Dump
East Waste Rock Dump
Southeast Pit
Pond Pit
Ace Zone
Jacobie Creek
JC-E
JC-D
JACOBIE LAKE
TRIO LAKE
BOOTJACK LAKE
POLLEY LAKE
Bootjack Creek
QUESNEL LAKE
USW7-Pond
USW7
W7 Pond
W7
Tailings Storage Facility
Main Embankment
F4
Main Embankment Seepage Collection Pond
Borrow Pit
Hazeltine Creek
Upper Edney Creek (W8)
Lower Hazeltine Delta (DSW11)
W11

575,500 585,500 595,500 605,500 615,500 625,500 635,500 645,500 655,500 665,500

5,864,000 5,854,000 5,844,000 5,834,000 5,824,000 5,814,000 5,804,000

Mount Polley Mine Site
QUESNEL LAKE (North Arm)
QUESNEL LAKE
HORSEFLY LAKE

15,000 0 15,000 Meters

N W E S

1,500 750 0 1,500 Meters

MAP INFORMATION
Map Projection: NAD 1983
Data Source: Department of Natural Resources Canada.
All rights reserved.
Created By: J.Wilson Creation Date: December 2013
Project No.: 2475

**Mount Polley Mine Features:**

- 2013 Selenium Sample Location
- Historic Selenium Sampling Location
- Historic Selenium Sampled Lake
- Water Flow Direction

**Figure 2.1: Mount Polley Selenium Monitoring Program Sampling Areas**

Created by:

minnow environmental inc.

by hand coring, with the exception of those from Upper Hazeltine Creek (W7) which were collected using a stainless steel spoon to a depth of less than 2 cm. Hand coring was achieved using a 2-inch (5.1-cm) diameter lexan core tube. The core tube was gently pushed by hand into the sediment to penetrate the sediment with minimal disturbance. A cap was then placed on the top of the core tube while carefully retrieving the sediment from the water. Once retrieved, an extruder was immediately inserted into the bottom of the core tube to prevent any sediment slippage. Core samples were rejected if there was evidence of slippage, if the core did not penetrate the substrate vertically to a sufficient distance, if trapped air bubbles rose to the surface through the sediment, or if the sediment-water interface was substantially disturbed. The extruder was then used to push the sediment upwards towards the top of the core tube in a controlled fashion with care taken to minimize suspension of fines. In the event of suspension, momentum was stopped, allowing the solids to re-settle. Once the sediment neared the top of the core tube, an extrusion collar marked at 1-cm intervals was carefully aligned on the top of the tube and the sediment extruded upwards into the collar. A core slicer was then carefully inserted between the tube and the collar at the 2-cm interval to collect the top 2-cm of sediment. Three acceptable cores were composited into labelled polyethylene sample bags for each sampling station to provide sufficient sample volume for chemical analysis and were mixed to ensure homogeneity.

In October, 2013, one additional composite sediment sample was collected from each sampling area for particle size analysis. This was achieved using a stainless steel petite ponar grab sampler (0.023 $m^2$ sampling area). A grab sample was retrieved from a sampling station and any existing water was drained through the screens present on the top of the ponar. The sediment was then placed into a plastic tray and the top 2 cm of sediment was collected using a stainless steel spoon. This process was repeated at three selected sampling stations within each sampling area, and collected samples were composited into labelled polyethylene sample bags and mixed to ensure homogeneity.

All sediment samples were placed in a cooler, and later placed in a refrigerator at approximately 4°C. At the completion of each sampling program (i.e., spring and fall), sediment samples were submitted to the ALS Laboratory Group in Burnaby, BC, for analysis of particle size, total organic carbon, or selenium by Collision Cell ICP-MS. The selenium concentrations for sediment are as presented as bulk sediment.

## 2.3 Periphyton

Periphyton samples from upper and lower Hazeltine Creek sampling areas (W7 and W11) were collected in mid-August, whereas all other periphyton samples were collected in

October, 2013. Samples were collected as five replicates within each erosional creek station (Table 2.1; Figure 2.1; Appendix A), and all samples were collected by scraping submerged cobble-size rocks using a stainless steel razor blade or a stainless steel brush. Scraped material (periphyton) was placed in pre-labelled Whirl-Pak™ bags. Periphyton samples were placed in a cooler immediately following collection, and later placed in a freezer until they were submitted to the ALS Laboratory Group in Burnaby, BC, for analysis of wet weight, dry weight and selenium by High-Resolution ICP-MS.

## 2.4 Benthic Invertebrates

Benthic invertebrate samples were collected in October 2013 at five replicate stations within each erosional and depositional creek area, with the exception that eight replicate erosional and depositional samples were collected within upper Hazeltine Creek (W7) and upper Hazeltine Creek pond (W7-pond), respectively. Additional replicate samples were collected at these two areas in recognition of the importance of these locations due to their proximity to the effluent discharge (Table 2.1; Figure 2.1; Appendix A). Erosional benthic invertebrate samples were collected in creek areas with cobble substrate by overturning rocks and collecting organisms by hand. This technique was used at all sites, with the exception of lower Hazeltine Creek (W11) where a kicknet was also used. Depositional benthic invertebrate samples were collected using a stainless steel petite ponar grab sampler (0.023 $m^2$ sampling area). Three grab samples were retrieved from each sampling station, placed into a 500 µm mesh sieve bag, and sieved free of the majority of material. Retained benthic organisms and organic matter were then transferred from the sieve bag into pre-labelled 1L plastic jars and stored in a refrigerator at approximately 4°C before being sorted. Sorting of the depositional benthic invertebrate samples was completed by the MPMC Environment Department and entailed removing benthic organisms from the collected sample material with tweezers and placing the organisms into pre-labelled Whirl-Pak™ bags. Samples were sorted until the minimum desired sample size (the minimum sample weight required by the analytical laboratory; approximately 2 grams wet weight) for each sampling station was achieved. Due to a low abundance of benthic invertebrates in sampling stations within Trio Creek and Morehead Creek, samples from stations within these areas were combined to achieve the minimum sample weight required for analysis. This resulted in n=1 and n=2 samples being collected for Trio Creek and Morehead Creek, respectively. Immediately after collection, all benthic invertebrate samples were placed in a cooler, and later placed in a freezer until they were submitted to the ALS Laboratory Group in Burnaby, BC, for analysis of wet weight, dry weight and selenium by High-Resolution ICP-MS.

## 2.5 Fish

Adult female rainbow trout were collected on May 17th, 2013 in Hazeltine Creek by backpack electrofishing (eight replicate rainbow trout; Table 2.1; Figure 2.1; Appendix A). Backpack electrofishing was conducted by a certified and experienced field crew using a gas-powered Smith-Root 15-C electrofisher equipped with a net on the anode ring to allow the operator to capture fish. The operator was supported by a dip netter dedicated to capturing fish shocked by the electrofisher. Upon capture, fish were placed in buckets containing aerated water. At the completion of each electrofishing run, total shocking time was recorded.

Fishing was implemented later than intended due to delays in licence application/receipt and it was observed that there were relatively few female fish and most were spent. All retained female rainbow trout were dispatched and processed as soon as possible following retrieval (always within four hours). Processing included the measurement of length and weight, the collection of aging structures, the collection of fish tissues, and a record of any abnormalities. Lengths (both fork and total) were measured to the nearest millimetre using a measuring board. Weights were taken using a 300g Pesola™ spring scale demarcated at 2g increments with a precision of ± 0.3%. Otoliths were removed from each fish, wrapped separately in wax paper and stored inside labeled envelopes for age analysis. Each fish was cut open using a fillet knife and gender was recorded. Gonads and livers were removed and weighed to the nearest hundredth of a gram (0.01 g) using a Scout Pro SPE-123 balance. Skinless, boneless muscle samples (approximately 30 g) were collected from each fish using a fillet knife. Female gonad (ovary) samples and muscle samples were then placed in pre-labelled Whirl-Pak™ bags. Any external or internal abnormalities were recorded on data sheets prior to disposal of the carcass. Muscle and ovary samples were placed into a freezer until they were submitted to the ALS Laboratory Group in Burnaby, BC, for analysis of wet weight, dry weight, and selenium by High-Resolution ICP-MS. Otoliths were shipped to Birkenhead Scale Analysis, Lone Butte, BC for age analyses.

## 2.6 Data Management and Interpretation

Selenium data collected as described above (water, sediment, periphyton, benthic invertebrate tissue and fish tissue; Appendix B) were subjected to a data quality assessment to verify data quality prior to use in data analysis and interpretation. Data quality was judged to be good (Appendix C). Tissue selenium concentrations were reported on a dry weight basis, as dry weight concentrations are much more reliable and therefore recommended for tissue chemistry studies (Ohlendorf et al. 2011). However, wet weight results are also available (Appendix Table B.6). Selenium concentration data were then compiled and

summary statistics (mean and standard deviation) were calculated for reporting. All selenium concentrations reported as below the detection limit in water or sediment were used at the detection limit for summary statistic calculations. Selenium concentration data for in water, sediment, periphyton, and benthos were transformed if required, and compared among sampling areas by analysis of variance (ANOVA) followed by appropriate post-hoc (Tamhane's or Bonferonni) comparisons (Tables B.9, 11, 13, and 15). Baseline selenium concentration data were available for sediment (HKP 1996; HKP 1997; Beak 2000) as well as data from previous selenium monitoring programs (Minnow 2011; Minnow 2013). Accordingly, mean selenium concentrations in sediment were compared among years where previous data were available for the areas sampled in the current program (W7, W7 Pond, and W1). Similarly, mean tissue selenium concentrations were compared among years where previous data were available for the areas sampled in the current program; W7 and W11 for periphyton and erosional benthos, W7 pond for depositional benthos, and W7 for rainbow trout muscle and ovary tissues. Data for the temporal comparisons were transformed if required, and compared within sampling areas using ANOVA followed by post-hoc comparisons (Tamhane's or Bonferonni; Tables B.10, 12, 14, 16, and 17). SPSS statistical software was used to conduct all statistical analyses.

To evaluate potential risk to aquatic life, selenium concentrations in water, sediment, and fish muscle tissue were also compared to British Columbia water, sediment and fish tissue quality guidelines for aquatic life (0.002 mg/L, 2.0 mg/kg dry weight, and 1.0 mg/kg wet weight, respectively; BCMOE 2001a,b). However, as previously indicated, there is substantial recent evidence demonstrating that water-based guidelines for selenium are poor predictors of potential adverse effects to aquatic life (e.g., Stewart et al. 2010; Hodson et al. 2010; Ohlendorf et al. 2011; DeForest et al. 2012) and that better tools for the assessment of effects to sensitive organisms are available, the best of which are effect thresholds for ripe egg and/or ovary tissue in fish (e.g., Janz et al. 2010; DeForest et al. 2012). Therefore, selenium concentrations in fish ovaries were compared to the threshold ($5^{th}$ percentile of EC10 values) for reproductive effects in eggs and ovaries (20 mg/kg dw; DeForest et al. 2010). Additionally, enrichment factors (EF) and trophic transfer factors (TTF) were calculated to characterize transfer of selenium through the abiotic compartments and trophic levels sampled. These factors were calculated by dividing the mean concentration present in one abiotic compartment (e.g., sediment) by another (e.g., water), or by dividing the mean selenium concentration present in a higher trophic level by that present in a lower level, respectively.

# 3.0 SELENIUM MONITORING RESULTS

## 3.1 Water

Routine water quality monitoring conducted by MPMC indicated that concentrations of total selenium in 2013 were at or below the method detection limit (0.0005 mg/L) in most monitored creek environments (Figure 3.1; Appendix Figures B.1 to B.5). Concentrations of total selenium and dissolved selenium within all the sampling locations were also very similar (Appendix Table B.5; Appendix Figures B.1 to B.5). The mean concentration of selenium at North Dump Creek (W4) has been elevated in previous sampling years, but was 0.0013 mg/L in 2013 which is well below the British Columbia water quality guideline of 0.002 mg/L. Prior to containment in late 2009, North Dump Creek (W4) received seepage from the North Rock Dump, however selenium concentrations have decreased at this station substantially since containment. Although not statistically analysed, the selenium concentrations measured in 2013 confirm this, but remain slightly elevated relative to concentrations in the other monitored creeks whose mean concentrations in 2013 were all equal to or less than 0.0005 mg/L (Appendix Table B.5). For the remainder of the report, only those differences which were found to be statistically significant will be discussed.

## 3.2 Sediment

Mean sediment selenium concentrations were significantly higher at Upper Hazeltine Creek (W7; 2.8 ± 0.4 mg/kg dw) and Upper Hazeltine Creek Pond (W7 Pond; 3.0 ± 0.2 mg/kg dw in Spring and 3.1 ± 0.2 mg/kg dw in Fall) than at all other sampling areas (Figure 3.2, Appendix Table B.1). Mean concentrations in these areas also exceeded the BC sediment quality guideline of 2.0 mg/kg dw while the mean concentrations at all other sampled areas were below the guideline. Upper Hazeltine Creek and Upper Hazeltine Creek Pond sampling sites (W7 and W7 Pond) are located downstream of the discharge which was in operation from September 20$^{th}$ to October 31$^{st}$, 2013. The mean selenium concentrations measured at these sites downstream of the discharge were significantly greater than the mean concentration present at the upstream sampling site, Hazeltine Creek Pond Upstream of the Discharge (USW7 Pond; 1.8 ± 0.4 mg/kg dw) and were significantly greater than those measured at the reference sites on Trio and Jacobie Creeks (Trio: 0.4 ± 0.04 mg/kg dw and Jacobie: 0.6 ± 0.2 mg/kg dw), respectively (Figure 3.2; Appendix Table B.1). Selenium concentrations differed temporally at W7, with a higher mean selenium concentration measured in 2013 (2.8 ± 0.4 mg/kg dw) than in 1996, 1999, and 2010. The sampling site at W7 is not a true depositional area, and sediment samples must be collected using a spoon due to very shallow sediment depths. As a result, sediment was not collected from this site

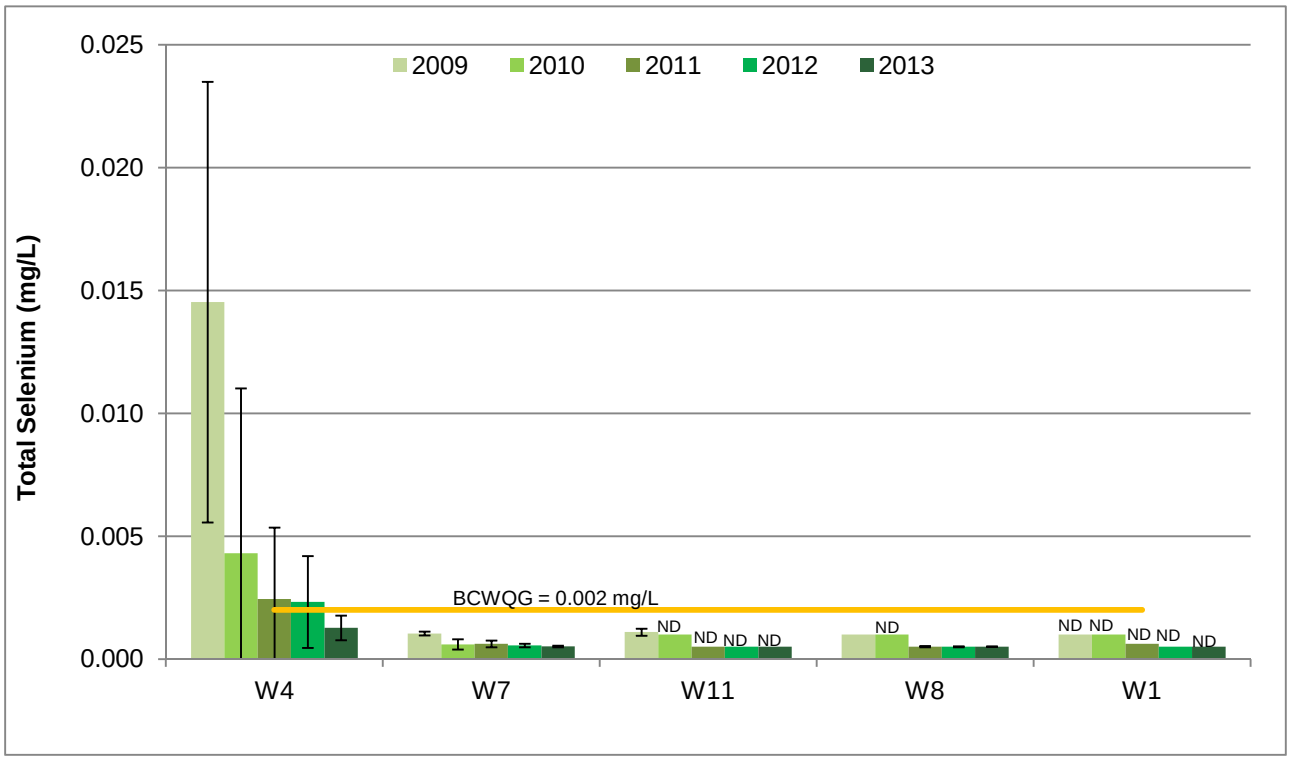



**Figure 3.1: Selenium concentrations in water (mean ± standard deviation in mg/L), Mount Polley Mine routine water quality monitoring, 2009-2013**

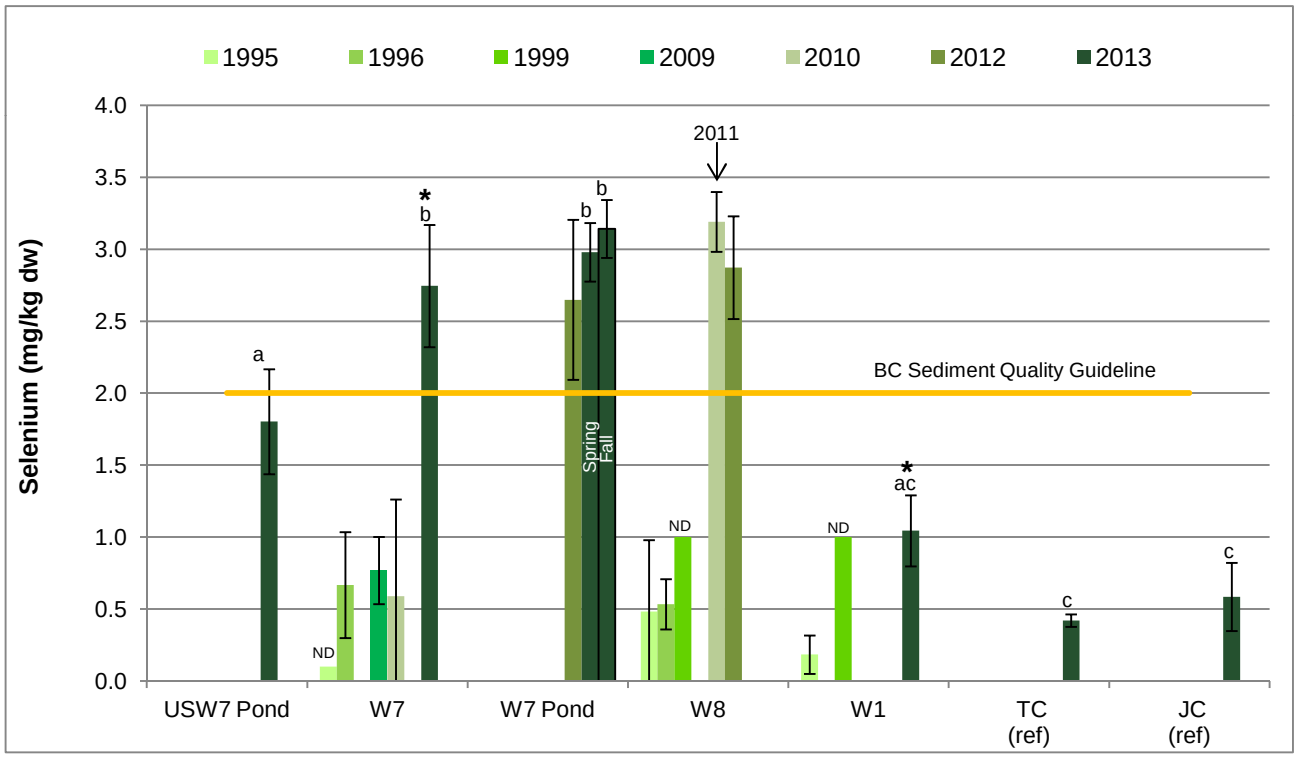



**Figure 3.2: Selenium concentrations in sediment (mean ± standard deviation in mg/kg dw), Mount Polley, 1995-2013.**

W4= North Dump Creek;W11= Lower Hazeltine Creek; W7= Upper Hazeltine Creek; W7 Pond = Upper Hazeltine Creek Pond; W1 = Morehead Creek;USW7 Pond = Hazeltine Creek Pond Upstream of Discharge; TC = Trio Creek; JC = Jacobie Creek W8 = Upper Edney Creek.

ND = Non-detect; all values were < detection limit (DL) and were excluded from temporal ANOVA analysis within sampling areas.
Mean values from 2013 that do not share an alphabetic value differ significantly ($p<0.05$) among areas.
Values marked with * differ significantly from all other values within a sampling area ($p<0.05$).

in 2012. Upper Hazeltine Creek Pond (W7 Pond) is a more representative depositional area, and the hand coring collection method, which is used at the remainder of the sites can be used within this area. W7 Pond is located downstream of the discharge which operated between September 20th and October 31st, 2013. However, selenium concentrations in the sediment at this site did not differ between 2012 and either of the 2013 sampling events (spring or fall), or between the 2013 samples collected before and after initiation of the discharge (in the spring and fall), respectively (Figure 3.2, Appendix Table B.1, B.2). The comparatively high variability within the 2012 W7 Pond data (2.6 ± 0.6 mg/kg dw) relative to the 2013 data (Spring: 3.0 ± 0.2 mg/kg dw; Fall: 3.1 ± 0.2 mg/kg dw) may have hindered the ability of the analyses to detect significant differences between 2012 and 2013 results. However, the absence of a temporal difference between the spring and fall 2013 data (before and after initiation of the discharge), indicates that the initiation of discharge has not influenced selenium concentrations in sediment downstream at this site. Mean sediment selenium concentrations at Morehead Creek (W1) were higher in 2013 than in any other sampling year (Figure 3.2, Appendix Table B.5). The 2013 mean selenium concentration at W1 (1.0 ± 0.3 mg/kg dw) was 5 times greater than the mean baseline selenium concentration reported in 1995 (0.2 ± 0.1 mg/kg dw). Although baseline sediment concentrations were also measured in 1996 for this station, these results were not included in the temporal comparison as all reported values were less than the detection limit (<1 mg/kg dw). The sediment sampling methods employed during baseline data collection in 1995 and 1996 (summarized in Appendix Table D.4) differed from those used during the sampling programs conducted in 1999 – 2013 (Beak 2000; Minnow 2011; Minnow 2013), which may account for some of the observed differences in selenium concentrations. For instance, sediment was collected to a depth of 10 cm in 1995 and 1996, metals were analysed only in the fine fraction of sediment (<63 µm), and a coffee can sampler was used in 1995 for sediment collection. Overall, there is evidence of elevated sediment selenium concentrations in Upper Hazeltine Creek relative to nearby reference creeks, and of elevated selenium concentrations downstream of the effluent discharge relative to an upstream site, but no indication that the initiation of the discharge has influenced selenium concentrations in sediment.

## 3.3 Periphyton

Mean periphyton selenium concentrations at mine-exposed sampling sites spanned a narrow range from 1.2 ± 0.4 mg/kg dw at Lower Hazeltine Creek (W11) to 3.4 ± 0.7 mg/kg dw at Hazeltine Creek Upstream of Discharge (USW7) (Figure 3.3; Appendix Table B.1). The selenium concentrations in periphyton from Hazeltine Creek decreased with distance from

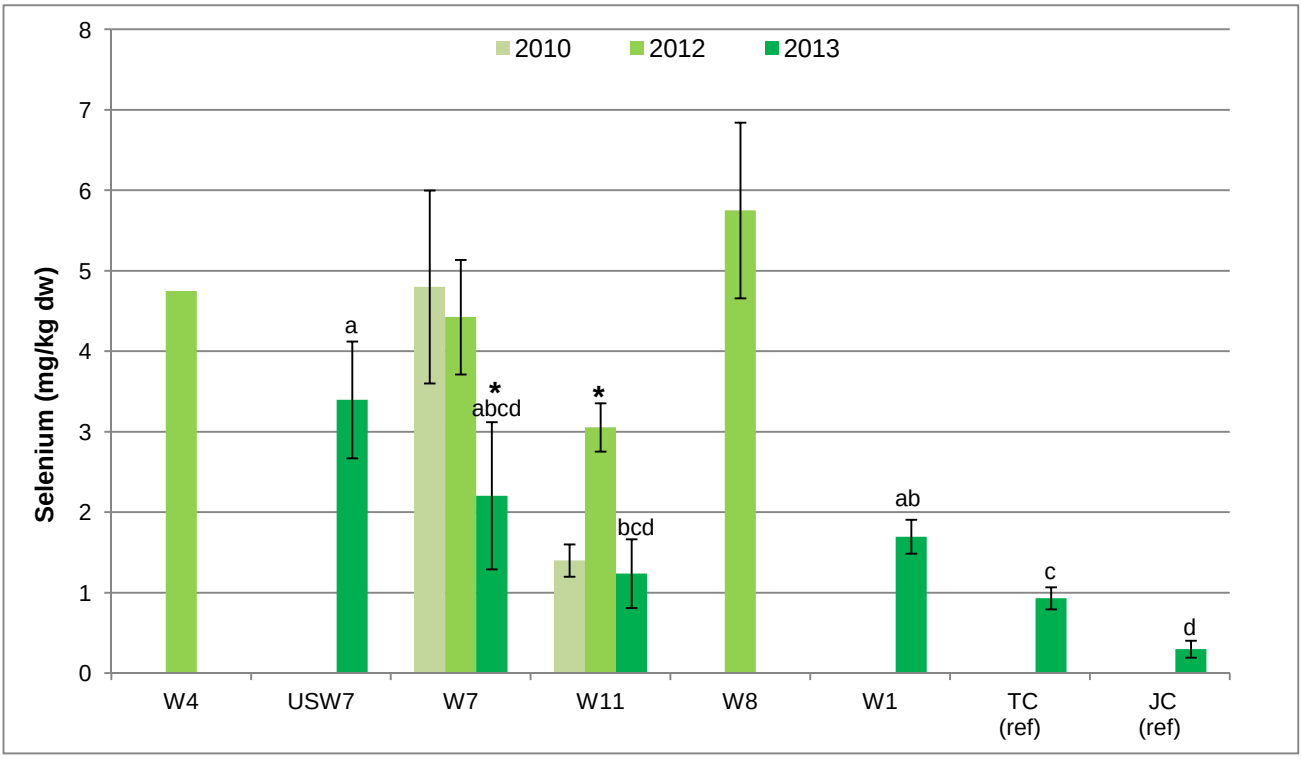



**Figure 3.3: Selenium concentrations in periphyton (mean ± standard deviation in mg/kg dw), Mount Polley, 2009 to 2013.**

W4= North Dump Creek; USW7= Hazeltine Creek Upstream of Discharge; W7= Upper Hazeltine Creek; W11= Lower Hazeltine Creek; W8= Upper Edney Creek; W1= Morehead Creek; TC= Trio Creek; JC= Jacobie Creek

Mean values from 2013 that do not share an alphabetic value differ significantly ($p < 0.05$) among areas.

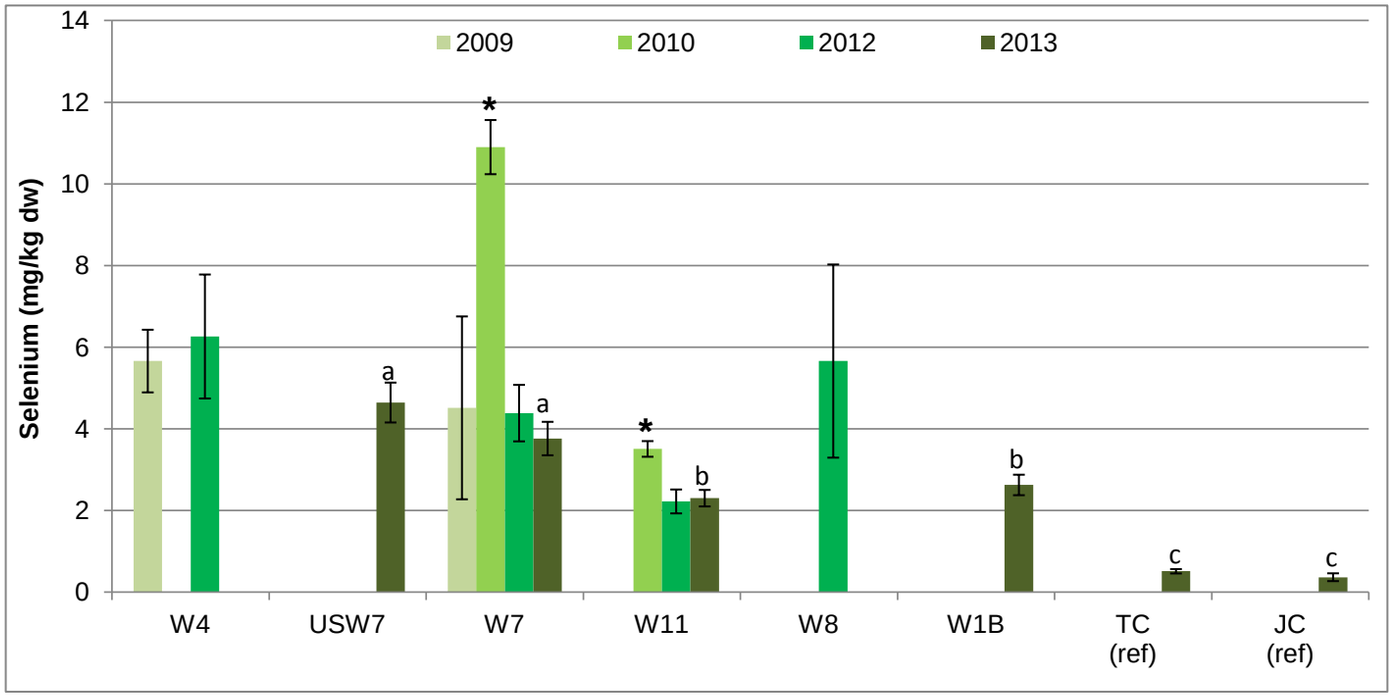
Values marked with ***** differ significantly from all other values within a sampling area ($p<0.05$).

the mine, suggesting a potential mine-related influence. At Hazeltine Creek Upstream of the Discharge (USW7), the mean selenium concentration in periphyton was significantly higher than at Lower Hazeltine Creek (W11), while the mean selenium concentration at Upper Hazeltine Creek (W7; located between USW7 and W11) did not differ from either (Figure 3.3). Selenium concentrations were also significantly elevated at Hazeltine Creek Upstream of the Discharge (USW7) relative to the reference sites located on Trio (0.9 ± 0.1 mg/kg dw) and Jacobie Creeks (0.3 ± 0.1 mg/kg dw), as were the concentrations measured at Morehead Creek (W1; 1.7 ± 0.2 mg/kg dw). Mean periphyton selenium concentrations both upstream and downstream of the discharge (USW7 and W7, respectively) did not differ from one another, indicating that the initiation of discharge in 2013 did not influence periphyton selenium concentrations downstream of the discharge. Furthermore, despite the initiation of discharge upstream of this site, the 2013 selenium concentrations at Upper Hazeltine Creek (W7; 2.2 ± 0.9 mg/kg dw) were lower than all previous sampling years, including 2010 (4.8 ± 1.2 mg/kg dw) and 2012 (4.4 ± 0.7 mg/kg dw). This further suggests the absence of an influence of the discharge, and possible early evidence of improvement due to seepage controls implemented at North Dump Creek (W4). Similar temporal differences existed downstream, with lower selenium concentrations at Lower Hazeltine Creek (W11) observed in 2013 than in 2012 (Figure 3.3; Appendix Tables B.1, B.2).

## 3.4 Benthic Invertebrates

Mean benthic invertebrate selenium concentrations from erosional habitat at mine-exposed sampling areas ranged from 2.3 ± 0.2 mg/kg dw in Lower Hazeltine Creek (W11) to 4.6 ± 0.5 mg/kg dw in Hazeltine Creek Upstream of Discharge (USW7) (Figure 3.4a; Appendix Table B.1). The selenium concentrations in benthos from all exposed erosional sites were significantly elevated relative to the erosional reference sites on Trio (0.5 ± 0.05 mg/kg) and Jacobie Creeks (0.4 ± 0.1 mg/kg dw). Additionally, selenium concentrations in erosional benthos from Hazeltine Creek decreased with distance from the mine, suggesting a potential mine-related influence. Similar to the results observed in periphyton, the mean selenium concentration at Hazeltine Creek Upstream of the Discharge (USW7) was significantly higher than that at Lower Hazeltine Creek (W11), while the concentrations at Upper Hazeltine Creek (W7) differed from W11 but not USW7 (Figure 3.4a). The similarity of selenium concentrations both upstream and downstream the discharge (USW7 and W7, respectively) indicates that the initiation of discharge did not influence erosional benthos selenium concentrations downstream. Temporally, selenium concentrations at Upper and Lower Hazeltine Creek (W7 and W11) were lower than concentrations reported in 2010 but did not differ from concentrations observed in 2012. These significant decreases observed in

**a) Erosional**




**b) Depositional**

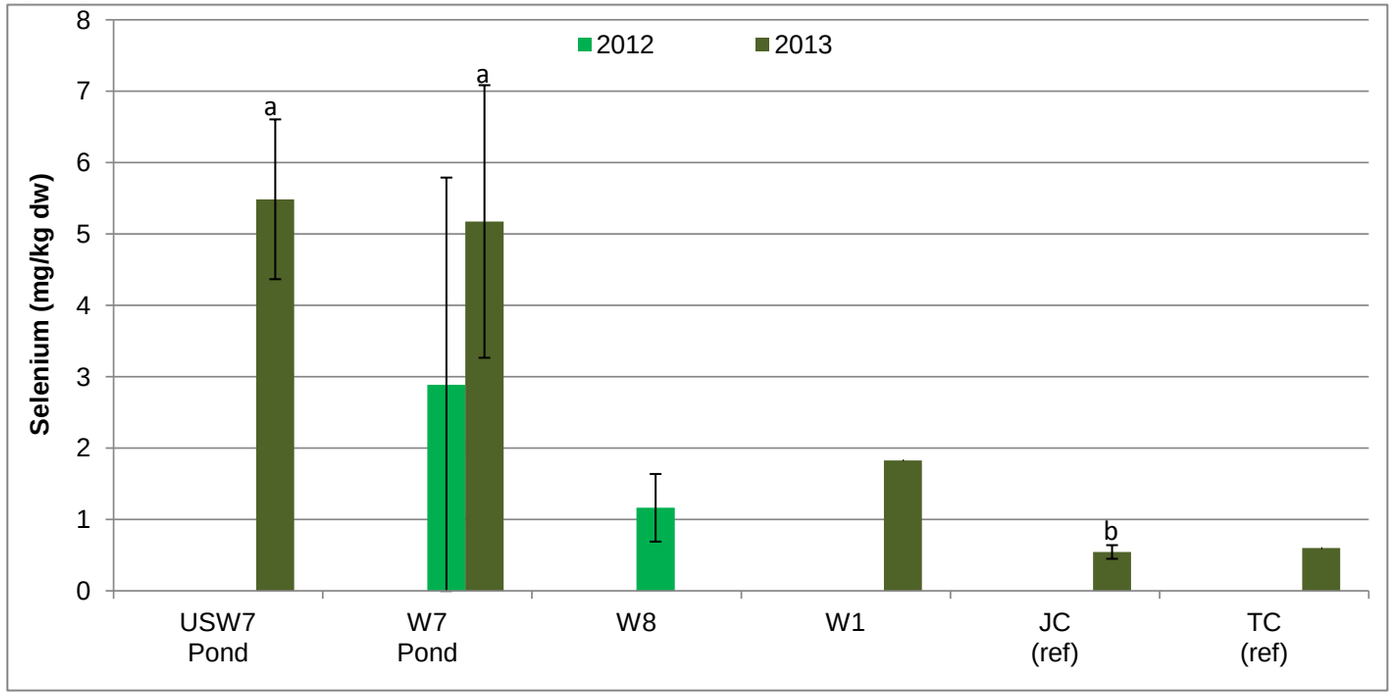



**Figure 3.4: Selenium concentrations in benthos (mean ± standard deviation in mg/kg dw), Mount Polley, 2009-2013.**

W4= North Dump Creek; USW7= Hazeltine Creek Upstream of Discharge; W7= Upper Hazeltine Creek; W11= Lower Hazeltine Creek; W8= Upper Edney Creek; W1= Morehead Creek; TC= Trio Creek; JC= Jacobie Creek; W7 Pond= Upper Hazeltine Creek Pond; USW7 Pond= Hazeltine Creek Pond Upstream of Discharge; W1B= Morehead Creek

Mean values from 2013 that do not share an alphabetic value differ significantly among area ($p<0.05$)

Values marked with * differ significantly from all other values within a sampling area ($p<0.05$)

Depositional sampling areas W1 and TC were excluded from ANOVA analysis due to small sample sizes (n=2 and n=1, respectively).

erosional benthos from Hazeltine Creek relative to 2010 correspond with the temporal differences in observed periphyton from relative to previous sampling years.

Mean benthic invertebrate samples from depositional habitats were approximately 10 times higher at Hazeltine Creek sampling sites (USW7 Pond: 5.5 ± 1.1 mg/kg dw; W7 Pond: 5.2 ± 1.9 mg/kg dw) than at the reference area on Jacobie Creek (0.6 ± 0.1 mg/kg dw) (Figure 3.4b; Appendix Table B.1). Similar to the findings for periphyton and the erosional benthos, the selenium concentrations present in depositional benthos did not differ significantly upstream and downstream of the discharge (Figure 3.4b), suggesting that the initiation of discharge did not influence selenium concentrations in depositional benthos downstream. Although the mean selenium concentration in depositional benthos at Upper Hazeltine Creek Pond (W7 Pond) measured in 2013 was almost twice that measured in 2012 (2.9 ± 2.9 mg/kg dw), the very high variability of the 2012 data prevented the detection of a statistically significant difference during analysis. Interestingly, selenium concentrations in benthic invertebrates from mine-exposed erosional habitats were generally higher than those from nearby depositional areas (i.e., in Upper Hazeltine Creek; Figure 3.4; Appendix Table B.1). This is contrary to studies undertaken elsewhere, which have found that depositional benthic invertebrates generally have higher selenium than their erosional counterparts and exhibit greater enrichment or trophic transfer factors when found at similar environmental (i.e., water, periphyton) selenium concentrations (Orr et al. 2012).

## 3.5 Fish Muscle

In the previous selenium monitoring program (2012) rainbow trout from Upper Hazeltine Creek (W7) were found to have elevated muscle tissue selenium concentrations relative to sampled reference lakes (Minnow 2013). Given this, analyses for this program focused on potential temporal differences in the concentration of selenium in rainbow trout muscle at W7. The mean selenium concentration in muscle tissue of rainbow trout captured in 2013 (3.4 ± 0.2 mg/kg dw) was lower than the means observed in all previous years (2009 to 2012 range: 4.0 ± 0.4 to 4.1 ± 0.5 mg/kg dw) of the program (Figure 3.5; Appendix Tables B.1-B.3). This decrease corresponds with the observed decrease in periphyton selenium concentrations between 2013 and other sampling years, and with the decrease in selenium concentrations observed in erosional benthos between 2010 and 2013. Rainbow trout captured in Hazeltine Creek likely overwinter in Polley Lake, therefore the temporal decrease in muscle selenium from these fish reflects differences in the selenium exposure of rainbow trout in Polley Lake.

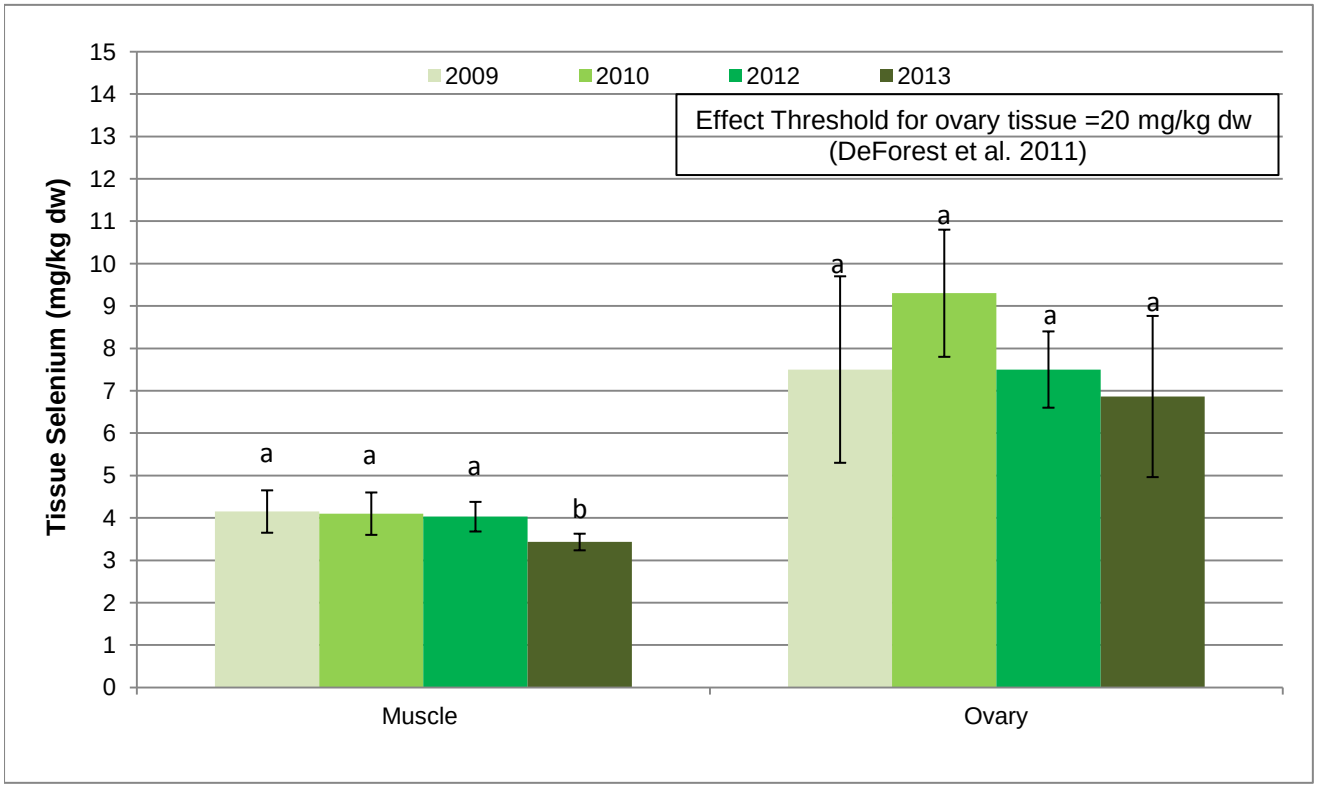



**Figure 3.5: Selenium concentrations in rainbow trout muscle and ovary tissue from Upper Hazeltine Creek (W7), Mount Polley Mine, (mean ± standard deviation in mg/kg dw), 2009-2013.**

Means that do not share an alphabetic value differ significantly ($p < 0.05$) among years.

## 3.6 Fish Ovaries

Similar to muscle, previous monitoring indicated that rainbow trout from Upper Hazeltine Creek (W7) had elevated muscle tissue selenium relative to sampled reference lakes (Minnow 2013). Potential temporal differences in ovary selenium concentrations within these fish were therefore the focus of the analyses for the current program. Mean ovary selenium concentrations in rainbow trout did not differ among all sampling years (2009 – 2013) and ranged from 6.9 ± 1.9 mg/kg dw (2013) to 9.3 ± 1.5 mg/kg dw (2010) (Figure 3.5; Appendix Tables B.1-B.3). Despite the absence of a statistically significant difference among years, mean ovary concentrations from 2010 to 2013 appeared to decrease, as was observed with fish muscle selenium concentrations. Given the sample size used (n=8), the analysis performed would have been able to detect a 2.7 mg/kg dw change in mean selenium concentrations as significantly different from 2013 (Table B.7). The greatest difference in mean selenium concentrations among years was 2.4 mg/kg dw (between 2010 and 2013), therefore a significant difference could not be statistically detected.

## 3.7 Summary and Examination of Transfer Relationships

Selenium concentrations in sediment and biota in Hazeltine Creek in 2013 were found to be significantly elevated relative to those in reference areas, as had been established in previous monitoring (Minnow 2013). In Upper Hazeltine Creek (W7), sediment selenium concentrations were significantly greater than in all previous years, and exceed the BC sediment quality guideline of 2.0 mg/kg dw. In contrast, 2013 selenium concentrations in periphyton, erosional benthos, and rainbow trout muscle were all significantly lower than in previous sampling years, providing early evidence of a possible improvement due to seepage controls at North Dump Creek.

Despite some comparisons to guidelines for water, sediment, and fish tissue, it is recognized that the most sensitive endpoint, and that with the least uncertainty in predicting potential selenium toxicity in aquatic environments, is selenium in the eggs or ovaries of egg-laying vertebrates (e.g., fish or birds; Janz et al. 2010). Recent literature suggests an effect threshold for the most sensitive species of 20 mg/kg dw selenium in eggs/ovaries of fish (DeForest et al. 2012). While ovary selenium concentrations in fish from areas near the mine were previously found to be higher than in reference areas (Minnow 2013). In 2013, rainbow trout from Hazeltine Creek had ovary selenium concentrations (6.9 ± 1.9 mg/kg dw); well below the effect threshold. As such, current levels of fish ovary selenium near the Mount Polley Mine indicate concentrations lower than those expected to cause adverse effects.

Enrichment factors (EFs) and trophic transfer factors (TTFs) were calculated as a measure of the transfer of selenium between abiotic compartments (i.e., sediment and water) or through

trophic levels, respectively. In Hazeltine Creek, these EFs ranged from 2,476 to 6,792 (Table 3.1) at the base of the food chain, between water and sediment, and between water and periphyton. These were similar to those calculated for Morehead Creek (2,088 to 3,392; Table 3.1) which is located further from the mine site (Figure 2.1), and fall within the range of EFs (80 to 15,700) reported in the Elk River watershed (Orr et al. 2012). They are also within the ranges reported for various aquatic environments in a published literature review (Presser and Luoma 2010). According to Presser and Luoma (2010), most river and creek systems report enrichment factors at the base of the food chain to be between 100 and 300. However, the data presented by Presser and Luoma (2010) show that enrichment factors increase significantly with decreasing water selenium concentrations (Appendix Figure D.2). The linear relationship from these data was used to characterize the EFs at selenium concentrations observed in Hazeltine and Morehead Creeks (0.0005 mg/L). The associated EF was 2,231, which is similar to those observed within these creeks. The TTFs calculated for benthic invertebrates and fish within Hazeltine Creek were generally approximately equal to 1, with the exception of the factor for sediment to benthos at the Upper Hazeltine Creek Pond Upstream of the Discharge which was 3.04 (Table 3.1). These TTFs were similar to those calculated for the reference sites, and similar to those reported for aquatic insects (2.8; mean for aquatic insects) and fish (0.84 to 1.6) in the literature review prepared by Presser and Luoma (2010).

**Table 3.1: Enrichment factors (EF) of selenium between water and sediment or periphyton, and trophic transfer factors (TTF) of selenium among trophic levels, Mount Polley Mine selenium monitoring program, 2013 [a]**

| Sampling area | | | Sediment / Water [b] | Periphyton / Water [b] | Benthic Invertebrates / Sediment | Benthic Invertebrates / Periphyton | Fish Muscle / Benthic Invertebrates | Fish Ovary / Benthic Invertebrates | Fish Ovary / Fish Muscle |
|---|---|---|---|---|---|---|---|---|---|
| Erosional | Upper Hazeltine Creek Upstream of Discharge | USW7 [c] | - | 6,792 | - | 1.37 | - | - | - |
| | Upper Hazeltine Creek | W7 [d] | 5,291 | 4,252 | - | 1.71 | 0.91 | 1.82 | 2.00 |
| | Lower Hazeltine Creek | W11 [f] | - | 2,476 | - | 1.86 | - | - | - |
| | Morehead Creek | W1B [g] | - | 3,392 | - | 1.55 | - | - | - |
| | Trio Creek | TC | - | - | - | 0.55 | - | - | - |
| | Jacobie Creek | JC | - | - | - | 1.23 | - | - | - |
| Depositional | Upper Hazeltine Creek Pond Upstream of Discharge | USW7 Pond [c] | 3,604 | - | 3.04 | - | - | - | - |
| | Upper Hazeltine Creek Pond | W7 Pond [d,e] | 5,744 | - | 1.69 | - | - | - | - |
| | Morehead Creek | W1 [g] | 2,088 | - | 1.75 | - | - | - | - |
| | Trio Creek | TC | - | - | 1.43 | - | - | - | - |
| | Jacobie Creek | JC | - | - | 0.93 | - | - | - | - |

[a] Mean 2013 values were used to calculate enrichment and trophic transfer factors

[b] Total Se concentrations in water were used. Se concentrations in water that were < detection limit (DL) were used at the DL for calculations.

[c] 2013 water quality data from sampling station HD-1-us (n = 5; Hazeltine Creek upstream of discharge) were used for the calculation of sediment / water and periphyton

[d] 2013 water quality data from W7 (n = 17) were used for the calculation of sediment / water and periphyton / water factors.

[e] W7 Pond fall and spring sediment results were combined for the calculation of the sediment / water EF

[f] 2013 water quality data from W11 (n = 4) was used for the calculation of the periphyton / water TTF.

[g] 2013 water quality data from W1 (n = 4) were used for the calculation of sediment / water and periphyton / water factors.

# 4.0 CONCLUSIONS AND RECOMMENDATIONS

## 4.1 Conclusions

Monitoring of selenium concentrations in sediment, periphyton, and benthos has indicated greater concentrations in Hazeltine Creek relative to reference areas. Sediment selenium concentrations were greater in 2013 than in previous years, but there was no evidence of an influence of effluent discharge (effluent was discharged to Hazeltine Creek between September 20th and October 31st, 2013). Conversely, selenium concentrations in periphyton, erosional benthos, and fish muscle were lower than those previously measured. Selenium concentrations in rainbow trout ovaries have not changed over time, and there appears to be no current risk of adverse effects, as the observed concentrations were well below the 20 mg/kg dw effect threshold.

## 4.2 Recommendations

Based on the results of the Mount Polley 2013 selenium monitoring program, the following recommendations for future monitoring are provided:

- Continue to monitor water quality in accordance with the existing water quality monitoring program and evaluate potential changes over time on at least an annual basis.

- Continue annual monitoring of sediment at depositional habitats and of periphyton and benthos at erosional habitats, both upstream and downstream of the effluent discharge to Hazeltine Creek. These are relatively easy to monitor and have been recommended as key selenium exposure assessment endpoints (e.g., Young et al. 2010; Hodson et al. 2010). Compare concentrations to those of previous years on an annual basis.

- Repeat the collection of rainbow trout ovaries (in the spring at Upper Hazeltine Creek at an initial frequency of annually) to determine selenium concentrations relative to previous observations and effect thresholds. Power analysis using rainbow trout ovary selenium concentrations in Hazeltine Creek from 2009-2013 indicated that a sample size of eight is sufficient to detect a significant change of ≤40% under all comparisons, as well as to detect a significantly different future mean that is well below the effect threshold of 20 mg/kg dw (Appendix Table B.8). As such, a sample size of eight is recommended for the repeat collection. In addition, the condition of all collected ovaries should be as consistent as possible to minimize variability (i.e., ensure that all collected ovaries are fully developed and unspent). Compare

concentrations of selenium in rainbow trout ovaries to those of previous years on an annual basis.

- Continue to report and record enrichment factors and trophic transfer factors.
- Review the selenium monitoring program annually, compare post-discharge to pre-discharge selenium concentrations, and adjust the monitoring program in response to findings.

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# Appendix J

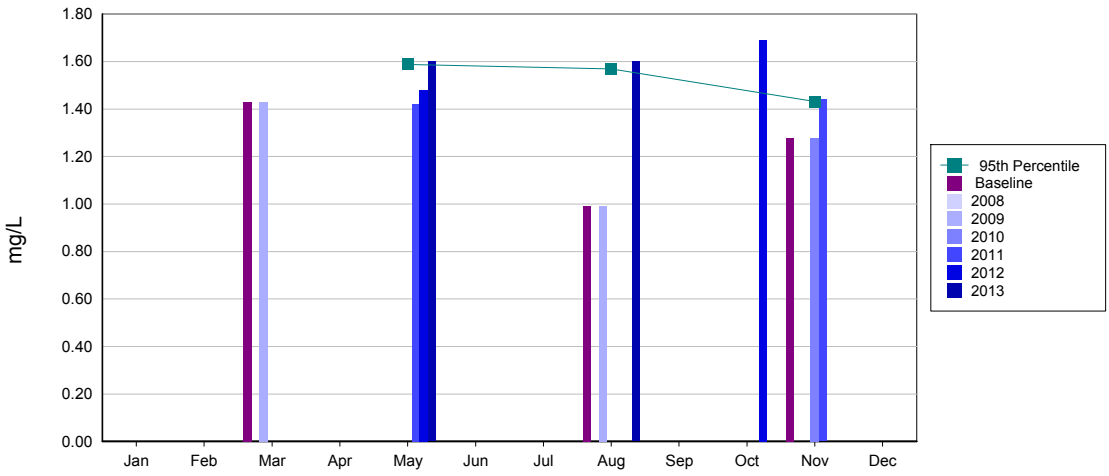
## Lake Water Quality Results 2013

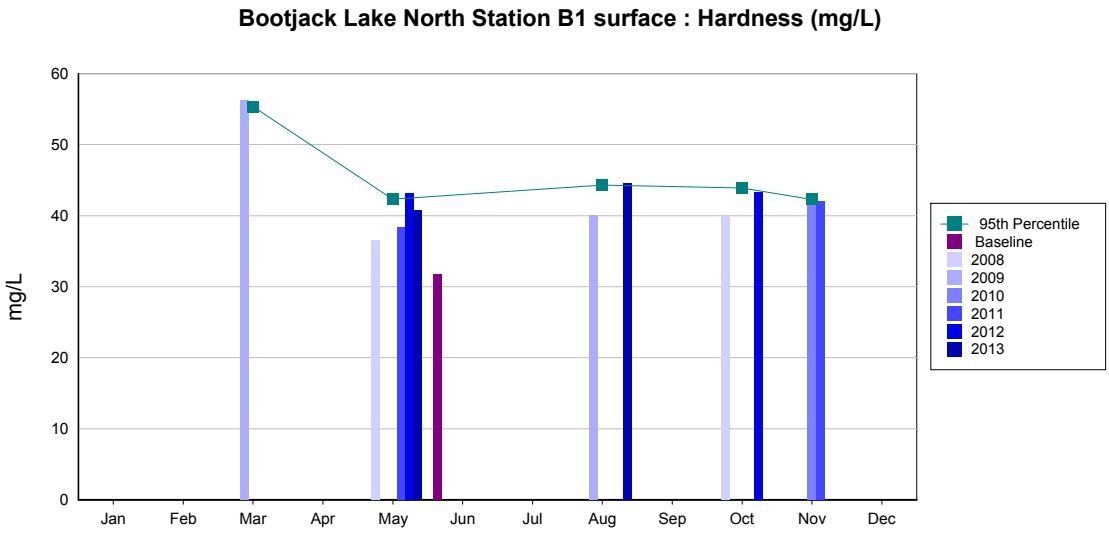
*Report in digital format on accompanying CD*

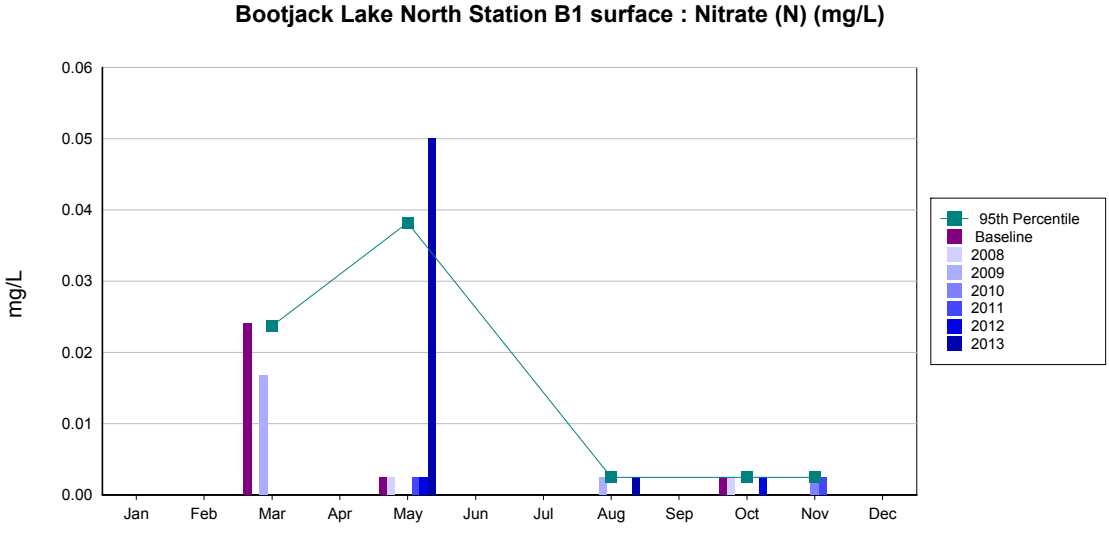
# Water Quality Report

## Annual Report 2013 - Lake WQ Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION



# Water Quality Report

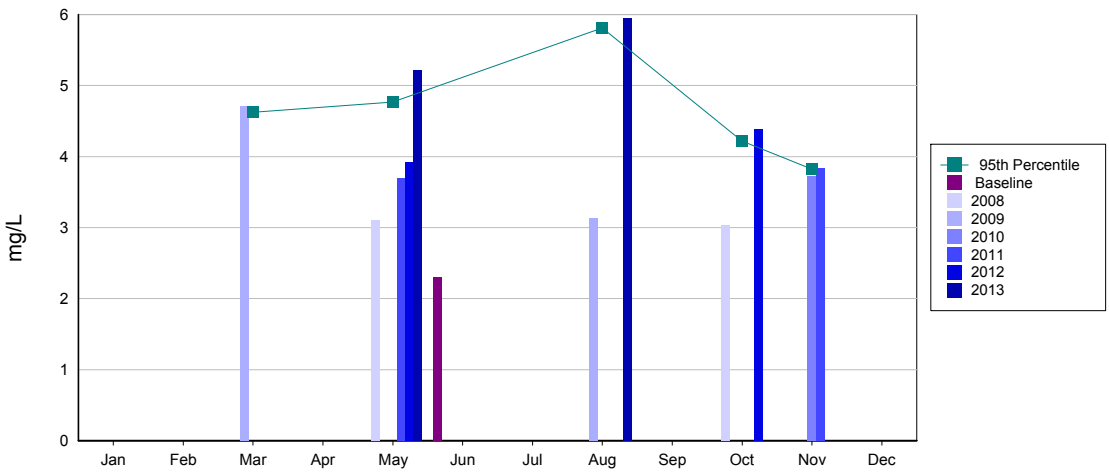
## Annual Report 2013 - Lake WQ Graphs

**Mount Polley**

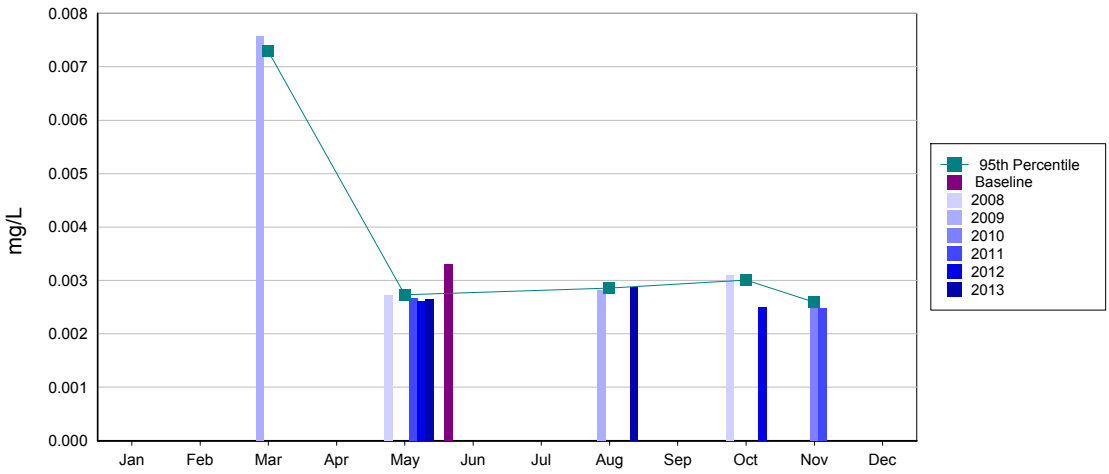
**Mining Corporation**

IMPERIAL METALS CORPORATION

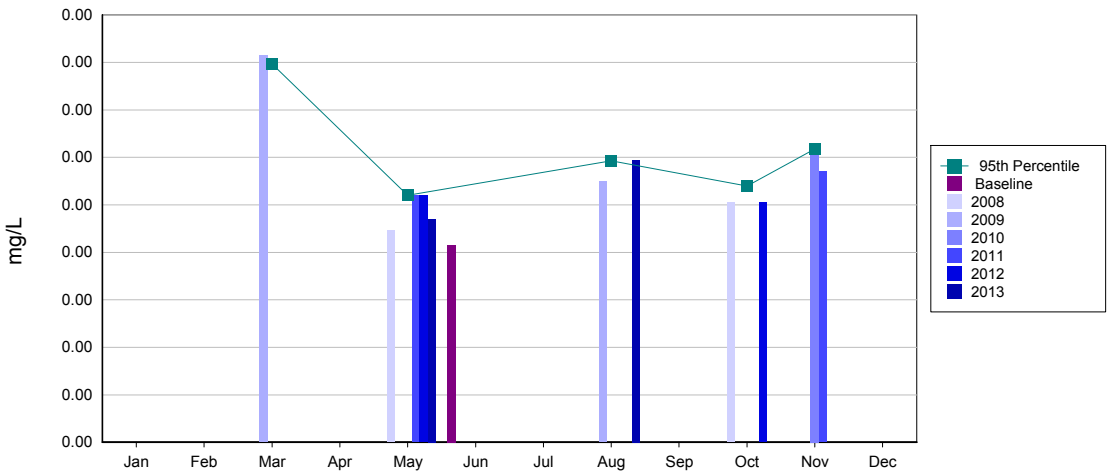
### Bootjack Lake North Station B1 surface : Sulphate (mg/L)




### Bootjack Lake North Station B1 surface : Total Copper (mg/L)




### Bootjack Lake North Station B1 surface : Total Molybdenum (mg/L)



# Water Quality Report

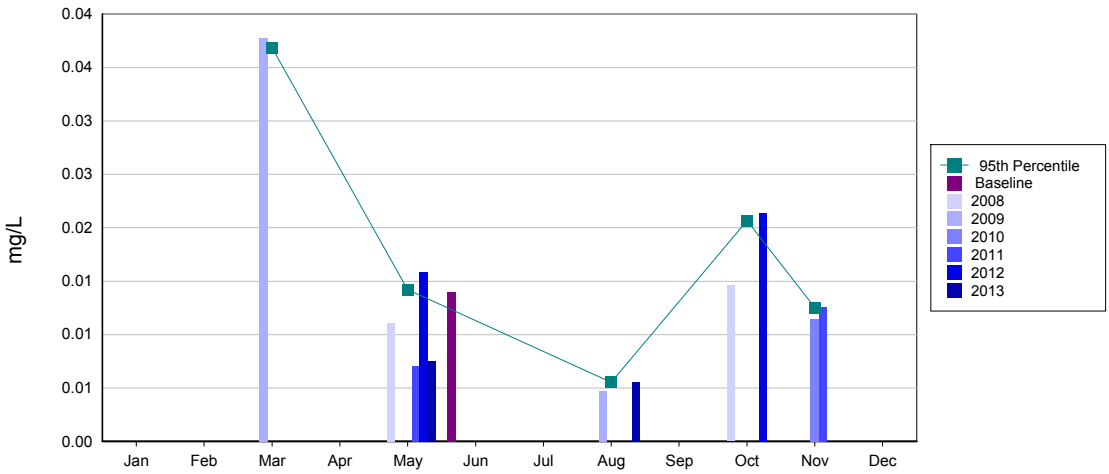
## Annual Report 2013 - Lake WQ Graphs

Mount Polley

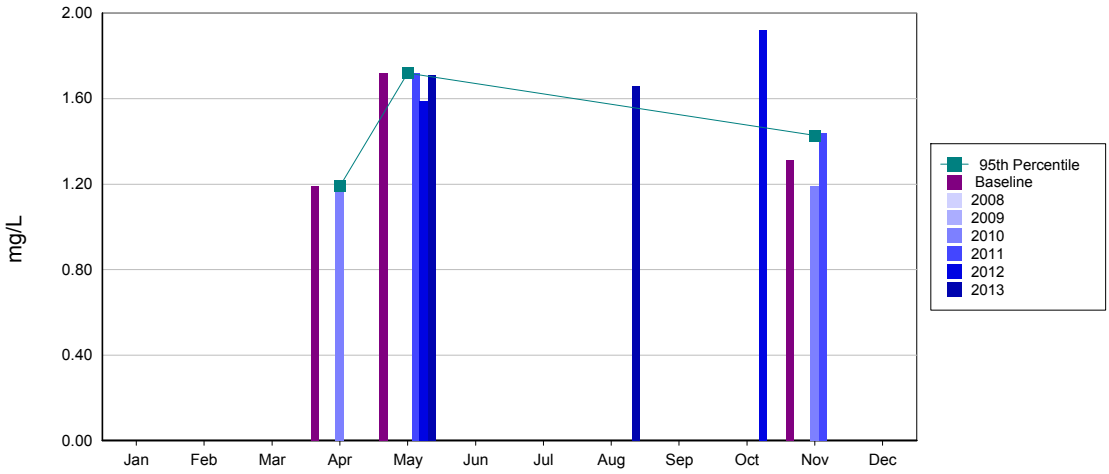
Mining Corporation

IMPERIAL METALS CORPORATION

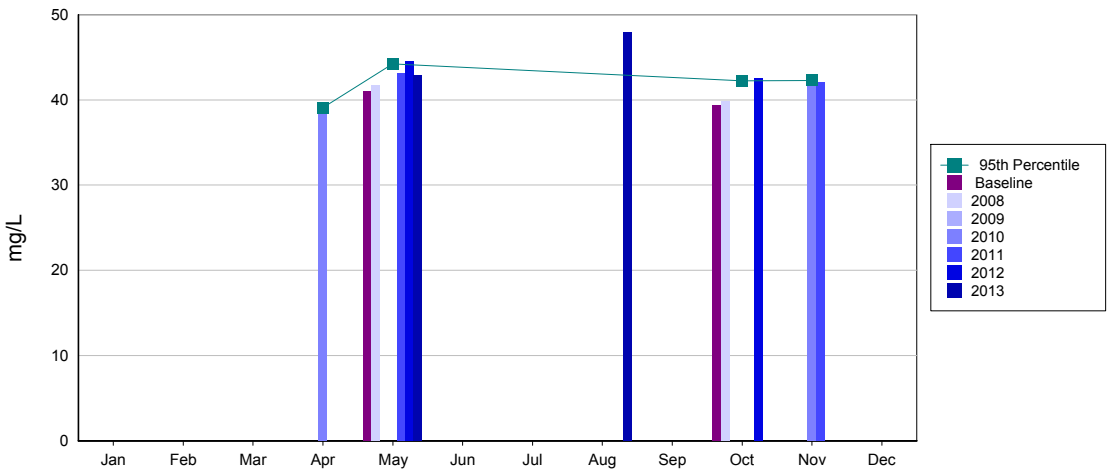
### Bootjack Lake North Station B1 surface : Total Phosphorus (mg/L)




### Bootjack Lake North Station B1 bottom : Chloride (mg/L)




### Bootjack Lake North Station B1 bottom : Hardness (mg/L)



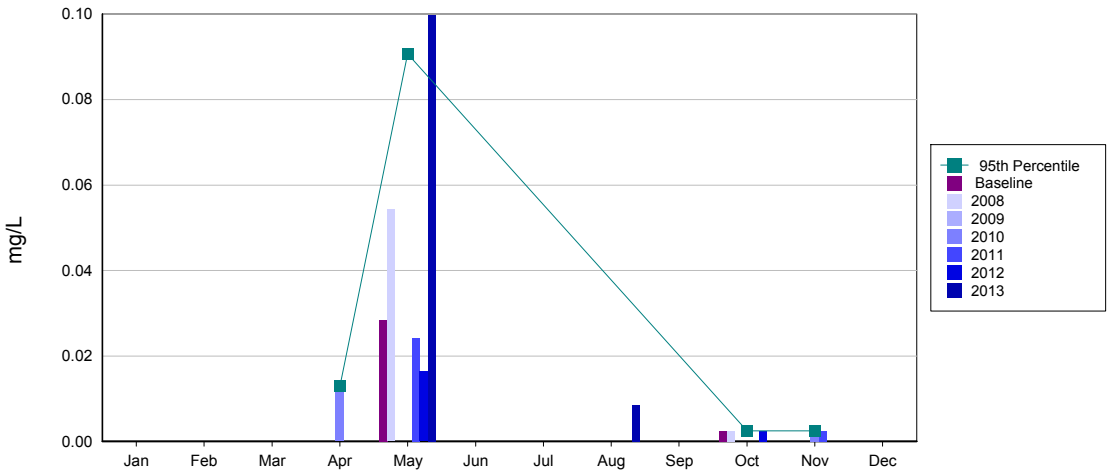
# Water Quality Report

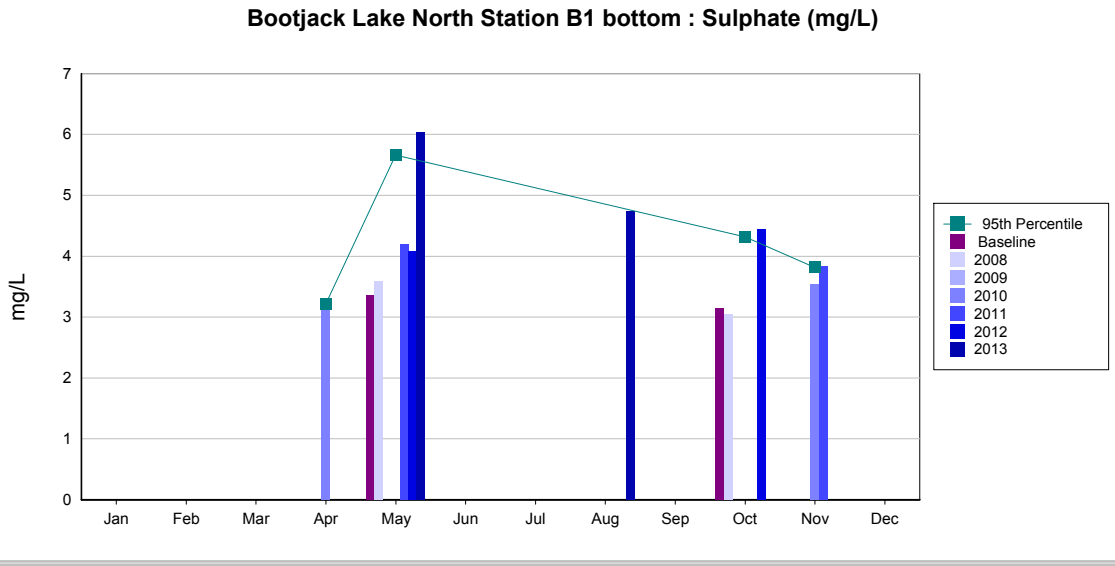
## Annual Report 2013 - Lake WQ Graphs

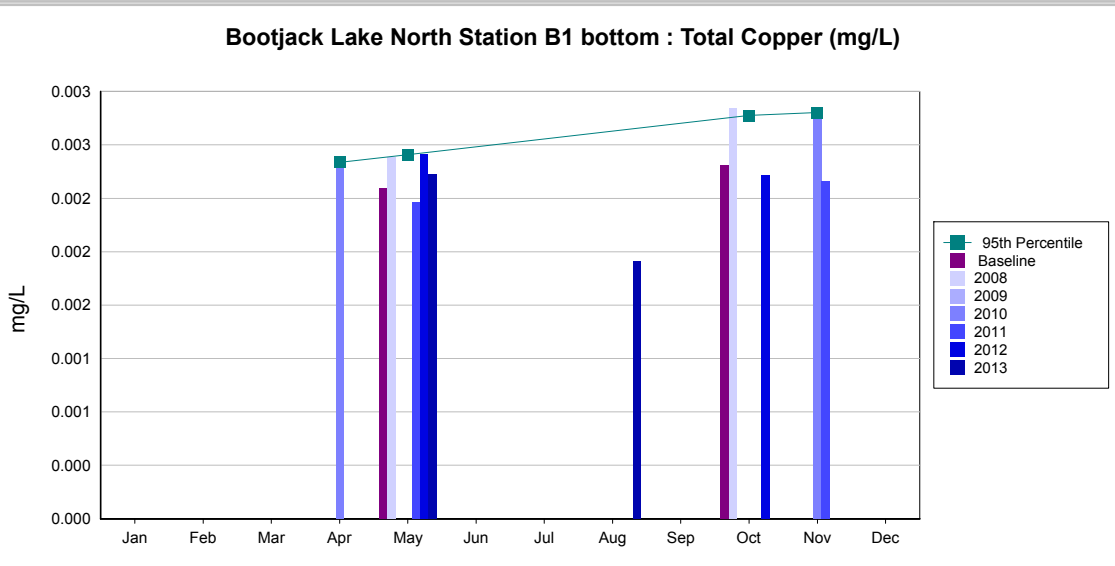
Mount Polley

Mining Corporation

IMPERIAL METALS CORPORATION



# Water Quality Report

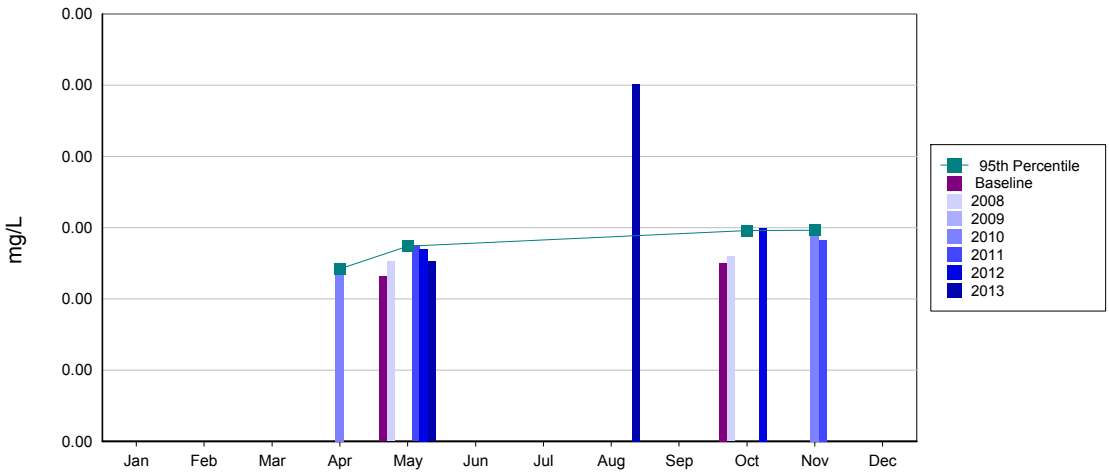
## Annual Report 2013 - Lake WQ Graphs

**Mount Polley**

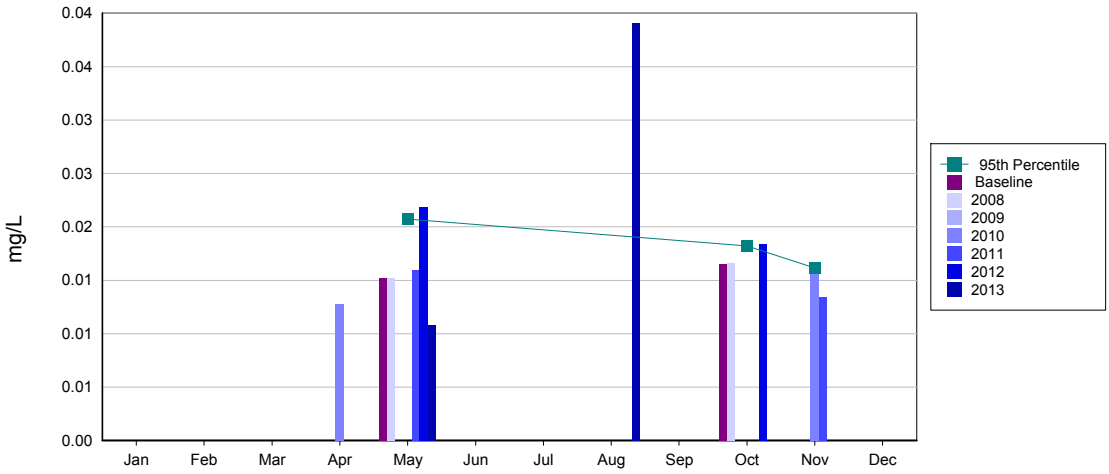
**Mining Corporation**

IMPERIAL METALS CORPORATION

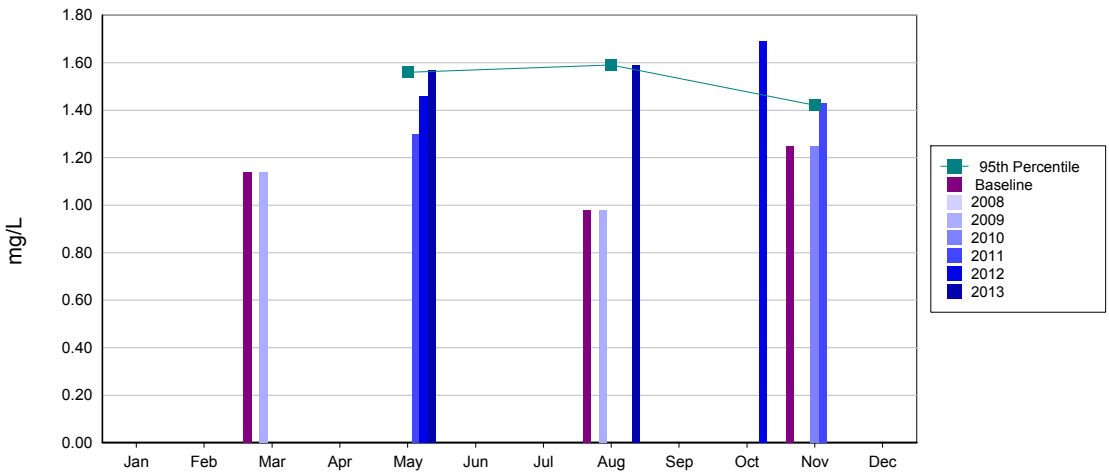
### Bootjack Lake North Station B1 bottom : Total Molybdenum (mg/L)




### Bootjack Lake North Station B1 bottom : Total Phosphorus (mg/L)




### Bootjack Lake South Station B2 surface : Chloride (mg/L)



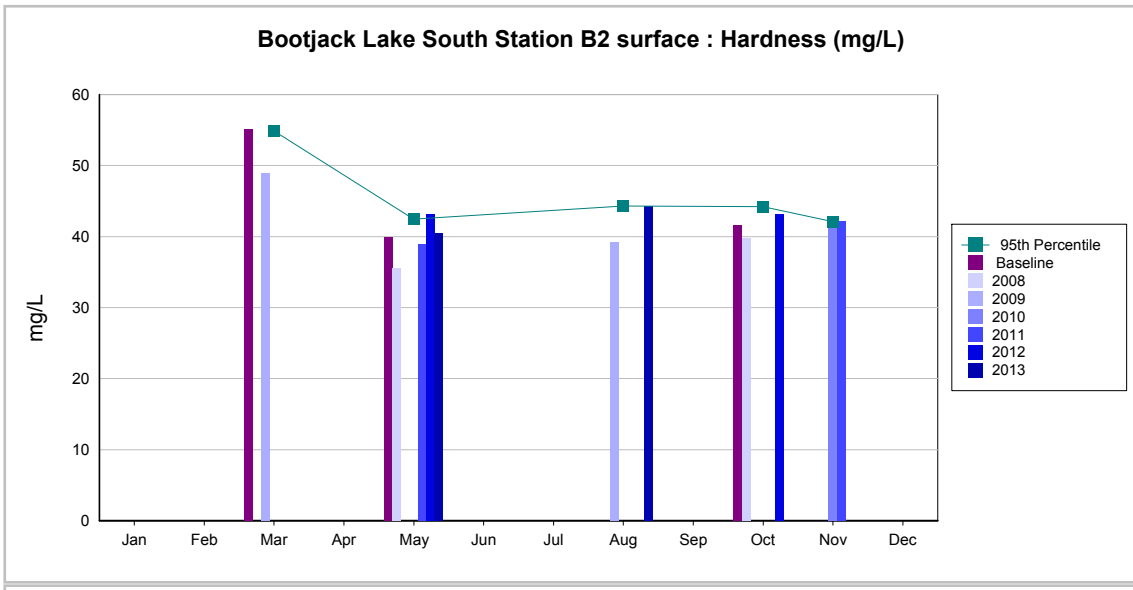
# Water Quality Report

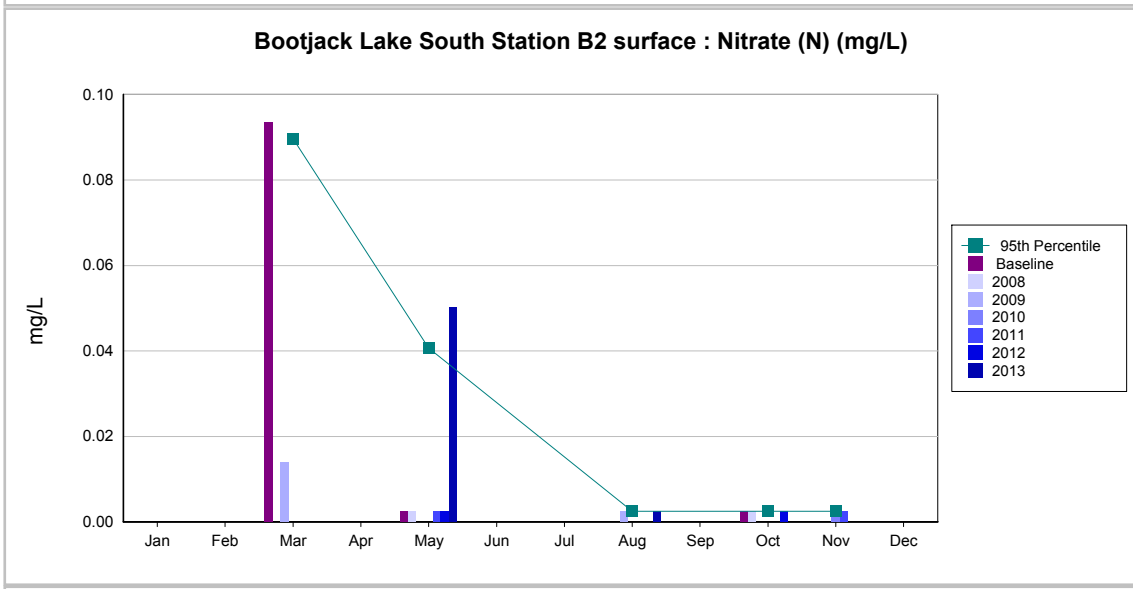
## Annual Report 2013 - Lake WQ Graphs

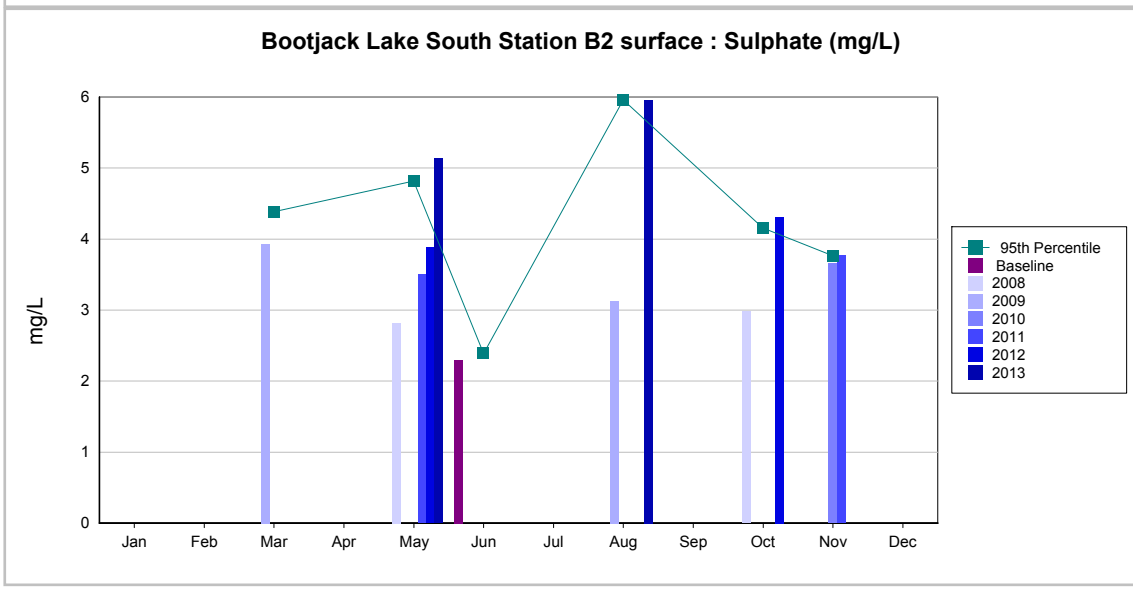
Mount Polley

Mining Corporation

IMPERIAL METALS CORPORATION



# Water Quality Report

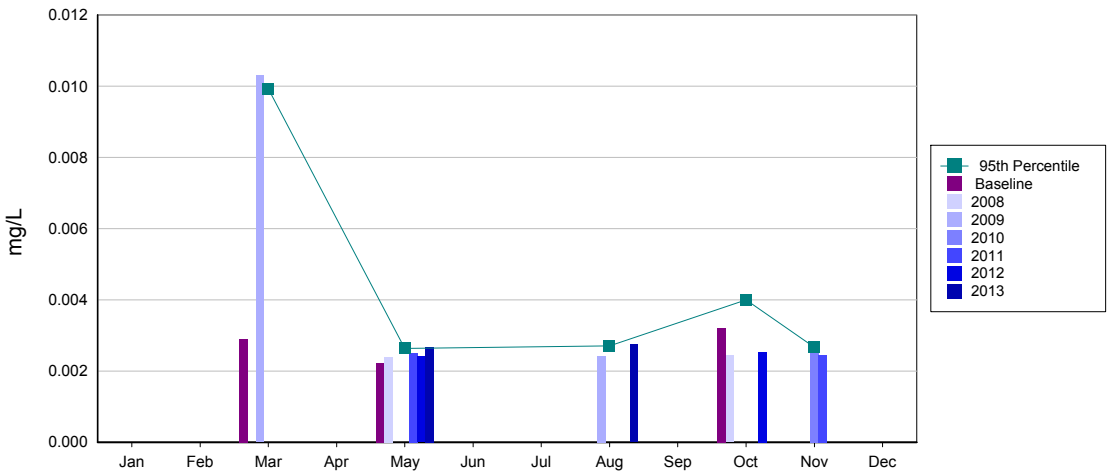
## Annual Report 2013 - Lake WQ Graphs

**Mount Polley**

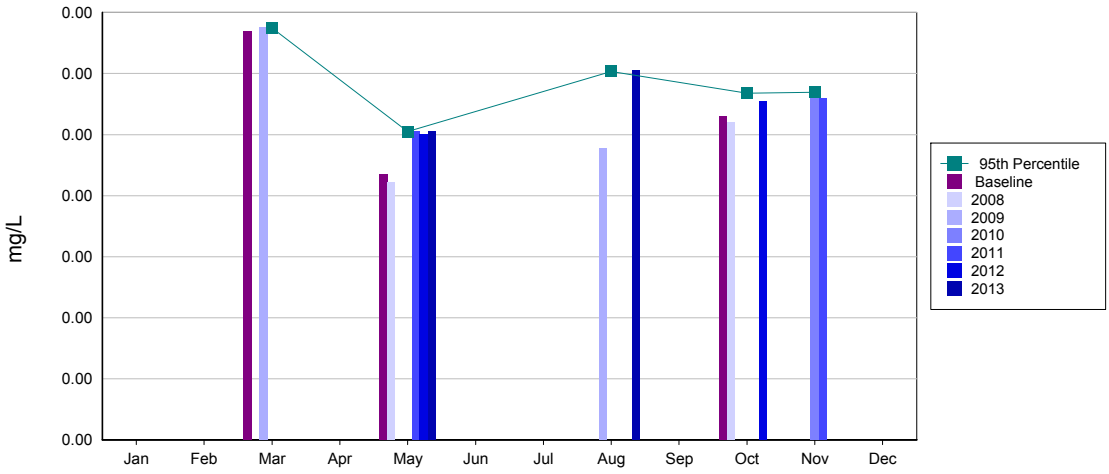
**Mining Corporation**

IMPERIAL METALS CORPORATION

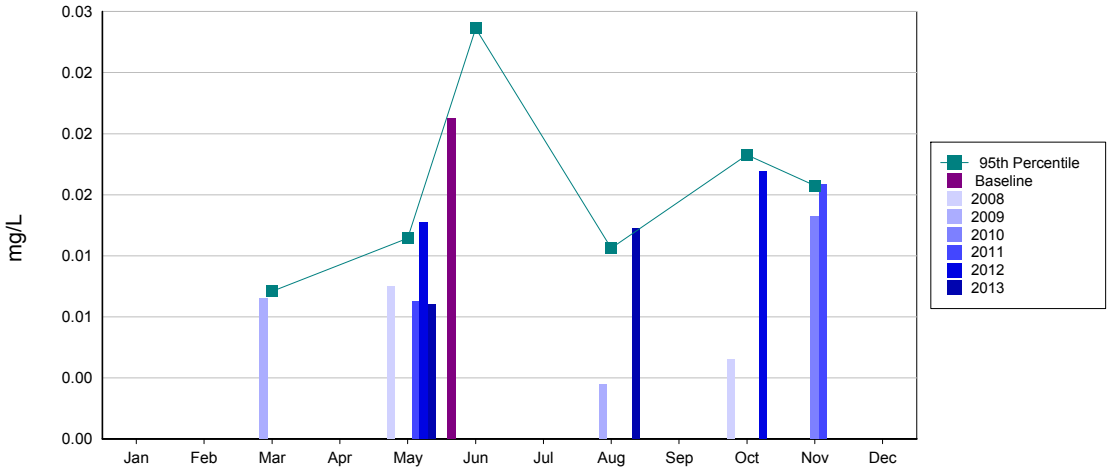
### Bootjack Lake South Station B2 surface : Total Copper (mg/L)




### Bootjack Lake South Station B2 surface : Total Molybdenum (mg/L)



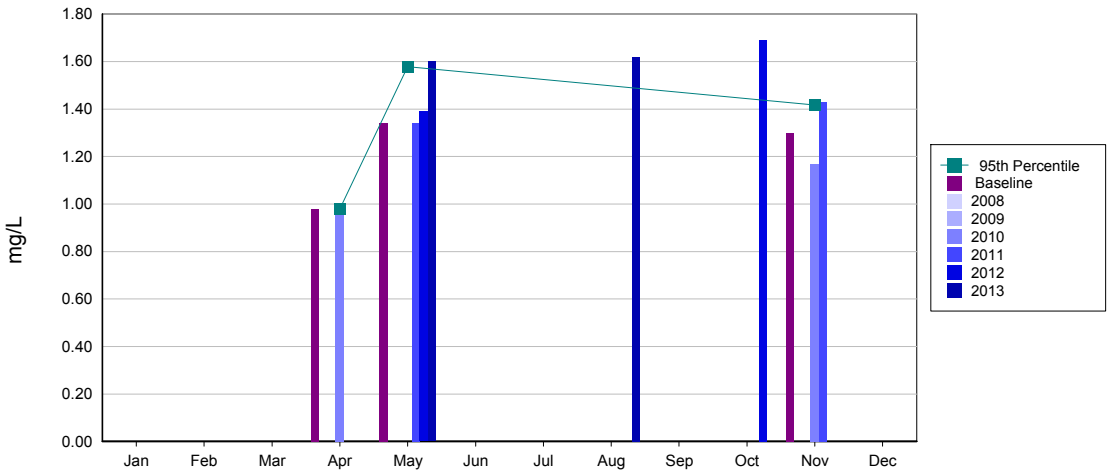

### Bootjack Lake South Station B2 surface : Total Phosphorus (mg/L)

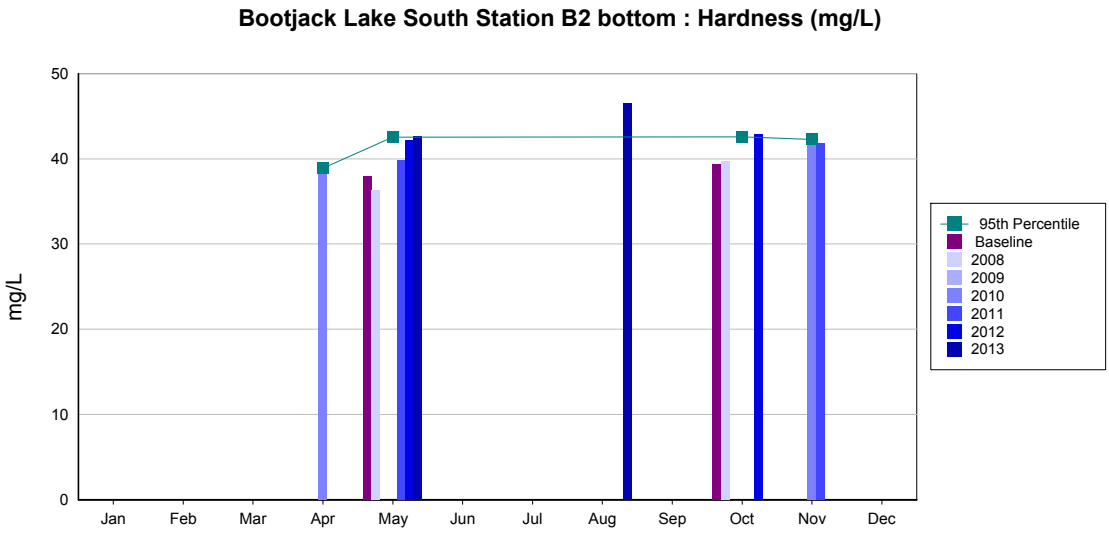


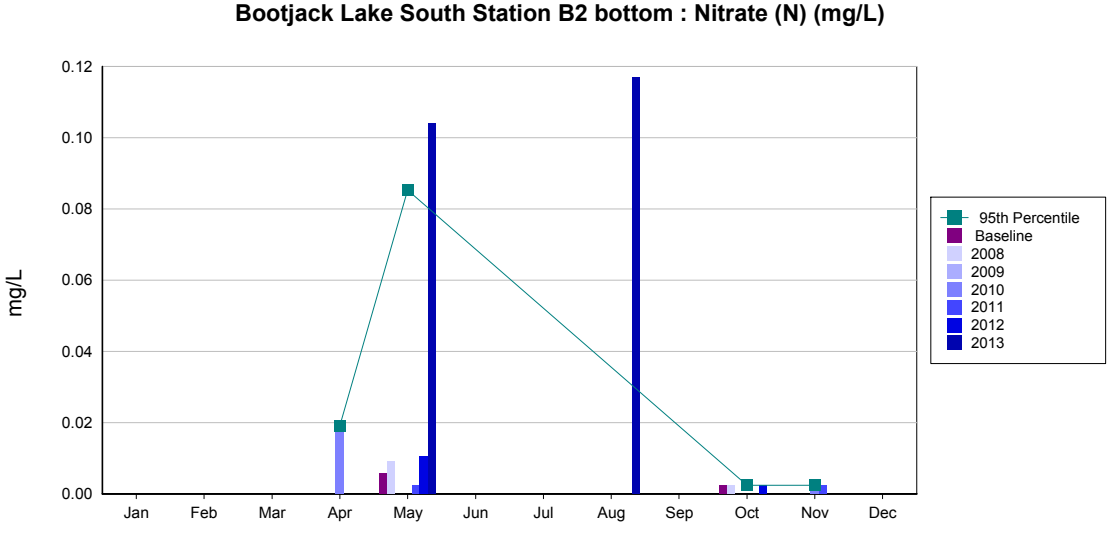
# Water Quality Report

## Annual Report 2013 - Lake WQ Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION



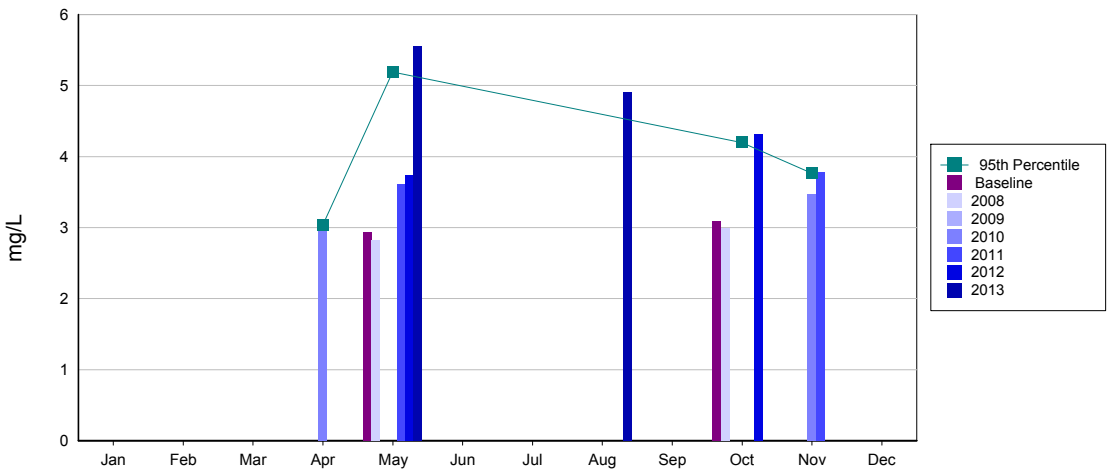



# Water Quality Report

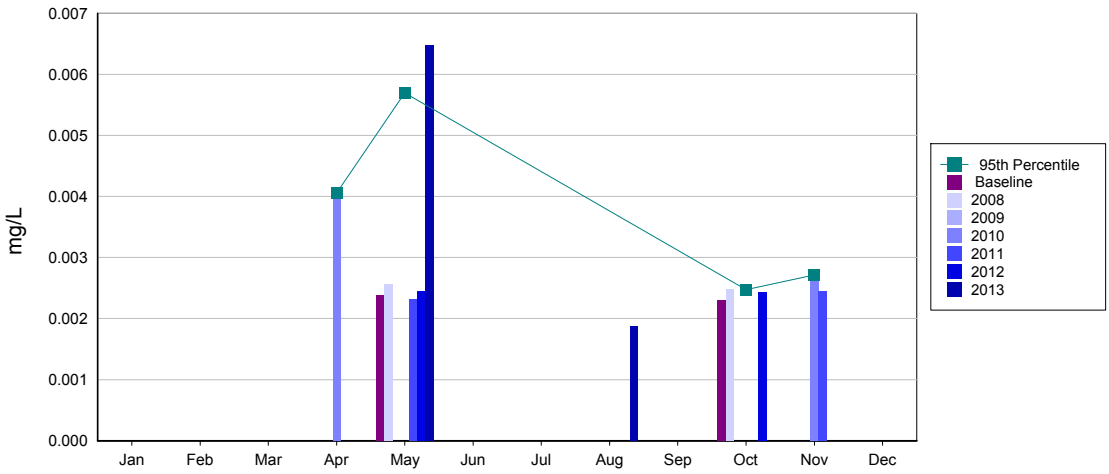
## Annual Report 2013 - Lake WQ Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

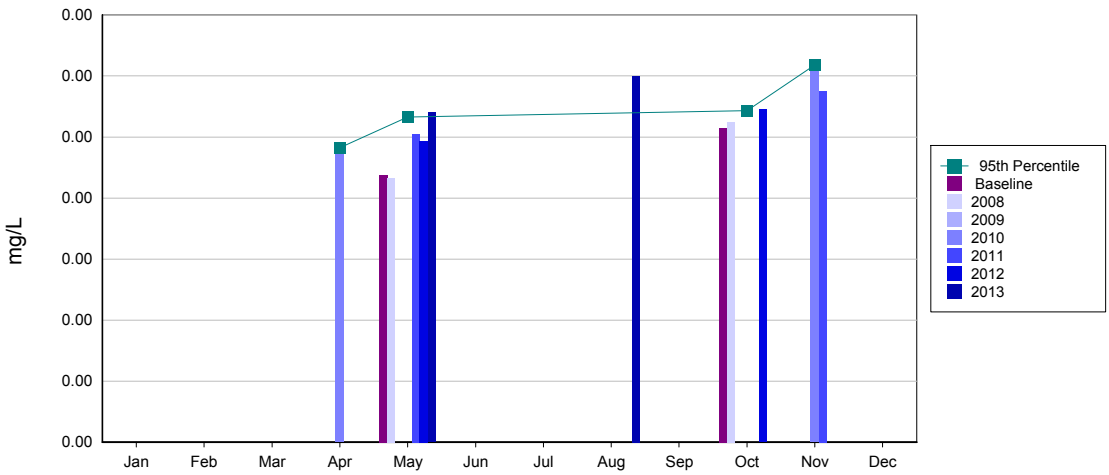
### Bootjack Lake South Station B2 bottom : Sulphate (mg/L)




### Bootjack Lake South Station B2 bottom : Total Copper (mg/L)




### Bootjack Lake South Station B2 bottom : Total Molybdenum (mg/L)



# Water Quality Report

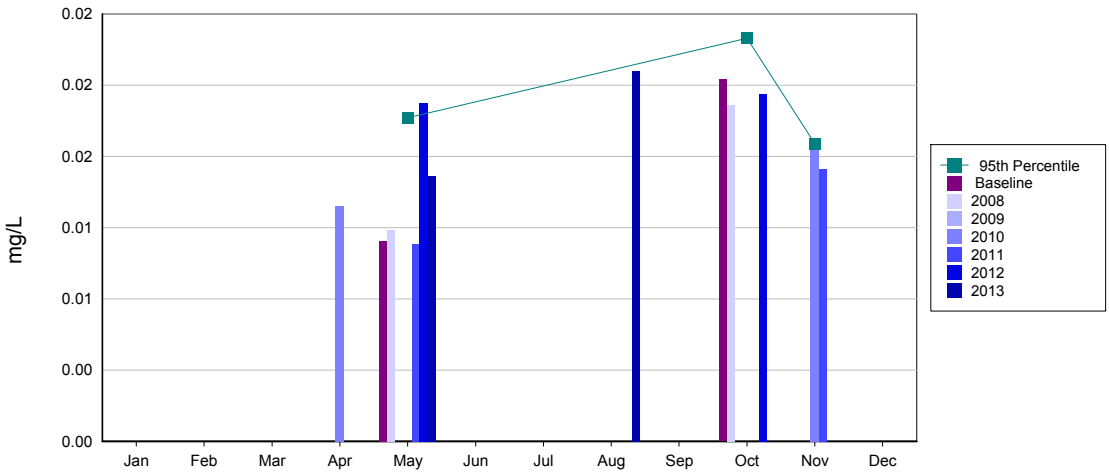
## Annual Report 2013 - Lake WQ Graphs

Mount Polley

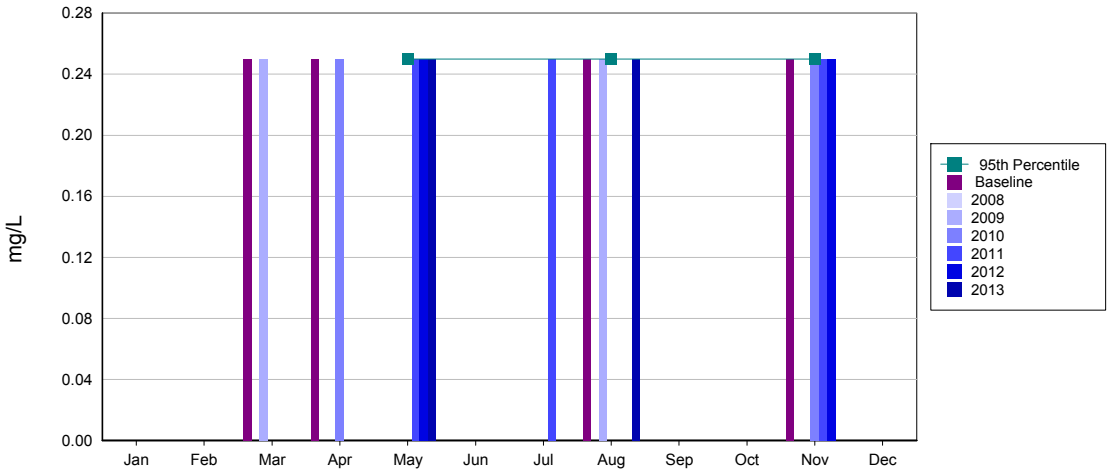
Mining Corporation

IMPERIAL METALS CORPORATION

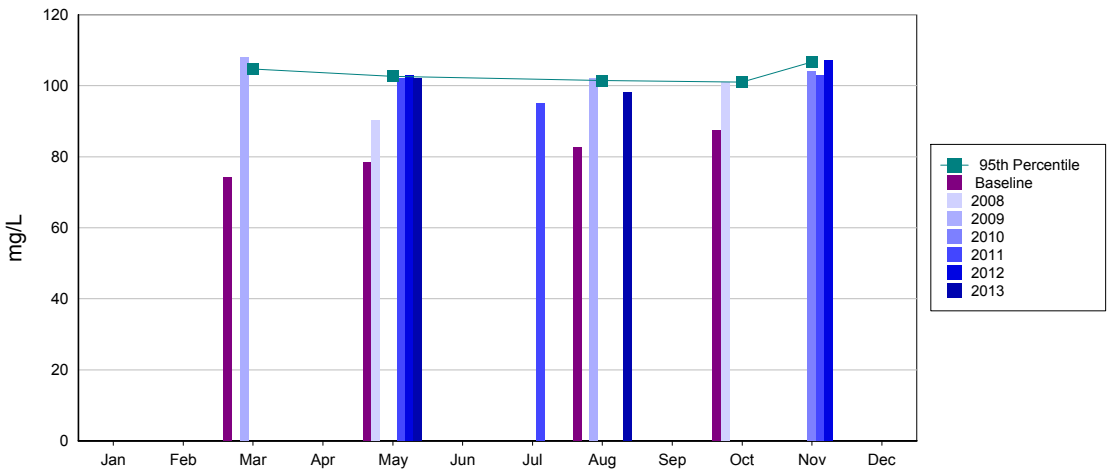
### Bootjack Lake South Station B2 bottom : Total Phosphorus (mg/L)




### Polley Lake North Station P1 surface : Chloride (mg/L)




### Polley Lake North Station P1 surface : Hardness (mg/L)



# Water Quality Report

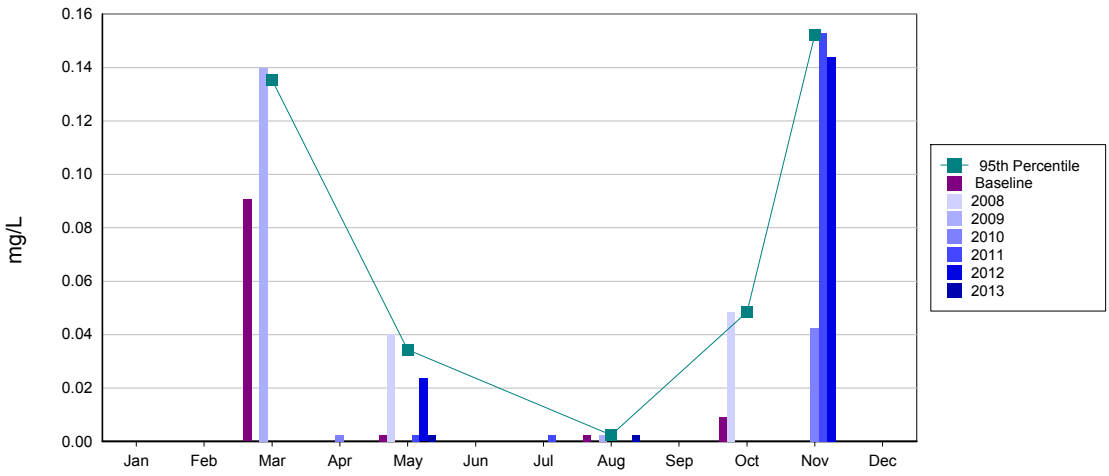
## Annual Report 2013 - Lake WQ Graphs

**Mount Polley**

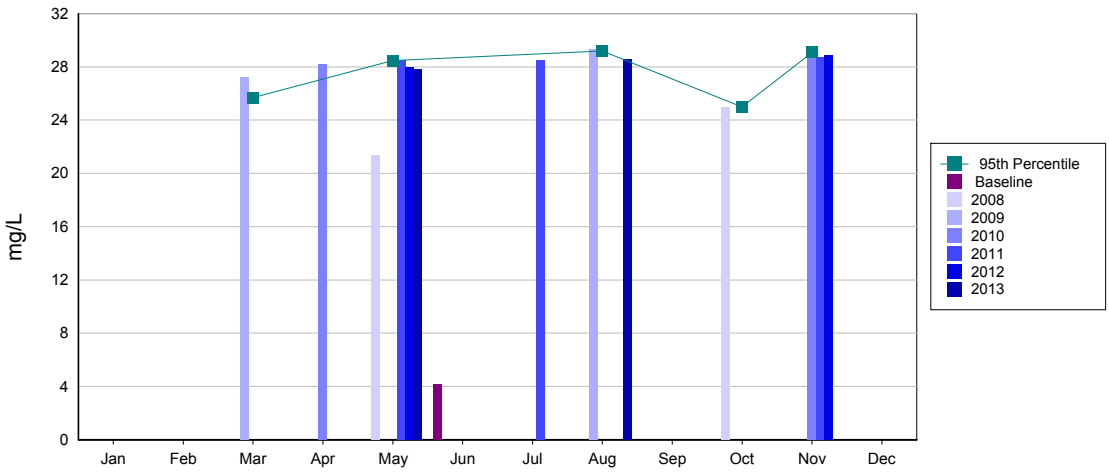
**Mining Corporation**

IMPERIAL METALS CORPORATION

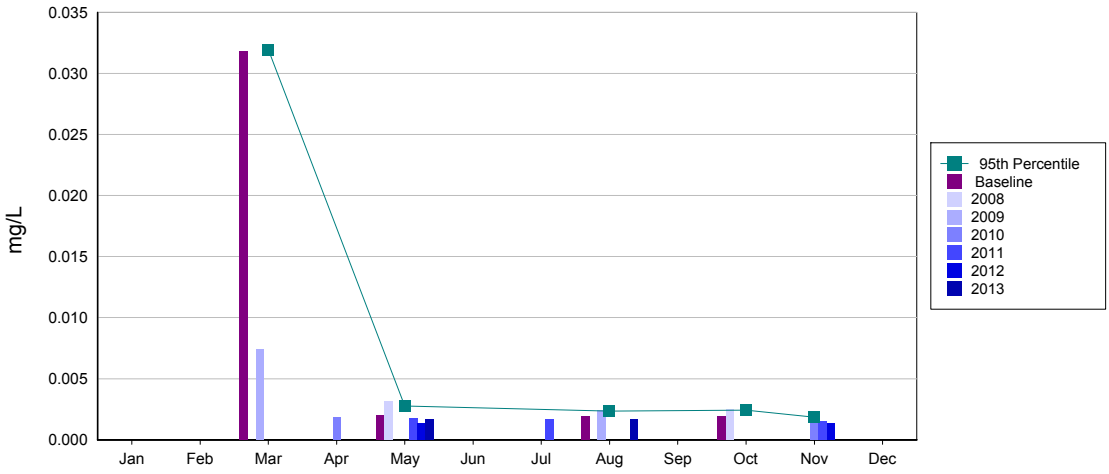
### Polley Lake North Station P1 surface : Nitrate (N) (mg/L)




### Polley Lake North Station P1 surface : Sulphate (mg/L)




### Polley Lake North Station P1 surface : Total Copper (mg/L)

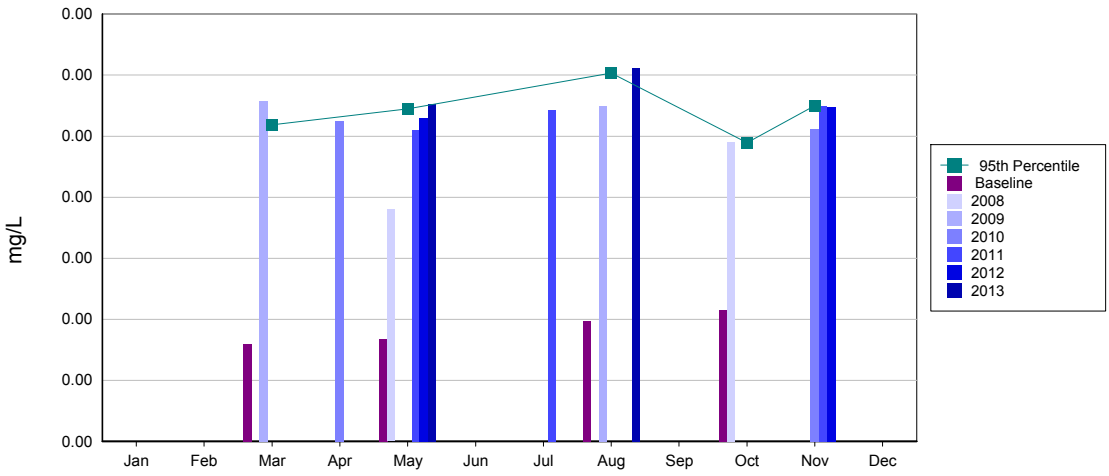


# Water Quality Report

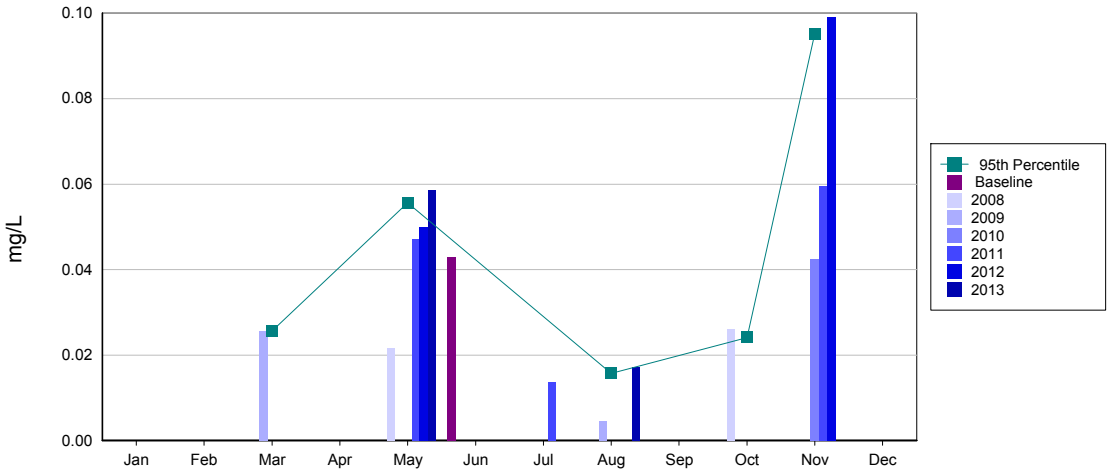
## Annual Report 2013 - Lake WQ Graphs

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

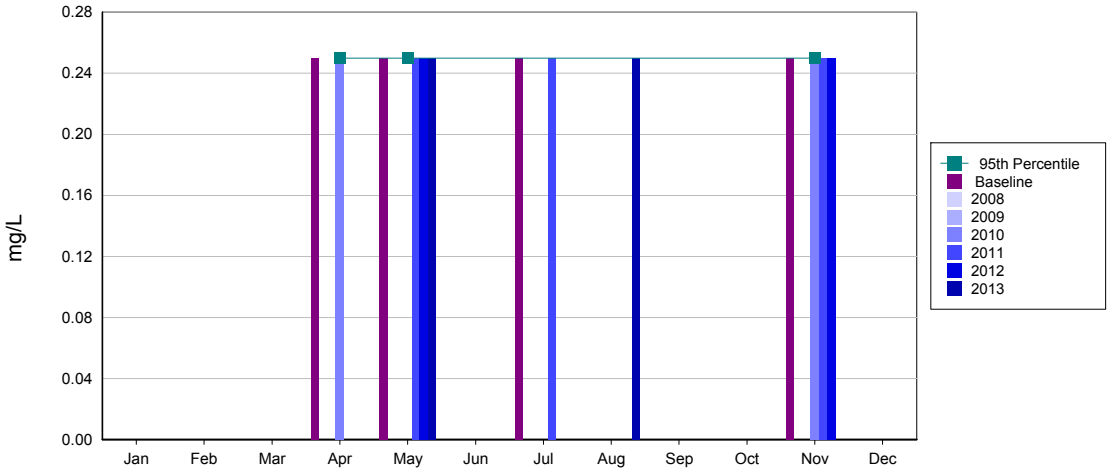
### Polley Lake North Station P1 surface : Total Molybdenum (mg/L)




### Polley Lake North Station P1 surface : Total Phosphorus (mg/L)




### Polley Lake North Station P1 bottom : Chloride (mg/L)



# Water Quality Report

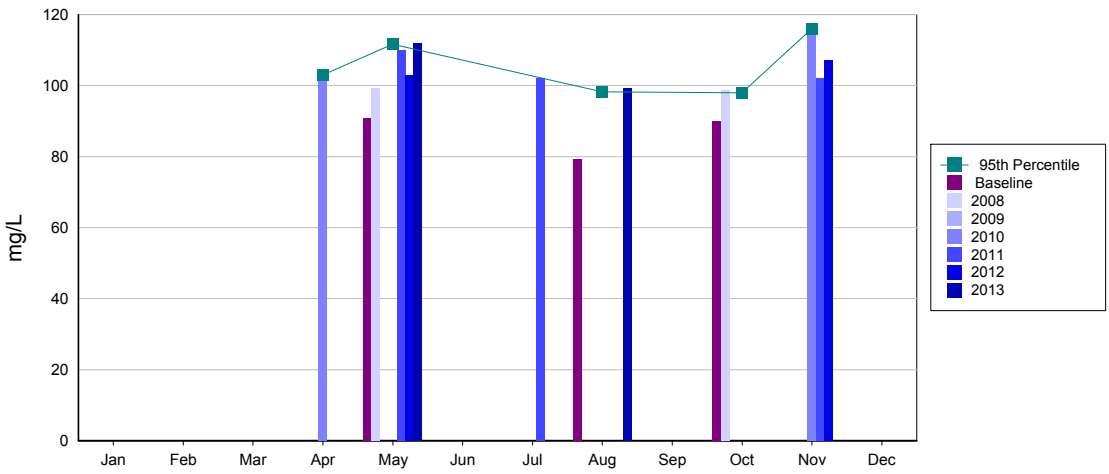
## Annual Report 2013 - Lake WQ Graphs

Mount Polley

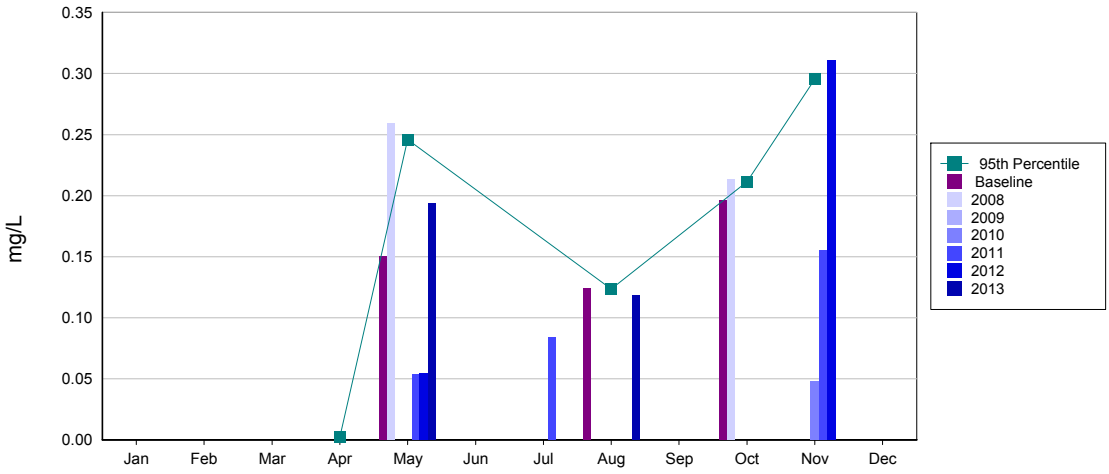
Mining Corporation

IMPERIAL METALS CORPORATION

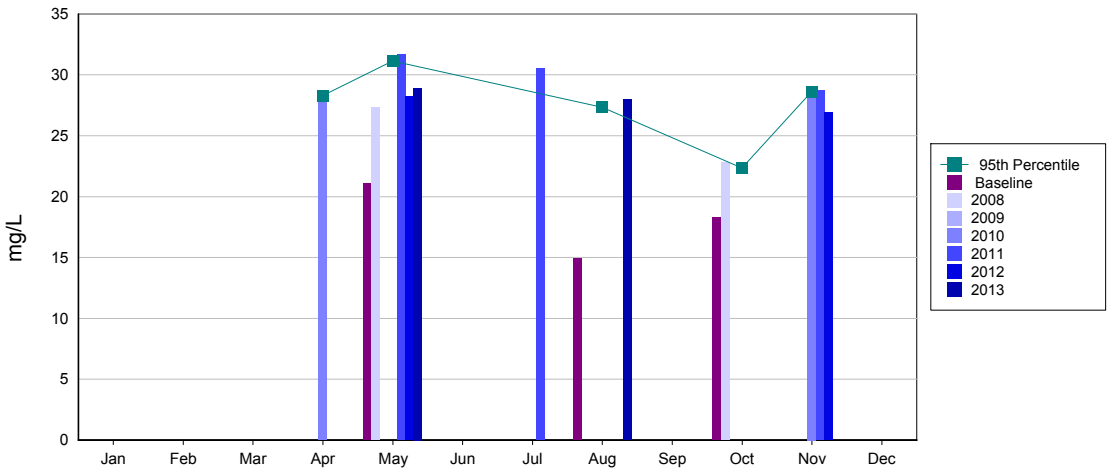
### Polley Lake North Station P1 bottom : Hardness (mg/L)




### Polley Lake North Station P1 bottom : Nitrate (N) (mg/L)




### Polley Lake North Station P1 bottom : Sulphate (mg/L)



# Water Quality Report

## Annual Report 2013 - Lake WQ Graphs

**Mount Polley**

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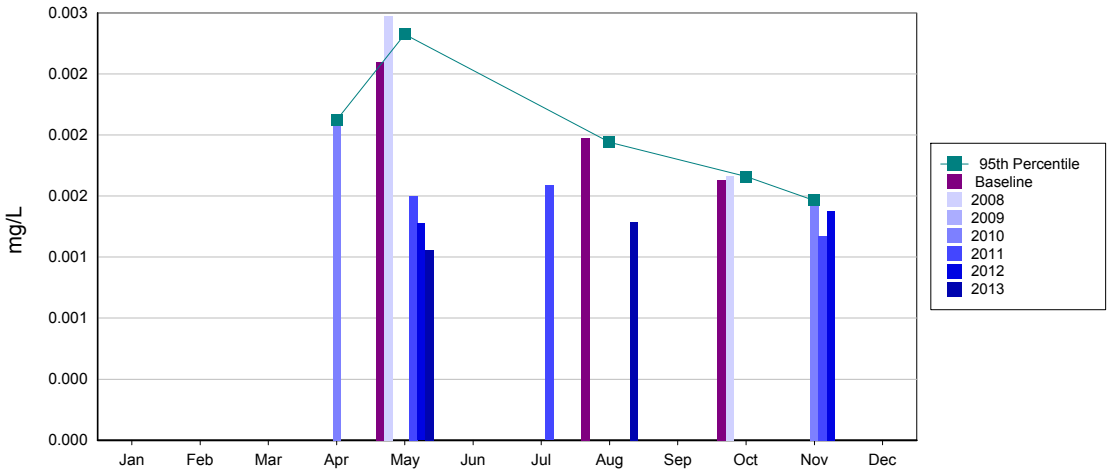
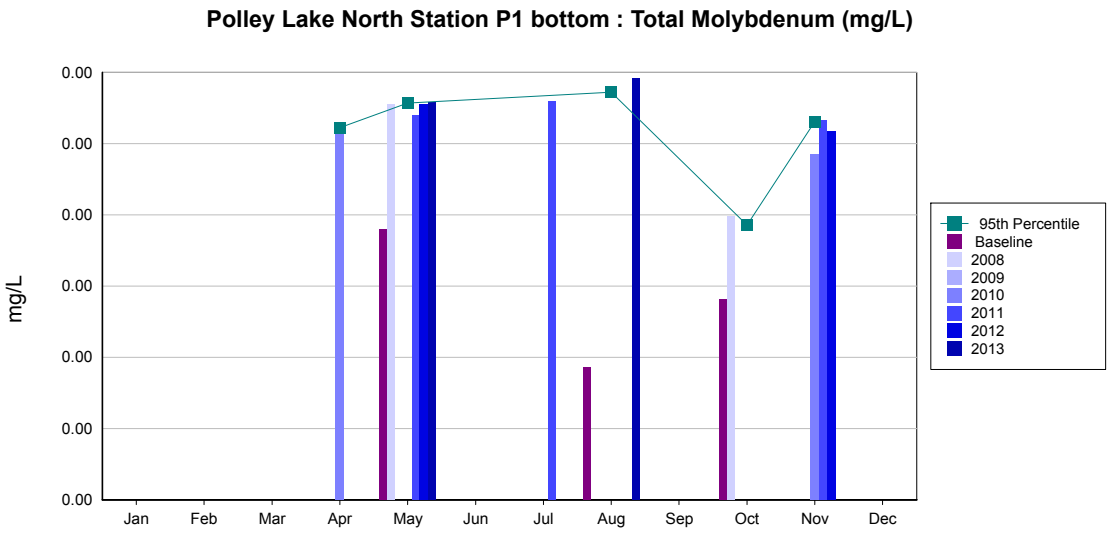
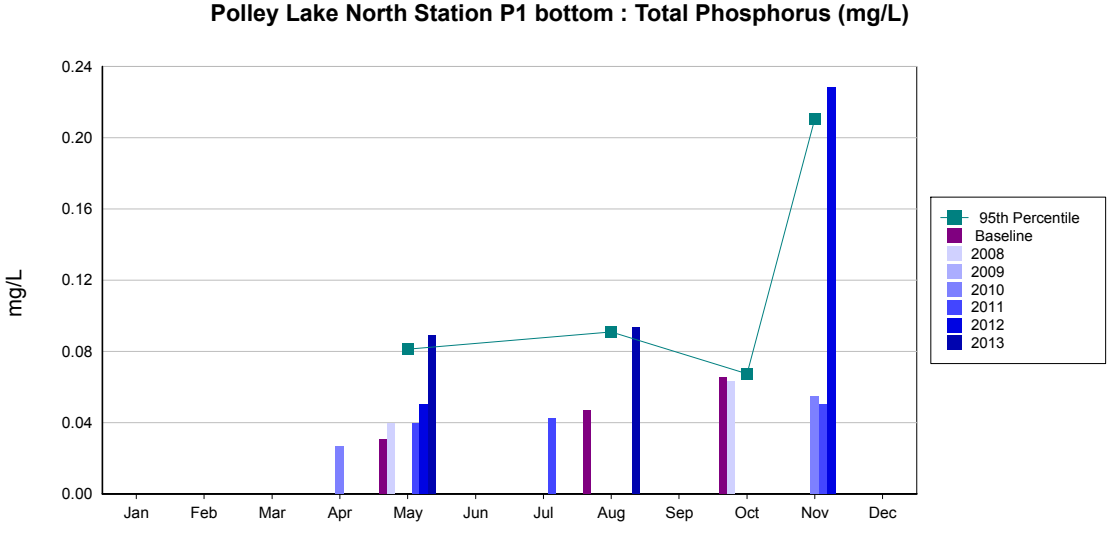


# Water Quality Report

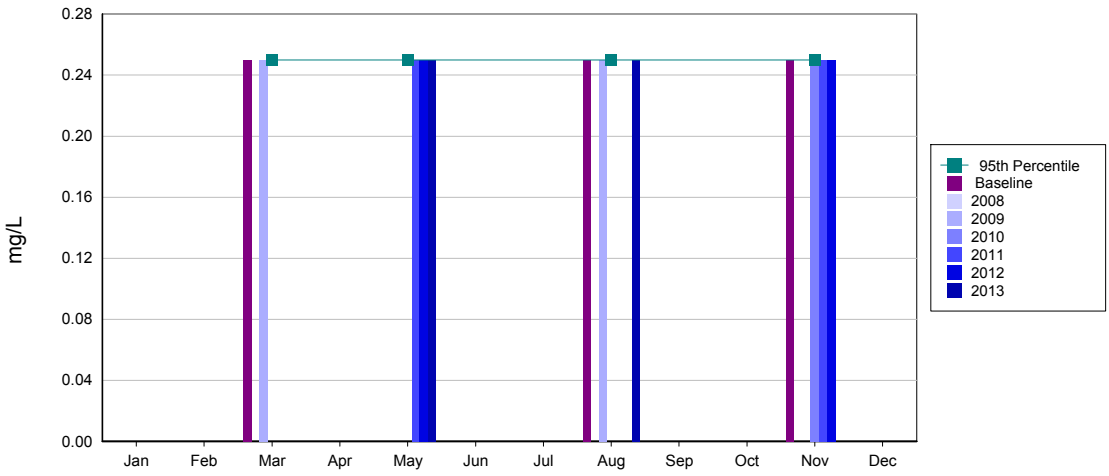
## Annual Report 2013 - Lake WQ Graphs

Mount Polley

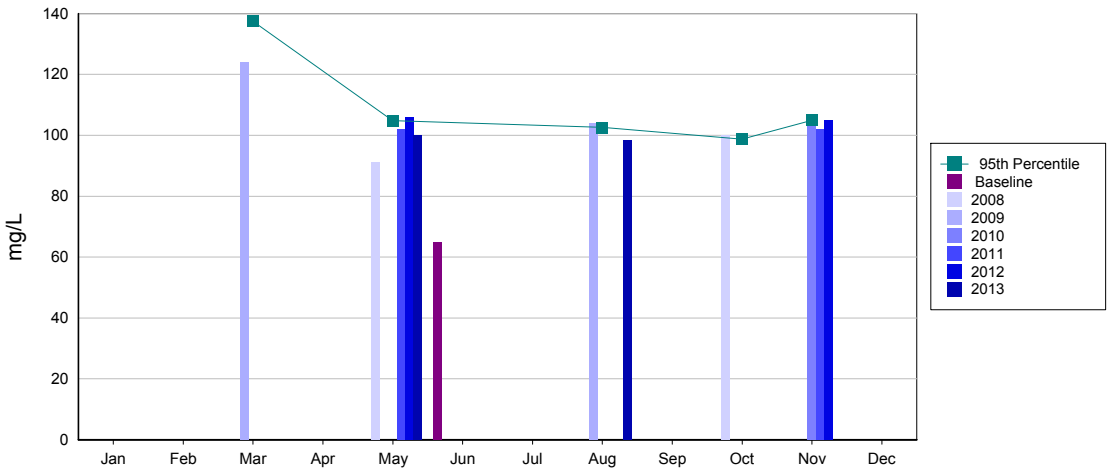
Mining Corporation

IMPERIAL METALS CORPORATION

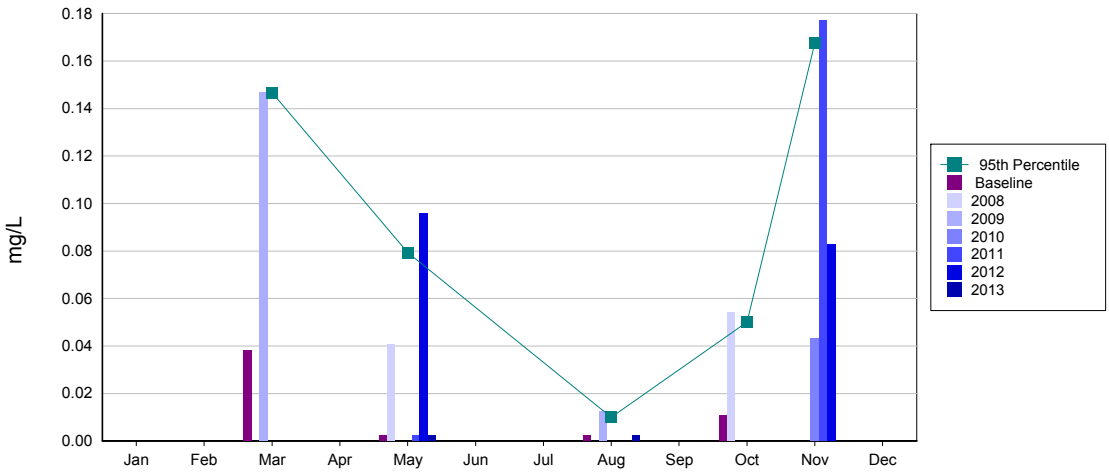
### Polley Lake South Station P2 surface : Chloride (mg/L)




### Polley Lake South Station P2 surface : Hardness (mg/L)




### Polley Lake South Station P2 surface : Nitrate (N) (mg/L)



# Water Quality Report

## Annual Report 2013 - Lake WQ Graphs

**Mount Polley**

**Mining Corporation**

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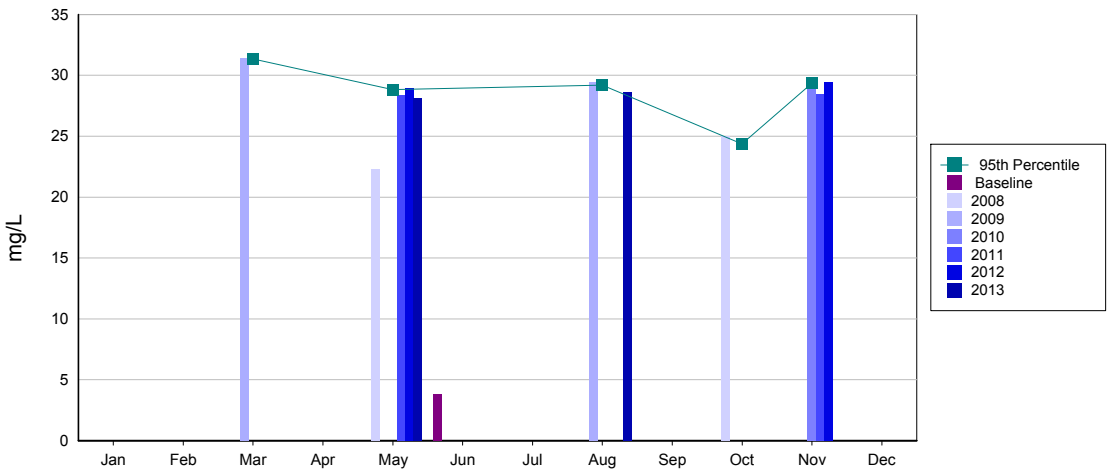
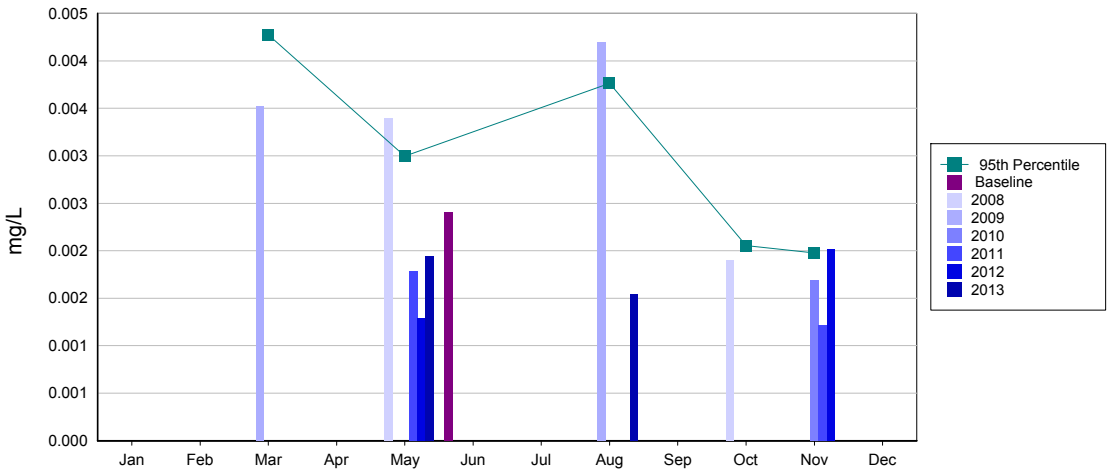
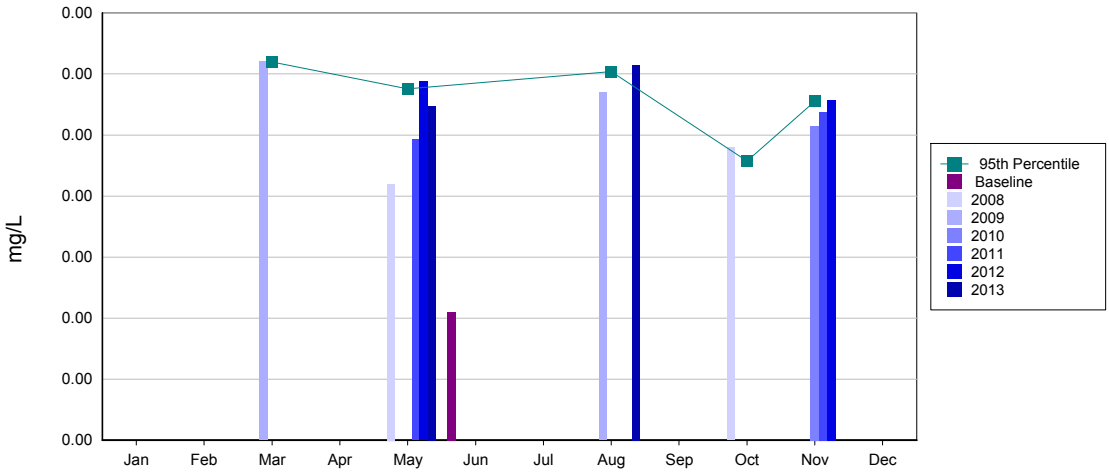
### Polley Lake South Station P2 surface : Sulphate (mg/L)




### Polley Lake South Station P2 surface : Total Copper (mg/L)




### Polley Lake South Station P2 surface : Total Molybdenum (mg/L)



# Water Quality Report

## Annual Report 2013 - Lake WQ Graphs

Mount Polley

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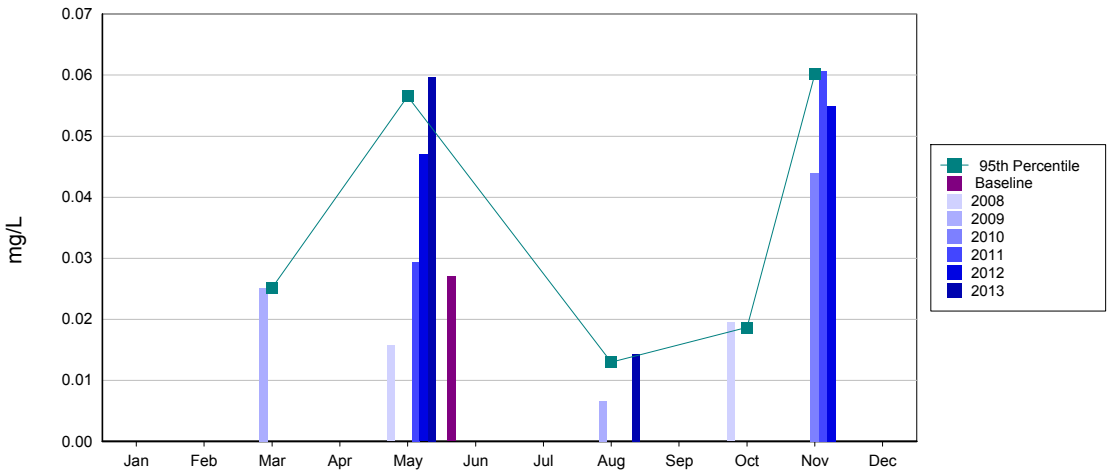
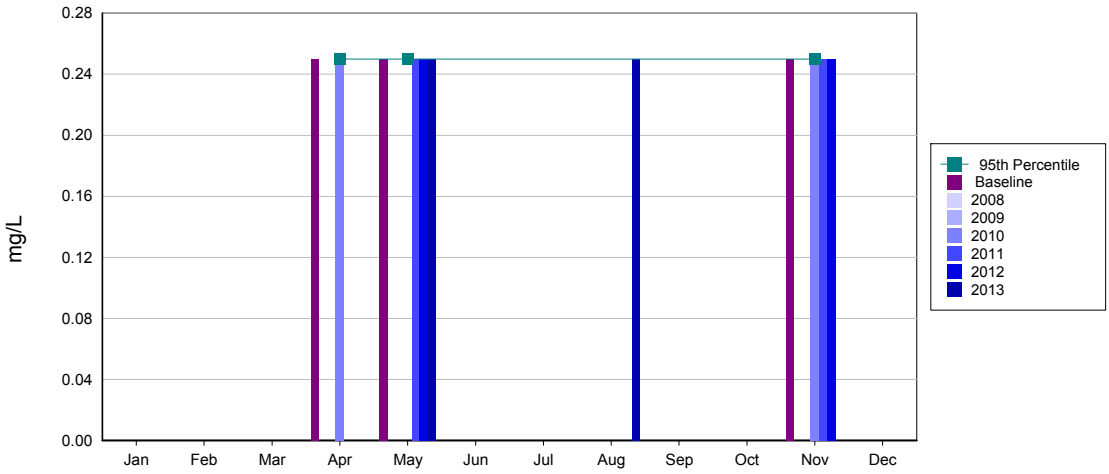
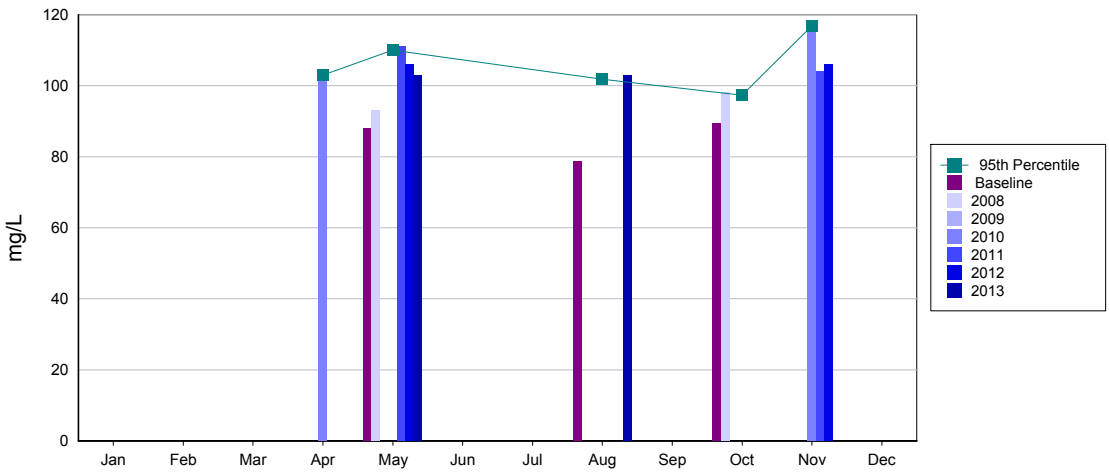
### Polley Lake South Station P2 surface : Total Phosphorus (mg/L)




### Polley Lake South Station P2 bottom : Chloride (mg/L)




### Polley Lake South Station P2 bottom : Hardness (mg/L)



# Water Quality Report

## Annual Report 2013 - Lake WQ Graphs

Mount Polley Mining Corporation
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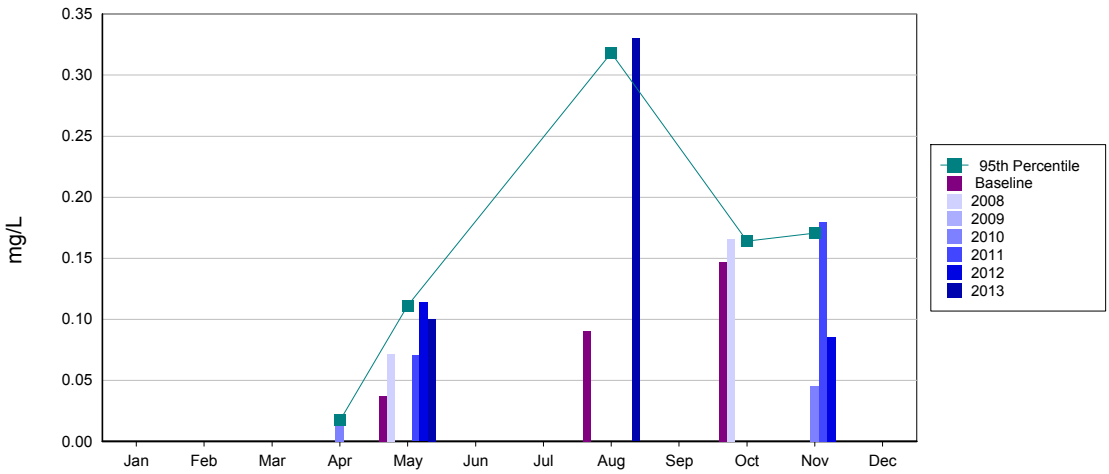
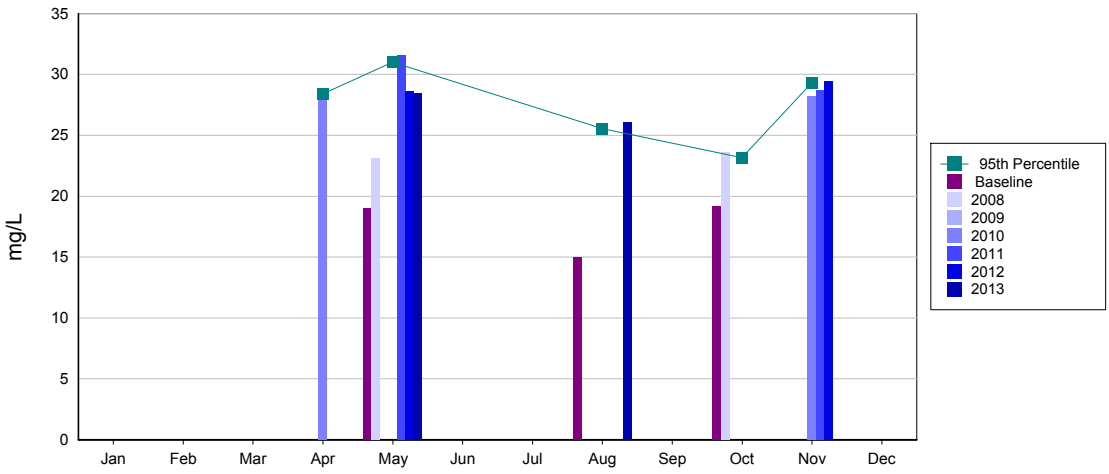
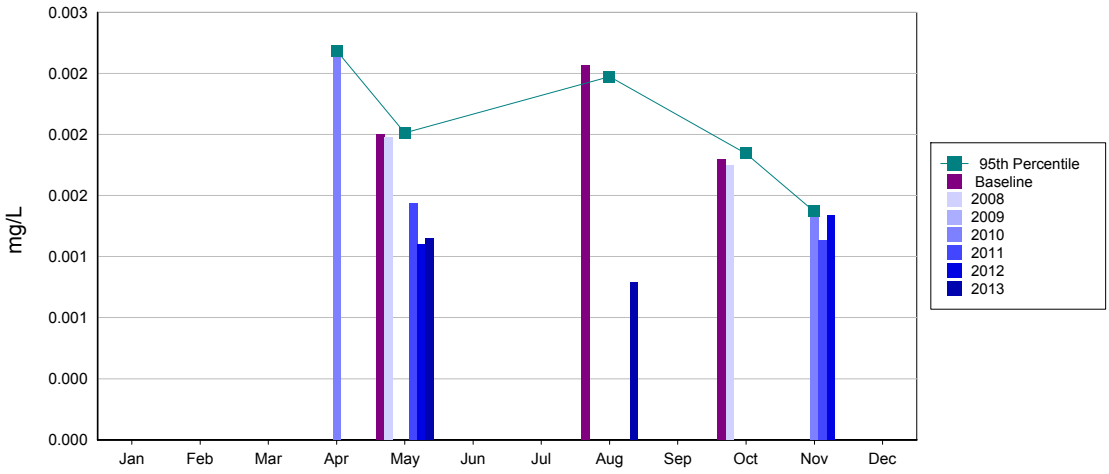
### Polley Lake South Station P2 bottom : Nitrate (N) (mg/L)




### Polley Lake South Station P2 bottom : Sulphate (mg/L)




### Polley Lake South Station P2 bottom : Total Copper (mg/L)



# Water Quality Report

## Annual Report 2013 - Lake WQ Graphs

Mount Polley

Mining Corporation

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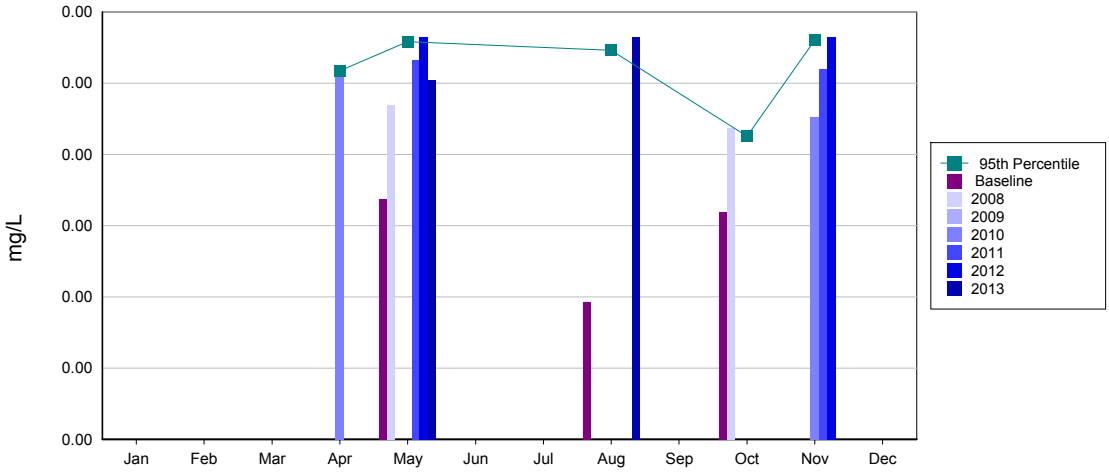


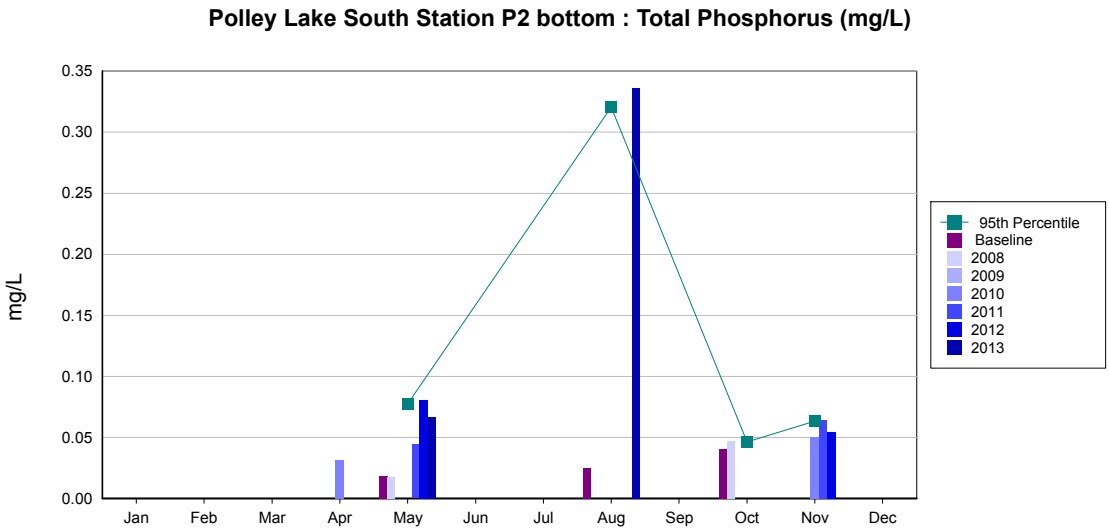

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207972 : Bootjack Lake North Station B1 bottom | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **26-Apr-10** | **2-Nov-10** | **25-May-11** | **1-Nov-11** | **16-May-12** | **31-Oct-12** | **13-May-13** | **21-Aug-13** |
| | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.003 | <0.003 | 0.006 | <0.0030 | | <0.0030 | | |
| **Anions and Nutrients** | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.005 | 0.0131 | <0.0050 | 0.0223 | <0.0050 | 0.0072 | 0.0778 |
| Chloride (mg/L) | 1.19 | 1.19 | 1.72 | 1.44 | 1.59 | 1.92 | 1.71 | 1.66 |
| Diss-Orthophosphate (mg/L) | <0.0010 | 0.0012 | 0.002 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0141 |
| Diss-Phosphorus (mg/L) | 0.0045 | 0.0047 | 0.0035 | 0.0039 | 0.0052 | 0.0042 | 0.0032 | 0.0167 |
| Nitrate (N) (mg/L) | 0.0129 | <0.005 | 0.0242 | <0.0050 | 0.0164 | <0.0050 | 0.0998 | 0.0086 |
| Nitrate and Nitrite (mg/L) | 0.0129 | <0.0051 | 0.0242 | <0.0051 | 0.0164 | <0.0051 | 0.0998 | 0.011 |
| Nitrite (N) (mg/L) | <0.0010 | <0.001 | <0.001 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0024 |
| Sulphate (mg/L) | 3.22 | 3.54 | 4.19 | 3.83 | 4.08 | 4.44 | 6.03 | 4.74 |
| Total Nitrogen (mg/L) | 0.24 | 0.24 | 0.22 | 0.180 | 0.3 | 0.32 | 0.373 | 0.35 |
| **Physical Test** | | | | | | | | |
| Alkalinity (CaCO3) ( | 39.5 | 41.3 | 40.5 | 41.2 | 40.9 | 44 | 42.2 | 47.4 |
| Conductivity (µs/cm) | | 89.1 | 91.7 | 90.1 | 87.7 | 92.5 | 95.7 | 105 |
| Hardness (mg/L) | 39.1 | 42.3 | 43.1 | 42.1 | 44.5 | 42.5 | 42.9 | 47.9 |
| NTU (ntu) | 1.02 | 1.73 | 1.34 | 1.41 | 2.58 | 1.82 | 1.07 | 2.68 |
| pH (pH) | | 7.8 | 7.71 | 7.98 | 7.76 | 7.88 | 7.63 | 7.59 |
| TSS (mg/L) | <3.0 | 4.1 | <3 | 4.3 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.0001 | <0.0001 | 0.00010 | 0.00012 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00102 | 0.00038 | 0.0003 | 0.00031 | 0.00032 | 0.00039 | 0.00031 | 0.00068 |
| Barium (Ba)-Total | 0.0166 | 0.0181 | 0.0183 | 0.0184 | 0.0192 | 0.018 | 0.0184 | 0.0218 |
| Boron (B)-Total (mg/L) | 0.044 | 0.049 | 0.049 | 0.048 | 0.051 | 0.046 | 0.044 | 0.042 |
| Calcium (Ca)-Total ( | 11.6 | 12.8 | 13.4 | 13.3 | 13.6 | 13.2 | 13.1 | 14.9 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium (Mg)-Total (mg/L) | 2.14 | 2.31 | 2.42 | 2.37 | 2.53 | 2.38 | 2.47 | 2.6 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 2.24 | 2.4 | 2.51 | 2.56 | 2.54 | 2.41 | 2.36 | 2.4 |
| Strontium (Sr)-Total (mg/L) | 0.107 | 0.123 | 0.116 | 0.147 | 0.125 | 0.128 | 0.116 | 0.134 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0243 | 0.0415 | 0.0264 | 0.0263 | 0.0416 | 0.0237 | 0.035 | 0.009 |
| Total Cadmium (mg/L) | <0.000017 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00267 | 0.00307 | 0.00237 | 0.00253 | 0.00273 | 0.00257 | 0.00258 | 0.00193 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

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| | E207972 : Bootjack Lake North Station B1 bottom | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **26-Apr-10** | **2-Nov-10** | **25-May-11** | **1-Nov-11** | **16-May-12** | **31-Oct-12** | **13-May-13** | **21-Aug-13** |
| Total Iron (mg/L) | 0.067 | 0.107 | 0.124 | 0.114 | 0.167 | 0.086 | 0.077 | 0.38 |
| Total Lead (mg/L) | <0.000050 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.039 | 0.0258 | 0.0681 | 0.0343 | 0.0668 | 0.0284 | 0.0371 | 1.41 |
| Total Molybdenum (mg/L) | 0.000969 | 0.00119 | 0.0011 | 0.00113 | 0.00108 | 0.0012 | 0.00101 | 0.00201 |
| Total Selenium (mg/L) | <0.0010 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | 0.0011 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207972 : Bootjack Lake North Station B1 bottom | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 10 | 7 | 0.00110 | 0.00600 | 0.00289 | 0.00499 | 0.00181 |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 13 | 6 | 0.00500 | 0.07780 | 0.01337 | 0.01004 | 0.01999 |
| Chloride (mg/L) | 9 | 9 | 1.19000 | 1.92000 | 1.51222 | | 0.27229 |
| Diss-Orthophosphate (mg/L) | 13 | 7 | 0.00050 | 0.01410 | 0.00202 | 0.00200 | 0.00368 |
| Diss-Phosphorus (mg/L) | 13 | 13 | 0.00320 | 0.01670 | 0.00640 | 0.01466 | 0.00454 |
| Nitrate (N) (mg/L) | 13 | 7 | 0.00250 | 0.09980 | 0.01878 | 0.04653 | 0.02832 |
| Nitrate and Nitrite (mg/L) | 9 | 6 | 0.00255 | 0.09980 | 0.02054 | | 0.03060 |
| Nitrite (N) (mg/L) | 13 | 2 | 0.00050 | 0.00240 | 0.00075 | 0.00161 | 0.00061 |
| Sulphate (mg/L) | 13 | 13 | 3.05000 | 6.03000 | 3.87000 | 3.53750 | 0.84311 |
| Total Nitrogen (mg/L) | 13 | 13 | 0.18000 | 0.40000 | 0.27485 | 0.39100 | 0.07621 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 13 | 13 | 37.90000 | 47.40000 | 41.45385 | 42.54000 | 2.39639 |
| Conductivity (µs/cm) | 7 | 7 | 87.70000 | 105.00000 | 93.11429 | | 5.84307 |
| Hardness (mg/L) | 13 | 13 | 39.00000 | 47.90000 | 41.87692 | 41.50500 | 2.52559 |
| NTU (ntu) | 13 | 13 | 1.02000 | 2.68000 | 1.62154 | 1.77550 | 0.53235 |
| pH (pH) | 7 | 7 | 7.59000 | 7.98000 | 7.76429 | | 0.13697 |
| TSS (mg/L) | 13 | 5 | 1.50000 | 4.30000 | 2.36154 | 3.64000 | 1.16443 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 13 | 2 | 0.00005 | 0.00012 | 0.00006 | 0.00005 | 0.00002 |
| Arsenic (As)-Total ( | 13 | 13 | 0.00026 | 0.00102 | 0.00046 | 0.00035 | 0.00027 |
| Barium (Ba)-Total | 13 | 13 | 0.01630 | 0.02180 | 0.01786 | 0.01714 | 0.00151 |
| Boron (B)-Total (mg/L) | 13 | 13 | 0.04100 | 0.05100 | 0.04554 | 0.04585 | 0.00299 |
| Calcium (Ca)-Total ( | 13 | 13 | 11.60000 | 14.90000 | 12.80000 | 12.47000 | 0.92646 |
| Chromium (Cr)-Total (mg/L) | 13 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Magnesium (Mg)-Total (mg/L) | 13 | 13 | 2.14000 | 2.60000 | 2.33000 | 2.32100 | 0.15160 |
| Nickel (Ni)-Total (mg/L) | 13 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Silver (Ag)-Total (mg/L) | 13 | 0 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00000 |
| Sodium (Na)-Total (mg/L) | 13 | 13 | 2.24000 | 2.56000 | 2.39231 | 2.44800 | 0.10670 |
| Strontium (Sr)-Total (mg/L) | 13 | 13 | 0.09740 | 0.14700 | 0.11618 | 0.10570 | 0.01462 |
| Tin (Sn)-Total (mg/L) | 13 | 0 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00000 |
| Total Aluminum (mg/L) | 13 | 13 | 0.00900 | 0.05530 | 0.02798 | 0.05037 | 0.01243 |
| Total Cadmium (mg/L) | 13 | 1 | 0.00001 | 0.00002 | 0.00001 | 0.00002 | 0.00000 |

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**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207972 : Bootjack Lake North Station B1 bottom | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Total Copper (mg/L) | 13 | 13 | 0.00193 | 0.00307 | 0.00257 | 0.00302 | 0.00032 |
| Total Iron (mg/L) | 13 | 13 | 0.06700 | 0.38000 | 0.12123 | 0.13235 | 0.08341 |
| Total Lead (mg/L) | 13 | 1 | 0.00005 | 0.00007 | 0.00005 | 0.00006 | 0.00000 |
| Total Manganese (mg/L) | 13 | 13 | 0.02020 | 1.41000 | 0.15105 | 0.11543 | 0.37936 |
| Total Molybdenum (mg/L) | 13 | 13 | 0.00084 | 0.00201 | 0.00112 | 0.00104 | 0.00029 |
| Total Selenium (mg/L) | 13 | 0 | 0.00025 | 0.00050 | 0.00038 | 0.00050 | 0.00013 |
| Zinc (Zn)-Total (mg/L) | 13 | 4 | 0.00050 | 0.00270 | 0.00147 | 0.00255 | 0.00048 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

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| | E207972 : Bootjack Lake North Station B1 surface | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 13-Mar-09 | 26-Aug-09 | 15-Nov-10 | 25-May-11 | 1-Nov-11 | 16-May-12 | 31-Oct-12 | 13-May-13 | 21-Aug-13 |
| | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0045 | 0.0035 | <0.003 | 0.0129 | <0.0030 | | <0.0030 | | |
| **Anions and Nutrients** | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0412 | 0.0057 | <0.005 | <0.005 | <0.0050 | 0.0167 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | 1.43 | 0.99 | 1.28 | 1.42 | 1.44 | 1.48 | 1.69 | 1.6 | 1.6 |
| Diss-Orthophosphate (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Diss-Phosphorus (mg/L) | 0.0056 | <0.002 | 0.0042 | 0.0029 | 0.0033 | 0.0046 | 0.0037 | 0.0033 | 0.0029 |
| Nitrate (N) (mg/L) | 0.0168 | <0.005 | <0.005 | <0.005 | <0.0050 | <0.0050 | <0.0050 | 0.0501 | <0.0050 |
| Nitrate and Nitrite (mg/L) | | | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | 0.0501 | <0.0051 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 4.71 | 3.13 | 3.72 | 3.7 | 3.83 | 3.92 | 4.39 | 5.22 | 5.95 |
| Total Nitrogen (mg/L) | 0.33 | 0.24 | 0.16 | 0.18 | 0.130 | 0.28 | 0.31 | 0.321 | 0.278 |
| **Physical Test** | | | | | | | | | |
| Alkalinity (CaCO3) ( | 57.4 | 43.4 | 40.4 | 37.6 | 40.9 | 41.3 | 44.1 | 40.6 | 42.1 |
| Conductivity (µs/cm) | | | 89.6 | 83.6 | 89.7 | 86.4 | 91.9 | 90.9 | 98.5 |
| Hardness (mg/L) | 56.3 | 40.1 | 42.3 | 38.4 | 42.0 | 43.2 | 43.3 | 40.7 | 44.5 |
| NTU (ntu) | 1.72 | 0.86 | 1.37 | 0.73 | 1.53 | 1.77 | 2.26 | 0.72 | 0.48 |
| pH (pH) | | | 7.77 | 7.78 | 7.96 | 7.79 | 7.89 | 7.75 | 7.96 |
| TSS (mg/L) | <3 | <3 | <3 | <3 | <3.0 | 4.7 | 6.7 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00016 | <0.0001 | 0.00011 | <0.0001 | <0.00010 | 0.00011 | <0.00010 | <0.00010 | 0.00013 |
| Arsenic (As)-Total ( | 0.00048 | 0.0003 | 0.00036 | 0.00026 | 0.00034 | 0.00033 | 0.0004 | 0.00033 | 0.00038 |
| Barium (Ba)-Total | 0.0265 | 0.0157 | 0.0183 | 0.0164 | 0.0185 | 0.0185 | 0.0173 | 0.0172 | 0.0174 |
| Boron (B)-Total (mg/L) | 0.067 | 0.046 | 0.049 | 0.047 | 0.049 | 0.049 | 0.039 | 0.043 | 0.042 |
| Calcium (Ca)-Total ( | 17.3 | 11 | 13 | 12.2 | 13.1 | 13.3 | 13.2 | 12.4 | 13.6 |
| Chromium (Cr)-Total (mg/L) | 0.00129 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium (Mg)-Total (mg/L) | 3.12 | 2.15 | 2.3 | 2.22 | 2.34 | 2.45 | 2.3 | 2.34 | 2.53 |
| Nickel (Ni)-Total (mg/L) | 0.00052 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silver (Ag)-Total (mg/L) | <0.00001 | 0.000013 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 3.77 | 2.27 | 2.62 | 2.38 | 2.60 | 2.53 | 2.49 | 2.31 | 2.46 |
| Strontium (Sr)-Total (mg/L) | 0.151 | 0.114 | 0.122 | 0.112 | 0.147 | 0.123 | 0.111 | 0.108 | 0.121 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0344 | 0.0152 | 0.0205 | 0.0335 | 0.0183 | 0.0352 | 0.024 | 0.0336 | 0.0171 |
| Total Cadmium (mg/L) | 0.000047 | <0.000017 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00757 | 0.00281 | 0.0026 | 0.00267 | 0.00248 | 0.00261 | 0.00249 | 0.00265 | 0.00286 |

# Grid Format Report

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**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207972 : Bootjack Lake North Station B1 surface | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 13-Mar-09 | 26-Aug-09 | 15-Nov-10 | 25-May-11 | 1-Nov-11 | 16-May-12 | 31-Oct-12 | 13-May-13 | 21-Aug-13 |
| Total Iron (mg/L) | 0.104 | <0.03 | 0.068 | 0.047 | 0.081 | 0.116 | 0.084 | 0.043 | <0.030 |
| Total Lead (mg/L) | 0.000113 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0037 | 0.0124 | 0.0138 | 0.0181 | 0.0340 | 0.0481 | 0.0273 | 0.0167 | 0.0134 |
| Total Molybdenum (mg/L) | 0.00163 | 0.0011 | 0.00124 | 0.00104 | 0.00114 | 0.00104 | 0.00101 | 0.000941 | 0.00119 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | <0.01 | <0.001 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207972 : Bootjack Lake North Station B1 surface | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 16 | 13 | 0.00100 | 0.01300 | 0.00388 | 0.00949 | 0.00380 |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 19 | 8 | 0.00500 | 0.04120 | 0.00937 | 0.01640 | 0.00888 |
| Chloride (mg/L) | 9 | 9 | 0.99000 | 1.69000 | 1.43667 | | 0.20730 |
| Diss-Orthophosphate (mg/L) | 19 | 3 | 0.00050 | 0.00500 | 0.00081 | 0.00334 | 0.00104 |
| Diss-Phosphorus (mg/L) | 19 | 18 | 0.00100 | 0.00700 | 0.00377 | 0.01319 | 0.00141 |
| Nitrate (N) (mg/L) | 16 | 3 | 0.00250 | 0.05010 | 0.00772 | 0.01762 | 0.01291 |
| Nitrate and Nitrite (mg/L) | 8 | 1 | 0.00255 | 0.05010 | 0.00943 | | 0.01664 |
| Nitrite (N) (mg/L) | 16 | 2 | 0.00050 | 0.00140 | 0.00061 | 0.00140 | 0.00031 |
| Sulphate (mg/L) | 19 | 19 | 2.30000 | 5.95000 | 3.59895 | 3.19950 | 0.90792 |
| Total Nitrogen (mg/L) | 19 | 18 | 0.06000 | 0.38000 | 0.25847 | 0.35750 | 0.08553 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 19 | 19 | 35.20000 | 57.40000 | 40.63158 | 42.71000 | 4.86028 |
| Conductivity (µs/cm) | 7 | 7 | 83.60000 | 98.50000 | 90.08571 | | 4.66884 |
| Hardness (mg/L) | 19 | 19 | 31.80000 | 56.30000 | 41.00526 | 42.29000 | 4.73092 |
| NTU (ntu) | 19 | 19 | 0.48000 | 2.47000 | 1.17263 | 2.06950 | 0.59413 |
| pH (pH) | 7 | 7 | 7.75000 | 7.96000 | 7.84286 | | 0.09160 |
| TSS (mg/L) | 19 | 4 | 1.50000 | 158.00000 | 10.30000 | 88.38500 | 35.79390 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 19 | 9 | 0.00005 | 0.00016 | 0.00008 | 0.00012 | 0.00004 |
| Arsenic (As)-Total ( | 19 | 19 | 0.00024 | 0.00048 | 0.00033 | 0.00040 | 0.00006 |
| Barium (Ba)-Total | 19 | 19 | 0.01490 | 0.02650 | 0.01723 | 0.01737 | 0.00248 |
| Boron (B)-Total (mg/L) | 18 | 18 | 0.03900 | 0.06700 | 0.04639 | 0.04720 | 0.00593 |
| Calcium (Ca)-Total ( | 19 | 19 | 9.76000 | 17.30000 | 12.52947 | 12.96000 | 1.49445 |
| Chromium (Cr)-Total (mg/L) | 19 | 1 | 0.00010 | 0.00129 | 0.00030 | 0.00025 | 0.00024 |
| Magnesium (Mg)-Total (mg/L) | 19 | 19 | 1.81000 | 3.12000 | 2.29842 | 2.44450 | 0.26571 |
| Nickel (Ni)-Total (mg/L) | 19 | 1 | 0.00025 | 0.00052 | 0.00026 | 0.00025 | 0.00006 |
| Silver (Ag)-Total (mg/L) | 19 | 1 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00000 |
| Sodium (Na)-Total (mg/L) | 19 | 19 | 2.14000 | 3.77000 | 2.47579 | 2.57750 | 0.34646 |
| Strontium (Sr)-Total (mg/L) | 19 | 19 | 0.09640 | 0.15100 | 0.11367 | 0.11400 | 0.01468 |
| Tin (Sn)-Total (mg/L) | 19 | 0 | 0.00003 | 0.00005 | 0.00005 | 0.00005 | 0.00001 |
| Total Aluminum (mg/L) | 19 | 19 | 0.00440 | 0.03520 | 0.02032 | 0.03126 | 0.01011 |
| Total Cadmium (mg/L) | 19 | 2 | 0.00001 | 0.00005 | 0.00002 | 0.00005 | 0.00002 |

# Grid Format Report

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**Mount Polley**

**Mining Corporation**

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| | E207972 : Bootjack Lake North Station B1 surface | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Total Copper (mg/L) | 19 | 19 | 0.00193 | 0.00757 | 0.00284 | 0.00321 | 0.00119 |
| Total Iron (mg/L) | 19 | 15 | 0.03000 | 0.11600 | 0.05926 | 0.08110 | 0.02649 |
| Total Lead (mg/L) | 19 | 3 | 0.00005 | 0.00012 | 0.00006 | 0.00009 | 0.00002 |
| Total Manganese (mg/L) | 19 | 19 | 0.00148 | 0.04810 | 0.01925 | 0.03276 | 0.01167 |
| Total Molybdenum (mg/L) | 19 | 19 | 0.00083 | 0.00163 | 0.00103 | 0.00106 | 0.00019 |
| Total Selenium (mg/L) | 19 | 0 | 0.00025 | 0.00050 | 0.00041 | 0.10685 | 0.00012 |
| Zinc (Zn)-Total (mg/L) | 19 | 4 | 0.00050 | 0.00500 | 0.00168 | 0.00433 | 0.00141 |

# Grid Format Report

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| | E215897 : Bootjack Lake South Station B2 bottom | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **26-Apr-10** | **2-Nov-10** | **25-May-11** | **1-Nov-11** | **15-May-12** | **31-Oct-12** | **13-May-13** | **21-Aug-13** |
| | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0073 | <0.003 | 0.0116 | <0.0030 | | <0.0030 | | |
| **Anions and Nutrients** | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | <0.005 | <0.005 | <0.0050 | 0.0127 | 0.0095 | 0.013 | <0.0050 |
| Chloride (mg/L) | 0.98 | 1.17 | 1.34 | 1.43 | 1.39 | 1.69 | 1.6 | 1.62 |
| Diss-Orthophosphate (mg/L) | <0.0010 | 0.0013 | 0.0011 | <0.0010 | 0.0012 | <0.0010 | 0.0013 | 0.0045 |
| Diss-Phosphorus (mg/L) | 0.0049 | 0.0045 | 0.0035 | 0.0031 | 0.0051 | 0.0041 | 0.0084 | 0.008 |
| Nitrate (N) (mg/L) | 0.0192 | <0.005 | <0.005 | <0.0050 | 0.0105 | <0.0050 | 0.104 | 0.117 |
| Nitrate and Nitrite (mg/L) | 0.0192 | <0.0051 | <0.0051 | <0.0051 | 0.0105 | <0.0051 | 0.104 | 0.117 |
| Nitrite (N) (mg/L) | <0.0010 | <0.001 | <0.001 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 3.04 | 3.47 | 3.61 | 3.78 | 3.74 | 4.31 | 5.55 | 4.9 |
| Total Nitrogen (mg/L) | 0.22 | 0.26 | 0.21 | 0.160 | 0.24 | 0.32 | 0.368 | 0.378 |
| **Physical Test** | | | | | | | | |
| Alkalinity (CaCO3) ( | 39 | 41.5 | 38.4 | 41.2 | 40.8 | 44.7 | 47.5 | 45.1 |
| Conductivity (µs/cm) | | 89.3 | 84.4 | 88.2 | 86.3 | 92.2 | 93.3 | 102 |
| Hardness (mg/L) | 38.9 | 42.3 | 39.8 | 41.8 | 42.2 | 42.9 | 42.6 | 46.5 |
| NTU (ntu) | 1.04 | 1.51 | 0.87 | 1.67 | 1.6 | 2.18 | 1.38 | 1.86 |
| pH (pH) | | 7.86 | 7.69 | 7.96 | 7.79 | 7.88 | 7.55 | 7.61 |
| TSS (mg/L) | <3.0 | 3.6 | <3 | 4.3 | 3.3 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | 0.00011 | <0.0001 | 0.00010 | 0.00011 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00118 | 0.00036 | 0.00028 | 0.00036 | 0.00031 | 0.00039 | 0.00038 | 0.00043 |
| Barium (Ba)-Total | 0.0173 | 0.019 | 0.0174 | 0.0190 | 0.0183 | 0.017 | 0.0212 | 0.0195 |
| Boron (B)-Total (mg/L) | 0.047 | 0.051 | 0.048 | 0.049 | 0.05 | 0.043 | 0.046 | 0.043 |
| Calcium (Ca)-Total ( | 11.7 | 13.1 | 12.5 | 13.3 | 13 | 12.5 | 13 | 14.4 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium (Mg)-Total (mg/L) | 2.15 | 2.31 | 2.25 | 2.37 | 2.38 | 2.2 | 2.47 | 2.56 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | 0.00197 | <0.00050 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 2.32 | 2.5 | 2.37 | 2.54 | 2.44 | 2.43 | 2.31 | 2.44 |
| Strontium (Sr)-Total (mg/L) | 0.112 | 0.125 | 0.113 | 0.149 | 0.12 | 0.119 | 0.122 | 0.129 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0332 | 0.0382 | 0.0333 | 0.0280 | 0.0401 | 0.0203 | 0.227 | 0.0096 |
| Total Cadmium (mg/L) | <0.000017 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00406 | 0.00273 | 0.00231 | 0.00245 | 0.00245 | 0.00243 | 0.00648 | 0.00187 |

# Grid Format Report

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Mount Polley

Mining Corporation

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| | E215897 : Bootjack Lake South Station B2 bottom | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 26-Apr-10 | 2-Nov-10 | 25-May-11 | 1-Nov-11 | 15-May-12 | 31-Oct-12 | 13-May-13 | 21-Aug-13 |
| Total Iron (mg/L) | 0.091 | 0.117 | 0.078 | 0.092 | 0.144 | 0.095 | 0.353 | 0.267 |
| Total Lead (mg/L) | 0.000056 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | 0.000109 | <0.000050 |
| Total Manganese (mg/L) | 0.0461 | 0.0421 | 0.0348 | 0.0590 | 0.0635 | 0.0357 | 0.0947 | 0.617 |
| Total Molybdenum (mg/L) | 0.000965 | 0.00124 | 0.00101 | 0.00115 | 0.000987 | 0.00109 | 0.00108 | 0.0012 |
| Total Selenium (mg/L) | <0.0010 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | 0.0023 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E215897 : Bootjack Lake South Station B2 bottom | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 10 | 7 | 0.00150 | 0.01560 | 0.00558 | 0.01406 | 0.00491 |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 13 | 5 | 0.00500 | 0.01300 | 0.00723 | 0.01045 | 0.00319 |
| Chloride (mg/L) | 9 | 9 | 0.98000 | 1.69000 | 1.35556 | | 0.26576 |
| Diss-Orthophosphate (mg/L) | 13 | 7 | 0.00050 | 0.00450 | 0.00127 | 0.00258 | 0.00117 |
| Diss-Phosphorus (mg/L) | 14 | 14 | 0.00310 | 0.00840 | 0.00490 | 0.00618 | 0.00166 |
| Nitrate (N) (mg/L) | 13 | 6 | 0.00250 | 0.11700 | 0.02281 | 0.00811 | 0.03949 |
| Nitrate and Nitrite (mg/L) | 9 | 5 | 0.00255 | 0.11700 | 0.03112 | | 0.04564 |
| Nitrite (N) (mg/L) | 13 | 0 | 0.00050 | 0.00050 | 0.00050 | 0.00050 | 0.00000 |
| Sulphate (mg/L) | 13 | 13 | 2.83000 | 5.55000 | 3.65154 | 3.15750 | 0.82283 |
| Total Nitrogen (mg/L) | 13 | 13 | 0.16000 | 0.40000 | 0.26815 | 0.39550 | 0.08781 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 13 | 13 | 37.60000 | 47.50000 | 41.11538 | 41.75500 | 3.05664 |
| Conductivity (µs/cm) | 7 | 7 | 84.40000 | 102.00000 | 90.81429 | | 5.82907 |
| Hardness (mg/L) | 13 | 13 | 36.30000 | 46.50000 | 40.80769 | 39.70000 | 2.57955 |
| NTU (ntu) | 13 | 13 | 0.81000 | 2.18000 | 1.37231 | 1.46900 | 0.40454 |
| pH (pH) | 7 | 7 | 7.55000 | 7.96000 | 7.76286 | | 0.15097 |
| TSS (mg/L) | 13 | 6 | 1.50000 | 4.30000 | 2.46154 | 3.72500 | 1.11396 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 13 | 4 | 0.00005 | 0.00011 | 0.00007 | 0.00009 | 0.00003 |
| Arsenic (As)-Total ( | 13 | 13 | 0.00027 | 0.00118 | 0.00047 | 0.00036 | 0.00032 |
| Barium (Ba)-Total | 13 | 13 | 0.01580 | 0.02120 | 0.01785 | 0.01708 | 0.00149 |
| Boron (B)-Total (mg/L) | 13 | 13 | 0.04200 | 0.05100 | 0.04623 | 0.04755 | 0.00303 |
| Calcium (Ca)-Total ( | 13 | 13 | 11.10000 | 14.40000 | 12.50769 | 12.25500 | 0.86068 |
| Chromium (Cr)-Total (mg/L) | 13 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Magnesium (Mg)-Total (mg/L) | 13 | 13 | 2.02000 | 2.56000 | 2.27000 | 2.25800 | 0.14640 |
| Nickel (Ni)-Total (mg/L) | 13 | 1 | 0.00025 | 0.00197 | 0.00038 | 0.00025 | 0.00048 |
| Silver (Ag)-Total (mg/L) | 13 | 0 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00000 |
| Sodium (Na)-Total (mg/L) | 13 | 13 | 2.24000 | 2.54000 | 2.38462 | 2.43200 | 0.08828 |
| Strontium (Sr)-Total (mg/L) | 13 | 13 | 0.09810 | 0.14900 | 0.11647 | 0.10600 | 0.01332 |
| Tin (Sn)-Total (mg/L) | 13 | 0 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00000 |
| Total Aluminum (mg/L) | 13 | 13 | 0.00960 | 0.22700 | 0.04284 | 0.03925 | 0.05631 |
| Total Cadmium (mg/L) | 13 | 0 | 0.00001 | 0.00002 | 0.00001 | 0.00002 | 0.00000 |

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**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E215897 : Bootjack Lake South Station B2 bottom | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Total Copper (mg/L) | 13 | 13 | 0.00187 | 0.00648 | 0.00294 | 0.00255 | 0.00126 |
| Total Iron (mg/L) | 13 | 13 | 0.05300 | 0.35300 | 0.12662 | 0.10510 | 0.08610 |
| Total Lead (mg/L) | 13 | 3 | 0.00005 | 0.00011 | 0.00006 | 0.00005 | 0.00002 |
| Total Manganese (mg/L) | 13 | 13 | 0.02310 | 0.61700 | 0.09145 | 0.06212 | 0.15912 |
| Total Molybdenum (mg/L) | 13 | 13 | 0.00087 | 0.00124 | 0.00104 | 0.00104 | 0.00011 |
| Total Selenium (mg/L) | 13 | 0 | 0.00025 | 0.00050 | 0.00038 | 0.07858 | 0.00013 |
| Zinc (Zn)-Total (mg/L) | 13 | 5 | 0.00050 | 0.00230 | 0.00160 | 0.00213 | 0.00048 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E215897 : Bootjack Lake South Station B2 surface | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 13-Mar-09 | 26-Aug-09 | 15-Nov-10 | 25-May-11 | 1-Nov-11 | 15-May-12 | 31-Oct-12 | 13-May-13 | 21-Aug-13 |
| | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.005 | 0.003 | <0.003 | 0.0152 | <0.0030 | | <0.0030 | | |
| **Anions and Nutrients** | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | <0.005 | <0.005 | 0.0084 | <0.0050 | <0.0050 | 0.0091 | <0.0050 | <0.0050 |
| Chloride (mg/L) | 1.14 | 0.98 | 1.25 | 1.3 | 1.43 | 1.46 | 1.69 | 1.57 | 1.59 |
| Diss-Orthophosphate (mg/L) | <0.001 | <0.001 | 0.0012 | <0.001 | <0.0010 | <0.0010 | 0.0012 | <0.0010 | <0.0010 |
| Diss-Phosphorus (mg/L) | 0.0033 | <0.002 | 0.0042 | 0.0027 | 0.0032 | 0.0043 | 0.0041 | 0.0033 | 0.0034 |
| Nitrate (N) (mg/L) | 0.0139 | <0.005 | <0.005 | <0.005 | <0.0050 | <0.0050 | <0.0050 | 0.0502 | <0.0050 |
| Nitrate and Nitrite (mg/L) | | | <0.0051 | <0.0051 | <0.0051 | <0.0051 | <0.0051 | 0.0502 | <0.0051 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | <0.0010 | <0.0010 | 0.0011 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 3.93 | 3.13 | 3.65 | 3.5 | 3.77 | 3.88 | 4.31 | 5.13 | 5.96 |
| Total Nitrogen (mg/L) | 0.24 | 0.17 | 0.18 | 0.22 | 0.160 | 0.25 | 0.33 | 0.325 | 0.294 |
| **Physical Test** | | | | | | | | | |
| Alkalinity (CaCO3) ( | 48.6 | 42.1 | 40.8 | 37.3 | 41.2 | 40.9 | 44.5 | 40.6 | 42.3 |
| Conductivity (µs/cm) | | | 89.9 | 82.4 | 86.9 | 86.4 | 91.6 | 90.8 | 97.7 |
| Hardness (mg/L) | 48.9 | 39.2 | 42.1 | 39 | 42.1 | 43.1 | 43.2 | 40.5 | 44.3 |
| NTU (ntu) | 0.99 | 0.55 | 1.41 | 0.94 | 1.85 | 1.8 | 1.64 | 0.78 | 0.49 |
| pH (pH) | | | 7.79 | 7.76 | 7.94 | 7.82 | 7.89 | 7.76 | 8.04 |
| TSS (mg/L) | <3 | 4.5 | <3 | <3 | 3.7 | <3.0 | 6.7 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 0.00012 | <0.0001 | <0.0001 | <0.0001 | 0.00011 | 0.00011 | 0.00011 | <0.00010 | 0.00012 |
| Arsenic (As)-Total ( | 0.00038 | 0.00031 | 0.00036 | 0.00028 | 0.00035 | 0.00031 | 0.0004 | 0.0003 | 0.00036 |
| Barium (Ba)-Total | 0.023 | 0.0153 | 0.0184 | 0.0169 | 0.0186 | 0.0175 | 0.0176 | 0.0173 | 0.0172 |
| Boron (B)-Total (mg/L) | 0.058 | 0.041 | 0.048 | 0.045 | 0.048 | 0.05 | 0.043 | 0.047 | 0.044 |
| Calcium (Ca)-Total ( | 14.7 | 12.5 | 12.6 | 12.2 | 13.1 | 13.2 | 13 | 12.4 | 13.6 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium (Mg)-Total (mg/L) | 2.64 | 2.3 | 2.23 | 2.22 | 2.35 | 2.43 | 2.37 | 2.29 | 2.53 |
| Nickel (Ni)-Total (mg/L) | 0.00103 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 3.05 | 2.19 | 2.58 | 2.35 | 2.53 | 2.51 | 2.4 | 2.27 | 2.46 |
| Strontium (Sr)-Total (mg/L) | 0.133 | 0.108 | 0.116 | 0.111 | 0.146 | 0.121 | 0.123 | 0.118 | 0.126 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0413 | 0.0078 | 0.0256 | 0.0406 | 0.0253 | 0.0283 | 0.0217 | 0.0362 | 0.0216 |
| Total Cadmium (mg/L) | 0.000025 | <0.000017 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.0103 | 0.00242 | 0.00268 | 0.0025 | 0.00245 | 0.00241 | 0.00253 | 0.00268 | 0.00274 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E215897 : Bootjack Lake South Station B2 surface | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **13-Mar-09** | **26-Aug-09** | **15-Nov-10** | **25-May-11** | **1-Nov-11** | **15-May-12** | **31-Oct-12** | **13-May-13** | **21-Aug-13** |
| Total Iron (mg/L) | 0.085 | <0.03 | 0.085 | 0.058 | 0.083 | 0.087 | 0.09 | 0.051 | <0.030 |
| Total Lead (mg/L) | 0.000076 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.00338 | 0.00898 | 0.0242 | 0.0205 | 0.0566 | 0.0435 | 0.0327 | 0.0215 | 0.0111 |
| Total Molybdenum (mg/L) | 0.00135 | 0.000955 | 0.00114 | 0.00101 | 0.00112 | 0.001 | 0.00111 | 0.00101 | 0.00121 |
| Total Selenium (mg/L) | <0.001 | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Zinc (Zn)-Total (mg/L) | 0.0374 | <0.001 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0035 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E215897 : Bootjack Lake South Station B2 surface | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 13 | 8 | 0.00050 | 0.01740 | 0.00464 | 0.01398 | 0.00546 |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 19 | 7 | 0.00500 | 0.02060 | 0.00776 | 0.02036 | 0.00486 |
| Chloride (mg/L) | 10 | 10 | 0.98000 | 1.69000 | 1.40000 | | 0.22760 |
| Diss-Orthophosphate (mg/L) | 19 | 6 | 0.00050 | 0.00600 | 0.00125 | 0.00560 | 0.00160 |
| Diss-Phosphorus (mg/L) | 20 | 18 | 0.00100 | 0.02100 | 0.00466 | 0.02370 | 0.00417 |
| Nitrate (N) (mg/L) | 16 | 3 | 0.00250 | 0.09360 | 0.01189 | 0.07082 | 0.02489 |
| Nitrate and Nitrite (mg/L) | 10 | 1 | 0.00255 | 0.05020 | 0.00881 | 0.01000 | 0.01487 |
| Nitrite (N) (mg/L) | 16 | 2 | 0.00050 | 0.00310 | 0.00070 | 0.00245 | 0.00066 |
| Sulphate (mg/L) | 19 | 19 | 2.20000 | 5.96000 | 3.69105 | 3.95400 | 1.06918 |
| Total Nitrogen (mg/L) | 19 | 17 | 0.06000 | 0.51000 | 0.25179 | 0.46600 | 0.11346 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 19 | 19 | 35.00000 | 52.80000 | 40.82105 | 48.16000 | 4.31516 |
| Conductivity (µs/cm) | 8 | 8 | 82.40000 | 97.70000 | 90.33750 | | 5.22246 |
| Hardness (mg/L) | 17 | 17 | 35.50000 | 55.20000 | 42.37059 | 51.96000 | 4.49524 |
| NTU (ntu) | 19 | 19 | 0.43000 | 2.62000 | 1.09947 | 2.46800 | 0.65755 |
| pH (pH) | 8 | 8 | 7.76000 | 8.04000 | 7.85250 | | 0.09809 |
| TSS (mg/L) | 19 | 5 | 1.50000 | 55.00000 | 5.03684 | 34.52000 | 12.18205 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 17 | 10 | 0.00005 | 0.00019 | 0.00009 | 0.00018 | 0.00004 |
| Arsenic (As)-Total ( | 17 | 17 | 0.00024 | 0.00045 | 0.00034 | 0.00044 | 0.00006 |
| Barium (Ba)-Total | 17 | 17 | 0.01530 | 0.02300 | 0.01756 | 0.02060 | 0.00209 |
| Boron (B)-Total (mg/L) | 17 | 17 | 0.04100 | 0.06500 | 0.04706 | 0.05990 | 0.00611 |
| Calcium (Ca)-Total ( | 17 | 17 | 11.00000 | 17.30000 | 12.97647 | 16.04000 | 1.39442 |
| Chromium (Cr)-Total (mg/L) | 17 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Magnesium (Mg)-Total (mg/L) | 17 | 17 | 2.04000 | 2.99000 | 2.36000 | 2.81900 | 0.22768 |
| Nickel (Ni)-Total (mg/L) | 17 | 1 | 0.00025 | 0.00103 | 0.00030 | 0.00025 | 0.00019 |
| Silver (Ag)-Total (mg/L) | 17 | 1 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00000 |
| Sodium (Na)-Total (mg/L) | 17 | 17 | 2.19000 | 3.16000 | 2.46529 | 2.97100 | 0.26921 |
| Strontium (Sr)-Total (mg/L) | 17 | 17 | 0.09790 | 0.14600 | 0.11705 | 0.13330 | 0.01410 |
| Tin (Sn)-Total (mg/L) | 17 | 0 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00000 |
| Total Aluminum (mg/L) | 17 | 17 | 0.00530 | 0.04130 | 0.02264 | 0.03053 | 0.01115 |
| Total Cadmium (mg/L) | 17 | 2 | 0.00001 | 0.00005 | 0.00002 | 0.00005 | 0.00001 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E215897 : Bootjack Lake South Station B2 surface | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Total Copper (mg/L) | 17 | 17 | 0.00217 | 0.01030 | 0.00304 | 0.00385 | 0.00193 |
| Total Iron (mg/L) | 17 | 12 | 0.03000 | 0.10200 | 0.06271 | 0.09810 | 0.02649 |
| Total Lead (mg/L) | 17 | 3 | 0.00005 | 0.00010 | 0.00005 | 0.00009 | 0.00001 |
| Total Manganese (mg/L) | 17 | 17 | 0.00238 | 0.06820 | 0.02435 | 0.05725 | 0.01826 |
| Total Molybdenum (mg/L) | 17 | 17 | 0.00083 | 0.00135 | 0.00107 | 0.00128 | 0.00015 |
| Total Selenium (mg/L) | 17 | 0 | 0.00025 | 0.00050 | 0.00040 | 0.10220 | 0.00013 |
| Zinc (Zn)-Total (mg/L) | 17 | 6 | 0.00050 | 0.03740 | 0.00395 | 0.00541 | 0.00874 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207974 : Polley Lake North Station P1 bottom | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 26-Apr-10 | 2-Nov-10 | 25-May-11 | 19-Jul-11 | 1-Nov-11 | 8-May-12 | 1-Nov-12 | 13-May-13 | 21-Aug-13 |
| | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.0010 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | | |
| **Anions and Nutrients** | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.0050 | 0.0051 | 0.0068 | <0.005 | 0.0119 | 0.011 | 0.0132 | 0.0332 | 0.0134 |
| Chloride (mg/L) | <0.50 | <0.5 | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Diss-Orthophosphate (mg/L) | 0.0056 | 0.0475 | 0.0316 | 0.0313 | 0.0399 | 0.0179 | 0.216 | 0.0799 | 0.0581 |
| Diss-Phosphorus (mg/L) | 0.0119 | 0.0472 | 0.0347 | 0.0357 | 0.0431 | 0.0252 | 0.213 | 0.0833 | 0.0659 |
| Nitrate (N) (mg/L) | <0.0050 | 0.0481 | 0.0534 | 0.0838 | 0.155 | 0.0544 | 0.311 | 0.194 | 0.118 |
| Nitrate and Nitrite (mg/L) | <0.0050 | 0.0481 | 0.0534 | 0.0838 | 0.157 | 0.0544 | 0.313 | 0.198 | 0.121 |
| Nitrite (N) (mg/L) | <0.0010 | <0.001 | <0.001 | <0.001 | 0.0025 | <0.0010 | 0.0019 | 0.0044 | 0.0027 |
| Sulphate (mg/L) | 28.3 | 28.1 | 31.7 | 30.5 | 28.7 | 28.2 | 26.9 | 28.9 | 28 |
| Total Nitrogen (mg/L) | 0.24 | 0.23 | 0.28 | 0.36 | 0.330 | 0.31 | 0.58 | 0.43 | 0.535 |
| **Physical Test** | | | | | | | | | |
| Alkalinity (CaCO3) ( | 78.1 | 78.6 | 78.4 | 78.7 | 79.2 | 80.9 | 82 | 79.4 | 74.1 |
| Conductivity (µs/cm) | | 205 | 212 | 210 | 207 | 201 | 201 | 211 | 201 |
| Hardness (mg/L) | 103 | 117 | 110 | 102 | 102 | 103 | 107 | 112 | 99.2 |
| NTU (ntu) | 1.1 | 1.06 | 0.67 | 0.6 | 1.75 | 1.1 | 2.68 | 1.62 | 2.11 |
| pH (pH) | | 7.88 | 8 | 7.58 | 8.05 | 7.68 | 7.78 | 7.85 | 8.5 |
| TSS (mg/L) | <3.0 | <3 | <3 | <3 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.0005 | 0.00045 | 0.00041 | 0.00044 | 0.00052 | 0.00055 | 0.00078 | 0.00063 | 0.00066 |
| Barium (Ba)-Total | 0.00695 | 0.00741 | 0.00772 | 0.00866 | 0.00675 | 0.00711 | 0.00469 | 0.00825 | 0.00644 |
| Boron (B)-Total (mg/L) | 0.023 | 0.027 | 0.025 | 0.03 | 0.025 | 0.024 | 0.02 | 0.025 | 0.022 |
| Calcium (Ca)-Total ( | 31.6 | 39.5 | 36.3 | 34.5 | 33.9 | 34.9 | 33.6 | 36.4 | 31.8 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium (Mg)-Total (mg/L) | 4.55 | 5.13 | 5.16 | 5.22 | 4.92 | 5.13 | 4.78 | 5.17 | 4.81 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.19 | 4.4 | 4.39 | 4.83 | 4.39 | 4.2 | 4.22 | 4.6 | 4.4 |
| Strontium (Sr)-Total (mg/L) | 0.225 | 0.253 | 0.237 | 0.264 | 0.230 | 0.227 | 0.237 | 0.244 | 0.23 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0115 | 0.0135 | 0.0163 | 0.0084 | 0.0150 | 0.0167 | 0.0107 | 0.0097 | 0.0108 |
| Total Cadmium (mg/L) | <0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.0021 | 0.00158 | 0.0016 | 0.00167 | 0.00134 | 0.00142 | 0.0015 | 0.00125 | 0.00143 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207974 : Polley Lake North Station P1 bottom | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **26-Apr-10** | **2-Nov-10** | **25-May-11** | **19-Jul-11** | **1-Nov-11** | **8-May-12** | **1-Nov-12** | **13-May-13** | **21-Aug-13** |
| Total Iron (mg/L) | <0.030 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | 0.035 | <0.030 | <0.030 |
| Total Lead (mg/L) | <0.000050 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0464 | 0.0538 | 0.0319 | 0.0215 | 0.0458 | 0.04 | 0.206 | 0.149 | 0.19 |
| Total Molybdenum (mg/L) | 0.00209 | 0.00194 | 0.00216 | 0.00224 | 0.00213 | 0.00222 | 0.00207 | 0.00223 | 0.00237 |
| Total Selenium (mg/L) | 0.001 | <0.001 | 0.00076 | 0.00083 | 0.00073 | 0.00083 | 0.0006 | 0.00069 | 0.00067 |
| Zinc (Zn)-Total (mg/L) | <0.0010 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | 0.0038 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207974 : Polley Lake North Station P1 bottom | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 13 | 1 | 0.00050 | 0.00170 | 0.00105 | 0.00146 | 0.00054 |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 15 | 9 | 0.00500 | 0.03830 | 0.01271 | 0.03618 | 0.01119 |
| Chloride (mg/L) | 10 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Diss-Orthophosphate (mg/L) | 15 | 15 | 0.00560 | 0.21600 | 0.04685 | 0.05708 | 0.05157 |
| Diss-Phosphorus (mg/L) | 15 | 15 | 0.01010 | 0.21300 | 0.05012 | 0.05680 | 0.04970 |
| Nitrate (N) (mg/L) | 15 | 13 | 0.00250 | 0.31100 | 0.12269 | 0.24980 | 0.09398 |
| Nitrate and Nitrite (mg/L) | 10 | 8 | 0.00250 | 0.31300 | 0.10337 | | 0.09705 |
| Nitrite (N) (mg/L) | 15 | 6 | 0.00050 | 0.00650 | 0.00162 | 0.00556 | 0.00179 |
| Sulphate (mg/L) | 15 | 15 | 13.80000 | 31.70000 | 25.42000 | 26.40000 | 5.94753 |
| Total Nitrogen (mg/L) | 15 | 15 | 0.23000 | 0.79000 | 0.40633 | 0.73600 | 0.15405 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 15 | 15 | 72.30000 | 82.00000 | 77.64667 | 79.84000 | 2.90710 |
| Conductivity (µs/cm) | 8 | 8 | 201.00000 | 212.00000 | 206.00000 | | 4.69042 |
| Hardness (mg/L) | 15 | 15 | 79.20000 | 117.00000 | 99.96000 | 99.04000 | 11.01310 |
| NTU (ntu) | 15 | 15 | 0.60000 | 3.89000 | 1.63933 | 3.58000 | 0.85975 |
| pH (pH) | 8 | 8 | 7.58000 | 8.50000 | 7.91500 | | 0.28254 |
| TSS (mg/L) | 15 | 3 | 1.50000 | 3.30000 | 1.83333 | 3.28000 | 0.69248 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 15 | 0 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00000 |
| Arsenic (As)-Total ( | 15 | 15 | 0.00035 | 0.00078 | 0.00049 | 0.00045 | 0.00012 |
| Barium (Ba)-Total | 15 | 15 | 0.00469 | 0.00866 | 0.00706 | 0.00802 | 0.00105 |
| Boron (B)-Total (mg/L) | 15 | 15 | 0.01300 | 0.03000 | 0.02167 | 0.01980 | 0.00486 |
| Calcium (Ca)-Total ( | 15 | 15 | 24.90000 | 39.50000 | 32.22667 | 31.58000 | 4.19174 |
| Chromium (Cr)-Total (mg/L) | 15 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Magnesium (Mg)-Total (mg/L) | 15 | 15 | 3.82000 | 5.22000 | 4.67800 | 4.60800 | 0.47763 |
| Nickel (Ni)-Total (mg/L) | 15 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Silver (Ag)-Total (mg/L) | 15 | 0 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00000 |
| Sodium (Na)-Total (mg/L) | 15 | 15 | 3.78000 | 4.83000 | 4.24133 | 4.19000 | 0.27892 |
| Strontium (Sr)-Total (mg/L) | 15 | 15 | 0.11400 | 0.26400 | 0.20947 | 0.22300 | 0.05024 |
| Tin (Sn)-Total (mg/L) | 15 | 0 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00000 |
| Total Aluminum (mg/L) | 15 | 14 | 0.00450 | 0.02930 | 0.01271 | 0.02764 | 0.00643 |
| Total Cadmium (mg/L) | 15 | 1 | 0.00001 | 0.00002 | 0.00001 | 0.00002 | 0.00000 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207974 : Polley Lake North Station P1 bottom | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Total Copper (mg/L) | 15 | 15 | 0.00125 | 0.00278 | 0.00176 | 0.00266 | 0.00041 |
| Total Iron (mg/L) | 15 | 5 | 0.03000 | 0.06500 | 0.03567 | 0.06460 | 0.01175 |
| Total Lead (mg/L) | 15 | 0 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00000 |
| Total Manganese (mg/L) | 15 | 15 | 0.02150 | 0.28200 | 0.10500 | 0.25860 | 0.07935 |
| Total Molybdenum (mg/L) | 15 | 15 | 0.00067 | 0.00237 | 0.00184 | 0.00209 | 0.00059 |
| Total Selenium (mg/L) | 15 | 9 | 0.00050 | 0.00100 | 0.00067 | 0.00090 | 0.00018 |
| Zinc (Zn)-Total (mg/L) | 15 | 2 | 0.00050 | 0.00380 | 0.00132 | 0.00180 | 0.00086 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207974 : Polley Lake North Station P1 surface | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13-Mar-09 | 26-Aug-09 | 26-Apr-10 | 15-Nov-10 | 25-May-11 | 19-Jul-11 | 1-Nov-11 | 8-May-12 | 1-Nov-12 | 13-May-13 | 21-Aug-13 |
| | | | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 0.0013 | 0.0024 | | <0.003 | 0.0035 | 0.0031 | <0.0030 | <0.0030 | <0.0030 | | |
| **Anions and Nutrients** | | | | | | | | | | | |
| Ammonia (as N) (mg/L | <0.005 | 0.0057 | <0.0050 | 0.0051 | <0.005 | <0.005 | 0.0113 | 0.0054 | <0.0050 | <0.0050 | 0.0154 |
| Chloride (mg/L) | <0.5 | <0.5 | <0.50 | <0.5 | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Diss-Orthophosphate (mg/L) | 0.0193 | <0.001 | 0.0036 | 0.0371 | 0.0143 | <0.001 | 0.0394 | 0.0131 | 0.0848 | 0.0267 | <0.0010 |
| Diss-Phosphorus (mg/L) | 0.0219 | <0.002 | 0.0092 | 0.0369 | 0.0168 | 0.0038 | 0.0436 | 0.02 | 0.0895 | 0.0319 | 0.0052 |
| Nitrate (N) (mg/L) | 0.14 | <0.005 | <0.0050 | 0.0425 | <0.005 | <0.005 | 0.153 | 0.0236 | 0.144 | <0.0050 | <0.0050 |
| Nitrate and Nitrite (mg/L) | | | <0.0050 | 0.0436 | <0.0051 | <0.0051 | 0.155 | 0.0236 | 0.145 | <0.0051 | <0.0051 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.0010 | 0.0011 | <0.001 | <0.001 | 0.0019 | <0.0010 | 0.0011 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 27.2 | 29.3 | 28.2 | 29.1 | 28.5 | 28.5 | 28.7 | 28 | 28.9 | 27.8 | 28.6 |
| Total Nitrogen (mg/L) | 0.33 | 0.18 | 0.17 | 0.21 | 0.22 | 0.33 | 0.550 | 0.4 | 0.45 | 0.345 | 0.526 |
| **Physical Test** | | | | | | | | | | | |
| Alkalinity (CaCO3) ( | 81.4 | 103 | 77.2 | 78 | 73.5 | 74.1 | 78.8 | 79.3 | 81 | 77.7 | 72 |
| Conductivity (µs/cm) | | | | 208 | 197 | 197 | 208 | 199 | 201 | 204 | 193 |
| Hardness (mg/L) | 108 | 102 | | 104 | 102 | 95 | 103 | 103 | 107 | 102 | 98.1 |
| NTU (ntu) | 0.59 | 0.54 | 1.12 | 1.19 | 0.82 | 1.35 | 1.61 | 1.23 | 1.82 | 0.93 | 2.57 |
| pH (pH) | | | | 7.96 | 8.08 | 9.18 | 8.07 | 7.62 | 7.92 | 8.28 | 8.9 |
| TSS (mg/L) | <3 | 5.5 | 3.3 | <3 | <3 | <3 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.00010 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | 0.00012 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00044 | 0.0004 | 0.00107 | 0.00044 | 0.0004 | 0.00038 | 0.00051 | 0.00055 | 0.00064 | 0.00056 | 0.00066 |
| Barium (Ba)-Total | 0.00917 | 0.00742 | 0.00689 | 0.00767 | 0.00804 | 0.00703 | 0.00670 | 0.00718 | 0.0064 | 0.00658 | 0.00671 |
| Boron (B)-Total (mg/L) | 0.022 | 0.02 | 0.022 | 0.025 | 0.023 | 0.025 | 0.027 | 0.023 | 0.021 | 0.024 | 0.022 |
| Calcium (Ca)-Total ( | 33.7 | 35.4 | 32.6 | 33.2 | 33.6 | 31.9 | 34.2 | 33.5 | 33.3 | 33 | 31.2 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | <0.0005 | <0.00050 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium (Mg)-Total (mg/L) | 4.79 | 4.97 | 4.7 | 4.96 | 4.78 | 4.85 | 5.02 | 4.93 | 4.77 | 4.71 | 4.88 |
| Nickel (Ni)-Total (mg/L) | <0.0005 | <0.0005 | <0.00050 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silver (Ag)-Total (mg/L) | <0.00001 | <0.00001 | <0.000010 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.56 | 4.22 | 4.25 | 4.61 | 4.21 | 4.54 | 4.56 | 4.15 | 4.24 | 4.22 | 4.28 |
| Strontium (Sr)-Total (mg/L) | 0.213 | 0.233 | 0.224 | 0.24 | 0.219 | 0.239 | 0.240 | 0.215 | 0.243 | 0.238 | 0.224 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.00010 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0554 | <0.007 | 0.0081 | 0.0189 | 0.0185 | 0.0096 | 0.0173 | 0.0184 | 0.0103 | 0.0139 | 0.0242 |
| Total Cadmium (mg/L) | 0.000022 | <0.000017 | <0.000017 | <0.00001 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.0074 | 0.00242 | 0.00182 | 0.00188 | 0.00178 | 0.0017 | 0.00151 | 0.00137 | 0.00134 | 0.00166 | 0.00167 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207974 : Polley Lake North Station P1 surface | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13-Mar-09 | 26-Aug-09 | 26-Apr-10 | 15-Nov-10 | 25-May-11 | 19-Jul-11 | 1-Nov-11 | 8-May-12 | 1-Nov-12 | 13-May-13 | 21-Aug-13 |
| Total Iron (mg/L) | 0.046 | <0.03 | <0.030 | <0.03 | <0.03 | <0.03 | 0.038 | <0.030 | 0.03 | <0.030 | <0.030 |
| Total Lead (mg/L) | 0.000056 | <0.00005 | <0.000050 | <0.00005 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | 0.00005 |
| Total Manganese (mg/L) | 0.0026 | 0.00594 | 0.0318 | 0.0424 | 0.00938 | 0.00751 | 0.0480 | 0.0143 | 0.0615 | 0.0255 | 0.00689 |
| Total Molybdenum (mg/L) | 0.00223 | 0.0022 | 0.0021 | 0.00205 | 0.00204 | 0.00217 | 0.00220 | 0.00212 | 0.00219 | 0.00221 | 0.00245 |
| Total Selenium (mg/L) | 0.0012 | 0.0012 | <0.0010 | <0.001 | 0.00075 | 0.00081 | 0.00071 | 0.00072 | 0.00069 | 0.00063 | 0.00071 |
| Zinc (Zn)-Total (mg/L) | <0.006 | <0.001 | 0.0011 | <0.003 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | 0.0043 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207974 : Polley Lake North Station P1 surface | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 22 | 14 | 0.00050 | 0.00450 | 0.00186 | 0.00396 | 0.00114 |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 26 | 14 | 0.00500 | 0.03130 | 0.01082 | 0.02916 | 0.00830 |
| Chloride (mg/L) | 12 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Diss-Orthophosphate (mg/L) | 26 | 18 | 0.00050 | 0.08480 | 0.01328 | 0.02305 | 0.01945 |
| Diss-Phosphorus (mg/L) | 30 | 28 | 0.00100 | 0.08950 | 0.01562 | 0.01834 | 0.01833 |
| Nitrate (N) (mg/L) | 25 | 11 | 0.00250 | 0.15300 | 0.03515 | 0.09018 | 0.04938 |
| Nitrate and Nitrite (mg/L) | 11 | 4 | 0.00250 | 0.15500 | 0.03568 | | 0.05800 |
| Nitrite (N) (mg/L) | 25 | 5 | 0.00050 | 0.00190 | 0.00067 | 0.00124 | 0.00038 |
| Sulphate (mg/L) | 26 | 26 | 4.20000 | 29.30000 | 21.40385 | 25.00000 | 7.88774 |
| Total Nitrogen (mg/L) | 26 | 25 | 0.06000 | 0.55000 | 0.28219 | 0.35700 | 0.12227 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 26 | 26 | 61.50000 | 103.00000 | 75.25769 | 79.54500 | 7.84485 |
| Conductivity (µs/cm) | 9 | 9 | 193.00000 | 208.00000 | 200.33333 | | 5.33854 |
| Hardness (mg/L) | 24 | 24 | 73.80000 | 108.00000 | 92.88750 | 101.00000 | 11.26446 |
| NTU (ntu) | 26 | 26 | 0.40000 | 4.81000 | 1.29731 | 4.81000 | 1.13121 |
| pH (pH) | 9 | 9 | 7.62000 | 9.18000 | 8.22889 | | 0.49693 |
| TSS (mg/L) | 26 | 7 | 1.50000 | 139.00000 | 14.13846 | 135.10000 | 36.96991 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 25 | 1 | 0.00005 | 0.00012 | 0.00005 | 0.00005 | 0.00001 |
| Arsenic (As)-Total ( | 25 | 25 | 0.00033 | 0.00107 | 0.00046 | 0.00054 | 0.00016 |
| Barium (Ba)-Total | 25 | 25 | 0.00482 | 0.00917 | 0.00683 | 0.00767 | 0.00097 |
| Boron (B)-Total (mg/L) | 25 | 25 | 0.01100 | 0.02700 | 0.01844 | 0.01840 | 0.00502 |
| Calcium (Ca)-Total ( | 25 | 25 | 24.80000 | 35.40000 | 30.31200 | 31.22000 | 3.39206 |
| Chromium (Cr)-Total (mg/L) | 25 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Magnesium (Mg)-Total (mg/L) | 25 | 25 | 3.56000 | 5.02000 | 4.42240 | 4.38000 | 0.47138 |
| Nickel (Ni)-Total (mg/L) | 25 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Silver (Ag)-Total (mg/L) | 25 | 3 | 0.00001 | 0.00004 | 0.00001 | 0.00003 | 0.00001 |
| Sodium (Na)-Total (mg/L) | 25 | 25 | 3.52000 | 4.61000 | 4.11480 | 4.39800 | 0.32368 |
| Strontium (Sr)-Total (mg/L) | 25 | 25 | 0.10200 | 0.24300 | 0.17912 | 0.18500 | 0.05404 |
| Tin (Sn)-Total (mg/L) | 25 | 0 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00000 |
| Total Aluminum (mg/L) | 25 | 22 | 0.00350 | 0.12000 | 0.02123 | 0.11520 | 0.03037 |
| Total Cadmium (mg/L) | 25 | 4 | 0.00001 | 0.00005 | 0.00002 | 0.00005 | 0.00001 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207974 : Polley Lake North Station P1 surface | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Total Copper (mg/L) | 25 | 25 | 0.00134 | 0.03200 | 0.00452 | 0.03176 | 0.00829 |
| Total Iron (mg/L) | 25 | 6 | 0.03000 | 0.09400 | 0.03812 | 0.09040 | 0.01977 |
| Total Lead (mg/L) | 25 | 5 | 0.00005 | 0.00034 | 0.00008 | 0.00034 | 0.00008 |
| Total Manganese (mg/L) | 25 | 25 | 0.00260 | 0.06150 | 0.01799 | 0.02898 | 0.01534 |
| Total Molybdenum (mg/L) | 25 | 25 | 0.00060 | 0.00245 | 0.00156 | 0.00195 | 0.00070 |
| Total Selenium (mg/L) | 25 | 17 | 0.00050 | 0.00120 | 0.00079 | 0.14520 | 0.00027 |
| Zinc (Zn)-Total (mg/L) | 25 | 8 | 0.00050 | 0.01110 | 0.00207 | 0.01104 | 0.00283 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207975 : Polley Lake South Station P2 bottom | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **26-Apr-10** | **2-Nov-10** | **25-May-11** | **1-Nov-11** | **8-May-12** | **1-Nov-12** | **13-May-13** | **21-Aug-13** |
| | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.0010 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | | |
| **Anions and Nutrients** | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0082 | <0.005 | 0.0125 | 0.0144 | 0.0508 | <0.0050 | 0.0139 | 0.0786 |
| Chloride (mg/L) | <0.50 | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Diss-Orthophosphate (mg/L) | 0.0093 | 0.0424 | 0.0359 | 0.0488 | 0.0568 | 0.0423 | 0.0559 | 0.288 |
| Diss-Phosphorus (mg/L) | 0.0149 | 0.0424 | 0.0388 | 0.0562 | 0.0633 | 0.0469 | 0.055 | 0.299 |
| Nitrate (N) (mg/L) | 0.0172 | 0.0454 | 0.0704 | 0.180 | 0.114 | 0.086 | 0.1 | 0.33 |
| Nitrate and Nitrite (mg/L) | 0.0172 | 0.0454 | 0.0704 | 0.186 | 0.114 | 0.086 | 0.102 | 0.336 |
| Nitrite (N) (mg/L) | <0.0010 | <0.001 | <0.001 | 0.0061 | <0.0010 | <0.0010 | 0.0022 | 0.0063 |
| Sulphate (mg/L) | 28.4 | 28.2 | 31.6 | 28.7 | 28.6 | 29.4 | 28.5 | 26.1 |
| Total Nitrogen (mg/L) | 0.22 | 0.23 | 0.27 | 0.370 | 0.38 | 0.38 | 0.35 | 0.632 |
| **Physical Test** | | | | | | | | |
| Alkalinity (CaCO3) ( | 78.4 | 78.5 | 78.6 | 79.4 | 83 | 80.5 | 78.5 | 81.2 |
| Conductivity (µs/cm) | | 205 | 213 | 207 | 207 | 205 | 209 | 215 |
| Hardness (mg/L) | 103 | 118 | 111 | 104 | 106 | 106 | 103 | 103 |
| NTU (ntu) | 1.25 | 0.9 | 0.89 | 2.73 | 1.22 | 2.53 | 0.87 | 1.54 |
| pH (pH) | | 7.9 | 7.99 | 8.04 | 7.62 | 7.96 | 8.03 | 7.92 |
| TSS (mg/L) | 3.3 | <3 | 3.4 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.00010 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00074 | 0.00039 | 0.0004 | 0.00055 | 0.00056 | 0.00059 | 0.0006 | 0.00078 |
| Barium (Ba)-Total | 0.00741 | 0.00617 | 0.00812 | 0.00712 | 0.00779 | 0.00746 | 0.00722 | 0.00696 |
| Boron (B)-Total (mg/L) | 0.023 | 0.025 | 0.024 | 0.025 | 0.025 | 0.02 | 0.022 | 0.022 |
| Calcium (Ca)-Total ( | 32.3 | 39.2 | 36.4 | 33.1 | 34.7 | 33.3 | 33.4 | 33.2 |
| Chromium (Cr)-Total (mg/L) | <0.00050 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium (Mg)-Total (mg/L) | 4.65 | 5.18 | 5.15 | 4.82 | 5.15 | 4.76 | 4.78 | 4.81 |
| Nickel (Ni)-Total (mg/L) | <0.00050 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silver (Ag)-Total (mg/L) | <0.000010 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 4.16 | 3.79 | 4.35 | 4.28 | 4.24 | 4.27 | 4.32 | 4.32 |
| Strontium (Sr)-Total (mg/L) | 0.222 | 0.219 | 0.239 | 0.228 | 0.233 | 0.244 | 0.211 | 0.235 |
| Tin (Sn)-Total (mg/L) | <0.00010 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.0255 | 0.0096 | 0.0202 | 0.0193 | 0.0157 | 0.0262 | 0.0111 | 0.0044 |
| Total Cadmium (mg/L) | <0.000017 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00255 | 0.0015 | 0.00155 | 0.00131 | 0.00128 | 0.00147 | 0.00132 | 0.00103 |

# Grid Format Report

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**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207975 : Polley Lake South Station P2 bottom | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **26-Apr-10** | **2-Nov-10** | **25-May-11** | **1-Nov-11** | **8-May-12** | **1-Nov-12** | **13-May-13** | **21-Aug-13** |
| Total Iron (mg/L) | 0.05 | <0.03 | <0.03 | 0.047 | 0.039 | 0.045 | <0.030 | 0.051 |
| Total Lead (mg/L) | <0.000050 | 0.000072 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.0782 | 0.0377 | 0.0617 | 0.104 | 0.353 | 0.0331 | 0.063 | 1.02 |
| Total Molybdenum (mg/L) | 0.00207 | 0.00181 | 0.00213 | 0.00208 | 0.00226 | 0.00226 | 0.00202 | 0.00226 |
| Total Selenium (mg/L) | <0.0010 | <0.001 | 0.00077 | 0.00069 | 0.0007 | 0.00069 | 0.00066 | 0.0005 |
| Zinc (Zn)-Total (mg/L) | <0.0010 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207975 : Polley Lake South Station P2 bottom | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 12 | 4 | 0.00050 | 0.00190 | 0.00125 | 0.00188 | 0.00050 |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 14 | 10 | 0.00500 | 0.07860 | 0.01846 | 0.02814 | 0.02153 |
| Chloride (mg/L) | 9 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Diss-Orthophosphate (mg/L) | 14 | 14 | 0.00140 | 0.28800 | 0.04771 | 0.03422 | 0.07181 |
| Diss-Phosphorus (mg/L) | 14 | 14 | 0.00480 | 0.29900 | 0.05179 | 0.03762 | 0.07372 |
| Nitrate (N) (mg/L) | 14 | 13 | 0.00250 | 0.33000 | 0.10132 | 0.15840 | 0.08449 |
| Nitrate and Nitrite (mg/L) | 9 | 9 | 0.01720 | 0.33600 | 0.10824 | | 0.10028 |
| Nitrite (N) (mg/L) | 14 | 4 | 0.00050 | 0.00630 | 0.00153 | 0.00154 | 0.00205 |
| Sulphate (mg/L) | 14 | 14 | 14.80000 | 31.60000 | 24.95714 | 23.50000 | 5.85711 |
| Total Nitrogen (mg/L) | 14 | 14 | 0.18000 | 0.63200 | 0.33586 | 0.45200 | 0.12023 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 14 | 14 | 72.50000 | 83.00000 | 77.88571 | 77.52000 | 2.98969 |
| Conductivity (µs/cm) | 7 | 7 | 205.00000 | 215.00000 | 208.71429 | | 3.90360 |
| Hardness (mg/L) | 14 | 14 | 78.80000 | 118.00000 | 99.32143 | 97.16000 | 11.54751 |
| NTU (ntu) | 14 | 14 | 0.87000 | 2.73000 | 1.39286 | 1.37400 | 0.56094 |
| pH (pH) | 7 | 7 | 7.62000 | 8.04000 | 7.92286 | | 0.14338 |
| TSS (mg/L) | 14 | 4 | 1.50000 | 4.20000 | 2.08571 | 3.66000 | 0.98360 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 14 | 0 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00000 |
| Arsenic (As)-Total ( | 14 | 14 | 0.00033 | 0.00078 | 0.00052 | 0.00045 | 0.00016 |
| Barium (Ba)-Total | 14 | 14 | 0.00617 | 0.00812 | 0.00713 | 0.00760 | 0.00058 |
| Boron (B)-Total (mg/L) | 14 | 14 | 0.01300 | 0.02500 | 0.02050 | 0.01860 | 0.00424 |
| Calcium (Ca)-Total ( | 14 | 14 | 24.90000 | 39.20000 | 31.96429 | 32.50000 | 4.08574 |
| Chromium (Cr)-Total (mg/L) | 14 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Magnesium (Mg)-Total (mg/L) | 14 | 14 | 3.85000 | 5.18000 | 4.62429 | 4.49200 | 0.43040 |
| Nickel (Ni)-Total (mg/L) | 14 | 0 | 0.00025 | 0.00025 | 0.00025 | 0.00025 | 0.00000 |
| Silver (Ag)-Total (mg/L) | 14 | 0 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00000 |
| Sodium (Na)-Total (mg/L) | 14 | 14 | 3.79000 | 4.35000 | 4.16071 | 4.33000 | 0.19574 |
| Strontium (Sr)-Total (mg/L) | 14 | 14 | 0.12100 | 0.24400 | 0.20071 | 0.19940 | 0.04476 |
| Tin (Sn)-Total (mg/L) | 14 | 0 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00000 |
| Total Aluminum (mg/L) | 14 | 14 | 0.00440 | 0.02620 | 0.01593 | 0.02310 | 0.00784 |
| Total Cadmium (mg/L) | 14 | 0 | 0.00001 | 0.00002 | 0.00001 | 0.00002 | 0.00000 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207975 : Polley Lake South Station P2 bottom | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Total Copper (mg/L) | 14 | 14 | 0.00103 | 0.00255 | 0.00176 | 0.00236 | 0.00050 |
| Total Iron (mg/L) | 14 | 9 | 0.03000 | 0.06000 | 0.04057 | 0.05620 | 0.01007 |
| Total Lead (mg/L) | 14 | 1 | 0.00005 | 0.00007 | 0.00005 | 0.00005 | 0.00001 |
| Total Manganese (mg/L) | 14 | 14 | 0.03170 | 1.02000 | 0.14924 | 0.07750 | 0.26339 |
| Total Molybdenum (mg/L) | 14 | 14 | 0.00077 | 0.00226 | 0.00178 | 0.00185 | 0.00056 |
| Total Selenium (mg/L) | 14 | 9 | 0.00050 | 0.00120 | 0.00070 | 0.00118 | 0.00024 |
| Zinc (Zn)-Total (mg/L) | 14 | 0 | 0.00050 | 0.00150 | 0.00100 | 0.00050 | 0.00052 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207975 : Polley Lake South Station P2 surface | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 13-Mar-09 | 26-Aug-09 | 15-Nov-10 | 25-May-11 | 1-Nov-11 | 8-May-12 | 1-Nov-12 | 13-May-13 | 21-Aug-13 |
| | | | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | <0.001 | 0.0039 | <0.003 | 0.0036 | <0.0030 | <0.0030 | <0.0030 | | |
| **Anions and Nutrients** | | | | | | | | | |
| Ammonia (as N) (mg/L | 0.0051 | 0.0148 | <0.005 | 0.0051 | 0.0112 | 0.0114 | <0.0050 | <0.0050 | <0.0050 |
| Chloride (mg/L) | <0.5 | <0.5 | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Diss-Orthophosphate (mg/L) | 0.0169 | <0.001 | 0.0383 | 0.014 | 0.0487 | 0.0311 | 0.041 | 0.03 | <0.0010 |
| Diss-Phosphorus (mg/L) | 0.023 | <0.002 | 0.0394 | 0.0159 | 0.0525 | 0.0316 | 0.0467 | 0.0332 | 0.0053 |
| Nitrate (N) (mg/L) | 0.147 | 0.0125 | 0.0433 | <0.005 | 0.177 | 0.0959 | 0.0827 | <0.0050 | <0.0050 |
| Nitrate and Nitrite (mg/L) | | | 0.0433 | <0.0051 | 0.179 | 0.0959 | 0.0827 | <0.0051 | <0.0051 |
| Nitrite (N) (mg/L) | <0.001 | <0.001 | <0.001 | <0.001 | 0.0013 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulphate (mg/L) | 31.4 | 29.4 | 29 | 28.4 | 28.5 | 29 | 29.4 | 28.1 | 28.6 |
| Total Nitrogen (mg/L) | 0.4 | 0.14 | 0.18 | 0.24 | 0.330 | 0.32 | 0.39 | 0.38 | 0.494 |
| **Physical Test** | | | | | | | | | |
| Alkalinity (CaCO3) ( | 94.4 | 76.6 | 78.2 | 73.1 | 79.3 | 80.1 | 79.4 | 77.6 | 74.2 |
| Conductivity (µs/cm) | | | 207 | 196 | 208 | 203 | 204 | 206 | 193 |
| Hardness (mg/L) | 124 | 104 | 104 | 102 | 102 | 106 | 105 | 100 | 98.4 |
| NTU (ntu) | 1.25 | 0.78 | 1.14 | 0.84 | 2.24 | 0.96 | 1.67 | 1.22 | 2.81 |
| pH (pH) | | | 7.96 | 8.08 | 8.05 | 7.6 | 7.97 | 8.23 | 9.06 |
| TSS (mg/L) | <3 | 4.5 | <3 | <3 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| **Total Metals** | | | | | | | | | |
| Antimony (Sb)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Arsenic (As)-Total ( | 0.00047 | 0.00039 | 0.00045 | 0.00039 | 0.00054 | 0.00053 | 0.0006 | 0.00056 | 0.00061 |
| Barium (Ba)-Total | 0.00861 | 0.00725 | 0.00747 | 0.00669 | 0.00661 | 0.00752 | 0.00747 | 0.00633 | 0.00663 |
| Boron (B)-Total (mg/L) | 0.025 | 0.024 | 0.024 | 0.024 | 0.025 | 0.025 | 0.021 | 0.023 | 0.021 |
| Calcium (Ca)-Total ( | 38.2 | 31.1 | 33.4 | 33.2 | 33.5 | 35 | 33.6 | 32.4 | 31.3 |
| Chromium (Cr)-Total (mg/L) | <0.0005 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium (Mg)-Total (mg/L) | 5.38 | 4.74 | 4.94 | 4.69 | 4.88 | 5.18 | 4.81 | 4.63 | 4.91 |
| Nickel (Ni)-Total (mg/L) | 0.00061 | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Silver (Ag)-Total (mg/L) | <0.00001 | 0.000018 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Total (mg/L) | 5.36 | 4.31 | 4.55 | 4.15 | 4.33 | 4.25 | 4.29 | 4.19 | 4.35 |
| Strontium (Sr)-Total (mg/L) | 0.243 | 0.239 | 0.242 | 0.21 | 0.230 | 0.24 | 0.248 | 0.233 | 0.229 |
| Tin (Sn)-Total (mg/L) | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Total Aluminum (mg/L) | 0.025 | 0.011 | 0.01 | 0.0197 | 0.0121 | <0.015 | 0.0213 | 0.0115 | 0.0106 |
| Total Cadmium (mg/L) | 0.000018 | <0.000017 | <0.00001 | <0.00001 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Total Copper (mg/L) | 0.00352 | 0.00419 | 0.00169 | 0.00179 | 0.00122 | 0.00129 | 0.00201 | 0.00194 | 0.00154 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207975 : Polley Lake South Station P2 surface | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 13-Mar-09 | 26-Aug-09 | 15-Nov-10 | 25-May-11 | 1-Nov-11 | 8-May-12 | 1-Nov-12 | 13-May-13 | 21-Aug-13 |
| Total Iron (mg/L) | 0.092 | <0.03 | <0.03 | <0.03 | <0.030 | <0.030 | 0.034 | <0.030 | <0.030 |
| Total Lead (mg/L) | <0.00005 | 0.000055 | <0.00005 | <0.00005 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| Total Manganese (mg/L) | 0.00171 | 0.00614 | 0.0366 | 0.00958 | 0.0676 | 0.0415 | 0.026 | 0.0253 | 0.00512 |
| Total Molybdenum (mg/L) | 0.00248 | 0.00228 | 0.00206 | 0.00197 | 0.00215 | 0.00235 | 0.00223 | 0.00219 | 0.00246 |
| Total Selenium (mg/L) | 0.0013 | 0.0011 | <0.001 | 0.00074 | 0.00069 | 0.00076 | 0.0007 | 0.00064 | 0.00072 |
| Zinc (Zn)-Total (mg/L) | 0.0599 | 0.0017 | <0.003 | <0.003 | <0.0030 | <0.0030 | <0.0030 | <0.0030 | <0.0030 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207975 : Polley Lake South Station P2 surface | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| | | | | | | | |
| Diss-Aluminum (Al) (mg/L) | 21 | 14 | 0.00050 | 0.00390 | 0.00188 | 0.00370 | 0.00106 |
| **Anions and Nutrients** | | | | | | | |
| Ammonia (as N) (mg/L | 23 | 12 | 0.00500 | 0.02110 | 0.01057 | 0.02044 | 0.00609 |
| Chloride (mg/L) | 10 | 0 | 0.25000 | 0.25000 | 0.25000 | | 0.00000 |
| Diss-Orthophosphate (mg/L) | 23 | 14 | 0.00050 | 0.04870 | 0.01233 | 0.01496 | 0.01567 |
| Diss-Phosphorus (mg/L) | 25 | 24 | 0.00100 | 0.05250 | 0.01646 | 0.02003 | 0.01510 |
| Nitrate (N) (mg/L) | 22 | 13 | 0.00250 | 0.17700 | 0.04179 | 0.04688 | 0.05401 |
| Nitrate and Nitrite (mg/L) | 8 | 4 | 0.00255 | 0.17900 | 0.05232 | | 0.06344 |
| Nitrite (N) (mg/L) | 22 | 2 | 0.00050 | 0.00130 | 0.00056 | 0.00073 | 0.00020 |
| Sulphate (mg/L) | 23 | 23 | 3.80000 | 31.40000 | 21.96522 | 23.50000 | 7.95142 |
| Total Nitrogen (mg/L) | 23 | 22 | 0.06000 | 0.53000 | 0.29248 | 0.44000 | 0.11795 |
| **Physical Test** | | | | | | | |
| Alkalinity (CaCO3) ( | 23 | 23 | 66.00000 | 128.00000 | 80.39565 | 103.70000 | 12.18220 |
| Conductivity (µs/cm) | 7 | 7 | 193.00000 | 208.00000 | 202.42857 | | 5.74042 |
| Hardness (mg/L) | 23 | 23 | 64.80000 | 139.00000 | 96.05652 | 115.54000 | 16.78283 |
| NTU (ntu) | 23 | 23 | 0.35000 | 2.81000 | 1.07739 | 1.20800 | 0.54264 |
| pH (pH) | 7 | 7 | 7.60000 | 9.06000 | 8.13571 | | 0.45073 |
| TSS (mg/L) | 23 | 2 | 1.50000 | 132.00000 | 7.32609 | 54.00000 | 27.18523 |
| **Total Metals** | | | | | | | |
| Antimony (Sb)-Total (mg/L) | 23 | 1 | 0.00005 | 0.00013 | 0.00005 | 0.00008 | 0.00002 |
| Arsenic (As)-Total ( | 23 | 23 | 0.00034 | 0.00071 | 0.00045 | 0.00057 | 0.00010 |
| Barium (Ba)-Total | 23 | 23 | 0.00389 | 0.01110 | 0.00691 | 0.00892 | 0.00139 |
| Boron (B)-Total (mg/L) | 22 | 22 | 0.01200 | 0.02500 | 0.01927 | 0.02170 | 0.00500 |
| Calcium (Ca)-Total ( | 23 | 23 | 20.80000 | 48.80000 | 30.90870 | 39.20000 | 5.76746 |
| Chromium (Cr)-Total (mg/L) | 23 | 0 | 0.00010 | 0.00025 | 0.00024 | 0.00025 | 0.00003 |
| Magnesium (Mg)-Total (mg/L) | 23 | 23 | 3.12000 | 6.99000 | 4.55565 | 5.56200 | 0.76484 |
| Nickel (Ni)-Total (mg/L) | 23 | 2 | 0.00025 | 0.00061 | 0.00028 | 0.00036 | 0.00009 |
| Silver (Ag)-Total (mg/L) | 23 | 1 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00000 |
| Sodium (Na)-Total (mg/L) | 23 | 23 | 3.67000 | 7.46000 | 4.42522 | 6.28400 | 0.82481 |
| Strontium (Sr)-Total (mg/L) | 23 | 23 | 0.09180 | 0.24800 | 0.18390 | 0.20580 | 0.05576 |
| Tin (Sn)-Total (mg/L) | 23 | 1 | 0.00005 | 0.00045 | 0.00007 | 0.00021 | 0.00008 |
| Total Aluminum (mg/L) | 23 | 22 | 0.00430 | 0.03160 | 0.01146 | 0.02110 | 0.00691 |
| Total Cadmium (mg/L) | 23 | 2 | 0.00001 | 0.00005 | 0.00002 | 0.00005 | 0.00001 |

# Grid Format Report

**From 1 Jan 2009 to 31 Dec 2013**

**Printed : 3/26/2014**

**Mount Polley**

**Mining Corporation**

IMPERIAL METALS CORPORATION

| | E207975 : Polley Lake South Station P2 surface | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sample (n) | Count >MDL | Min | Max | Mean | 95th Percentile | St Dev |
| Total Copper (mg/L) | 23 | 23 | 0.00122 | 0.00436 | 0.00230 | 0.00378 | 0.00086 |
| Total Iron (mg/L) | 23 | 7 | 0.03000 | 0.09700 | 0.04130 | 0.08440 | 0.02232 |
| Total Lead (mg/L) | 23 | 4 | 0.00002 | 0.00015 | 0.00005 | 0.00011 | 0.00002 |
| Total Manganese (mg/L) | 23 | 23 | 0.00160 | 0.06760 | 0.01755 | 0.03626 | 0.01690 |
| Total Molybdenum (mg/L) | 23 | 23 | 0.00062 | 0.00248 | 0.00158 | 0.00178 | 0.00070 |
| Total Selenium (mg/L) | 23 | 19 | 0.00025 | 0.00190 | 0.00096 | 0.12740 | 0.00038 |
| Zinc (Zn)-Total (mg/L) | 23 | 9 | 0.00050 | 0.05990 | 0.00725 | 0.01454 | 0.01608 |

# Monitoring data report for:
Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **B1-S** | 21/05/08 | 52 | 7.44 | 6.78 |
| | 27/10/08 | | 8.1 | 5.64 |
| | 13/03/09 | 65 | 7.16 | 0.38 |
| | 26/08/09 | 88 | 8.29 | 18.2 |
| | 13/05/10 | 87 | 8.13 | |
| | 08/06/10 | 84 | 7.53 | |
| | 24/06/10 | 85 | 7.86 | |
| | 13/07/10 | 86 | 8.01 | |
| | 26/07/10 | 88 | 8.2 | |
| | 12/08/10 | 88 | 8.05 | |
| | 24/08/10 | 92 | 7.89 | |
| | 16/09/10 | 93 | 7.41 | |
| | 02/11/10 | 60 | 7.83 | |
| | 15/11/10 | 91 | 7.48 | 4.2 |
| | 25/05/11 | 88 | 8.05 | 8.5 |
| | 20/06/11 | 88 | 6.93 | 15.9 |
| | 06/07/11 | 88 | 8.4 | 16.1 |
| | 19/07/11 | 88 | 8.45 | 17.5 |
| | 08/08/11 | 90 | 8.14 | |
| | 09/08/11 | 90 | 8.14 | 19.8 |
| | 24/08/11 | 89 | 7.92 | 17.6 |
| | 07/09/11 | 89 | 7.99 | 16.2 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **B1-S** | 20/09/11 | 90 | 7.71 | 14.1 |
| | 06/10/11 | 92 | 7.75 | 10.7 |
| | 01/11/11 | 93 | 7.87 | 5.4 |
| | 16/05/12 | 79 | 7.4 | 10.08 |
| | 30/05/12 | 88.3 | 8.14 | 12.8 |
| | 13/06/12 | 90 | 7.89 | 13.7 |
| | 16/07/12 | 92 | 8.19 | 20 |
| | 31/07/12 | 93 | 8.19 | 20.8 |
| | 08/08/12 | 94 | 8.35 | 21.6 |
| | 15/08/12 | 94.8 | 8.27 | 20.7 |
| | 28/08/12 | 94.8 | 8.164 | 19.0 |
| | 12/09/12 | 96.1 | 7.647 | 14.6 |
| | 24/09/12 | 95 | 7.81 | 15.7 |
| | 11/10/12 | 96.6 | 7.691 | 11 |
| | 31/10/12 | 95 | 7.74 | 5.2 |
| | 13/05/13 | 93 | 7.80 | 11.6 |
| | 29/05/13 | 71 | 7.83 | 13.6 |
| | 19/06/13 | 218 | 7.36 | 9.9 |
| | 03/07/13 | 88 | 7.94 | 20.2 |
| | 17/07/13 | 96.8 | 8.224 | 18.9 |
| | 08/08/13 | 94 | 7.93 | 21.2 |
| | 21/08/13 | 99 | 7.76 | 19.41 |
| | 10/09/13 | 100.3 | 7.889 | 18.2 |
| | 22/10/13 | 100.9 | 7.69 | 8.8 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **B1-B** | 21/05/08 | 58 | 7.13 | 4.27 |
| | 27/10/08 | | 7.56 | 5.62 |
| | 02/11/10 | 61 | 7.65 | 6.63 |
| | 25/05/11 | 65.6 | 7.58 | 4.8 |
| | 01/11/11 | 95 | 7.90 | 5.39 |
| | 31/10/12 | 94.8 | 7.74 | 5.5 |
| | 13/05/13 | 104 | 7.25 | 3.79 |
| | 21/08/13 | 113 | 6.53 | 7.09 |
| **B2-S** | 21/05/08 | 51 | 7.31 | 6.94 |
| | 27/10/08 | | 7.84 | 6.67 |
| | 13/03/09 | 52 | 7.5 | 0.39 |
| | 26/08/09 | 87 | 8.47 | 18.4 |
| | 13/05/10 | 87 | 8.02 | |
| | 08/06/10 | 84 | 7.71 | |
| | 24/06/10 | 85 | 7.98 | |
| | 13/07/10 | 86 | 7.96 | |
| | 26/07/10 | 87 | 8.23 | |
| | 12/08/10 | 88 | 8.2 | |
| | 24/08/10 | 92 | 8.04 | |
| | 16/09/10 | 92 | 7.64 | |
| | 02/11/10 | 61 | 7.94 | |
| | 15/11/10 | 88 | 7.40 | 7.33 |
| | 25/05/11 | 86 | 7.07 | 9.5 |
| | 20/06/11 | 87 | 7.11 | 15.9 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **B2-S** | 06/07/11 | 88 | 8.4 | 16.4 |
| | 19/07/11 | 88 | 8.47 | 16.9 |
| | 08/08/11 | 90 | 8.27 | |
| | 09/08/11 | 90 | 8.27 | 19.8 |
| | 24/08/11 | 88 | 7.99 | 17.2 |
| | 07/09/11 | 89 | 8.1 | 15.8 |
| | 20/09/11 | 90 | 7.55 | 14.4 |
| | 06/10/11 | 92 | 7.53 | 10.6 |
| | 01/11/11 | 93 | 7.81 | 5.9 |
| | 15/05/12 | 79 | | 6.24 |
| | 16/05/12 | | 7.33 | |
| | 30/05/12 | 88.1 | 8.25 | 13.3 |
| | 13/06/12 | 90 | 7.89 | 13.6 |
| | 16/07/12 | 92 | 8.07 | 21.2 |
| | 24/07/12 | 92 | 8.11 | 20.0 |
| | 31/07/12 | 93 | 8.15 | 20.9 |
| | 08/08/12 | 93 | 8.34 | 20.9 |
| | 15/08/12 | 94 | 8.23 | 20.5 |
| | 28/08/12 | 94.6 | 8.317 | 18.7 |
| | 12/09/12 | 95.9 | 7.801 | 14.6 |
| | 24/09/12 | 95 | 7.83 | 15.4 |
| | 11/10/12 | 95.9 | 7.787 | 11 |
| | 31/10/12 | 95.2 | 7.74 | 5.3 |
| | 13/05/13 | 93 | 7.46 | 9.98 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **B2-S** | 29/05/13 | 70 | 7.87 | 12.8 |
| | 19/06/13 | 79 | 8.01 | 16.4 |
| | 03/07/13 | 88 | 7.85 | 20.6 |
| | 17/07/13 | 96.6 | 8.261 | 19.2 |
| | 08/08/13 | 94 | 7.94 | 21.5 |
| | 21/08/13 | 99 | 7.87 | 19.35 |
| | 10/09/13 | 100.1 | 9.332 | 18.5 |
| | 22/10/13 | 101.2 | 7.733 | 8.9 |
| **B2-B** | 21/05/08 | 51 | 7.35 | 6.46 |
| | 27/10/08 | | 7.78 | 6.36 |
| | 02/11/10 | 61 | 7.78 | 6.9 |
| | 15/11/10 | 89.3 | 7.86 | |
| | 25/05/11 | 64.2 | 7.66 | 6 |
| | 01/11/11 | 95 | 7.80 | 5.63 |
| | 15/05/12 | 80 | 6.81 | 5.46 |
| | 16/05/12 | 79 | 6.94 | 5.29 |
| | 31/10/12 | 101.2 | 7.74 | 5.9 |
| | 13/05/13 | 99 | 7.22 | 3.98 |
| | 21/08/13 | 111 | 6.43 | 6.15 |
| **P1-B** | 21/05/08 | 139 | 7.22 | 3.25 |
| | 28/10/08 | | 7.81 | 6.71 |
| | 26/04/10 | 208 | 7.7 | 4.5 |
| | 02/11/10 | 141 | 7.4 | 7.53 |
| | 25/05/11 | | 8.07 | 4.3 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **P1-B** | 19/07/11 | | 7.99 | 11.2 |
| | 01/11/11 | 226 | 7.61 | 6.27 |
| | 08/05/12 | 210 | 7.92 | 3.55 |
| | 01/11/12 | 221 | 7.78 | 5.9 |
| | 13/05/13 | 218 | 7.55 | 3.1 |
| | 21/08/13 | 232 | 6.9 | 4.16 |
| **P1-S** | 21/05/08 | 114 | 7.57 | 4.56 |
| | 28/10/08 | | 7.6 | 7.87 |
| | 13/03/09 | 114 | 7.47 | 0.19 |
| | 26/08/09 | 206 | 9 | 17.8 |
| | 26/04/10 | 206 | 7.44 | 5.39 |
| | 13/05/10 | 208 | 8.33 | |
| | 24/06/10 | 199 | 8.19 | |
| | 13/07/10 | 203 | 8.13 | |
| | 26/07/10 | 203 | 8.29 | |
| | 12/08/10 | 205 | 8.29 | |
| | 24/08/10 | 212 | 8.39 | |
| | 16/09/10 | 214 | 8.08 | |
| | 02/11/10 | 145 | 7.81 | |
| | 15/11/10 | 212 | 7.39 | 6.7 |
| | 25/05/11 | 204 | 8.75 | 9.4 |
| | 06/06/11 | 203.7 | 9.03 | 12.4 |
| | 21/06/11 | 202 | 8.16 | 14.1 |
| | 06/07/11 | 198 | 9.4 | 16.2 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **P1-S** | 19/07/11 | 197 | 9.55 | 18.4 |
| | 08/08/11 | 198 | 9.4 | |
| | 09/08/11 | 198 | 9.4 | 19.7 |
| | 24/08/11 | 194 | 9.38 | 18.8 |
| | 07/09/11 | 195 | 9.4 | 17.1 |
| | 20/09/11 | 195 | 9.32 | 14.8 |
| | 04/10/11 | 156 | 8.94 | 10.8 |
| | 01/11/11 | 220 | 7.03 | 6.33 |
| | 08/05/12 | 223 | 8.46 | 3.22 |
| | 30/05/12 | 198.1 | 9.31 | 11.5 |
| | 13/06/12 | 205 | 8.87 | 12.3 |
| | 16/07/12 | 205 | 9.16 | 21.5 |
| | 24/07/12 | | | 20.0 |
| | 31/07/12 | 206 | 9.12 | 20.7 |
| | 08/08/12 | 207 | 9.13 | 21.9 |
| | 15/08/12 | 209 | 8.92 | 19.6 |
| | 28/08/12 | 211 | 8.943 | 19.2 |
| | 12/09/12 | 219 | 8.86 | 15.5 |
| | 24/09/12 | 212 | 8.66 | 15.9 |
| | 10/10/12 | 218 | 8.506 | 12.1 |
| | 01/11/12 | 216 | 8.004 | 6.5 |
| | 13/05/13 | 208 | 8.65 | 11.7 |
| | 29/05/13 | 156 | 8.80 | 13.1 |
| | 20/06/13 | 166 | 9.07 | 15.8 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **P1-S** | 03/07/13 | 184 | 9.08 | 20 |
| | 17/07/13 | 202 | 9.261 | 19.7 |
| | 08/08/13 | 192 | 9.41 | 21.9 |
| | 21/08/13 | 195 | 9.32 | 19.23 |
| | 10/09/13 | 195.4 | 9.34 | 18.2 |
| | 02/10/13 | 204 | 9.009 | 11.9 |
| **P2-B** | 21/05/08 | 116 | 7.92 | 4.2 |
| | 28/10/08 | | 7.44 | 5.73 |
| | 26/04/10 | 209 | 7.95 | 4.39 |
| | 02/11/10 | 142 | 7.45 | 7.57 |
| | 25/05/11 | | 7.91 | 4 |
| | 01/11/11 | 234 | 7.41 | 6.22 |
| | 08/05/12 | 223 | 7.61 | 3.22 |
| | 01/11/12 | 216 | 8.075 | 5.8 |
| | 13/05/13 | 214 | 7.73 | 3.53 |
| | 21/08/13 | 215 | 7.12 | 4.24 |
| **P2-S** | 21/05/08 | 115 | 7.96 | 4.69 |
| | 28/10/08 | | 7.83 | 6.79 |
| | 13/03/09 | 126 | 7.98 | 0.39 |
| | 26/08/09 | 207 | 8.94 | 18 |
| | 13/05/10 | 208 | 7.88 | |
| | 08/06/10 | 201 | 7.73 | |
| | 24/06/10 | 200 | 8.25 | |
| | 13/07/10 | 203 | 8.17 | |

**Printed Date:** 3/25/2014

# Monitoring data report for:
Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **P2-S** | 26/07/10 | 204 | 8.32 | |
| | 12/08/10 | 206 | 8.25 | |
| | 24/08/10 | 213 | 8.36 | |
| | 16/09/10 | 214 | 7.93 | |
| | 02/11/10 | 144 | 7.6 | |
| | 15/11/10 | 212 | 7.38 | 6.7 |
| | 25/05/11 | 349.5 | 8.83 | 9.7 |
| | 06/06/11 | 206.2 | 9.25 | 14.5 |
| | 21/06/11 | 200 | 8.18 | 14.8 |
| | 06/07/11 | 198 | 9.43 | 16.9 |
| | 19/07/11 | 198 | 9.55 | 17.4 |
| | 08/08/11 | 197 | 9.42 | |
| | 09/08/11 | 197 | 9.42 | 18.9 |
| | 24/08/11 | 194 | 9.38 | 18.6 |
| | 07/09/11 | 195 | 9.39 | 16.3 |
| | 20/09/11 | 195 | 9.34 | 14.9 |
| | 04/10/11 | 153 | 9.23 | 10.7 |
| | 01/11/11 | 220 | 7.40 | 6.29 |
| | 08/05/12 | 210 | 7.87 | 3.84 |
| | 29/05/12 | 206 | 8.88 | 13.01 |
| | 13/06/12 | 206 | 8.87 | 12.4 |
| | 16/07/12 | 205 | 9.18 | 20.5 |
| | 24/07/12 | | | 20.0 |
| | 31/07/12 | 206 | 9.14 | 21.3 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **P2-S** | 08/08/12 | 207 | 9.12 | 20.9 |
| | 15/08/12 | 207 | 9.02 | 19.8 |
| | 28/08/12 | 211 | 8.966 | 18.7 |
| | 12/09/12 | 219 | 8.879 | 15.4 |
| | 24/09/12 | 212 | 8.7 | 15.5 |
| | 10/10/12 | 219 | 8.499 | 12.0 |
| | 01/11/12 | 217 | 7.951 | 6.5 |
| | 13/05/13 | 208 | 8.65 | 9.92 |
| | 29/05/13 | 155 | 8.66 | 12.6 |
| | 20/06/13 | 169 | 9.23 | 16.5 |
| | 03/07/13 | 189 | 9.05 | 20.9 |
| | 08/08/13 | 197 | 9.38 | 22.8 |
| | 21/08/13 | 195 | 9.35 | 19.73 |
| | 10/09/13 | 195.2 | 9.332 | 19 |
| | 02/10/13 | 209 | 8.834 | 11.4 |
| **B1-5** | 26/08/09 | 88 | 8.32 | 17.6 |
| **B1-9** | 26/08/09 | 92 | 7.66 | 9.4 |
| **B2-10** | 13/05/13 | 96 | 7.23 | 4.5 |
| **B2-9** | 26/08/09 | 86 | 7.87 | 10.4 |
| **P1-10** | 26/08/09 | 205 | 8.14 | 10 |
| **P1-20** | 26/08/09 | 205 | 8.05 | 6.5 |
| **P1-30** | 26/08/09 | 207 | 7.97 | 5.6 |
| **P2-10** | 26/08/09 | 204 | 8.19 | 10 |
| **P2-20** | 26/09/09 | 206 | 8.06 | 6.3 |

**Printed Date:** 3/25/2014

# Monitoring data report for:
## Lake Water Quality Site

Mount Polley Mining Corporation
IMPERIAL METALS CORPORATION

**This report covers the period from:** 1-Jan-2008 **to:** 31-Dec-2013

| | | Cond (in situ) (µs/cm) | pH (in situ) (pH) | Temp (in situ) (Degrees Celcius) |
|---|---|---|---|---|
| **P2-22** | 26/08/09 | 208 | 7.86 | 6.2 |

**Printed Date:** 3/25/2014

# Bootjack Lake B1 pH Profiles
# (2005 - 2013)

| Depth | SPRING | | | | | | | | SUMMER | FALL | | | | | WINTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 23-May-06 | 23-May-07 | 21-May-08 | 21-May-09 | 26-Apr-10 | 25-May-11 | 16-May-12 | 13-May-13 | 21-Aug-13 | 10-Nov-05 | 23-Oct-07 | 27-Oct-08 | 02-Nov-10 | 01-Nov-11 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 02-Mar-10 | 08-Mar-11 | 06-Mar-12 |
| 0 | | 8.42 | 7.44 | 7.18 | 7.85 | 8.05 | 7.37 | 7.80 | 7.76 | | 7.96 | 8.1 | 7.83 | 7.68 | | 7.69 | 7.16 | 8.71 | 7.39 | 8.14 |
| 1 | 7.68 | 8.08 | 7.4 | 7.07 | 7.84 | 7.95 | 7.34 | 7.70 | 7.79 | 9.15 | 7.97 | 7.96 | 7.85 | 7.84 | 7.89 | 7.63 | 7.21 | 7.43 | | 8.02 |
| 2 | 7.67 | 8.06 | 7.39 | 7.08 | 7.84 | 7.86 | 7.34 | 7.68 | 7.79 | 9.05 | 7.97 | 7.93 | 7.86 | 7.87 | 7.86 | 7.64 | 7.09 | 7.2 | 7.37 | 7.96 |
| 3 | 7.64 | 8.07 | 7.38 | 7 | 7.83 | 7.82 | 7.24 | 7.65 | 7.80 | 8.99 | 7.97 | 7.91 | | 7.89 | 7.83 | 7.68 | 7.05 | 7.06 | | 7.91 |
| 4 | 7.69 | 8.07 | 7.38 | 6.99 | 7.82 | 7.76 | 7.17 | 7.60 | 7.82 | 8.94 | 7.96 | 7.87 | 7.85 | | 7.8 | 7.66 | 7.05 | 7.02 | 7.36 | 7.85 |
| 5 | 7.67 | 8.06 | 7.38 | 6.98 | 7.82 | 7.68 | | 7.48 | 7.76 | 8.9 | 7.96 | 7.88 | 7.84 | 7.91 | 7.77 | 7.61 | 7.07 | 6.98 | | 7.77 |
| 6 | 7.61 | 8.06 | 7.37 | 7 | 7.81 | 7.65 | 7.08 | 7.36 | 7.46 | 8.83 | 7.95 | 7.88 | 7.84 | | | 7.4 | | 6.99 | 7.3 | 7.71 |
| 7 | 7.49 | 8.06 | 7.36 | 7 | 7.8 | 7.58 | | 7.30 | 7.02 | 8.8 | 7.95 | 7.87 | | 7.91 | 7.73 | 7.26 | 7.08 | 6.98 | | 7.66 |
| 8 | 7.47 | 8.05 | 7.3 | 7.01 | 7.79 | | 7.04 | 7.26 | 6.84 | 8.76 | 7.95 | 7.86 | 7.84 | | | 7.15 | 7.01 | 6.95 | 7.25 | 7.52 |
| 9 | 7.45 | 8.04 | 7.21 | 6.93 | 7.78 | | | 7.24 | 6.64 | 8.73 | | 7.87 | 7.65 | 7.91 | 7.69 | 7.07 | | 6.95 | 7.19 | 7.37 |
| 10 | 7.43 | 8.02 | 7.17 | 6.92 | 7.7 | | 7.02 | | 6.58 | 8.71 | | 7.86 | | 7.92 | 7.68 | 7 | 6.69 | 6.92 | 7.11 | 7.26 |
| 11 | | | 7.13 | 6.89 | | | | | 6.57 | 8.68 | | 7.41 | | 7.92 | 7.5 | 6.95 | 6.89 | 6.94 | 7.05 | 7.22 |
| 12 | | | | 6.85 | | | 7.00 | | 6.52 | 8.55 | | | | 7.9 | | 6.85 | | 6.87 | | |
| 13 | | | | | | | | | 6.51 | | | | | | | | | 6.85 | | |
| 14 | | | | | | | 6.99 | | 6.53 | | | | | | | | | 6.81 | | |
| 15 | | | | | | | 6.98 | | 6.53 | | | | | | | | | | | |
| 16 | | | | | | | 6.94 | | | | | | | | | | | | | |

# Bootjack Lake B1 Conductivity (µS/cm) Profiles
# (2005 - 2013)

| Depth (m) | SPRING | | | | | | | | SUMMER | FALL | | | | | | WINTER | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 23-May-06 | 23-May-07 | 21-May-08 | 21-May-09 | 26-Apr-10 | 25-May-11 | 16-May-12 | 13-May-13 | 21-Aug-13 | 10-Nov-05 | 31-Oct-06 | 23-Oct-07 | 27-Oct-08 | 02-Nov-10 | 01-Nov-11 | 14-Mar-06 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 02-Mar-10 | 08-Mar-11 | 06-Mar-12 |
| **0** | | 58 | 80 | 82 | 87 | 67 | 79 | 93 | 99 | | 85 | 83 | 86 | 60 | 95 | | | 100 | 123 | 48 | 96 | 98 |
| **1** | 80 | 58 | 80 | 82 | 87 | 66.2 | 79 | 93 | 99 | 79 | | 83 | 86 | 60 | 95 | 83 | 89 | 92 | 88 | 93 | | 96 |
| **2** | 80 | 57 | 80 | 82 | 87 | 65.8 | 79 | 93 | 99 | 79 | 84 | 83 | 85.7 | 60 | 95 | 79 | 89 | 87 | 86 | 91 | 95 | 94 |
| **3** | 80 | 56 | 80 | 82 | 87 | 65.6 | 79 | 93 | 99 | 79 | | 83 | 86 | | 95 | 80 | 88 | 86 | 86 | 90 | | 94 |
| **4** | 80 | 54 | 80 | 82 | 87 | 65 | 79 | 96 | 98 | 80 | | 83 | 86 | 60 | | 80 | 89 | 87 | 87 | 90 | 97 | 95 |
| **5** | 80 | 54 | 80 | 82 | 87 | 64.3 | | 96 | 99 | 80 | | 83 | 86 | 60 | 95 | 81 | 90 | 87 | 87 | 91 | | 96 |
| **6** | 80 | 53 | 80 | 82 | 87 | 64.1 | 79 | 97 | 99 | 80 | 84 | 83 | 86 | 60 | | 81 | 91 | 88 | 87 | 91 | 98 | 96 |
| **7** | 80 | 54 | 85 | 82 | 87 | 65.6 | | 98 | 99 | 80 | | 83 | 86 | | 95 | 82 | 91 | 88 | | 97 | | 97 |
| **8** | 79 | 52 | 88 | 82 | 87 | | 79 | 100 | 100 | 79 | | 83 | 86 | 60 | | 83 | 92 | 88 | 88 | 93 | 99 | 97 |
| **9** | 79 | 52 | 90 | 83 | 87 | | | 104 | 104 | 80 | | | 86 | 61 | 95 | 85 | 92 | 89 | | 94 | 100 | 98 |
| **10** | 79 | 51 | 91 | 83 | 87 | | 79 | | 104 | 80 | 84 | | 85.2 | | 95 | 86 | 101 | 90 | 91 | 95 | 102 | 100 |
| **11** | | | 96 | 83 | | | | | 106 | 80 | | | 103 | | 95 | | 108 | 91 | 95 | 98 | 106 | 101 |
| **12** | | | | 82 | | | 79 | | 107 | 90 | | | | | 95 | | | 98 | | 105 | | |
| **13** | | | | | | | | | 110 | | | | | | | | | | | 111 | | |
| **14** | | | | | | | 79 | | 111 | | | | | | | | | | | 118 | | |
| **15** | | | | | | | 79 | | 113 | | | | | | | | | | | | | |
| **16** | | | | | | | 79 | | | | | | | | | | | | | | | |

# Bootjack Lake B1 Temperature (°C) Profiles
# (1996 - 2013)

| Depth | SPRING | | | | | | | | | SUMMER | FALL | | | | | | | | WINTER | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | May-96 | 23-May-06 | 23-May-07 | 21-May-08 | 21-May-09 | 26-Apr-10 | 25-May-11 | 16-May-12 | 13-May-13 | 21-Aug-13 | Oct-96 | 10-Nov-05 | 31-Oct-06 | 23-Oct-07 | 27-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 14-Mar-06 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 02-Mar-10 | 08-Mar-11 | 06-Mar-12 |
| 0 | | | 10.70 | 6.78 | 7.38 | 6.24 | 8.50 | 10.08 | 11.60 | 19.41 | 3.56 | | 5.06 | 6.74 | 5.64 | 6.73 | 5.36 | 5.20 | | | 0.00 | 0.38 | 0.40 | 0.81 | 0.29 |
| 1 | | 6.55 | 10.20 | 6.75 | 7.18 | 6.23 | 7.90 | 9.58 | 11.40 | 19.29 | 3.59 | 4.55 | | 6.73 | 5.62 | 6.67 | 5.38 | 5.10 | 1.00 | 0.71 | 0.76 | 0.79 | 1.98 | | 0.92 |
| 2 | 6.55 | 6.34 | 9.96 | 6.70 | 6.55 | 6.22 | 7.40 | 9.98 | 11.27 | 19.26 | 3.59 | 4.49 | 5.24 | 6.74 | 5.62 | 6.63 | 5.36 | 5.20 | 1.93 | 1.08 | 2.22 | 1.60 | 2.23 | 2.52 | 1.53 |
| 3 | 6.34 | 6.19 | 8.93 | 6.69 | 6.39 | 6.22 | 7.30 | 7.41 | 9.99 | 19.12 | 3.57 | 4.45 | | 6.74 | 5.63 | | 5.36 | 5.2 | 2.15 | 1.33 | 2.75 | 1.99 | 2.29 | | 1.76 |
| 4 | | 6.01 | 7.88 | 6.64 | 6.30 | 6.23 | 6.90 | 6.35 | 5.80 | 18.79 | 3.59 | 4.44 | | 6.72 | 5.63 | 6.56 | | 5.20 | 2.24 | 1.50 | 3.09 | 2.17 | 2.30 | 2.87 | 1.98 |
| 5 | 6.19 | 5.92 | 7.46 | 6.62 | 6.21 | 6.20 | 6.00 | | 5.17 | 17.00 | 3.54 | 4.39 | | 6.72 | 5.62 | 6.55 | 5.36 | | 2.40 | 1.74 | 3.22 | 2.31 | 2.32 | | 2.11 |
| 6 | | 5.73 | 7.03 | 6.53 | 6.07 | 6.23 | 5.70 | 5.66 | 4.93 | 11.83 | 3.56 | 4.37 | 5.31 | 6.72 | 5.62 | 6.55 | | 5.20 | 2.54 | 2.11 | 3.33 | 2.49 | 2.48 | 3.23 | 2.22 |
| 7 | 6.01 | 5.60 | 6.48 | 5.28 | 5.80 | 6.21 | 4.80 | | 4.54 | 10.01 | 3.54 | 4.35 | | 6.72 | 5.62 | | 5.36 | | 2.69 | 2.47 | 3.46 | | 2.62 | | 2.44 |
| 8 | 5.92 | 5.55 | 6.15 | 4.72 | 5.43 | 6.18 | | 5.48 | 4.44 | 8.72 | 3.54 | 4.33 | | 6.71 | 5.62 | 6.55 | | 5.20 | 2.93 | 2.72 | 3.53 | 3.11 | 2.82 | 3.86 | 2.68 |
| 9 | | 5.37 | 5.92 | 4.57 | 5.40 | 6.16 | | | 3.79 | 8.00 | 3.54 | 4.33 | | | 5.62 | 6.63 | 5.36 | | 3.08 | 2.97 | 3.60 | | 3.16 | 4 | 3.07 |
| 10 | 5.73 | 6.51 | 5.86 | 4.54 | 5.24 | 6.13 | | 5.4 | | 7.66 | | 4.32 | 5.30 | | 5.62 | | 5.36 | 5.10 | 3.15 | 3.22 | 3.68 | 3.51 | 3.36 | 4.1 | 3.22 |
| 11 | | | | 4.27 | 5.19 | | | | | 7.48 | | 4.33 | | | 5.94 | | 5.36 | | | 3.33 | 3.71 | 3.67 | 3.48 | 4.25 | 3.33 |
| 12 | 5.6 | | | | 5.18 | | | 5.34 | | 7.30 | | 4.46 | | | | | 5.39 | 5.4 | | | 3.83 | | 3.74 | | |
| 13 | 5.55 | | | | | | | | | 7.15 | | | | | | | | 5.15 | | | | | 3.87 | | |
| 14 | | | | | | | | 5.3 | | 7.13 | | | | | | | | | | | | | 3.90 | | |
| 15 | 5.37 | | | | | | | 5.29 | | 7.09 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | 5.29 | | | | | | | | | | | | | | | | | |

# Bootjack Lake B1 Dissolved Oxygen (mg/L) Profiles
# (1996 - 2013)

| Depth | SPRING | | | | | | | | | SUMMER | FALL | | | | | | | | WINTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | May-96 | 23-May-06 | 23-May-07 | 21-May-08 | 21-May-09 | 26-Apr-10 | 25-May-11 | 16-May-12 | 13-May-13 | 21-Aug-13 | Oct-96 | 10-Nov-05 | 31-Oct-06 | 23-Oct-07 | 27-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 14-Mar-06 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 08-Mar-11 | 06-Mar-12 |
| 0 | | | 11.08 | 10.68 | 10.45 | 10.33 | 0.49 | 8.72 | 10.02 | 9.35 | 12.12 | | 10.95 | 10.32 | 10.82 | 11.11 | 10.59 | 8.78 | | | 11.31 | 12.42 | 11.37 | 12.78 |
| 1 | | 9.75 | 11.18 | 10.47 | 10.38 | 10.31 | 10.32 | 8.96 | 10.2 | 9.32 | 11.03 | 12.47 | | 10.18 | 10.77 | 10.94 | 11.36 | 8.92 | 11.84 | 11.77 | 10.9 | 11.43 | | 12.43 |
| 2 | 9.72 | 9.75 | 11.16 | 10.43 | 10.34 | 10.31 | 10.13 | 8.96 | 10.27 | 9.36 | 10.62 | 12.39 | 10.50 | 10.16 | 10.77 | 10.9 | 11.42 | 9 | 11.2 | 11.35 | 10.65 | 10.81 | 10.72 | 12.09 |
| 3 | 9.66 | 9.73 | 10.93 | 10.4 | 10.31 | 10.3 | 9.78 | 8.91 | 10.55 | 9.47 | 10.61 | 12.4 | | 10.16 | 10.75 | | 11.42 | 9.04 | 10.84 | 11.05 | 10.58 | 10.66 | | 11.92 |
| 4 | | 10.19 | 10.7 | 10.4 | 10.16 | 10.3 | 9.5 | 8.87 | 11.28 | 9.57 | 10.68 | 12.37 | | 10.13 | 10.75 | 10.87 | | 8.97 | 10.7 | 10.62 | 10.1 | 10.52 | 10.28 | 11.52 |
| 5 | 9.77 | 11.34 | 10.5 | 10.4 | 10.05 | 10.3 | 9.27 | | 10.59 | 9.89 | 10.67 | 12.39 | | 10.13 | 10.74 | 10.85 | 11.42 | | 10.4 | 10.33 | 9.53 | 10.22 | | 10.86 |
| 6 | | 10.5 | 10.29 | 10.29 | 9.9 | 10.29 | 8.78 | 8.56 | 10.35 | 8.01 | 10.38 | 12.37 | 10.49 | 10.13 | 10.73 | 10.84 | | 9.02 | 9.85 | 10.05 | 8.98 | 9.72 | 8.99 | 10.44 |
| 7 | 9.93 | 9.8 | 9.93 | 10.04 | 9.7 | 10.26 | 6.6 | | 10.16 | 5.79 | 10.47 | 12.38 | | 10.13 | 10.73 | | 11.42 | | 8.69 | 9.76 | 7.65 | | | 9.78 |
| 8 | 10.4 | 9.6 | 9.65 | 8.75 | 9.27 | 10.25 | | 8.27 | 9.83 | 2.12 | 10.30 | 12.39 | | 10.12 | 10.73 | 10.81 | | 9.04 | 7.65 | 8.53 | 7.3 | 7.57 | 6.54 | 7.58 |
| 9 | | 8.94 | 9.29 | 7.98 | 9.02 | 10.25 | | | 9.56 | 1.49 | 10.04 | 12.39 | | | 10.72 | 9.41 | 11.41 | | 6.6 | 7.3 | 6.75 | | 5.52 | 5.61 |
| 10 | 9.7 | 8.7 | 9.12 | 7.3 | 8.8 | 9.4 | | 8.09 | | 1.29 | | 12.39 | 10.45 | | 10.71 | | 11.42 | 9.04 | 6.11 | 5.05 | 5.92 | 5.11 | 4.43 | 4.06 |
| 11 | | | | 6.56 | 8.66 | | | | | 1.21 | | 12.32 | | | 1.37 | | 11.41 | | | 3.27 | 5.54 | 2.34 | 3.38 | 3.03 |
| 12 | 8.9 | | | | 8.37 | | | 8.04 | | 1.11 | | 3.9 | | | | | 10.26 | 7.5 | | | 2.27 | | | |
| 13 | 9.17 | | | | | | | | | 1.04 | | | | | | | | 3.42 | | | | | | |
| 14 | | | | | | | | 8 | | 1.05 | | | | | | | | | | | | | | |
| 15 | 8.97 | | | | | | | 7.93 | | 0.99 | | | | | | | | | | | | | | |
| 16 | | | | | | | | 7.64 | | | | | | | | | | | | | | | | |

# Bootjack Lake B2 pH Profiles
# (2005 - 2013)

| Depth (m) | SPRING | | | | | | | SUMMER | FALL | | | | | WINTER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 23-May-07 | 21-May-08 | 21-May-09 | 26-Apr-10 | 25-May-11 | 15-May-12 | 13-May-13 | 21-Aug-13 | 10-Nov-05 | 23-Oct-07 | 27-Oct-08 | 02-Nov-10 | 01-Nov-11 | 06-Mar-07 | 01-Apr-08 | 12-Mar-09 | 08-Mar-11 | 06-Mar-12 |
| 0 | 7.77 | 7.31 | 7.05 | 8.13 | 8.58 | 7.4 | 7.46 | 7.87 | | 8.63 | 7.84 | 7.94 | 7.63 | | 7.71 | 7.5 | 7.82 | 7.54 |
| 1 | 7.78 | 7.32 | 7.02 | 8.1 | 8 | 7.2 | 7.43 | 7.88 | 8.3 | 8.03 | 7.82 | 7.88 | 7.74 | 7.74 | 7.57 | 7.43 | | 7.56 |
| 2 | 7.78 | 7.32 | 7.03 | 8.07 | 7.97 | 7.13 | 7.4 | 7.89 | 8.28 | 7.9 | 7.82 | 7.86 | 7.76 | 7.74 | 7.51 | 7.35 | 7.79 | 7.56 |
| 3 | 7.78 | 7.32 | 7.04 | 8.06 | 7.88 | 7.1 | 7.36 | 7.92 | 8.27 | 7.89 | 7.81 | | 7.77 | 7.72 | 7.44 | 7.33 | | 7.56 |
| 4 | 7.78 | 7.35 | 7.05 | 8.02 | 7.85 | 7.06 | 7.31 | 7.91 | 8.26 | 7.86 | 7.8 | 7.83 | 7.77 | | 7.36 | 7.3 | 7.62 | 7.54 |
| 5 | 7.78 | 7.36 | 7.06 | 8.01 | 7.81 | | 7.28 | 7.45 | 8.22 | 7.85 | 7.8 | | 7.78 | 7.67 | 7.29 | 7.31 | | 7.5 |
| 6 | 7.78 | 7.36 | 7.04 | 8 | 7.75 | 7.04 | 7.24 | 7.23 | 8.24 | 7.83 | 7.8 | 7.79 | | | 7.21 | 7.3 | 7.57 | 7.46 |
| 7 | 7.78 | 7.37 | 7.05 | 7.99 | 7.68 | | 7.23 | 6.94 | 8.23 | 7.83 | 7.8 | | 7.78 | 7.63 | 6.64 | 7.3 | | 7.42 |
| 8 | 7.78 | 7.37 | 7.03 | 7.99 | 7.66 | 6.98 | 7.23 | 6.79 | 8.19 | 7.82 | 7.79 | 7.78 | | | 7.06 | 7.28 | 7.48 | 7.4 |
| 9 | 7.78 | 7.3 | 7 | 7.97 | | | 7.23 | 6.67 | 8.2 | 7.82 | 7.79 | | 7.78 | 7.45 | 7 | 7.25 | 7.26 | 7.32 |
| 10 | | 7.37 | 6.96 | 7.95 | | 6.91 | 7.23 | 6.6 | | 7.82 | 7.78 | 7.78 | | | 6.96 | 7.25 | | 7.25 |
| 11 | | 7.37 | 6.96 | 7.95 | | | 7.25 | 6.55 | | 7.81 | | | 7.79 | | 6.93 | 7.23 | 6.95 | 7.2 |
| 12 | | 7.35 | | 7.93 | | 6.86 | 7.24 | 6.49 | | 7.83 | | | 7.8 | | | 7.12 | | |
| 13 | | | | 7.96 | | | 7.22 | 6.49 | | 7.83 | | | | | | | | |
| 14 | | | | | | 6.84 | | 6.46 | | 7.81 | | | | | | | | |
| 15 | | | | | | | | 6.43 | | | | | | | | | | |
| 16 | | | | | | 6.81 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | |

# Bootjack Lake B2 Conductivity (µS/cm) Profiles
# (2005 - 2013)

| Depth | SPRING | | | | | | | | SUMMER | FALL | | | | | | | WINTER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 23-May-06 | 23-May-07 | 21-May-08 | 21-May-09 | 26-Apr-10 | 25-May-11 | 15-May-12 | 13-May-13 | 21-Aug-13 | 10-Nov-05 | 31-Oct-06 | 23-Oct-07 | 27-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 06-Mar-07 | 01-Apr-08 | 12-Mar-09 | 08-Mar-11 | 06-Mar-12 |
| 0 | | 58 | 78 | 82 | 86 | 68.6 | 79 | 93 | 99 | | 84 | 79 | 131 | 61 | 95 | 95.2 | | 106 | 99 | 94 | 97 |
| 1 | 79 | 58 | 78 | 81 | 86 | 66.9 | 79 | 92 | 98 | 80 | | 82 | 135 | 61 | 95 | 93.3 | 90 | 90 | 86 | | 96 |
| 2 | 79 | 58 | 78 | 81 | 86 | 66.9 | 79 | 93 | 98 | 80 | 85 | 80 | 136 | 61 | 95 | 95.7 | 77 | 87 | 85 | 93 | 94 |
| 3 | 79 | 58 | 78 | 80 | 86 | 66.6 | 79 | 92 | 98 | 80 | | 82 | 137 | | 95 | | 72 | 87 | 85 | | 93 |
| 4 | 79 | 58 | 78 | 81 | 86 | 66.6 | 79 | 93 | 98 | 80 | 85 | 82 | 137 | 60 | 95 | 93.5 | 80 | 88 | 86 | 94 | 93 |
| 5 | 79 | 58 | 78 | 81 | 86 | 65.7 | | 94 | 98 | 80 | | 82 | 137 | | 95 | | 88 | 88 | 86 | | 93 |
| 6 | 79 | 58 | 78 | 81 | 86 | 65.1 | 79 | 94 | 98 | 80 | | 82 | 137 | 60 | | 93.6 | 88 | 89 | 86 | 94 | 94 |
| 7 | 79 | 58 | 78 | 81 | 86 | 64 | | 95 | 98 | 80 | 88 | 80 | 138 | | 95 | | 88 | 90 | 86 | | 94 |
| 8 | 79 | 57 | 78 | 82 | 86 | 64.2 | 79 | 96 | 98 | 80 | | 82 | 138 | 60 | | 93.5 | 95 | 92 | 87 | 95 | 95 |
| 9 | 80 | 56 | 78 | 82 | 86 | | | 96 | 101 | 80 | | 80 | 138 | | 95 | | 101 | 94 | 87 | 96 | 95 |
| 10 | 79 | | 78 | 81 | 86 | | 79 | 96 | 101 | | | 82 | 138 | 61 | | 96.1 | | 97 | 88 | | 96 |
| 11 | | | 78 | 82 | 86 | | | 97 | 97 | | | 82 | | | 95 | 101.2 | | 101 | 89 | | 98 |
| 12 | | | 80 | | 86 | | 80 | 98 | 103 | | | 82 | | | 95 | 153.8 | | | 96 | | |
| 13 | | | | | 86 | | | 99 | 104 | | | 82 | | | | | | | | | |
| 14 | | | | | | | 80 | | 106 | | | 82 | | | | | | | | | |
| 15 | | | | | | | | | 111 | | | | | | | | | | | | |
| 16 | | | | | | | 80 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | | | |

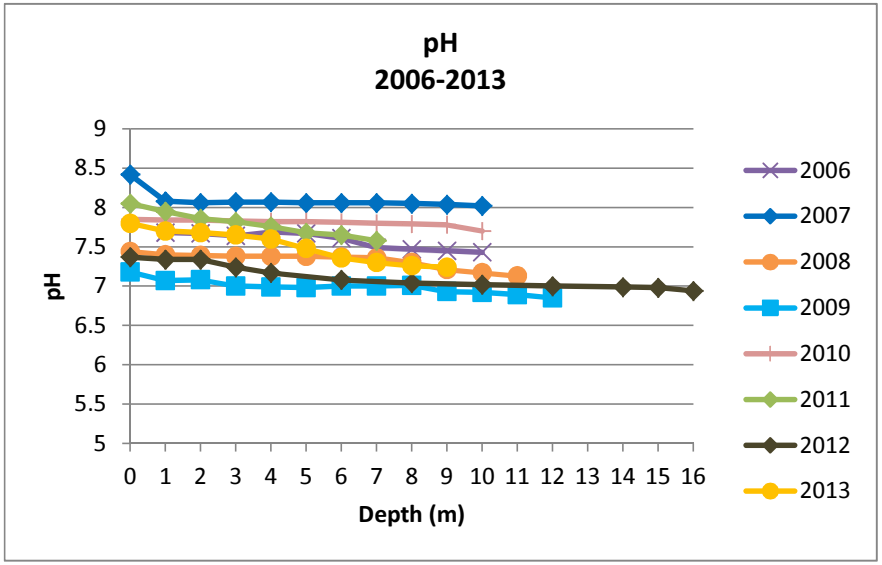
# Bootjack Lake B2 Temperature (°C) Profiles
# (1996 - 2013)

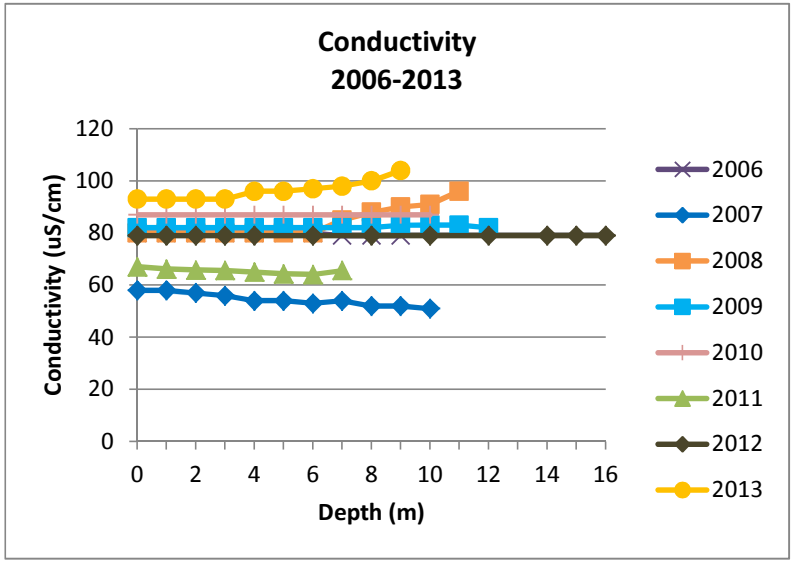
| Depth (m) | SPRING | | | | | | | | | SUMMER | FALL | | | | | | | | WINTER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | May-96 | 23-May-06 | 23-May-07 | 21-May-08 | 21-May-09 | 26-Apr-10 | 25-May-11 | 15-May-12 | 13-May-13 | 21-Aug-13 | Oct-96 | 10-Nov-05 | 31-Oct-06 | 23-Oct-07 | 27-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 06-Mar-07 | 01-Apr-08 | 12-Mar-09 | 08-Mar-11 | 06-Mar-12 |
| 0 | | | 10.78 | 6.94 | 7.44 | 5.20 | 9.20 | 6.24 | 9.98 | 19.35 | 4.36 | | 5.38 | 7.18 | 6.67 | 7.33 | 5.87 | 5.30 | | 0.01 | 0.39 | 1.14 | 0.25 |
| 1 | 5.61 | 11.76 | 10.64 | 6.95 | 6.58 | 5.18 | 8.60 | 6.23 | 9.68 | 18.86 | 4.32 | 3.66 | | 7.17 | 6.59 | 7.28 | 5.87 | 5.40 | 0.29 | 1.07 | 1.01 | | 0.84 |
| 2 | | 11.40 | 10.32 | 6.94 | 6.42 | 5.20 | 8.50 | 6.21 | 9.14 | 18.80 | 4.27 | 3.51 | 5.58 | 7.17 | 6.61 | 7.21 | 5.87 | 5.40 | 0.92 | 2.19 | 1.71 | 2.76 | 1.51 |
| 3 | 5.61 | 10.92 | 10.21 | 6.94 | 6.34 | 5.15 | 8.30 | 6.22 | 8.96 | 18.75 | 4.27 | 3.52 | | 7.18 | 6.59 | | 5.85 | | 1.34 | 2.73 | 2.07 | | 1.72 |
| 4 | 5.59 | 10.61 | 10.09 | 6.96 | 6.21 | 5.14 | 8.30 | 6.2 | 8.1 | 18.66 | 4.22 | 3.52 | 5.65 | 7.18 | 6.56 | 7.16 | 5.83 | 5.40 | 1.55 | 2.98 | 2.26 | 3.08 | 1.90 |
| 5 | | 9.80 | 10.03 | 6.95 | 6.11 | 5.11 | 7.70 | | 5.76 | 16.22 | 4.16 | 3.50 | | 7.18 | 6.46 | | 5.82 | | 1.76 | 3.12 | 2.37 | | 2.10 |
| 6 | 5.56 | 8.59 | 9.97 | 6.94 | 6.02 | 5.12 | 7.10 | 5.93 | 5.25 | 11.01 | 4.16 | 3.50 | | 7.18 | 6.44 | 7.15 | | 5.40 | 1.94 | 3.30 | 2.48 | 3.27 | 2.24 |
| 7 | 5.56 | 7.91 | 9.90 | 6.94 | 5.63 | 5.11 | 6.30 | | 4.99 | 9.29 | 4.16 | 3.49 | 4.96 | 7.18 | 6.45 | | 5.81 | | 2.12 | 3.45 | 2.60 | | 2.29 |
| 8 | 5.53 | 7.20 | 9.83 | 6.94 | 5.40 | 5.09 | 6.00 | 5.79 | 4.65 | 8.25 | 4.16 | 3.49 | | 7.17 | 6.42 | 7.11 | | 5.40 | 2.18 | 3.63 | 2.70 | 3.49 | 2.37 |
| 9 | | 6.52 | 9.35 | 6.91 | 5.27 | 5.11 | | | 4.62 | 7.15 | 4.14 | 3.49 | | 7.17 | 6.42 | | 5.78 | | 2.24 | 3.80 | 2.79 | | 2.52 |
| 10 | 5.53 | 6.28 | | 6.84 | 5.22 | 5.10 | | 5.63 | 4.5 | 6.60 | 4.14 | | | 7.16 | 6.36 | 6.90 | | 5.40 | | 3.85 | 2.88 | | 2.61 |
| 11 | 5.51 | | | 6.76 | 5.19 | 5.07 | | | 4.36 | 6.43 | 4.14 | | | 7.16 | | | 5.68 | 5.6 | | 4.00 | 2.98 | | 2.63 |
| 12 | 5.5 | | | 6.46 | | 5.08 | | 5.59 | 4.18 | 6.34 | 4.12 | | | 7.17 | | | 5.63 | 5.9 | | | 3.07 | | |
| 13 | | | | | | 5.07 | | | 3.98 | 6.30 | 4.14 | | | 7.16 | | | | | | | | | |
| 14 | 5.5 | | | | | | | 5.53 | | 6.26 | 4.15 | | | 7.16 | | | | | | | | | |
| 15 | 5.41 | | | | | | | | | 6.15 | | | | | | | | | | | | | |
| 16 | | | | | | | | 5.46 | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | | | | | |

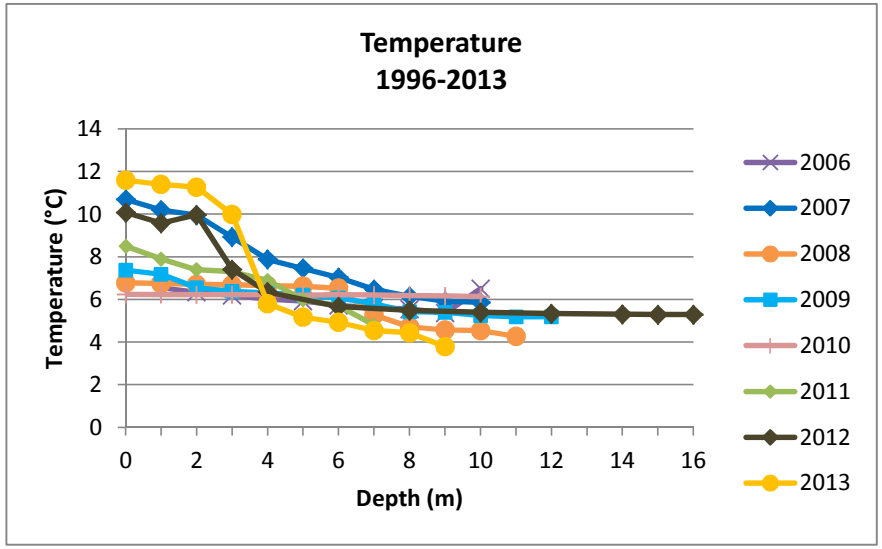
# Bootjack Lake B2 Dissolved Oxygen (mg/L) Profiles
# (1996 - 2013)

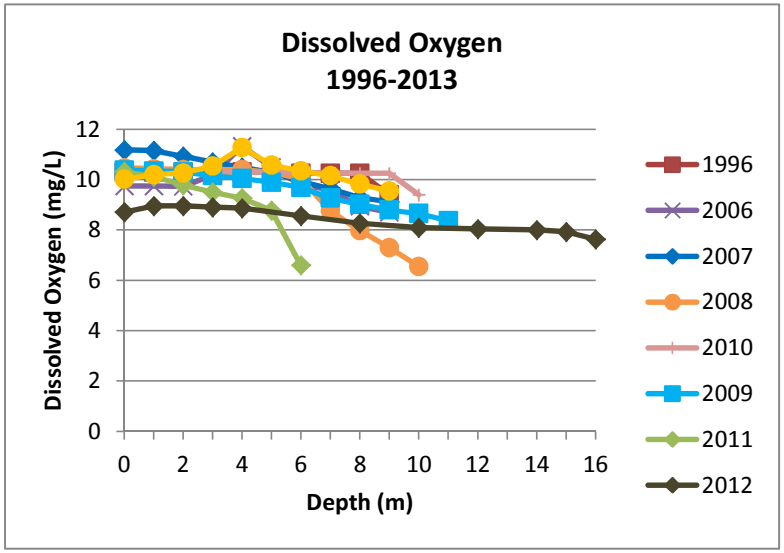
| Depth | SPRING | | | | | | | | | SUMMER | FALL | | | | | | | | WINTER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | May-96 | 23-May-06 | 23-May-07 | 21-May-08 | 21-May-09 | 26-Apr-10 | 25-May-11 | 15-May-12 | 13-May-13 | 21-Aug-13 | Oct-96 | 10-Nov-05 | 31-Oct-06 | 23-Oct-07 | 27-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 06-Mar-07 | 01-Apr-08 | 12-Mar-09 | 08-Mar-11 | 06-Mar-12 |
| 0 | | | 10.83 | 10.84 | 10.81 | 9.84 | 10.4 | 11.43 | 10.46 | 9.47 | 11.06 | | 11.1 | 10.04 | 10.39 | 11.32 | 10.84 | 8.4 | | 10.94 | 12.1 | 11.89 | 13.12 |
| 1 | 9.52 | 10.83 | 10.92 | 10.53 | 10.68 | 9.8 | 10.52 | 11.29 | 10.4 | 9.67 | 10.95 | 12.68 | | 9.78 | 10.42 | 10.88 | 10.93 | 5.56 | 13.22 | 9.72 | 11.1 | | 12.82 |
| 2 | | 10.95 | 10.95 | 10.52 | 10.65 | 9.8 | 10.45 | 11.29 | 10.37 | 9.71 | 10.91 | 12.66 | 10.24 | 9.69 | 10.43 | 10.81 | 10.93 | 8.66 | 12.45 | 9.38 | 10.73 | 10.97 | 12.71 |
| 3 | 9.65 | 11.2 | 10.99 | 10.51 | 10.6 | 9.81 | 10.4 | 11.36 | 10.1 | 10.32 | 10.87 | 12.66 | | 9.68 | 10.45 | | 10.93 | | 11.33 | 9.15 | 10.56 | | 12.73 |
| 4 | 9.31 | 11.34 | 11.03 | 10.51 | 10.39 | 9.82 | 10.4 | 11.35 | 9.77 | 9.75 | 10.83 | 12.64 | 10.22 | 9.64 | 10.47 | 10.72 | 10.92 | 8.74 | 10.87 | 8.73 | 10.49 | 10.33 | 12.64 |
| 5 | | 11.58 | 11.03 | 10.49 | 10.25 | 9.82 | 10.32 | | 9.68 | 9.13 | 10.78 | 12.64 | | 9.62 | 10.5 | | 10.92 | | 10.41 | 8.22 | 10.25 | | 12.22 |
| 6 | 9.23 | 11.61 | 11.02 | 10.48 | 10.18 | 9.81 | 9.61 | 11.35 | 9.35 | 7.90 | 10.76 | 12.65 | | 9.63 | 10.49 | 10.59 | | 8.78 | 9.93 | 7.36 | 9.92 | 9.02 | 11.99 |
| 7 | 9.36 | 11.12 | 11.01 | 10.48 | 9.85 | 9.8 | 9.41 | | 9.19 | 6.81 | 10.74 | 12.64 | 9.84 | 9.61 | 10.48 | | 10.92 | | 9.44 | 7.15 | 9.4 | | 11.85 |
| 8 | 9.47 | 10.28 | 11 | 10.48 | 9.67 | 9.81 | 9 | 11.05 | 9.12 | 5.41 | 10.72 | 12.65 | | 9.6 | 10.47 | 10.56 | | 8.74 | 7.91 | 5.31 | 8.88 | 7.91 | 11.3 |
| 9 | | 9.47 | 10.87 | 10.38 | 9.46 | 9.8 | | | 8.93 | 3.75 | 10.73 | 12.6 | | 9.6 | 10.46 | | 10.95 | | 6.38 | 4.13 | 8.36 | 6.91 | 9.91 |
| 10 | 9.14 | 8.91 | | 10.44 | 9.34 | 9.82 | | 10.32 | 8.67 | 2.36 | 10.73 | | | 9.6 | 10.45 | 10.5 | | 8.47 | | 4.02 | 7.56 | | 8.6 |
| 11 | 9.21 | | | 10.25 | 9.27 | 9.81 | | | 8.39 | 1.68 | 10.71 | | | 9.59 | | | 10.99 | 4.18 | | 2.78 | 6.51 | | 7.55 |
| 12 | 9.29 | | | 10.13 | | 9.8 | | 10.14 | 8.24 | 1.08 | 10.70 | | | 9.59 | | | 10.96 | 0.91 | | | 5.23 | | |
| 13 | | | | | | 9.79 | | | 8.16 | 1.11 | 10.69 | | | 9.59 | | | | | | | | | |
| 14 | 9.12 | | | | | | | 10.04 | | 1.01 | 10.43 | | | 6.03 | | | | | | | | | |
| 15 | 8.75 | | | | | | | | | 0.98 | | | | | | | | | | | | | |
| 16 | | | | | | | | 9.72 | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | | | | | |

**MPMC**
**Bootjack Lake B1 Spring Profiles**

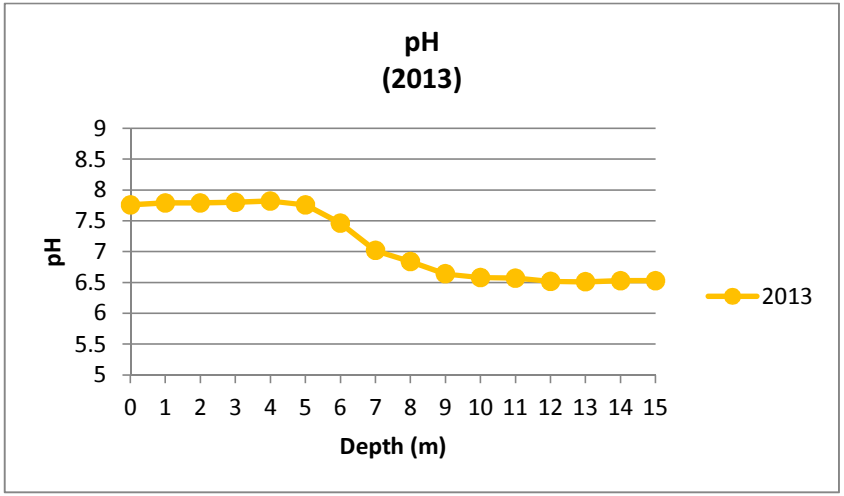


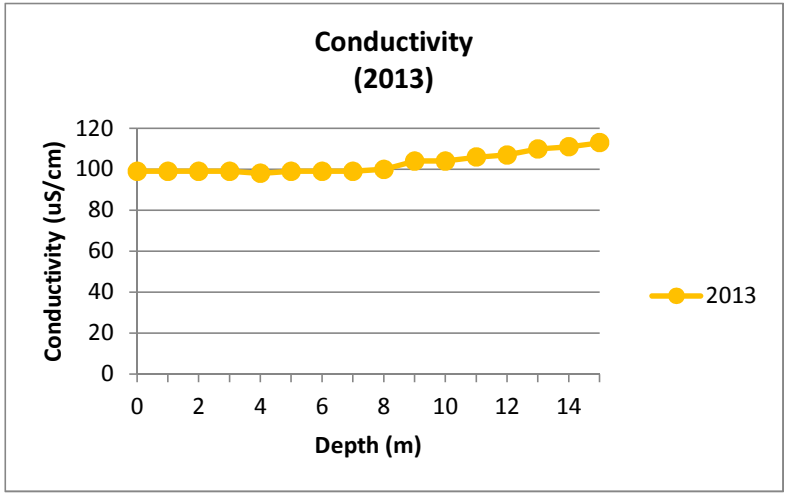



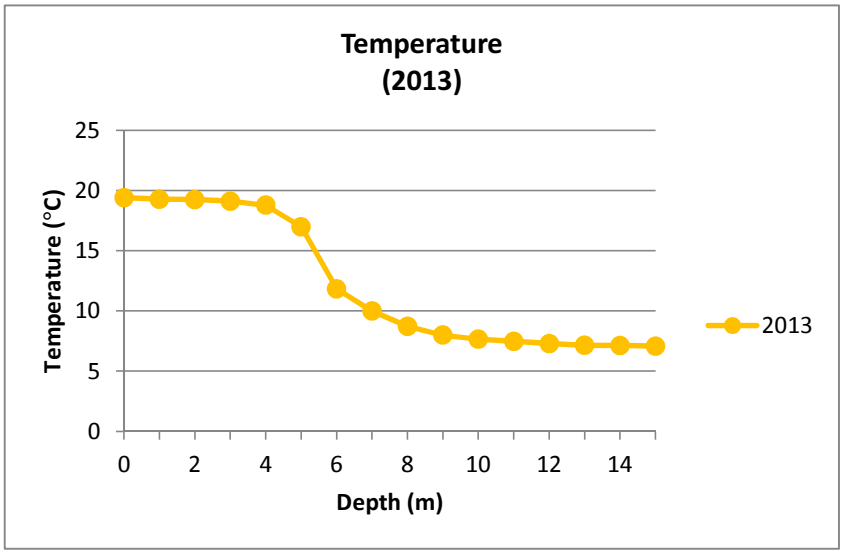



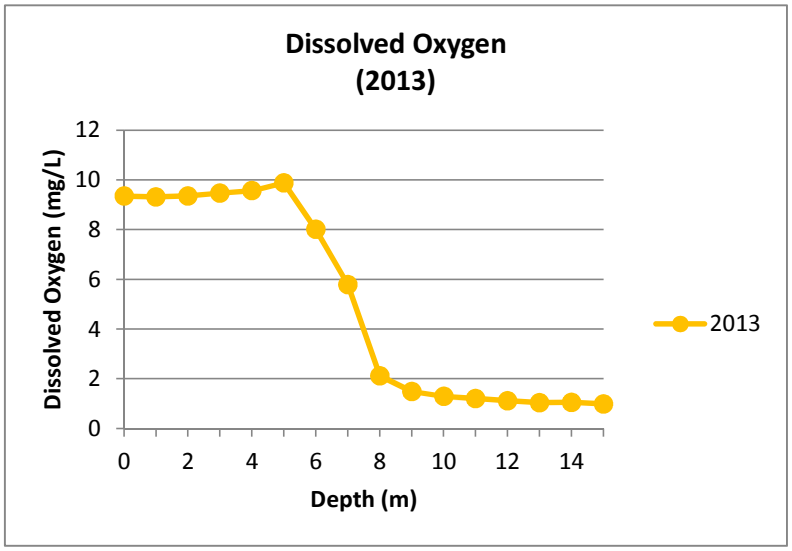



**MPMC**
**Bootjack Lake B1 Summer Profiles**

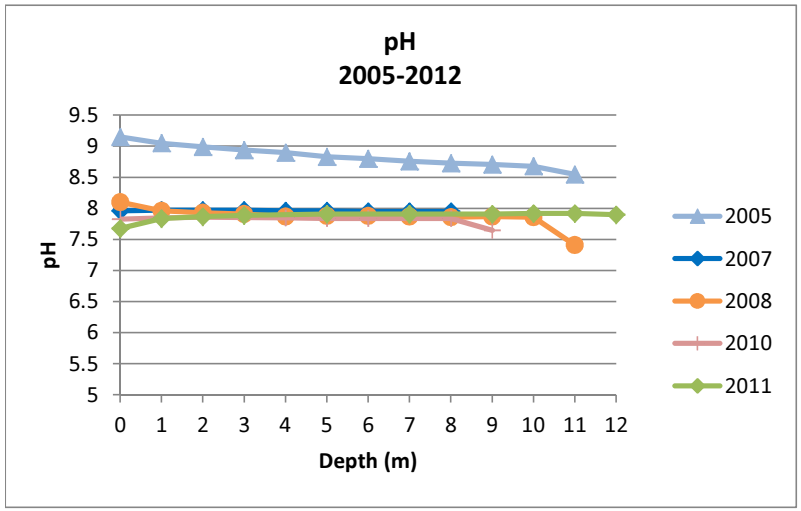


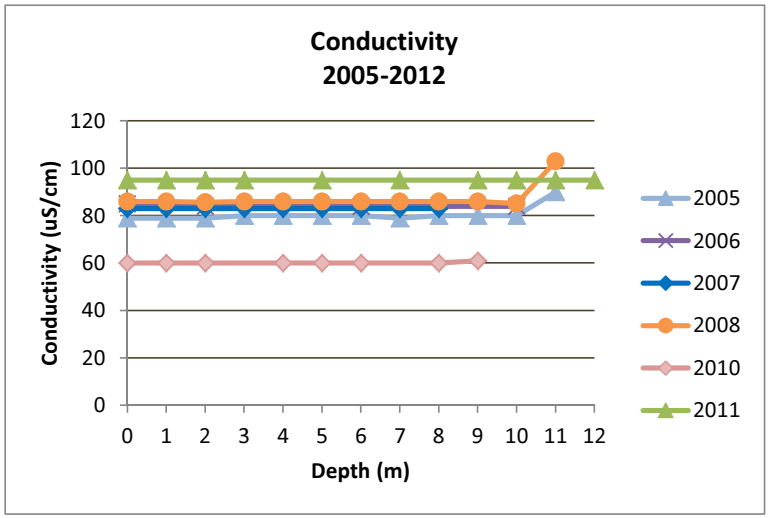



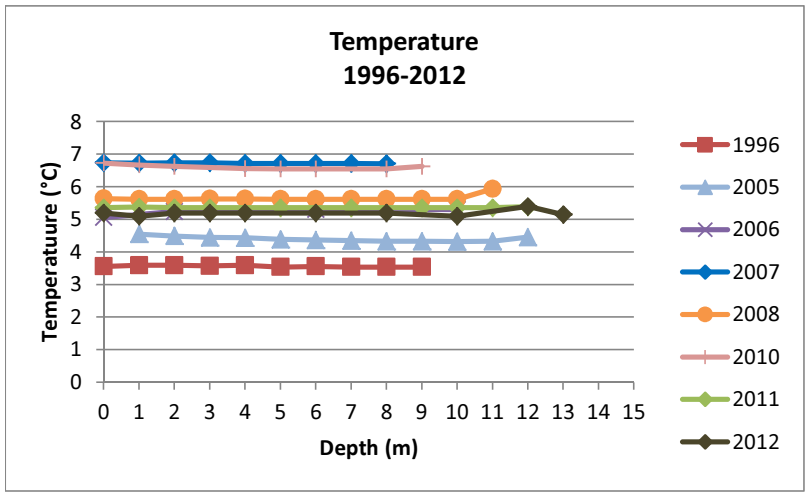



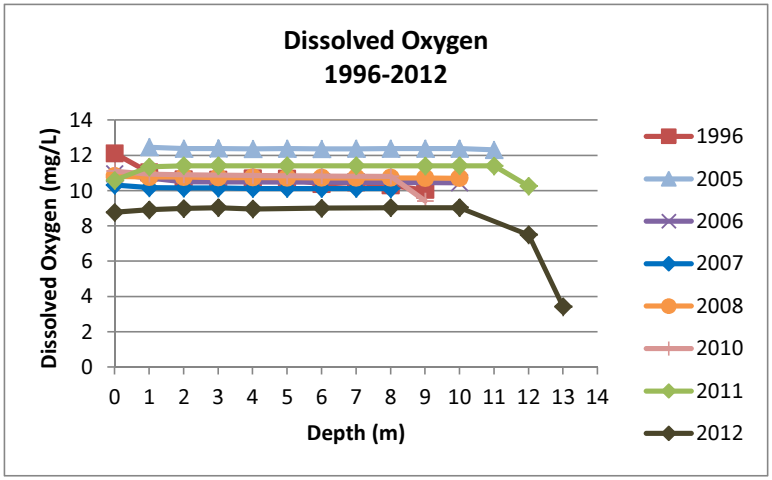



**MPMC**
**Bootjack Lake B1 Fall Profiles**



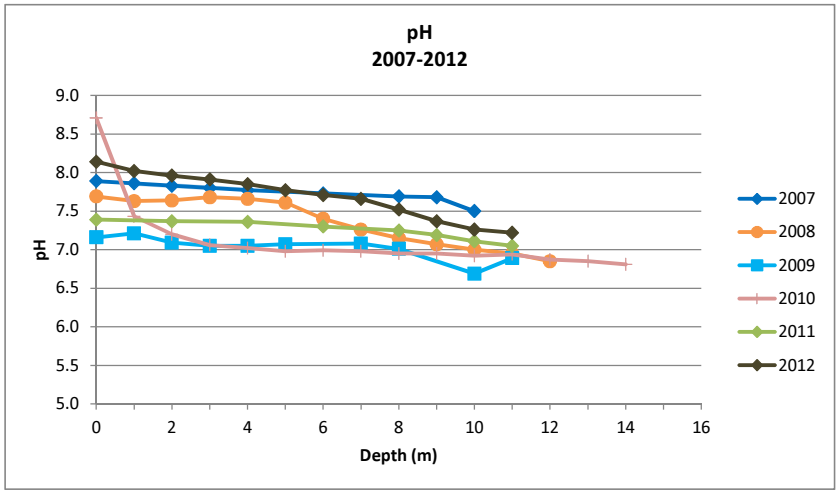



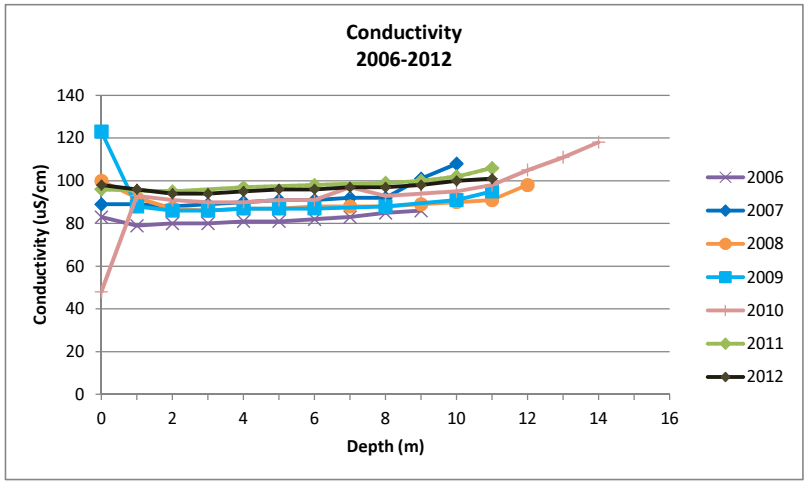



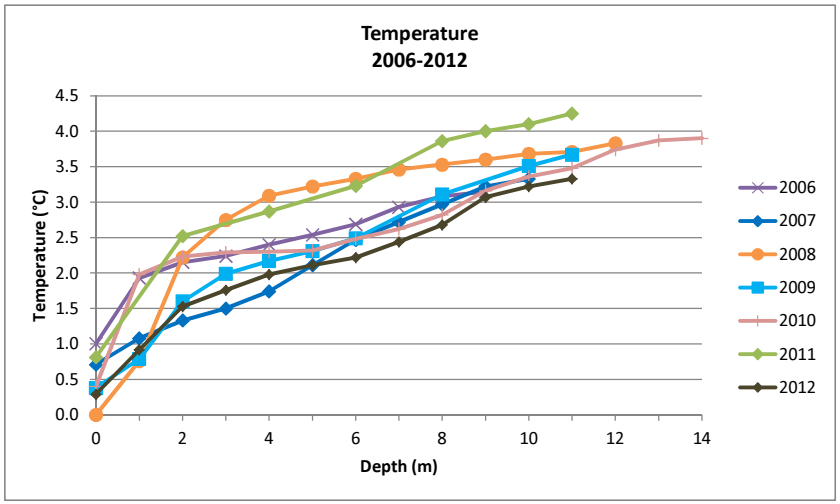



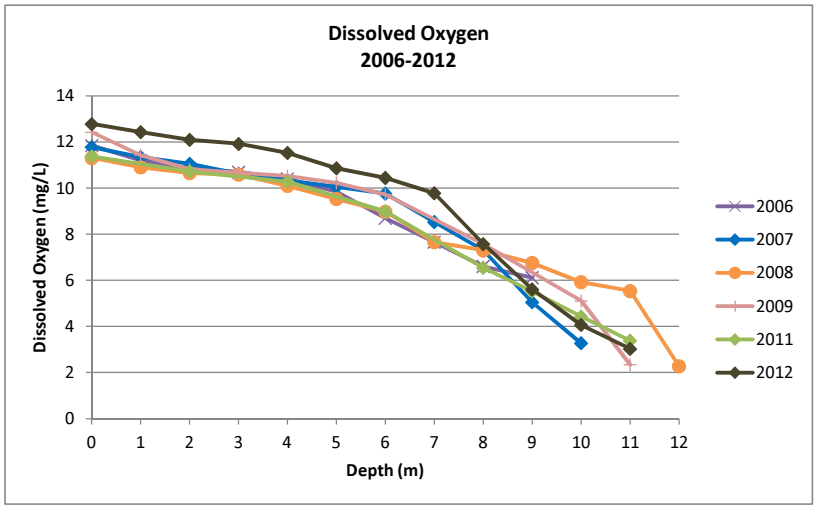
**MPMC**

**Bootjack Lake B1 Winter Lake Profiles**



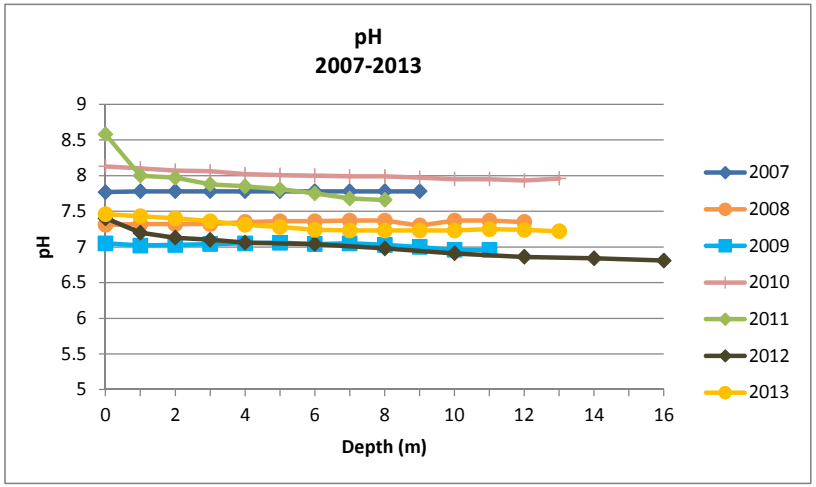



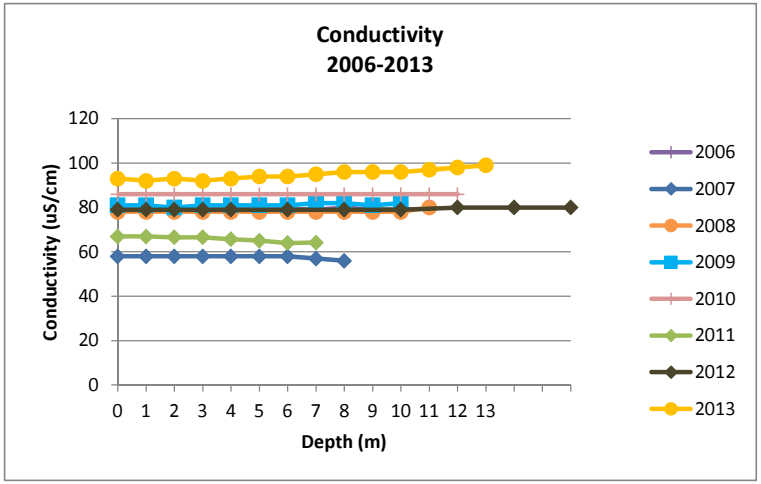



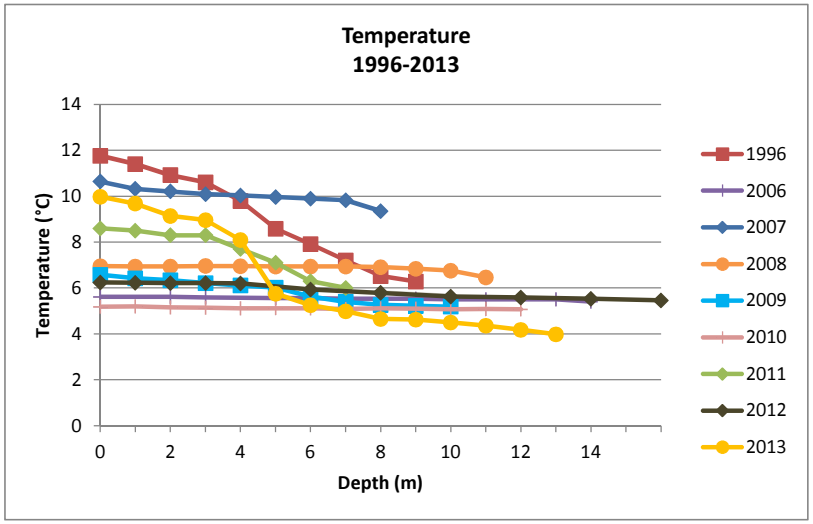



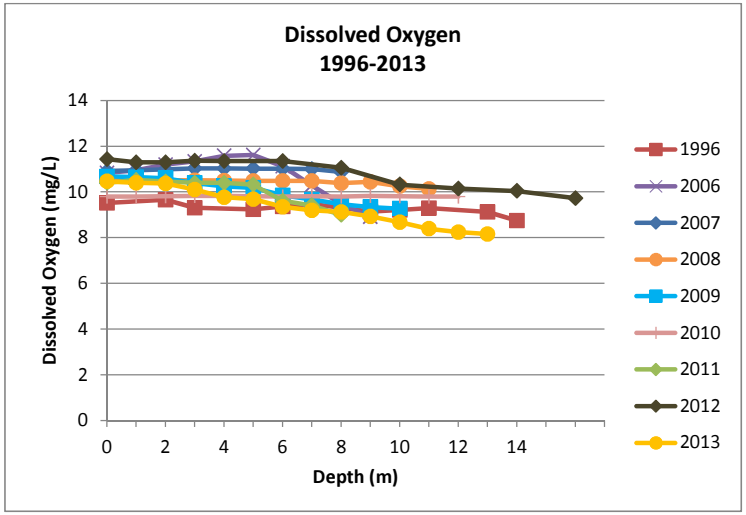
**MPMC**

**Bootjack Lake B2 Spring Profiles**

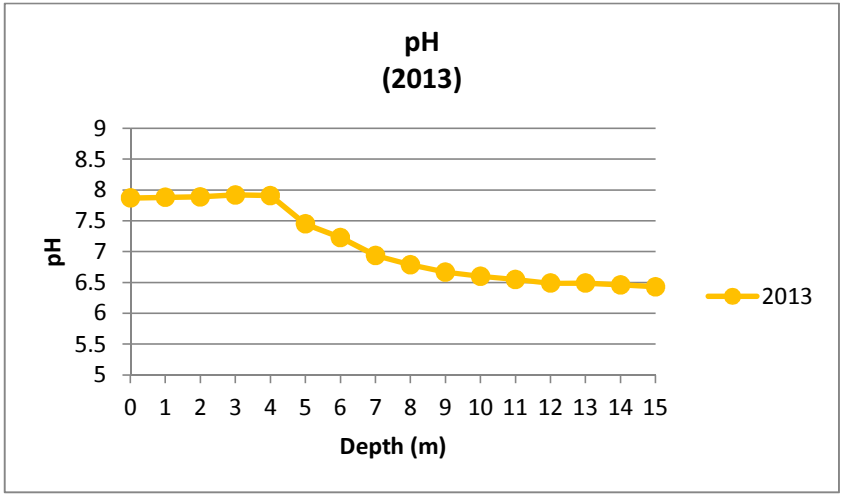


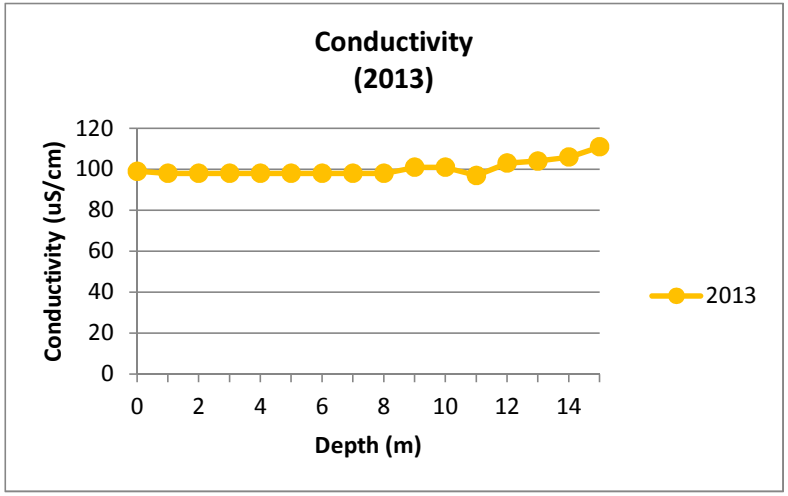



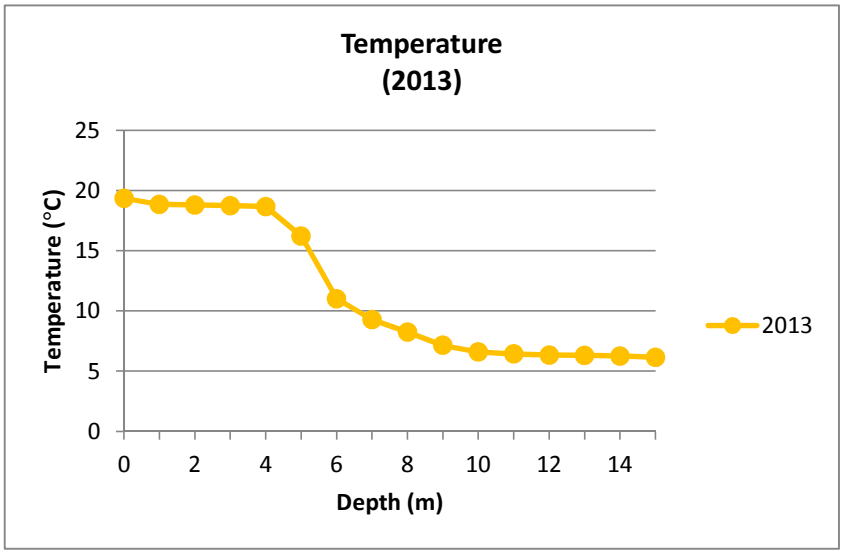



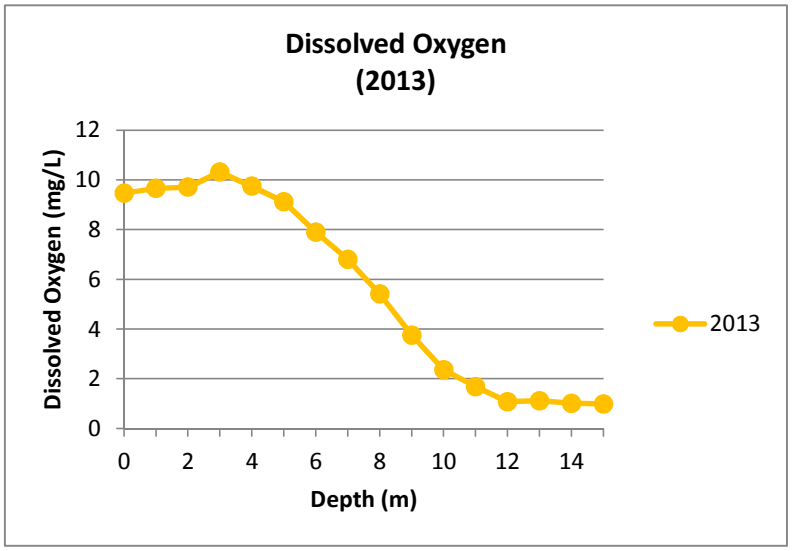



**MPMC**
**Bootjack Lake B12 Summer Profiles**

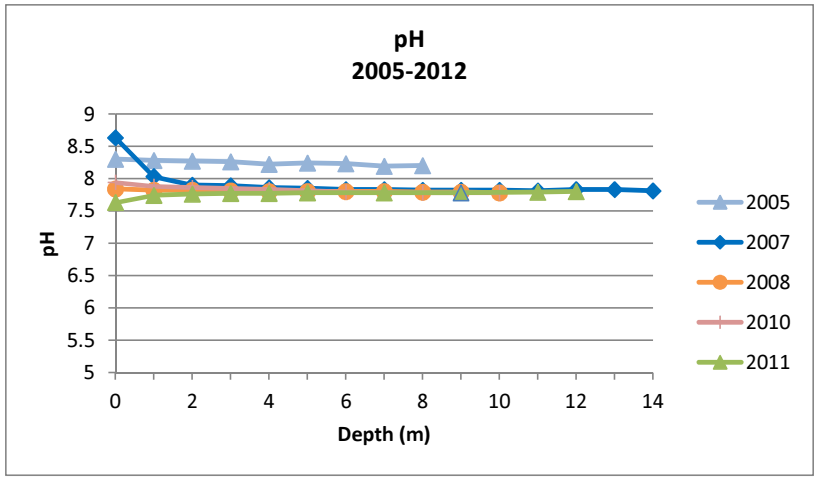


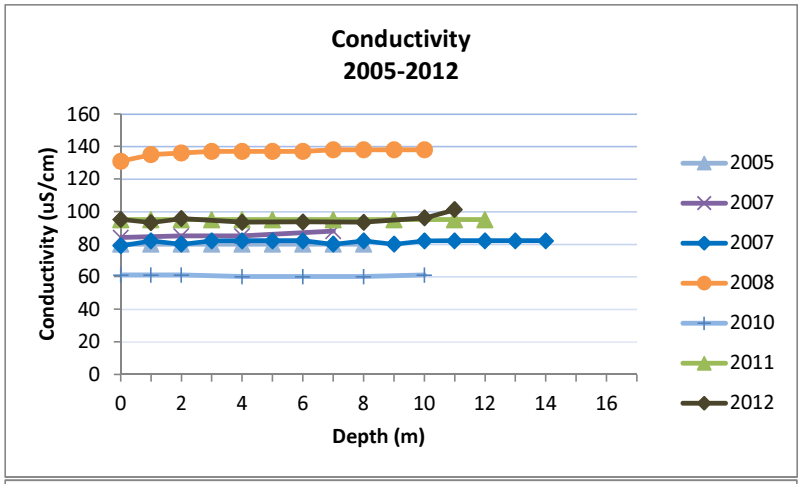



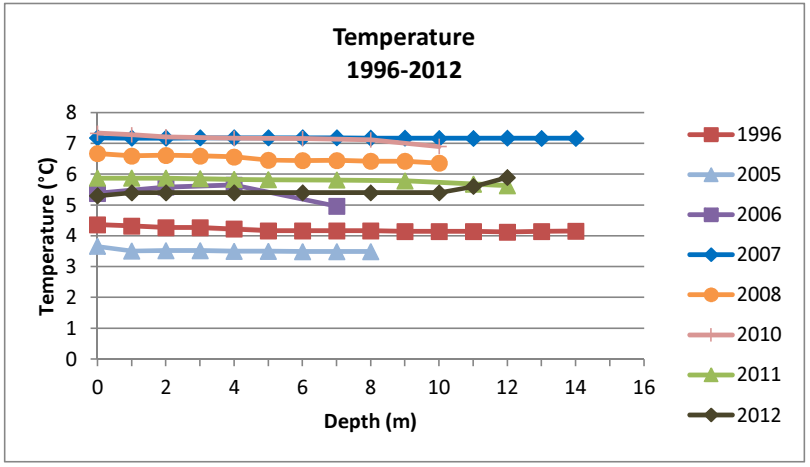



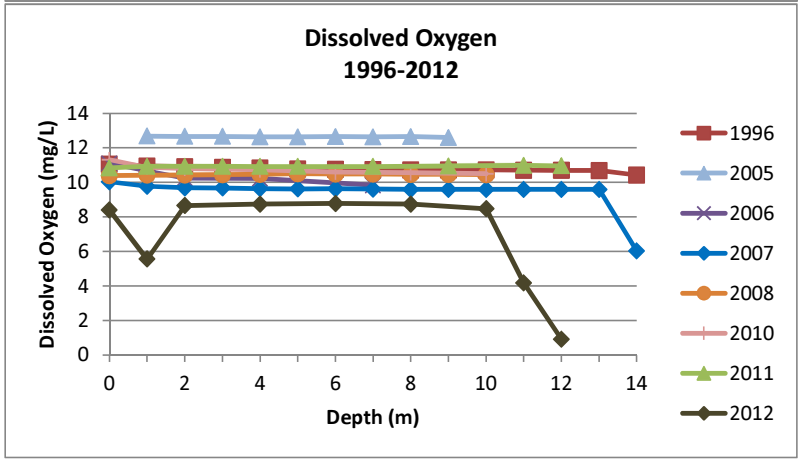



**MPMC**
**Bootjack Lake B2 Fall Lake Profiles**



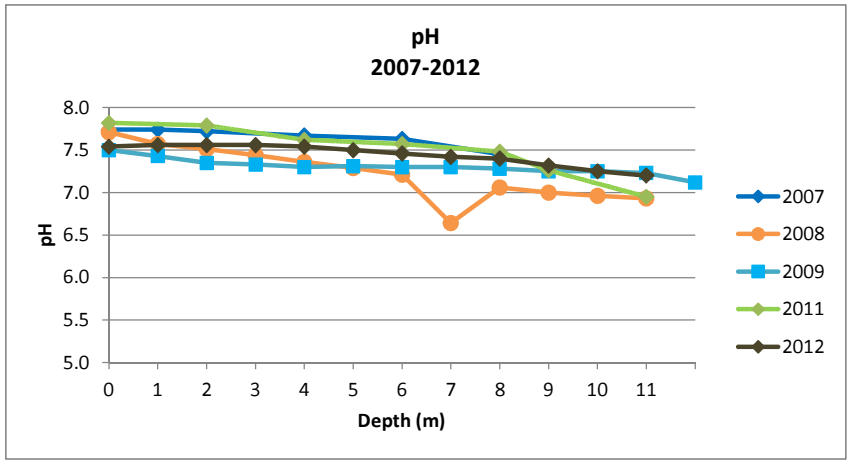



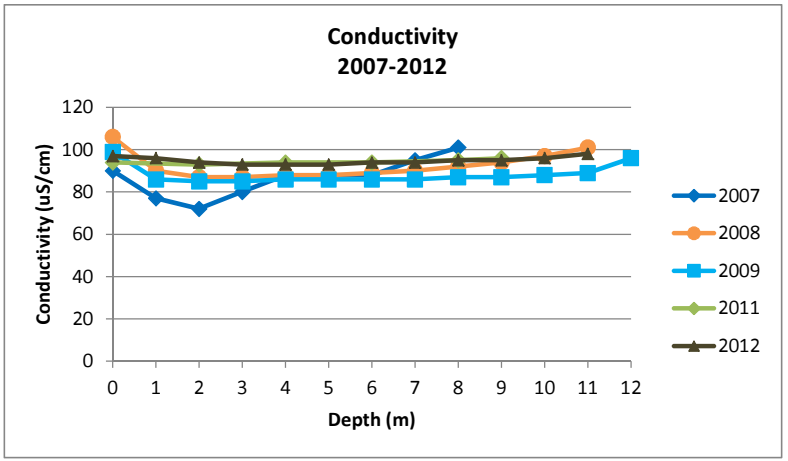



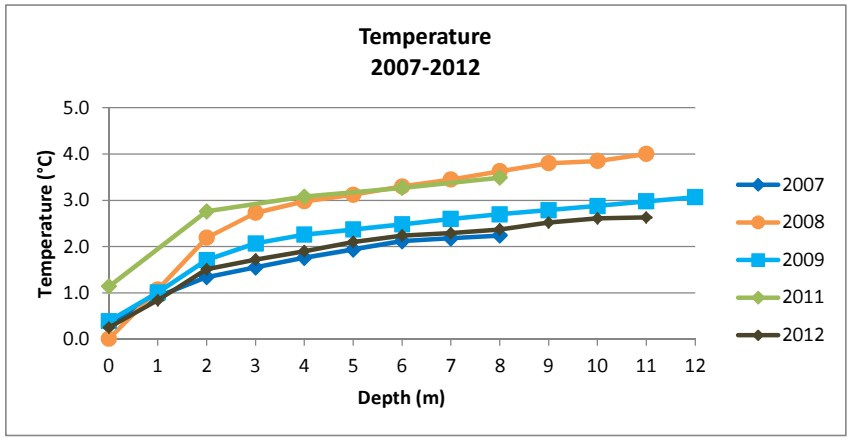



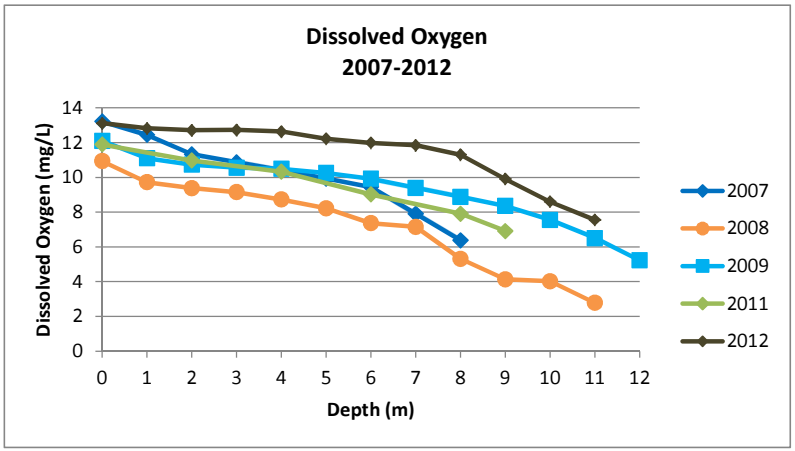
**MPMC**

**Bootjack Lake B2 Winter Lake Profiles**



# Polley Lake P1 pH Profiles
# (2005 - 2013)

| Depth | SPRING | | | | | | | | SUMMER | |
|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 18-May-06 | 24-May-07 | 21-May-08 | 20-May-09 | 26-Apr-10 | 06-Jun-11 | 08-May-12 | 13-May-13 | 11-Aug-06 | 21-Aug-13 |
| **0** | | 8.18 | 7.57 | 7.35 | 7.44 | 9.03 | 8.46 | 8.65 | 7.52 | 9.32 |
| **1** | 6.9 | 8.28 | 7.83 | 7.27 | 7.53 | 8.72 | 8.46 | 8.65 | 7.95 | 9.31 |
| **2** | 7.07 | 8.32 | 7.96 | 7.25 | 7.56 | 8.7 | 8.46 | 8.6 | | 9.3 |
| **3** | 7.18 | 8.35 | 8.02 | 7.22 | 7.6 | 8.66 | 8.46 | 8.47 | 8.26 | 9.28 |
| **4** | 7.24 | 8.36 | 8.01 | 7.21 | 7.6 | 8.61 | 8.43 | 8.39 | | 9.28 |
| **5** | 7.31 | 8.35 | 8.01 | 7.20 | 7.6 | 8.54 | 8.28 | 8.3 | 8.38 | 8.78 |
| **6** | 7.35 | | 8.02 | 7.20 | 7.61 | 8.44 | 8.214 | 8.21 | | 8.42 |
| **7** | 7.37 | 8.33 | 8.02 | 7.19 | | 8.36 | 8.17 | 8.09 | 8.44 | 8.06 |
| **8** | 7.37 | | 8.01 | 7.18 | 7.77 | | 8.15 | 8.03 | 8.29 | 7.79 |
| **9** | 7.37 | 8.3 | 8.00 | 7.16 | | 8.26 | 8.14 | 7.96 | 8.32 | 7.57 |
| **10** | 7.38 | | 7.99 | 7.17 | 7.67 | | 8.14 | 7.93 | 8.27 | 7.46 |
| **11** | | 8.29 | 7.99 | 7.17 | | 8.19 | 8.14 | | 8.17 | 7.3 |
| **12** | 7.39 | | | 7.17 | 7.79 | | 8.13 | 7.84 | 8.13 | 7.26 |
| **13** | | 8.27 | 7.98 | 7.17 | | 8.14 | 8.12 | | 8.08 | 7.19 |
| **14** | 7.38 | | | 7.17 | 7.77 | | 8.12 | 7.81 | 8.04 | 7.14 |
| **15** | | 8.25 | 7.97 | 7.16 | | 8.09 | 8.11 | | 7.97 | 7.09 |
| **16** | 7.38 | | | 7.15 | 7.69 | | 8.09 | 7.76 | 7.9 | 7.05 |
| **17** | | 8.21 | 7.96 | 7.16 | | 8.1 | 8.08 | | 7.89 | 7.04 |
| **18** | 7.36 | | | 7.14 | 7.69 | | 8.05 | 7.71 | | 7.07 |
| **19** | | 8.18 | 7.96 | 7.12 | | 8.08 | 8.01 | | 7.8 | 7.01 |
| **20** | 7.36 | | | 7.10 | 7.69 | | 8.01 | 7.76 | | 7.02 |
| **21** | | 8.17 | 7.95 | 7.10 | | 8.07 | 8.02 | | 7.85 | 6.99 |
| **22** | 7.35 | | | 7.09 | 7.73 | | 8.02 | 7.64 | | 6.98 |
| **23** | | 8.15 | 7.93 | | | 8.05 | 8.01 | | 7.82 | 6.99 |
| **24** | 7.34 | | | 7.09 | 7.76 | 7.92 | 8 | 7.61 | | 6.95 |
| **25** | | 8.13 | 7.87 | | | 7.93 | 8 | | 7.8 | 6.91 |
| **26** | 7.33 | 8.12 | | 7.05 | 7.75 | 7.93 | 7.98 | 7.56 | | 6.91 |
| **27** | | 8.11 | 7.84 | | | 7.91 | 7.96 | | 7.77 | 6.91 |
| **28** | 7.32 | 8.11 | | 7.03 | 7.74 | 7.86 | 7.96 | 7.55 | | 6.92 |
| **29** | | 8.09 | 7.73 | | | 7.88 | 7.94 | | 7.68 | 6.9 |
| **30** | 7.32 | 8.07 | 7.64 | 7.01 | 7.7 | | 7.94 | | | |
| **31** | | | 7.56 | | | | | | | |
| **32** | 7.31 | | 7.43 | | | | | | | |
| **33** | | | 7.33 | | | | | | | |
| **34** | 7.3 | | 7.22 | | | | | | | |
| **35** | | | 7.30 | | | | | | | |
| **36** | 7.28 | | | | | | | | | |

# Polley Lake P1 pH Profiles
# (2005 - 2013)

| Depth | FALL | | | | | | | WINTER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 26-Oct-05 | 31-Oct-06 | 23-Oct-07 | 28-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 09-Mar-11 | 06-Mar-12 |
| **0** | | 6.91 | 8.11 | 7.66 | 7.81 | 7.03 | 7.66 | | 7.70 | 7.47 | | 7.77 |
| **1** | 7.69 | 7.01 | 8.3 | 7.94 | 7.82 | 7.41 | 7.61 | 8.36 | 7.70 | 7.44 | | 7.76 |
| **2** | 7.72 | 7.1 | | 7.92 | 7.81 | 7.59 | 7.57 | 8.28 | 7.70 | 7.38 | | 7.74 |
| **3** | 7.74 | 7.13 | 8.31 | 7.91 | | 7.63 | 7.55 | 8.2 | 7.68 | 7.35 | 7.97 | 7.73 |
| **4** | 7.74 | 7.16 | | 7.90 | 7.8 | 7.66 | 7.5 | 8.16 | 7.65 | 7.34 | 7.97 | 7.71 |
| **5** | 7.76 | 7.18 | 8.3 | 7.89 | | 7.67 | 7.52 | | 7.62 | 7.34 | | 7.71 |
| **6** | 7.76 | 7.2 | | 7.89 | 7.79 | 7.69 | 7.51 | 8.1 | 7.61 | | 7.95 | 7.70 |
| **7** | 7.77 | 7.22 | | 7.89 | | | 7.51 | | 7.59 | 7.33 | | |
| **8** | 7.78 | 7.22 | 8.3 | 7.89 | 7.79 | 7.72 | 7.49 | 8.04 | 7.58 | | 7.94 | 7.68 |
| **9** | 7.79 | 7.22 | | 7.88 | | | 7.49 | | 7.57 | 7.32 | | |
| **10** | 7.8 | 7.24 | | 7.88 | 7.78 | 7.73 | | 7.99 | 7.58 | | 7.92 | 7.66 |
| **11** | 7.8 | 7.25 | 8.3 | 7.87 | | | 7.48 | | 7.56 | 7.31 | | |
| **12** | 7.79 | 7.27 | | 7.86 | 7.78 | 7.73 | | 7.96 | 7.54 | | 7.91 | 7.64 |
| **13** | 7.78 | 7.29 | | 7.86 | | | 7.47 | | 7.54 | 7.31 | | |
| **14** | 7.76 | 7.31 | 8.31 | 7.86 | 7.78 | 7.74 | | 7.91 | 7.53 | | 7.89 | 7.62 |
| **15** | 7.74 | 7.33 | | 7.85 | | | 7.47 | | 7.52 | 7.30 | | |
| **16** | | 7.33 | | 7.85 | 7.77 | 7.76 | | 7.88 | 7.51 | | 7.85 | 7.60 |
| **17** | 7.73 | 7.33 | 8.31 | 7.84 | | | 7.47 | | 7.51 | 7.30 | | |
| **18** | | 7.35 | | 7.87 | 7.75 | 7.75 | | 7.84 | 7.50 | | | 7.58 |
| **19** | 7.71 | 7.36 | | 7.84 | | | 7.46 | | 7.50 | 7.30 | 7.82 | |
| **20** | | 7.37 | 7.51 | 7.83 | 7.68 | 7.76 | | 7.82 | 7.48 | | 7.81 | 7.57 |
| **21** | 7.64 | 7.38 | | 7.83 | | | 7.46 | | 7.46 | 7.29 | | |
| **22** | | 7.38 | 7.4 | 7.83 | 7.6 | 7.76 | | 7.79 | 7.45 | | 7.78 | 7.55 |
| **23** | 7.63 | 7.38 | | 7.83 | | | 7.47 | | 7.43 | 7.29 | | |
| **24** | | 7.39 | 7.37 | 7.83 | 7.47 | 7.76 | | 7.76 | 7.42 | | 7.73 | 7.51 |
| **25** | 7.59 | 7.4 | | 7.83 | | | 7.48 | | 7.41 | 7.27 | | |
| **26** | | 7.4 | 7.33 | 7.82 | 7.4 | 7.76 | 7.42 | | 7.39 | | 7.67 | 7.50 |
| **27** | 7.57 | 7.39 | | 7.82 | | | 7.2 | | 7.37 | 7.26 | 7.64 | |
| **28** | | 7.34 | | 7.82 | | 7.76 | 7.14 | | 7.35 | | 7.61 | 7.44 |
| **29** | 7.55 | 7.36 | | 7.82 | | 7.76 | | | 7.32 | 7.23 | 7.58 | |
| **30** | 7.53 | | | | | 7.76 | 7.1 | | 7.29 | 7.21 | | 7.41 |
| **31** | | | | | | 7.76 | | | 7.26 | | | |
| **32** | | | | | | 7.75 | | | | | | 7.25 |
| **33** | | | | | | 7.75 | | | | | | |
| **34** | | | | | | 7.75 | | | | | | 7.34 |
| **35** | | | | | | 7.61 | | | | | | |
| **36** | | | | | | | | | | | | |

# Polley Lake P1 Conductivity (µs/cm) Profiles
# (2005 - 2013)

| Depth | SPRING | | | | | | | | SUMMER | |
|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 18-May-06 | 24-May-07 | 21-May-08 | 20-May-09 | 26-Apr-10 | 06-Jun-11 | 08-May-12 | 13-May-13 | 11-Aug-06 | 21-Aug-13 |
| **0** | | 117 | 188 | 197 | 206 | 203.7 | 204 | 208 | 159 | 204 |
| **1** | 157 | 114 | 186 | 197 | 206 | 200.2 | 204 | 208 | 159 | 208 |
| **2** | 157 | 113 | 186 | 197 | 206 | 198.3 | 204 | 208 | | 213 |
| **3** | 157 | 111 | 186 | 197 | 206 | 195.5 | 206 | 210 | 159 | 219 |
| **4** | 156 | 110 | 187 | 197 | 206 | 192.9 | 207 | 210 | | 223 |
| **5** | 156 | 108 | 186 | 197 | 206 | 190.3 | 207 | 210 | 159 | 222 |
| **6** | 155 | | 186 | 197 | 206 | 186.8 | 207 | 210 | | 214 |
| **7** | 156 | 107 | 186 | 197 | | 183.8 | 207 | 211 | 159 | 211 |
| **8** | 156 | | 186 | 197 | 206 | | 207 | 211 | 160 | 211 |
| **9** | 156 | 107 | 186 | 197 | | 179 | 207 | 211 | 158 | 211 |
| **10** | 156 | | 186 | 198 | 206 | | 207 | 211 | 157 | 211 |
| **11** | | 106 | 186 | 198 | | 176.6 | 207 | | 156 | 211 |
| **12** | 156 | | | 199 | 207 | | 207 | 213 | 156 | 211 |
| **13** | | 106 | 186 | 200 | | 174.2 | 207 | | 157 | 211 |
| **14** | 156 | | | 200 | 207 | | 208 | 213 | 157 | 211 |
| **15** | | 104 | 186 | 200 | | 172.4 | 208 | | 157 | 211 |
| **16** | 156 | | | 201 | 207 | | 208 | 215 | 157 | 211 |
| **17** | | 104 | 186 | 202 | | 170.9 | 208 | | 157 | 211 |
| **18** | 156 | | | 203 | 208 | | 209 | 215 | | 211 |
| **19** | | 104 | 186 | 203 | | 169.5 | 208 | | 157 | 211 |
| **20** | 156 | | | 204 | 207 | | 208 | 216 | | 212 |
| **21** | | 103 | 186 | 205 | | 168.1 | 208 | | 157 | 214 |
| **22** | 157 | | | 205 | 207 | | 208 | 216 | | 216 |
| **23** | | 103 | 188 | | | 167.5 | 208 | | 158 | 219 |
| **24** | 157 | | | 208 | 208 | 167 | 208 | 217 | | 232 |
| **25** | | 103 | 191 | | | 166.2 | 209 | | 158 | |
| **26** | 157 | 103 | | 209 | 207 | 165.2 | 209 | 218 | | |
| **27** | | 103 | 195 | | | 164.4 | 209 | | 158 | |
| **28** | 157 | 104 | | 210 | 208 | 163.8 | 209 | 218 | | |
| **29** | | 102 | 207 | | | 163.7 | 209 | | 158 | |
| **30** | 157 | 102 | 209 | 211 | 208 | | 210 | | | |
| **31** | | | 210 | | | | | | | |
| **32** | 157 | | 212 | | | | | | | |
| **33** | | | 216 | | | | | | | |
| **34** | 157 | | 237 | | | | | | | |
| **35** | | | 275 | | | | | | | |
| **36** | 157 | | | | | | | | | |

# Polley Lake P1 Conductivity (µs/cm) Profiles
# (2005 - 2013)

| Depth | FALL | | | | | | WINTER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 26-Oct-05 | 31-Oct-06 | 23-Oct-07 | 28-Oct-08 | 02-Nov-10 | 01-Nov-11 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 09-Mar-11 | 06-Mar-12 |
| **0** | | 164 | 174 | 199 | 145 | 220 | | 198 | 212 | | 224 |
| **1** | 153 | 163 | 174 | 199 | 145 | 220 | 175 | 193 | 207 | | 220 |
| **2** | 153 | 163 | | 233 | 145 | 220 | 172 | 189 | 203 | | 218 |
| **3** | 153 | 163 | 174 | 228 | | 220 | 171 | 186 | 201 | 215 | 217 |
| **4** | 153 | 163 | | 235 | 145 | 220 | 170 | 185 | 200 | 216 | 216 |
| **5** | 153 | 163 | 174 | 234 | | 220 | | 186 | 199 | | 216 |
| **6** | 153 | 163 | | 234 | 145 | 220 | 170 | 186 | | 215 | 216 |
| **7** | 153 | 163 | | 233 | | | | 187 | 198 | | |
| **8** | 153 | 164 | 174 | 233 | 145 | 220 | 171 | 188 | | 214 | 215 |
| **9** | 153 | 164 | | 232 | | | | 188 | 198 | | |
| **10** | 153 | 164 | | 231 | 145 | 220 | 170 | 189 | | 213 | 215 |
| **11** | 153 | 164 | 174 | 231 | | | | 190 | 197 | | |
| **12** | 153 | 164 | | 231 | 145 | 220 | 170 | 191 | | 213 | 215 |
| **13** | 152 | 164 | | 231 | | | | 191 | 198 | | |
| **14** | 152 | 164 | 174 | 230 | 145 | 220 | 171 | 190 | | 213 | 216 |
| **15** | 152 | 163 | | 230 | | | | 191 | 198 | | |
| **16** | | 163 | | 229 | 145 | 220 | 172 | 191 | | 214 | 216 |
| **17** | 151 | 163 | 174 | 229 | | | | 191 | 198 | | |
| **18** | | 167 | | 230 | 145 | 220 | 173 | 191 | | | 216 |
| **19** | 151 | 170 | | 230 | | | | 191 | 198 | 216 | |
| **20** | | 167 | 167 | 230 | 144 | 220 | 174 | 190 | | 216 | 216 |
| **21** | 151 | 163 | | 229 | | | | 191 | 198 | | |
| **22** | | 163 | 167 | 230 | 143 | 220 | 177 | 191 | | 216 | 216 |
| **23** | 151 | 163 | | 230 | | | | 191 | 198 | | |
| **24** | | 163 | 167 | 230 | 142 | 220 | 177 | 191 | | 216 | 216 |
| **25** | 151 | 163 | | 230 | | | | 190 | 200 | | |
| **26** | | 163 | 167 | 230 | 141 | 220 | | 191 | | 217 | 216 |
| **27** | 151 | 163 | | 230 | | | | 192 | 200 | 218 | |
| **28** | | 163 | | 230 | | 220 | | 194 | | 218 | 217 |
| **29** | 151 | 162 | | 230 | | 220 | | 194 | 201 | 218 | |
| **30** | 151 | | | | | 220 | | 194 | 202 | | 217 |
| **31** | | | | | | 220 | | 195 | | | |
| **32** | | | | | | 220 | | | | | 226 |
| **33** | | | | | | 220 | | | | | |
| **34** | | | | | | 220 | | | | | 254 |
| **35** | | | | | | 226 | | | | | |
| **36** | | | | | | | | | | | |

# Polley Lake P1 Temperature ($^{o}$C) Profiles
# (2005 - 2013)

| Depth | SPRING | | | | | | | | | SUMMER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 10-May-96 | 18-May-06 | 24-May-07 | 21-May-08 | 20-May-09 | 26-Apr-10 | 06-Jun-11 | 08-May-12 | 13-May-13 | 11-Aug-06 | 20-Jun-13 | 21-Aug-13 |
| 0 | | | 9.6 | 4.56 | 5.04 | 5.39 | 12.4 | 5.95 | 11.45 | 18.07 | 7.60 | 17.21 |
| 1 | 5.35 | 11.42 | 8.54 | 4.65 | 5.02 | 5.35 | 11.6 | 5.95 | 11.32 | 17.89 | 7.00 | 15.63 |
| 2 | | 10.51 | 8.26 | 4.97 | 5.00 | 5.34 | 11.4 | 5.9 | 10.3 | | 6.60 | 14.1 |
| 3 | 5.33 | 9.05 | 7.59 | 4.70 | 4.98 | 5.33 | 10.8 | 5.65 | 6.84 | 17.83 | 6.40 | 11.19 |
| 4 | 5.28 | 8.46 | 6.76 | 4.34 | 4.96 | 5.33 | 9.8 | 4.91 | 6.45 | | 6.20 | 8.79 |
| 5 | | 7.85 | 6.43 | 4.59 | 4.94 | 5.32 | 9.1 | 4.51 | 6.15 | 17.75 | 6.10 | 7.72 |
| 6 | 5.28 | 7.29 | | 4.63 | 4.94 | 5.3 | 8.1 | 4.46 | 5.74 | | | 6.75 |
| 7 | 5.15 | 7.09 | 6.2 | 4.34 | 4.93 | | 7.5 | 4.35 | 5.05 | 17.44 | 6.00 | 5.92 |
| 8 | | 6.91 | | 4.28 | 4.89 | 5.19 | | 4.34 | 4.67 | 15.82 | | 5.4 |
| 9 | 5.13 | 6.74 | 6.13 | 4.35 | 4.87 | | 6.4 | 4.34 | 4.42 | 13.30 | 5.20 | 5.18 |
| 10 | 4.97 | 6.49 | | 4.31 | 4.74 | 5.22 | | 4.35 | 4.18 | 10.36 | | 4.97 |
| 11 | 4.95 | | 5.78 | 4.25 | 4.70 | | 6.2 | 4.28 | | 8.73 | 4.50 | 4.83 |
| 12 | | 5.97 | | | 4.55 | 5.13 | | 4.27 | 3.86 | 7.62 | | 4.69 |
| 13 | 4.87 | | 5.51 | 4.22 | 4.51 | | 5.5 | 4.25 | | 7.02 | 4.40 | 4.61 |
| 14 | 4.77 | 5.62 | | | 4.51 | 4.85 | | 4.2 | 3.59 | 6.58 | | 4.54 |
| 15 | | | 5.31 | 4.18 | 4.44 | | 5 | 4.12 | | 6.34 | 4.2 | 4.47 |
| 16 | 4.75 | 5.43 | | | 4.36 | 4.78 | | 4.03 | 3.42 | 6 | | 4.39 |
| 17 | 4.70 | | 5.18 | 4.16 | 4.31 | | 5 | 3.93 | | 5.87 | 4.1 | 4.36 |
| 18 | | 5.18 | | | 4.27 | 4.68 | | 3.8 | 3.28 | | 4 | 4.27 |
| 19 | 4.70 | | 5.11 | 4.14 | 4.22 | | 4.8 | 3.79 | | 5.62 | 4 | 4.21 |
| 20 | 4.72 | 5.08 | | | 4.09 | 4.66 | | 3.8 | 3.27 | | 4 | 4.19 |
| 21 | 4.67 | | 5 | 3.99 | 4.03 | | 4.6 | 3.77 | | 5.4 | 4 | 4.17 |
| 22 | | 4.98 | | | 4.01 | 4.64 | | 3.78 | 3.2 | | 4 | 4.16 |
| 23 | 4.67 | | 4.97 | 3.82 | | | 4.3 | 3.74 | | 5.28 | 4 | 4.16 |
| 24 | 4.67 | 4.87 | | | 3.82 | 4.61 | 4.1 | 3.75 | 3 | | 3.9 | 4.16 |
| 25 | | | 4.94 | 3.60 | | | 4.1 | 3.72 | | 5.21 | 3.9 | |
| 26 | 4.67 | 4.78 | 4.83 | | 3.81 | 4.61 | 4.1 | 3.69 | 3.02 | | | |
| 27 | 4.65 | | 4.78 | 3.48 | | | 4.1 | 3.65 | | 5.18 | | |
| 28 | | 4.75 | 4.75 | | 3.83 | 4.54 | 4.1 | 3.64 | 3.1 | | | |
| 29 | | | 4.66 | 3.23 | | | 4.1 | 3.61 | | 5.16 | | |
| 30 | | 4.73 | 4.55 | 3.18 | 3.70 | 4.5 | | 3.55 | | | | |
| 31 | | | | 3.16 | | | | | | | | |
| 32 | | 4.72 | | 3.14 | | | | | | | | |
| 33 | | | | 3.15 | | | | | | | | |
| 34 | | 4.7 | | 3.25 | | | | | | | | |
| 35 | | | | 3.62 | | | | | | | | |
| 36 | | 4.69 | | | | | | | | | | |

# Polley Lake P1 Temperature ($^{o}$C) Profiles
# (2005 - 2013)

| Depth | FALL | | | | | | | | WINTER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 01-Sep-96 | 26-Oct-05 | 31-Oct-06 | 23-Oct-07 | 28-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 09-Mar-11 | 06-Mar-12 |
| **0** | 14.83 | | 6.91 | 8.11 | 7.87 | 8.22 | 6.33 | 6.6 | | 0.03 | 0.19 | | 0.32 |
| **1** | 14.83 | 8.12 | 6.82 | 8.11 | 7.09 | 8.22 | 6.35 | 6.6 | 0.82 | 0.55 | 0.71 | | 0.98 |
| **2** | 14.84 | 8.15 | 6.89 | | 7.00 | 8.22 | 6.35 | 6.6 | 1.26 | 1.18 | 1.55 | | 1.56 |
| **3** | 14.83 | 8.13 | 6.89 | 8.11 | 6.98 | | 6.35 | 6.6 | 1.43 | 1.55 | 1.92 | 2.44 | 1.75 |
| **4** | 14.81 | 8.12 | 6.88 | | 6.97 | 8.22 | 6.35 | 6.6 | 1.57 | 1.68 | 2.10 | 2.63 | 1.82 |
| **5** | 14.79 | 8.10 | 6.88 | 8.10 | 6.97 | | 6.35 | 6.6 | | 1.73 | 2.27 | | 1.87 |
| **6** | 14.76 | 8.10 | 6.87 | | 6.97 | 8.21 | 6.35 | 6.6 | 1.73 | 1.78 | | 2.82 | 1.90 |
| **7** | 14.68 | 8.09 | 6.86 | | 6.95 | | | 6.6 | | 1.83 | 2.47 | | |
| **8** | 14.42 | 8.06 | 6.84 | 8.10 | 6.96 | 8.21 | 6.35 | 6.6 | 1.82 | 1.88 | | 3.02 | 1.96 |
| **9** | 13.22 | 8.05 | 6.82 | | 6.96 | | | 6.6 | | 1.92 | 2.64 | | |
| **10** | 11.01 | 8.02 | 6.82 | | 6.94 | 8.21 | 6.34 | 6.6 | 1.98 | 1.99 | | 3.16 | 2.01 |
| **11** | 9.62 | 8.00 | 6.81 | 8.09 | 6.95 | | | 6.6 | | 2.01 | 2.74 | | |
| **12** | 8.07 | 7.91 | 6.79 | | 6.94 | 8.21 | 6.34 | | 2.10 | 2.03 | | 3.29 | 2.05 |
| **13** | 7.17 | 7.76 | 6.76 | | 6.93 | | | 6.6 | | 2.10 | 2.81 | | |
| **14** | 6.65 | 7.68 | 6.75 | 8.09 | 6.93 | 8.21 | 6.34 | | 2.11 | 2.18 | | 3.37 | 2.07 |
| **15** | 6.35 | 7.67 | 6.74 | | 6.93 | | | 6.6 | | 2.19 | 2.89 | | |
| **16** | 5.94 | | 6.74 | | 6.93 | 8.19 | 6.34 | | 2.17 | 2.26 | | 3.40 | 2.09 |
| **17** | 5.53 | 7.44 | 6.73 | 8.09 | 6.94 | | | 6.6 | | 2.32 | 2.98 | | |
| **18** | 5.45 | | 6.72 | | 6.94 | 8.17 | 6.34 | | 2.28 | 2.37 | | | 2.13 |
| **19** | 5.36 | 7.02 | 6.7 | | 6.94 | | | 6.6 | | 2.42 | 3.05 | 3.37 | |
| **20** | 5.30 | | 6.68 | 5.91 | 6.93 | 8.06 | 6.34 | | 2.36 | 2.47 | | 3.41 | 2.14 |
| **21** | 5.25 | 6.65 | 6.65 | | 6.94 | | | 6.6 | | 2.50 | 3.13 | | |
| **22** | 5.20 | | 6.62 | 5.98 | 6.93 | 7.75 | 6.34 | | 2.36 | 2.53 | | 3.46 | 2.16 |
| **23** | 5.15 | 6.28 | 6.59 | | 6.93 | | | 6.6 | | 2.58 | 3.14 | | |
| **24** | 5.10 | | 6.43 | 5.84 | 6.92 | 7.62 | 6.34 | | 2.43 | 2.64 | | 3.54 | 2.19 |
| **25** | 5.10 | 6.1 | 6.27 | | 6.90 | | | 6.6 | | 2.75 | 3.18 | | |
| **26** | 5.07 | | 6.21 | 5.55 | 6.89 | 7.53 | 6.34 | 6.6 | | 2.79 | | 3.58 | 2.23 |
| **27** | 5.03 | 6.06 | 6.14 | | 6.90 | | | 6.60 | | 2.84 | 3.21 | 3.57 | |
| **28** | 5.02 | | 5.98 | | 6.86 | | 6.33 | 6.30 | | 2.82 | | 3.59 | 2.35 |
| **29** | 5.00 | 5.97 | 5.81 | | 6.81 | | 6.33 | 6.30 | | 2.89 | 3.27 | 3.63 | |
| **30** | 4.98 | 5.94 | | | | | 6.33 | | | 2.98 | 3.34 | | 2.44 |
| **31** | 4.97 | | | | | | 6.33 | | | 3.05 | | | |
| **32** | 4.95 | | | | | | 6.33 | | | | | | 3.01 |
| **33** | 4.95 | | | | | | 6.33 | | | | | | |
| **34** | | | | | | | 6.33 | | | | | | |
| **35** | | | | | | | 6.27 | | | | | | |
| **36** | | | | | | | | | | | | | |

# Polley Lake P1 Dissolved Oxygen (mg/L) Profiles
# (2005 - 2013)

| Depth | SPRING | | | | | | | | | SUMMER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 10-May-96 | 18-May-06 | 24-May-07 | 21-May-08 | 20-May-09 | 26-Apr-10 | 06-Jun-11 | 08-May-12 | 13-May-13 | 11-Aug-06 | 20-Jun-13 | 21-Aug-13 |
| 0 | | | 12.44 | 11.97 | 11.5 | 12.19 | 11.96 | 13.2 | 9.98 | 9.11 | 8.77 | 9.8 |
| 1 | 10.57 | 11.83 | 12.76 | 11.92 | 11.29 | 12.23 | 12.02 | 13.3 | 10.34 | 8.94 | 8.85 | 10.14 |
| 2 | | 12.03 | 12.79 | 12.14 | 11.27 | 12.25 | 11.91 | 13.3 | 10.71 | | 8.00 | 10.51 |
| 3 | 10.65 | 12.34 | 12.88 | 12.22 | 11.27 | 12.24 | 12.17 | 13.2 | 11.84 | 8.86 | 7.52 | 10.66 |
| 4 | 10.44 | 12.26 | 12.62 | 11.97 | 11.3 | 12.23 | 12.06 | 12.6 | 11.45 | | 6.34 | 10.84 |
| 5 | | 12.26 | 12.07 | 11.97 | 11.29 | 12.22 | 12.16 | 12.6 | 11.14 | 8.82 | 6.30 | 8.91 |
| 6 | 10.65 | 11.9 | | 11.99 | 11.29 | 12.21 | 11.84 | 12.8 | 10.96 | | 6.28 | 7.29 |
| 7 | 10.47 | 11.58 | 11.89 | 11.95 | 11.28 | | 11.53 | 12.4 | 10.77 | 8.81 | 6.38 | 6.37 |
| 8 | | 11.32 | | 11.88 | 11.27 | 12.18 | | 12.3 | 10.45 | 9 | 6.42 | 5.93 |
| 9 | 9.22 | 11.06 | 11.72 | 11.83 | 11.28 | | 10.63 | 12.3 | 10.28 | 9.4 | 6.44 | 5.44 |
| 10 | 8.94 | 10.82 | | 11.83 | 11.19 | 12.12 | | 12.2 | 10.09 | 9.07 | 6.34 | 5.38 |
| 11 | 7.96 | | 11.69 | 11.75 | 11.16 | | 10.48 | 12.2 | | 8.46 | | 5.52 |
| 12 | | 10.45 | | | 11.01 | 12.04 | | 12.1 | 9.75 | 8.46 | 6.37 | 5.64 |
| 13 | 7.61 | | 11.53 | 11.72 | 10.8 | | 9.84 | 12.1 | | 7.69 | | 5.76 |
| 14 | 7.21 | 10.23 | | | 10.75 | 11.7 | | 12.1 | 9.60 | 7.55 | 6.46 | 5.61 |
| 15 | | | 11.39 | 11.66 | 10.68 | | 9.32 | 11.9 | | 7.29 | | 5.65 |
| 16 | 6.74 | 10.06 | | | 10.56 | 11.63 | | 11.7 | 9.43 | 7.03 | 6.60 | 5.70 |
| 17 | 6.40 | | 11.22 | 11.63 | 10.36 | | 9.3 | 11.7 | | 7.02 | | 5.60 |
| 18 | | 9.95 | | | 10.18 | 11.48 | | 11.7 | 9.06 | | 6.46 | 5.54 |
| 19 | 6.13 | | 11.17 | 11.61 | 10.1 | | 9.11 | 11.7 | | 6.97 | | 5.42 |
| 20 | 6.04 | 9.88 | | | 9.85 | 11.4 | | 11.7 | 8.71 | | 6.19 | 5.26 |
| 21 | 6.80 | | 11.17 | 11.55 | 9.69 | | 9.04 | 11.7 | | 6.67 | | 5.14 |
| 22 | | 9.72 | | | 9.5 | 11.34 | | 11.7 | 8.39 | | 5.82 | 5.00 |
| 23 | 6.85 | | 11.12 | 11.39 | | | 8.88 | 11.7 | | 6.45 | 5.68 | 4.81 |
| 24 | 6.93 | 9.63 | | | 9.22 | 11.28 | 7.31 | 11.6 | 8.13 | | 5.57 | 4.50 |
| 25 | | | 11.1 | 11.14 | | | 7.23 | 11.6 | | 5.84 | 5.14 | 3.66 |
| 26 | 6.84 | 9.52 | 11.07 | | 8.83 | 11.28 | 7.19 | 11.6 | 7.67 | | 5.32 | 2.90 |
| 27 | 6.71 | | 10.96 | 11.01 | | | 7.25 | 11.4 | | 5.36 | 5.19 | 2.31 |
| 28 | | 9.44 | 10.94 | | 8.61 | 11.28 | 7.18 | 11.4 | 7.41 | | 5 | 1.69 |
| 29 | | | 10.88 | 9.46 | | | 7.02 | 11.3 | | 4.73 | 4.84 | 1.23 |
| 30 | | 9.33 | 10.72 | 7.93 | 8.21 | 11.24 | | 11.3 | | | 4.62 | |
| 31 | | | | 6.99 | | | | | | | | |
| 32 | | 9.05 | | 5.88 | | | | | | | | |
| 33 | | | | 5.43 | | | | | | | | |
| 34 | | 8.84 | | 3.91 | | | | | | | | |
| 35 | | | | 1.25 | | | | | | | | |
| 36 | | 8.28 | | | | | | | | | | |

# Polley Lake P1 Dissolved Oxygen (mg/L) Profiles
# (2005 - 2013)

| Depth | FALL | | | | | | WINTER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 26-Oct-05 | 23-Oct-07 | 28-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 09-Mar-11 | 06-Mar-12 |
| 0 | | 9.71 | 10.23 | 10.37 | 10.92 | 6.19 | | 9.79 | 11.41 | | 12.23 |
| 1 | 10.7 | 9.58 | 9.71 | 9.68 | 10.29 | 5.76 | 11.09 | 9.47 | 11.06 | | 11.77 |
| 2 | 10.52 | | 9.61 | 9.51 | 9.93 | 5.83 | 10.81 | 9.25 | 10.71 | | 11.49 |
| 3 | 10.49 | 9.58 | 9.59 | | 9.84 | 5.73 | 10.68 | 9.06 | 10.54 | 10.75 | 11.40 |
| 4 | 10.5 | | 9.58 | 9.42 | 9.76 | 5.83 | 10.53 | 8.92 | 10.42 | 10.57 | 11.34 |
| 5 | 10.48 | 9.56 | 9.57 | | 9.69 | 5.79 | | 8.85 | 10.3 | | 11.23 |
| 6 | 10.48 | | 9.57 | 9.42 | 9.67 | 5.81 | 10.33 | 8.72 | | 10.33 | 11.16 |
| 7 | 10.45 | | 9.57 | | | 5.82 | | 8.67 | 10.16 | | |
| 8 | 10.4 | 9.53 | 9.56 | 9.33 | 9.65 | 5.83 | 10.18 | 8.58 | | 10.14 | 10.94 |
| 9 | 10.37 | | 9.56 | | | 5.84 | | 8.42 | 10.03 | | |
| 10 | 10.31 | | 9.57 | 9.29 | 9.64 | | 9.99 | 8.34 | | 9.88 | 10.76 |
| 11 | 10.27 | 9.52 | 9.56 | | | 5.82 | | 8.33 | 9.85 | | |
| 12 | 9.76 | | 9.56 | 9.28 | 9.63 | | 9.86 | 8.25 | | 9.63 | 10.55 |
| 13 | 9.38 | | 9.56 | | | 5.88 | | 8.14 | 9.71 | | |
| 14 | 9.09 | 9.5 | 9.54 | 9.27 | 9.6 | | 9.61 | 8.13 | | 9.37 | 10.23 |
| 15 | 8.95 | | 9.53 | | | 5.88 | | 8.05 | 9.51 | | |
| 16 | | | 9.55 | 9.22 | 9.55 | | 9.47 | 7.98 | | 9.04 | 10.13 |
| 17 | 8.39 | 9.49 | 9.54 | | | 5.83 | | 7.94 | 9.32 | | |
| 18 | | | 9.54 | 9.1 | 9.53 | | 9.31 | 7.88 | | | 9.87 |
| 19 | 7.36 | | 9.53 | | | 5.89 | | 7.73 | 9.02 | 8.78 | |
| 20 | | 4.43 | 9.53 | 8.64 | 9.52 | | 9.04 | 7.37 | | 8.5 | 9.59 |
| 21 | 6.3 | | 9.52 | | | 5.81 | | 7.21 | 8.83 | | |
| 22 | | 4.36 | 9.53 | 7.95 | 9.52 | | 8.44 | 7.03 | | 7.96 | 9.40 |
| 23 | 5.12 | | 9.53 | | | 5.81 | | 6.92 | 8.52 | | |
| 24 | | 3.65 | 9.54 | 6.77 | 9.48 | | 8.16 | 6.7 | | 7.15 | 9.36 |
| 25 | 4.55 | | 9.55 | | | 5.84 | | 6.49 | 7.99 | | |
| 26 | | 3.19 | 9.53 | 6.15 | 9.47 | 5.82 | | 6.14 | | 6.29 | 9.07 |
| 27 | 4.36 | | 9.53 | | | 1.2 | | 5.78 | 7.59 | 5.84 | |
| 28 | | | 9.51 | | 9.44 | 1.13 | | 5.52 | | 5.22 | 8.01 |
| 29 | 4.13 | | 9.52 | | 9.44 | 0.089 | | 4.97 | 6.84 | 4.6 | |
| 30 | 3.39 | | | | 9.41 | | | 4.41 | 5.48 | | 6.14 |
| 31 | | | | | 9.41 | | | 3.55 | | | |
| 32 | | | | | 9.4 | | | | | | 1.50 |
| 33 | | | | | 9.39 | | | | | | |
| 34 | | | | | 9.38 | | | | | | 0.61 |
| 35 | | | | | 7.72 | | | | | | |
| 36 | | | | | | | | | | | |

# Polley Lake P1 pH Profiles
# (2005 - 2013)

| Depth | SPRING | | | | | | | | SUMMER | |
|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 18-May-06 | 23-May-07 | 21-May-08 | 20-May-09 | 26-Apr-10 | 06-Jun-11 | 08-May-12 | 13-May-13 | 11-Aug-06 | 21-Aug-13 |
| **0** | | 8.05 | 7.96 | 7.35 | | 9.25 | 7.87 | 8.65 | 7.52 | 9.32 |
| **1** | 7.71 | 8.21 | 8.02 | 7.32 | | 9.04 | 7.89 | 8.65 | 7.95 | 9.31 |
| **2** | 7.73 | 8.29 | 8.03 | 7.31 | | 8.88 | 7.9 | 8.54 | | 9.3 |
| **3** | 7.73 | | 8.04 | 7.34 | | 8.81 | 7.92 | 8.46 | 8.26 | 9.28 |
| **4** | 7.8 | 8.33 | 8.04 | 7.34 | | 8.77 | 7.92 | 8.33 | | 9.28 |
| **5** | 7.91 | | | 7.34 | | 8.72 | 7.93 | 8.19 | 8.38 | 8.78 |
| **6** | 7.81 | 8.37 | 8.05 | 7.34 | 7.97 | 8.68 | 7.95 | 7.99 | | 8.42 |
| **7** | 7.78 | | | 7.35 | 7.97 | 8.41 | 7.96 | | 8.44 | 8.06 |
| **8** | 7.75 | 8.39 | 8.05 | 7.33 | 7.97 | 8.23 | 7.95 | 7.87 | 8.29 | 7.79 |
| **9** | 7.74 | | | 7.34 | 7.97 | | 7.96 | | 8.32 | 7.57 |
| **10** | 7.72 | 8.41 | 8.05 | 7.32 | 7.97 | 8.11 | 7.96 | 7.81 | 8.27 | 7.46 |
| **11** | 7.72 | | | | | | 7.95 | | 8.17 | 7.3 |
| **12** | 7.71 | 8.42 | 8.04 | 7.32 | 7.99 | 8.01 | 7.94 | 7.78 | 8.13 | 7.26 |
| **13** | | | | | | | 7.96 | | 8.08 | 7.19 |
| **14** | 7.69 | 8.43 | 8.03 | 7.31 | 8 | 8.02 | 7.97 | 7.76 | 8.04 | 7.14 |
| **15** | | | | | | | 7.97 | | 7.97 | 7.09 |
| **16** | 7.66 | 8.44 | 8.03 | 7.31 | 7.97 | 8.02 | 7.97 | 7.74 | 7.9 | 7.05 |
| **17** | | | | | | | 7.97 | | 7.89 | 7.04 |
| **18** | 7.64 | 8.44 | 8.04 | 7.32 | 7.95 | 8.02 | 7.97 | 7.73 | | 7.07 |
| **19** | | | | | | | 7.97 | | 7.8 | 7.01 |
| **20** | 7.63 | 8.41 | 8.02 | 7.32 | 7.99 | 8 | 7.96 | | | 7.02 |
| **21** | | | | | | | 7.97 | | 7.85 | 6.99 |
| **22** | 7.6 | | 8.01 | 7.32 | 7.93 | 8 | 7.96 | | | 6.98 |
| **23** | | | | | | 7.91 | 7.95 | | 7.82 | 6.99 |
| **24** | 7.58 | | 7.99 | 7.29 | 7.94 | 7.9 | 7.94 | | | 6.95 |
| **25** | | | | | | 7.86 | 7.94 | | 7.8 | 6.91 |
| **26** | | | 7.92 | 7.28 | 7.95 | | 7.93 | | | 6.91 |
| **27** | | | | | | | 7.83 | | 7.77 | 6.91 |
| **28** | | | | | | | 7.7 | | | 6.92 |
| **29** | | | | 7.25 | | | 7.63 | | 7.68 | 6.9 |
| | | | | | | | 7.61 | | | |

# Polley Lake P1 pH Profiles
# (2005 - 2013)

| Depth | FALL | | | | | | | WINTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 26-Oct-05 | 31-Oct-06 | 23-Oct-07 | 28-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 02-Mar-10 | 09-Mar-11 | 06-Mar-12 |
| 0 | | 7.52 | 8.22 | 7.83 | 7.6 | 7.4 | 7.73 | | 7.67 | 7.98 | 7.54 | 8.07 | |
| 1 | 7.46 | | 8.22 | 7.81 | 7.63 | 7.49 | 7.71 | 7.9 | 7.64 | 7.94 | 7.49 | | 8.22 |
| 2 | 7.48 | 7.55 | 8.23 | 7.79 | 7.65 | 7.54 | 7.71 | 7.87 | 7.62 | 7.84 | 7.44 | 8.11 | 8.11 |
| 3 | 7.49 | | | 7.78 | 7.65 | 7.56 | 7.71 | 7.84 | 7.6 | 7.78 | 7.44 | | 8.02 |
| 4 | 7.52 | | 8.22 | 7.77 | 7.65 | 7.6 | 7.7 | 7.81 | 7.56 | 7.76 | 7.49 | 8.09 | 7.95 |
| 5 | 7.54 | 7.65 | | 7.77 | | 7.63 | 7.7 | 7.81 | 7.52 | 7.74 | 7.49 | | 7.87 |
| 6 | 7.56 | | 8.22 | 7.76 | 7.64 | 7.63 | 7.7 | 7.8 | 7.5 | | 7.49 | 8.04 | 7.82 |
| 7 | 7.57 | 7.65 | | 7.76 | | | | 7.79 | 7.48 | 7.71 | 7.51 | | |
| 8 | 7.58 | | 8.19 | 7.75 | 7.63 | 7.64 | 7.7 | | 7.47 | | 7.52 | 7.97 | 7.74 |
| 9 | 7.58 | | | 7.74 | | | | 7.77 | 7.46 | 7.68 | 7.78 | | |
| 10 | 7.6 | 7.68 | | 7.73 | 7.61 | 7.65 | 7.7 | | 7.45 | | 7.53 | 7.93 | 7.65 |
| 11 | 7.6 | | 8.19 | 7.72 | | | | 7.76 | 7.45 | 7.65 | 7.55 | | |
| 12 | 7.6 | | | 7.73 | 7.6 | 7.66 | 7.69 | | 7.44 | | 7.55 | 7.9 | 7.6 |
| 13 | 7.58 | | | 7.74 | 7.58 | | | 7.73 | 7.43 | 7.57 | 7.57 | | |
| 14 | | | 8.11 | 7.73 | 7.56 | 7.67 | 7.69 | | 7.43 | | 7.58 | 7.88 | 7.57 |
| 15 | | 7.63 | | 7.73 | | | | 7.72 | 7.42 | 7.54 | 7.59 | | |
| 16 | | | | 7.73 | 7.54 | 7.67 | 7.69 | | 7.41 | | 7.57 | 7.85 | 7.46 |
| 17 | | | 7.7 | 7.73 | | | | 7.7 | 7.37 | 7.52 | 7.58 | | |
| 18 | | | | 7.72 | 7.53 | 7.67 | 7.69 | | 7.38 | | 7.56 | 7.82 | 7.44 |
| 19 | | | | 7.69 | | | | 7.63 | 7.37 | 7.5 | 7.61 | | |
| 20 | | 7.3 | 7.51 | 7.65 | 7.51 | 7.67 | 7.7 | | 7.36 | | 7.57 | 7.78 | 7.4 |
| 21 | | | | 7.61 | | | | 7.53 | 7.35 | 7.47 | 7.57 | | |
| 22 | | | 7.41 | 7.55 | 7.49 | 7.68 | 7.7 | | 7.32 | | 7.58 | 7.75 | 7.38 |
| 23 | | | | 7.51 | | | | | 7.29 | 7.44 | 7.58 | | |
| 24 | | | 7.35 | 7.47 | 7.48 | 7.67 | 7.7 | | 7.29 | | 7.61 | 7.72 | 7.36 |
| 25 | | | | 7.44 | | | | | 7.28 | 7.41 | | 7.66 | 7.09 |
| 26 | | | | 7.25 | 7.45 | 7.68 | 7.71 | | | | | | |
| 27 | | | | | | | 7.71 | | | | | | |
| 28 | | | | | | 7.68 | 7.72 | | | | | | |
| 29 | | | | | | 7.41 | 7.71 | | | | | | |
| 30 | | | | | | | | | | | | | |

# Polley Lake P1 Conductivity (µs/cm) Profiles
# (2005 - 2013)

| Depth | SPRING | | | | | | | | SUMMER | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 18-May-06 | 23-May-07 | 21-May-08 | 20-May-09 | 26-Apr-10 | 06-Jun-11 | 08-May-12 | 13-May-13 | 11-Aug-06 | 20-Jun-13 | 21-Aug-13 |
| **0** | | 116 | 188 | 193 | | 206.2 | 210 | 208 | 159 | 201 | 195 |
| **1** | 156 | 116 | 188 | 193 | | 204.3 | 210 | 208 | 159 | 201 | 194 |
| **2** | 157 | 116 | 188 | 193 | | 201.2 | 210 | 209 | | 206 | 194 |
| **3** | 156 | | 188 | 193 | | 199.7 | 210 | 209 | 159 | 207 | 195 |
| **4** | 155 | 115 | 188 | 193 | | 198.2 | 210 | 210 | | 210 | 195 |
| **5** | 155 | | | 193 | | 196.9 | 210 | 212 | 159 | 210 | 204 |
| **6** | 155 | 114 | 188 | 194 | 208 | 195.5 | 210 | 212 | | 210 | 208 |
| **7** | 156 | | | 194 | 208 | 187 | 210 | | 159 | 210 | 213 |
| **8** | 156 | 114 | 188 | 194 | 208 | 182.1 | 210 | 213 | 160 | 210 | 219 |
| **9** | 156 | | | 194 | 208 | | 210 | | 158 | 210 | 223 |
| **10** | 156 | 113 | 188 | 194 | 208 | 177.2 | 210 | 213 | 157 | 210 | 222 |
| **11** | 156 | | | | | | 210 | | 156 | | 214 |
| **12** | 156 | 112 | 189 | 194 | 208 | 173.3 | 210 | 214 | 156 | 210 | 211 |
| **13** | | | | | | | 210 | | 157 | | 211 |
| **14** | 156 | 112 | 189 | 194 | 209 | 171.3 | 210 | 214 | 157 | 212 | 211 |
| **15** | | | | | | | 210 | | 157 | | 211 |
| **16** | 156 | 113 | 189 | 194 | 209 | 169.5 | 210 | 214 | 157 | 212 | 211 |
| **17** | | | | | | | 210 | | 157 | | 211 |
| **18** | 156 | 111 | 189 | 194 | 209 | 167.9 | 210 | 214 | | 212 | 211 |
| **19** | | | | | | | 210 | | 157 | | 211 |
| **20** | 156 | 111 | 189 | 194 | 209 | 166.6 | 210 | | | 213 | 211 |
| **21** | | | | | | | 210 | | 157 | | 211 |
| **22** | 157 | | 190 | 195 | 209 | 165.4 | 210 | | | 213 | 211 |
| **23** | | | | | | 164.5 | 210 | | 158 | 213 | 211 |
| **24** | 156 | | 191 | 195 | 209 | 163.8 | 211 | | | 213 | 211 |
| **25** | | | | | | 165.6 | 211 | | 158 | 213 | 212 |
| **26** | | | 193 | 197 | 209 | | 211 | | | 213 | 214 |
| **27** | | | | | | | 212 | | 158 | 214 | 216 |
| **28** | | | | | | | 216 | | | 214 | 219 |
| **29** | | | | 198 | | | 220 | | 158 | 214 | 232 |
| **30** | | | | | | | 223 | | | 214 | |

# Polley Lake P1 Conductivity (µs/cm) Profiles
# (2005 - 2013)

| Depth | FALL | | | | | | WINTER | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 26-Oct-05 | 31-Oct-06 | 23-Oct-07 | 28-Oct-08 | 02-Nov-10 | 01-Nov-11 | 13-Mar-06 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 02-Mar-10 | 09-Mar-11 | 06-Mar-12 |
| **0** | | 164 | 174 | 197 | 144 | 220 | | | 248 | 237 | 282 | 78 | 224 |
| **1** | 153 | | 175 | 197 | 144 | 219 | 155 | 175 | 189 | 205 | 211 | | 219 |
| **2** | 153 | 164 | 174 | 197 | 144 | 219 | 155 | 172 | 185 | 202 | 214 | 148 | 217 |
| **3** | 153 | | | 197 | 145 | 219 | 154 | 170 | 185 | 201 | 214 | | 216 |
| **4** | 153 | | 174 | 197 | 145 | 219 | 154 | 169 | 186 | 200 | 214 | 159 | 216 |
| **5** | 153 | 164 | | 197 | | 219 | 154 | 169 | 186 | 200 | 214 | | 216 |
| **6** | 153 | | 175 | 197 | 145 | 219 | 154 | 169 | 188 | | 218 | 213 | 215 |
| **7** | 153 | 164 | | 197 | | | 154 | 169 | 188 | 200 | 214 | | |
| **8** | 153 | | 174 | 197 | 144 | 219 | 154 | | 188 | | 214 | 216 | 215 |
| **9** | 153 | | | 197 | | | 154 | 169 | 188 | 200 | 214 | | |
| **10** | 153 | 164 | | 197 | 144 | 219 | 154 | | 188 | | 214 | 216 | 216 |
| **11** | 153 | | 174 | 197 | | | 154 | 168 | 187 | 201 | 214 | | |
| **12** | 153 | | | 197 | 144 | 219 | 155 | | 187 | | 214 | 216 | 216 |
| **13** | 153 | | | 197 | 144 | | | 168 | 187 | 200 | 214 | | |
| **14** | | | 174 | 197 | 144 | 219 | 157 | | 187 | | 214 | 216 | 216 |
| **15** | | 161 | | 197 | | | | 169 | 187 | 200 | 214 | | |
| **16** | | | | 197 | 143 | 219 | 157 | | 187 | | 214 | 217 | 216 |
| **17** | | | 168 | 197 | | | | 170 | 187 | 200 | 214 | | |
| **18** | | | | 197 | 144 | 219 | 157 | | 187 | | 214 | 217 | 216 |
| **19** | | | | 196 | | | | 173 | 187 | 200 | 214 | | |
| **20** | | 161 | 167 | 196 | 143 | 219 | 157 | | 189 | | 215 | 217 | 217 |
| **21** | | | | 195 | | | | 178 | 189 | 200 | 215 | | |
| **22** | | | 167 | 195 | 143 | 219 | 158 | | 188 | | 214 | 218 | 217 |
| **23** | | | | 195 | | | | | 188 | 200 | 214 | | |
| **24** | | | 167 | 195 | 143 | 219 | 208 | | 188 | | 214 | 219 | 218 |
| **25** | | | | 195 | | | | | 188 | 200 | | 224 | 229 |
| **26** | | | | 196 | 142 | 219 | | | | | | | |
| **27** | | | | | | | | | | | | | |
| **28** | | | | | | 219 | | | | | | | |
| **29** | | | | | | 234 | | | | | | | |
| **30** | | | | | | | | | | | | | |

# Polley Lake P1 Temperature ($^{o}$C) Profiles
# (2005 - 2013)

| Depth (m) | SPRING | | | | | | | | | SUMMER | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10-May-96 | 18-May-06 | 23-May-07 | 21-May-08 | 20-May-09 | 26-Apr-10 | 06-Jun-11 | 08-May-12 | 13-May-13 | Jul-96 | 11-Aug-06 | 20-Jun-13 | 21-Aug-13 |
| 0 | | | 9.43 | 4.69 | 6.03 | | 14.50 | 3.84 | 9.92 | | 18.07 | 15.70 | 19.23 |
| 1 | | 13.91 | 9.19 | 4.70 | 6.01 | | 13.90 | 3.81 | 9.87 | 22.20 | 17.89 | 15.50 | 19.07 |
| 2 | 4.83 | 13.22 | 8.95 | 4.66 | 6.00 | | 13.10 | 3.82 | 8.4 | 21.93 | | 13.50 | 18.96 |
| 3 | 4.8 | 12.46 | | 4.65 | 5.99 | | 12.80 | 3.97 | 7.79 | 21.01 | 17.83 | 12.70 | 18.89 |
| 4 | | 9.95 | 8.74 | 4.64 | 5.96 | | 12.70 | 3.77 | 7.34 | 18.45 | | 9.00 | 18.80 |
| 5 | 4.72 | 7.94 | | | 5.87 | | 12.50 | 3.76 | 5.33 | 17.46 | 17.75 | 7.60 | 17.21 |
| 6 | 4.74 | 7.29 | 8.53 | 4.65 | 5.81 | 4.65 | 12.20 | 3.74 | 4.8 | 16.87 | | 7.00 | 15.63 |
| 7 | | 6.90 | | | 5.78 | 4.66 | 8.80 | 3.75 | | 16.03 | 17.44 | 6.60 | 14.10 |
| 8 | 4.62 | 6.62 | 8.36 | 4.63 | 5.77 | 4.68 | 7.10 | 3.74 | 4.14 | 13.94 | 15.82 | 6.40 | 11.19 |
| 9 | 4.54 | 6.46 | | | 5.77 | 4.64 | | 3.73 | | 10.67 | 13.30 | 6.20 | 8.79 |
| 10 | | 6.30 | 8.23 | 4.60 | 5.75 | 4.62 | 6.00 | 3.72 | 3.97 | 9.17 | 10.36 | 6.10 | 7.72 |
| 11 | 4.44 | 6.10 | | | | | | 3.71 | | 8.11 | 8.73 | | 6.75 |
| 12 | 4.39 | 5.77 | 7.93 | 4.47 | 5.74 | 4.62 | 5.00 | 3.71 | 3.81 | 7.55 | 7.62 | 6.00 | 5.92 |
| 13 | | | | | | | | 3.71 | | 6.83 | 7.02 | | 5.40 |
| 14 | 4.39 | 5.52 | 7.85 | 4.47 | 5.73 | 4.55 | 4.60 | 3.71 | 3.75 | 6.41 | 6.58 | 5.20 | 5.18 |
| 15 | | | | | | | | 3.7 | | 5.97 | 6.34 | | 4.97 |
| 16 | 4.37 | 5.32 | 7.80 | 4.52 | 5.72 | 4.55 | 4.50 | 3.7 | 3.63 | 5.77 | 6.00 | 4.50 | 4.83 |
| 17 | 4.34 | | | | | | | 3.7 | | 5.65 | 5.87 | | 4.69 |
| 18 | | 5.23 | 7.74 | 4.52 | 5.71 | 4.50 | 4.40 | 3.7 | 3.53 | 5.51 | | 4.40 | 4.61 |
| 19 | 4.34 | | | | | | | 3.69 | | 5.44 | 5.62 | | 4.54 |
| 20 | 4.34 | 5.10 | 7.47 | 4.44 | 5.63 | 4.41 | 4.30 | 3.69 | | 5.33 | | 4.20 | 4.47 |
| 21 | | | | | | | | 3.69 | | 5.29 | 5.40 | | 4.39 |
| 22 | 4.32 | 4.96 | | 4.38 | 5.47 | 4.38 | 4.30 | 3.68 | | 5.23 | | 4.10 | 4.36 |
| 23 | 4.34 | | | | | | 4.20 | 3.67 | | 5.18 | 5.28 | 4.00 | 4.27 |
| 24 | | 4.90 | | 4.22 | 5.24 | 4.39 | 4.20 | 3.65 | | 5.15 | | 4.00 | 4.21 |
| 25 | 4.29 | | | | | | 4.20 | 3.65 | | 5.13 | 5.21 | 4.00 | 4.19 |
| 26 | 4.29 | | | 4.20 | 5.01 | 4.39 | | 3.63 | | 5.00 | | 4.00 | 4.17 |
| 27 | | | | | | | | 3.55 | | | 5.18 | 4.00 | 4.16 |
| 28 | 4.12 | | | | 4.78 | | | 3.35 | | | | 4.00 | 4.16 |
| 29 | | | | | | | | 3.32 | | | 5.16 | 3.90 | 4.16 |
| 30 | | | | | | | | 3.22 | | | | 3.90 | |
| 31 | | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | | |

# Polley Lake P1 Temperature ($^{o}$C) Profiles
# (2005 - 2013)

| Depth | FALL | | | | | | | | | WINTER | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | Sep-96 | Oct-96 | 26-Oct-05 | 31-Oct-06 | 23-Oct-07 | 28-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 13-Mar-06 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 02-Mar-10 | 09-Mar-11 | 06-Mar-12 |
| 0 | 14.53 | 5.6 | | 6.43 | 8.00 | 6.79 | 8.00 | 6.29 | 6.6 | | | 0.01 | 0.39 | 0.75 | 0.03 | 0 |
| 1 | 14.51 | 5.58 | 8.03 | | 8.02 | 6.80 | 8.03 | 6.33 | 6.6 | 2.48 | 0.74 | 0.59 | 0.90 | 2.00 | | 0.98 |
| 2 | 14.48 | 5.58 | 8.02 | 6.59 | 8.01 | 6.80 | 8.03 | 6.33 | 6.6 | 2.77 | 1.12 | 1.28 | 1.74 | 2.08 | 0.04 | 1.51 |
| 3 | 14.46 | 5.56 | 8.01 | | | 6.80 | 8.03 | 6.33 | 6.6 | 2.87 | 1.33 | 1.52 | 2.05 | 2.09 | | 1.73 |
| 4 | 14.44 | 5.51 | 7.97 | | 7.95 | 6.79 | 8.02 | 6.34 | 6.6 | 2.94 | 1.49 | 1.65 | 2.20 | 2.11 | 0.09 | 1.81 |
| 5 | 14.43 | 5.48 | 7.94 | 6.60 | | 6.79 | | 6.34 | 6.6 | 2.99 | 1.58 | 1.72 | 2.30 | 2.11 | | 1.86 |
| 6 | 14.41 | 5.43 | 7.88 | | 7.92 | 6.79 | 8.03 | 6.34 | 6.6 | 3.04 | 1.67 | 1.77 | | 2.12 | 2.08 | 1.9 |
| 7 | 14.4 | 5.38 | 7.86 | 6.61 | | 6.78 | | | | 3.09 | 1.77 | 1.83 | 2.45 | 2.12 | | |
| 8 | 14.38 | 5.35 | 7.85 | | 7.83 | 6.77 | 7.98 | 6.34 | 6.6 | 3.14 | | 1.90 | | 2.12 | 2.88 | 1.95 |
| 9 | 14.35 | 5.35 | 7.84 | | | 6.77 | | | | 3.17 | 1.90 | 1.95 | 2.54 | 2.12 | | |
| 10 | 13.19 | 5.37 | 7.84 | 6.60 | | 6.76 | 7.96 | 6.34 | 6.6 | 3.23 | | 2.02 | | 2.12 | 3.03 | 1.99 |
| 11 | 9.82 | 5.35 | 7.84 | | 7.80 | 6.75 | | | | 3.23 | 2.04 | 2.07 | 2.63 | 2.12 | | |
| 12 | 8.85 | 5.35 | 7.83 | | | 6.74 | 7.93 | 6.34 | 6.6 | 3.24 | | 2.13 | | 2.12 | 3.11 | 2.01 |
| 13 | 8.38 | 5.33 | 7.18 | | | 6.72 | 7.91 | | | 3.23 | 2.16 | 2.18 | 2.72 | 2.12 | | |
| 14 | 7.84 | 5.35 | | | 7.69 | 6.72 | 7.92 | 6.34 | 6.6 | 3.22 | | 2.24 | | 2.12 | 3.21 | 2.05 |
| 15 | 7.09 | 5.35 | | 6.18 | | 6.72 | | | | 3.24 | 2.26 | 2.29 | 2.85 | 2.12 | | |
| 16 | 6.63 | 5.32 | | | | 6.71 | 7.83 | 6.33 | 6.5 | 3.26 | | 2.34 | | 2.12 | 3.23 | 2.08 |
| 17 | 6.3 | 5.32 | | | 6.40 | 6.70 | | | | 3.28 | 2.38 | 2.39 | 2.95 | 2.12 | | |
| 18 | 6.01 | 5.27 | | | | 6.66 | 7.83 | 6.33 | 6.5 | 3.30 | | 2.45 | | 2.16 | 3.25 | 2.1 |
| 19 | 5.76 | 5.22 | | | | 6.55 | | | | 3.31 | 2.48 | 2.49 | 2.99 | 2.18 | | |
| 20 | 5.51 | 5.20 | | 6.06 | 5.77 | 6.29 | 7.82 | 6.33 | 6.5 | 3.31 | | 2.51 | | 2.20 | 3.27 | 2.12 |
| 21 | 5.38 | 5.20 | | | | 6.10 | | | | 3.32 | 2.48 | 2.56 | 3.04 | 2.22 | | |
| 22 | 5.28 | 5.20 | | | 5.62 | 6.01 | 7.77 | 6.33 | 6.5 | 3.33 | | 2.62 | | 2.26 | 3.29 | 2.12 |
| 23 | 5.23 | 5.18 | | | | 5.89 | | | | 3.41 | | 2.67 | 3.08 | 2.29 | | |
| 24 | 5.17 | 5.20 | | | 5.52 | 5.81 | 7.65 | 6.33 | 6.5 | 3.49 | | 2.70 | | 2.18 | 3.23 | 2.16 |
| 25 | 5.15 | 5.18 | | | | 5.73 | | | | | | 2.74 | 3.14 | | 3.44 | 2.34 |
| 26 | 5.08 | 5.18 | | | | 5.69 | 7.57 | 6.33 | 6.5 | | | | | | | |
| 27 | 5.07 | 5.17 | | | | | | | 6.5 | | | | | | | |
| 28 | 5.04 | 5.15 | | | | | | 6.32 | 6.5 | | | | | | | |
| 29 | 5.03 | | | | | | | 6.22 | 6.3 | | | | | | | |
| 30 | | | | | | | | | 6.3 | | | | | | | |
| 31 | | | | | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | | | | | |

# Polley Lake P1 Dissolve Oxygen (mg/L) Profiles
# (2005 - 2013)

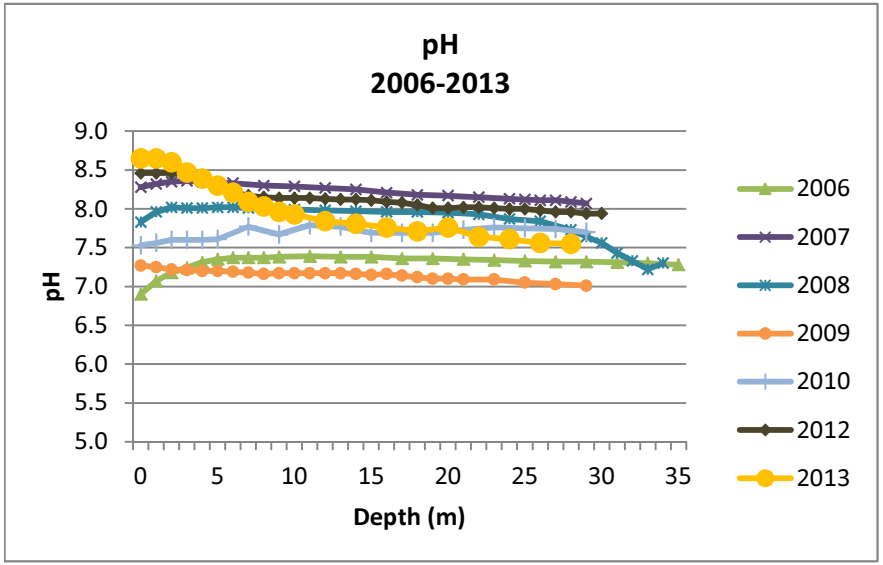
| Depth | SPRING | | | | | | | | | SUMMER | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | 10-May-96 | 18-May-06 | 23-May-07 | 21-May-08 | 20-May-09 | 26-Apr-10 | 06-Jun-11 | 08-May-12 | 13-May-13 | Jul-96 | 11-Aug-06 | 20-Jun-13 | 21-Aug-13 |
| 0 | | | 12.85 | 12.3 | 12.21 | | 11.25 | 11.96 | 10.73 | | 9.11 | 8.77 | 9.8 |
| 1 | | 11.2 | 12.95 | 12.29 | 12.23 | | 11.38 | 11.74 | 11.1 | 7.06 | 8.94 | 8.85 | 10.14 |
| 2 | 10.65 | 11.21 | 12.93 | 12.28 | 12.22 | | 11.53 | 11.7 | 11.3 | 7.07 | | 8 | 10.51 |
| 3 | 10.91 | 11.33 | | 12.27 | 12.22 | | 11.58 | 11.67 | 11.23 | 7.12 | 8.86 | 7.52 | 10.66 |
| 4 | | 12.3 | 12.91 | 12.25 | 12.19 | | 11.52 | 11.66 | 10.8 | 7.58 | | 6.34 | 10.84 |
| 5 | 10.84 | 12.37 | | | 12.15 | | 11.62 | 11.64 | 10.99 | 7.63 | 8.82 | 6.3 | 8.91 |
| 6 | 11.18 | 11.86 | 12.88 | 12.23 | 12.08 | 11.54 | 11.52 | 11.6 | 10.49 | 7.62 | | 6.28 | 7.29 |
| 7 | | 11.3 | | | 12.07 | 11.5 | 11.77 | 11.57 | | 7.59 | 8.81 | 6.38 | 6.37 |
| 8 | 10.97 | 10.98 | 12.8 | 12.19 | 12.03 | 11.49 | 11.27 | 11.56 | 10 | 7.53 | 9 | 6.42 | 5.93 |
| 9 | 10.39 | 10.8 | | | 12.01 | 11.44 | | 11.54 | | 6.93 | 9.4 | 6.44 | 5.44 |
| 10 | | 10.73 | 12.76 | 12.19 | 12 | 11.43 | 10.34 | 11.5 | 9.58 | 6.66 | 9.07 | 6.34 | 5.38 |
| 11 | 10.43 | 10.63 | | | | | | 11.45 | 9.3 | 6.54 | 8.46 | | 5.52 |
| 12 | 10.04 | 10.36 | 12.81 | 12.16 | 11.98 | 11.4 | 9.65 | 11.59 | | 6.44 | 8.46 | 6.37 | 5.64 |
| 13 | | | | | | | | 11.44 | 9.08 | 6.27 | 7.69 | | 5.76 |
| 14 | 9.83 | 10.2 | 12.84 | 12.08 | 11.97 | 11.32 | 9.11 | 11.38 | | 6.31 | 7.55 | 6.46 | 5.61 |
| 15 | | | | | | | | 11.37 | 8.93 | 6.21 | 7.29 | | 5.65 |
| 16 | 9.84 | 9.9 | 12.82 | 12.01 | 11.95 | 11.32 | 8.86 | 11.37 | | 6.33 | 7.03 | 6.6 | 5.7 |
| 17 | 9.82 | | | | | | 8 | 11.38 | 8.78 | 6.25 | 7.02 | | 5.6 |
| 18 | | 9.94 | 12.81 | 12.02 | 11.93 | 11.25 | 8.74 | 11.37 | | 6.27 | | 6.46 | 5.54 |
| 19 | 9.46 | | | | | | | 11.35 | | 6.16 | 6.97 | | 5.42 |
| 20 | 9.14 | 9.85 | 12.43 | 11.94 | 11.92 | 11.09 | 8.66 | 11.33 | | 6.11 | | 6.19 | 5.26 |
| 21 | | | | | | | | 11.3 | | 6.01 | 6.67 | | 5.14 |
| 22 | 9.03 | 9.61 | | 11.94 | 11.79 | 11.05 | 8.32 | 11.36 | | 5.98 | | 5.82 | 5 |
| 23 | | | | | | | 8.1 | 11.25 | | 6.04 | 6.45 | 5.68 | 4.81 |
| 24 | | 9.39 | | 11.77 | 11.6 | 11.03 | 7.32 | 11.2 | | 5.94 | | 5.57 | 4.5 |
| 25 | 8.68 | | | | | | 1.69 | 11.12 | | 5.85 | 5.84 | 5.14 | 3.66 |
| 26 | 8.44 | | | 10.64 | 11.3 | 11 | | 11.1 | | 5.64 | | 5.32 | 2.9 |
| 27 | | | | | | | | 10.45 | | | 5.36 | 5.19 | 2.31 |
| 28 | 8.21 | | | | 10.93 | | | 9.87 | | | | 5 | 1.69 |
| 29 | | | | | | | | 7.66 | | | 4.73 | 4.84 | 1.23 |
| 30 | | | | | | | | 7.31 | | | | 4.62 | |
| 31 | | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | | |

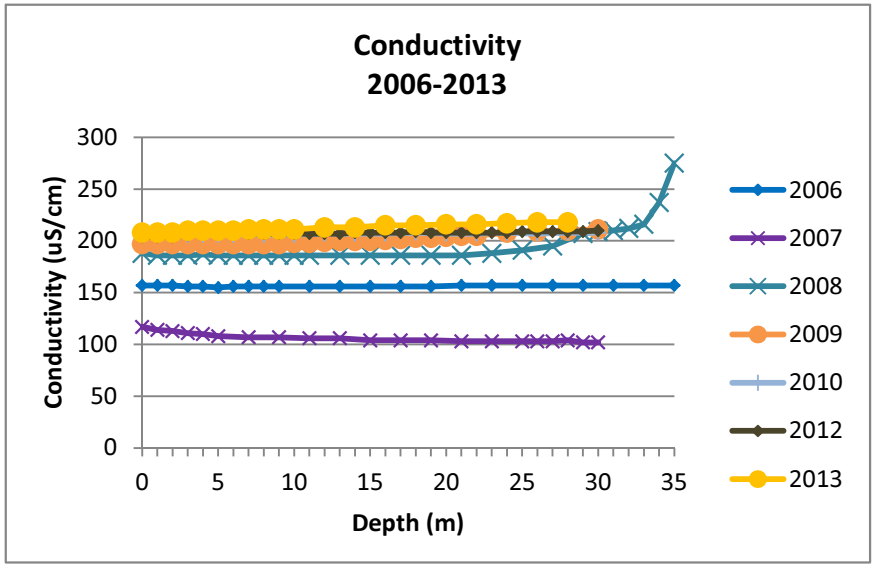
# Polley Lake P1 Dissolve Oxygen (mg/L) Profiles
# (2005 - 2013)

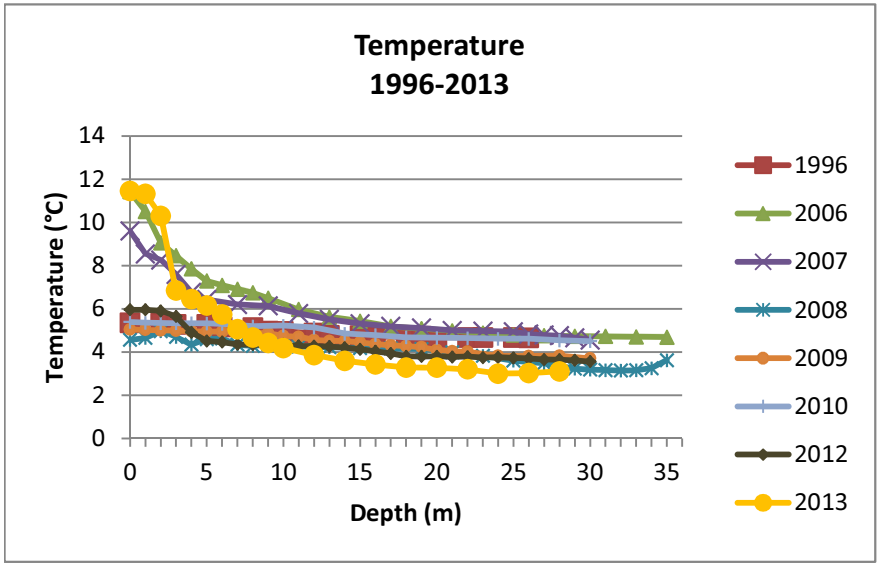
| Depth | FALL | | | | | | | | | WINTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (m) | Sep-96 | Oct-96 | 26-Oct-05 | 31-Oct-06 | 23-Oct-07 | 28-Oct-08 | 02-Nov-10 | 01-Nov-11 | 01-Nov-12 | 13-Mar-06 | 06-Mar-07 | 01-Apr-08 | 13-Mar-09 | 09-Mar-11 | 06-Mar-12 |
| **0** | 8.11 | 9.16 | | 9.7 | 9.32 | 8.92 | 8.76 | 8.89 | 7.27 | | | 10.62 | 10.84 | 12.56 | 10.57 |
| **1** | 8.13 | 9.15 | 10.39 | | 9.26 | 8.7 | 8.75 | 8.71 | 7.35 | 11.27 | 12 | 9.64 | 10.56 | | 11.3 |
| **2** | 8.35 | 9.11 | 10.35 | 9.56 | 9.26 | 8.68 | 8.79 | 8.61 | 7.3 | 11.11 | 11.14 | 9.42 | 10.46 | 11.74 | 11.17 |
| **3** | 8.37 | 9.09 | 10.31 | | | 8.68 | 8.78 | 8.56 | 7.32 | 10.98 | 10.67 | 9.25 | 10.4 | | 11.12 |
| **4** | 8.36 | 9.10 | 10.26 | | 9.24 | 8.67 | 8.78 | 8.52 | 7.3 | 10.76 | 10.56 | 8.96 | 10.34 | 11.38 | 11.04 |
| **5** | 8.33 | 9.07 | 10.21 | 9.49 | | 8.66 | | 8.5 | 7.26 | 10.62 | 10.39 | 8.92 | 10.2 | | 10.97 |
| **6** | 8.32 | 9.07 | 10.04 | | 9.24 | 8.65 | 8.75 | 8.49 | 7.27 | 10.39 | 10.21 | 8.46 | | 10.31 | 10.88 |
| **7** | 8.30 | 9.09 | 9.91 | 9.47 | | 8.64 | | | | 10.29 | 10.07 | 8.2 | 10.03 | | |
| **8** | 8.31 | 9.10 | 9.8 | | 9.2 | 8.62 | 8.68 | 8.47 | 7.17 | 10.21 | | 8.16 | | 9.81 | 10.69 |
| **9** | 8.32 | 9.10 | 9.81 | | | 8.56 | | | | 10.12 | 9.99 | 8.01 | 9.65 | | |
| **10** | 7.06 | 9.08 | 9.83 | 9.45 | | 8.46 | 8.56 | 8.45 | 7.12 | 9.81 | | 8 | | 9.51 | 10.49 |
| **11** | 6.07 | 9.08 | 9.88 | | 9.17 | 8.42 | | | | 9.6 | 9.71 | 7.98 | 9.29 | | |
| **12** | 5.96 | 9.08 | 9.89 | | | 8.43 | 8.43 | 8.44 | 7.23 | 9.38 | | 7.95 | | 9.22 | 10.27 |
| **13** | 5.78 | 9.07 | 8.55 | | | 8.73 | 8.29 | | | 9.375 | 9.6 | 7.97 | 8.79 | | |
| **14** | 5.73 | 9.08 | | | 8.92 | 8.78 | 8.18 | 8.42 | 7.2 | 9.37 | | 7.91 | | 9.02 | 9.96 |
| **15** | 5.86 | 9.06 | | 5.71 | | 8.79 | | | | 9.3 | 9.22 | 7.71 | 7.79 | | |
| **16** | 5.87 | 9.08 | | | | 8.8 | 7.94 | 8.41 | 7.13 | 9.23 | | 7.45 | | 8.62 | 9.38 |
| **17** | 5.84 | 9.06 | | | 6.28 | 8.76 | | | | 9.15 | 8.46 | 7.01 | 8.66 | | |
| **18** | 5.71 | 9.08 | | | | 8.61 | 7.86 | 8.4 | 7.24 | 9.07 | | 7.29 | | 8.27 | 9.23 |
| **19** | 5.58 | 9.10 | | | | 7.8 | | | | 8.93 | 7.38 | 6.82 | 8.23 | | |
| **20** | 5.37 | 9.10 | | 5.20 | 4.55 | 7.21 | 7.8 | 8.39 | 7.23 | 8.79 | | 7.01 | | 7.83 | 9.02 |
| **21** | 5.11 | 9.08 | | | | 6.34 | | | | 8.75 | 3.49 | 6.67 | 7.77 | | |
| **22** | 4.94 | 9.10 | | | 3.44 | 5.27 | 7.59 | 8.37 | 7.22 | 8.71 | | 6.11 | | 7.39 | 8.9 |
| **23** | 4.73 | 9.09 | | | | 4.89 | | | | 8.69 | | 5.73 | 7.15 | | |
| **24** | 4.52 | 9.08 | | | 2.78 | 4.54 | 7.55 | 8.37 | 7.25 | 4.3 | | 5.94 | | 6.88 | 8.58 |
| **25** | 4.37 | 9.09 | | | | 4.28 | | | | | | 5.44 | 6.69 | 3.55 | 4.16 |
| **26** | 3.98 | 9.07 | | | | 1.29 | 7.18 | 8.36 | 7.24 | | | | | | |
| **27** | 3.83 | 9.08 | | | | | | | 7.2 | | | | | | |
| **28** | 3.64 | 8.98 | | | | | | 8.35 | 7.21 | | | | | | |
| **29** | 3.57 | | | | | | | 2.29 | 7.11 | | | | | | |
| **30** | | | | | | | | | 5.85 | | | | | | |
| **31** | | | | | | | | | | | | | | | |
| **32** | | | | | | | | | | | | | | | |

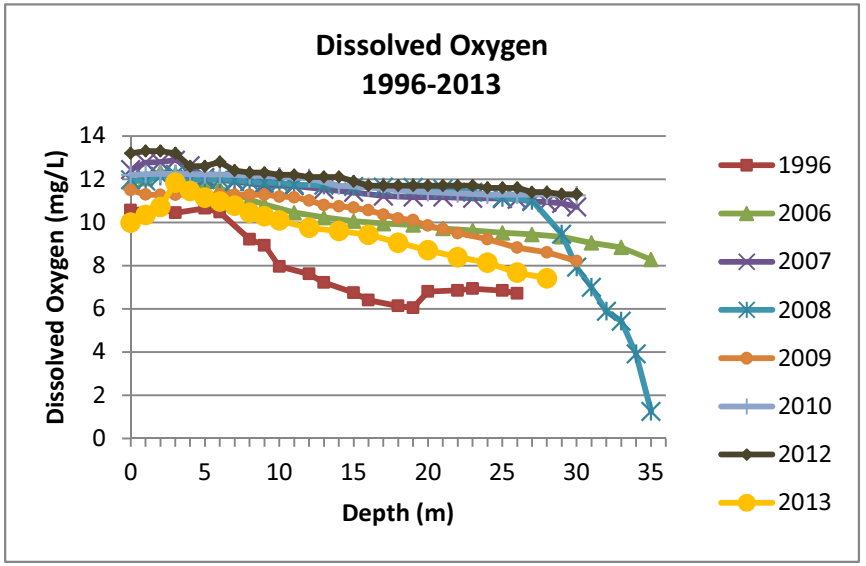
**MPMC**

**Polley Lake P1 Spring Lake Profiles**

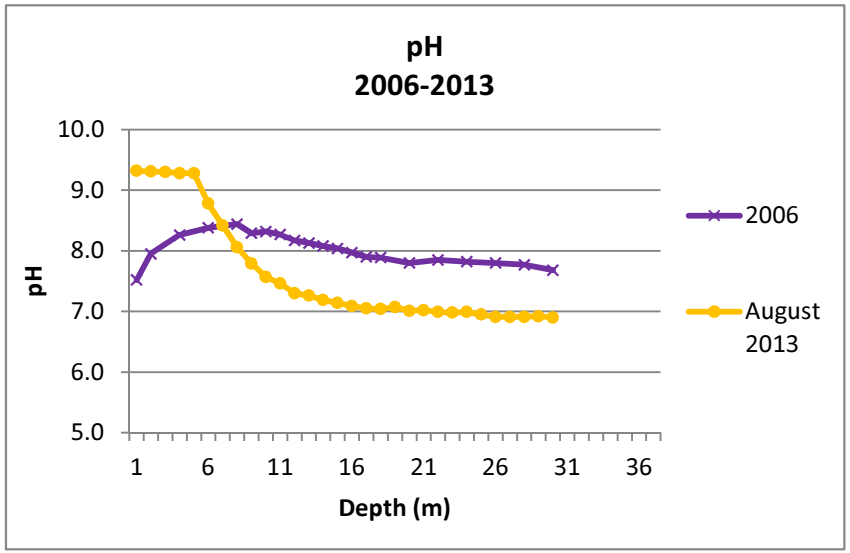


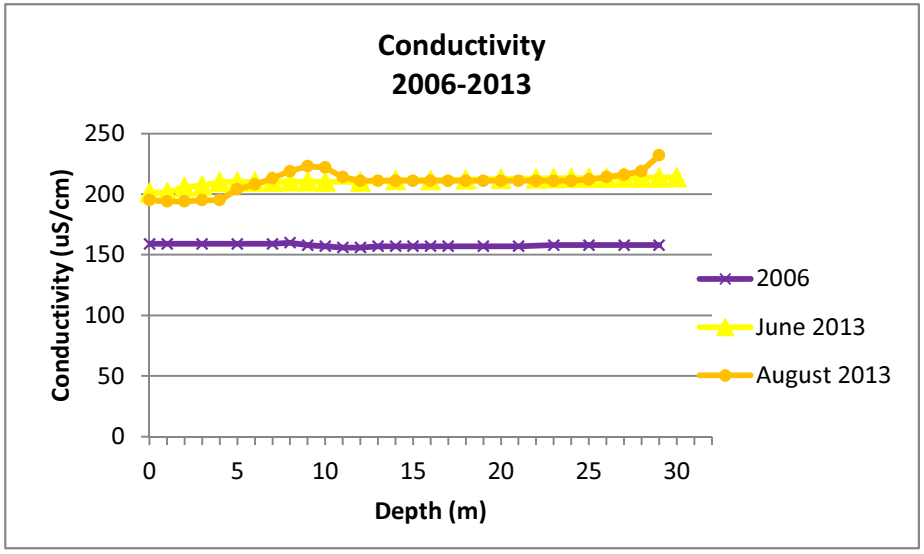



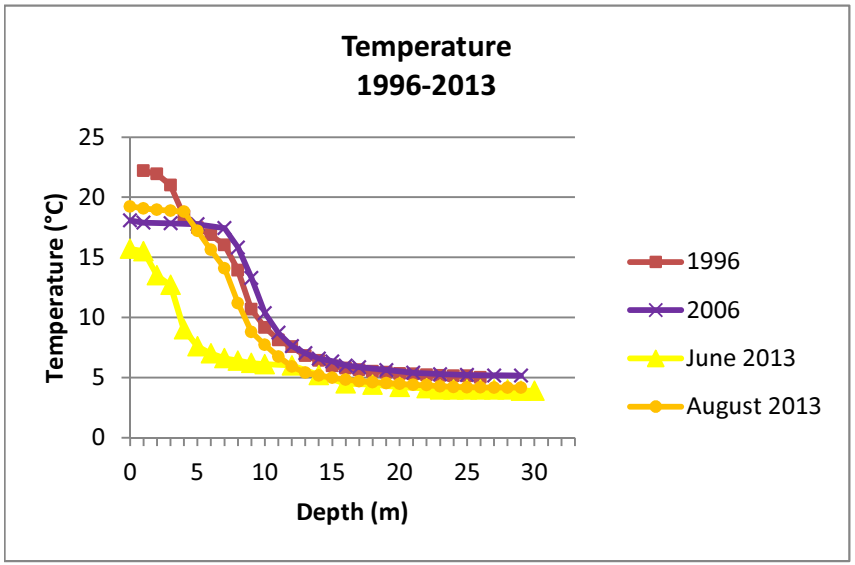



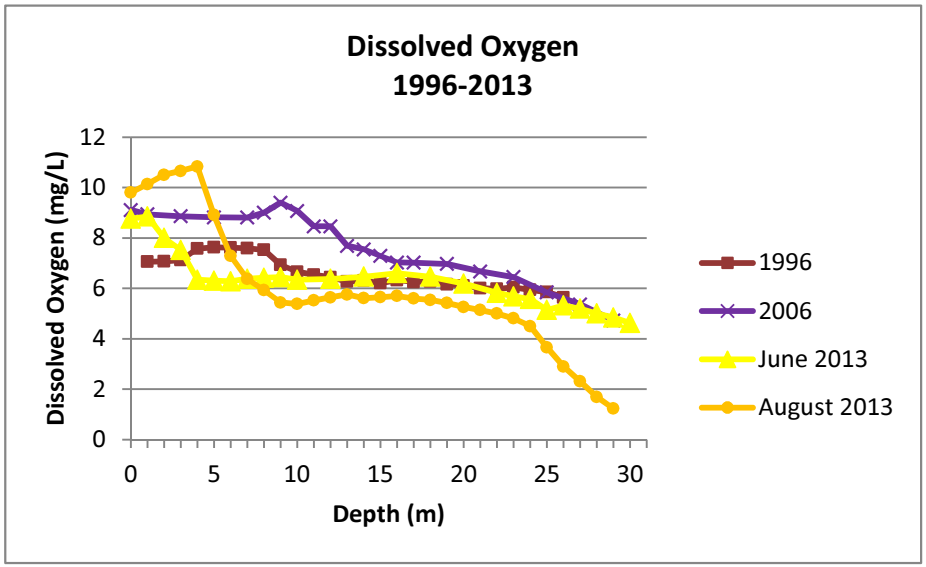



**MPMC**
**Polley Lake P1 Summer Lake Profiles**

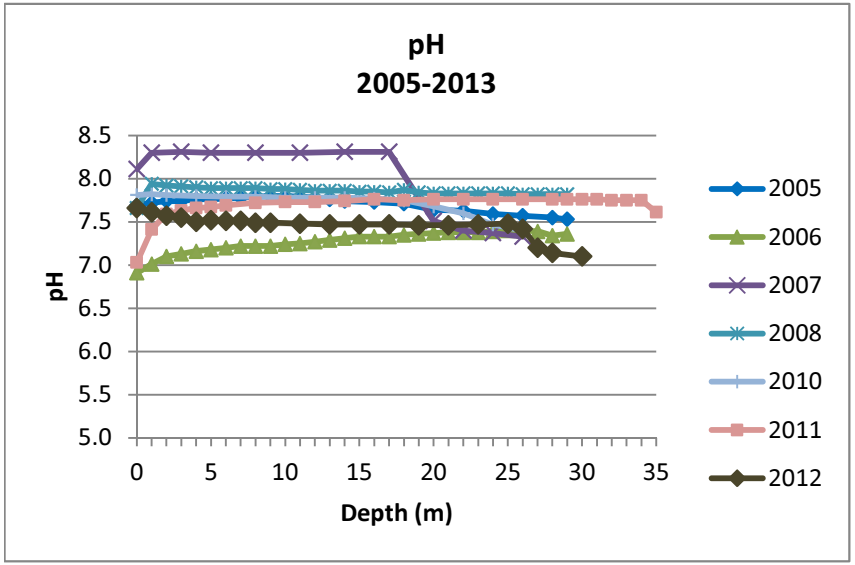


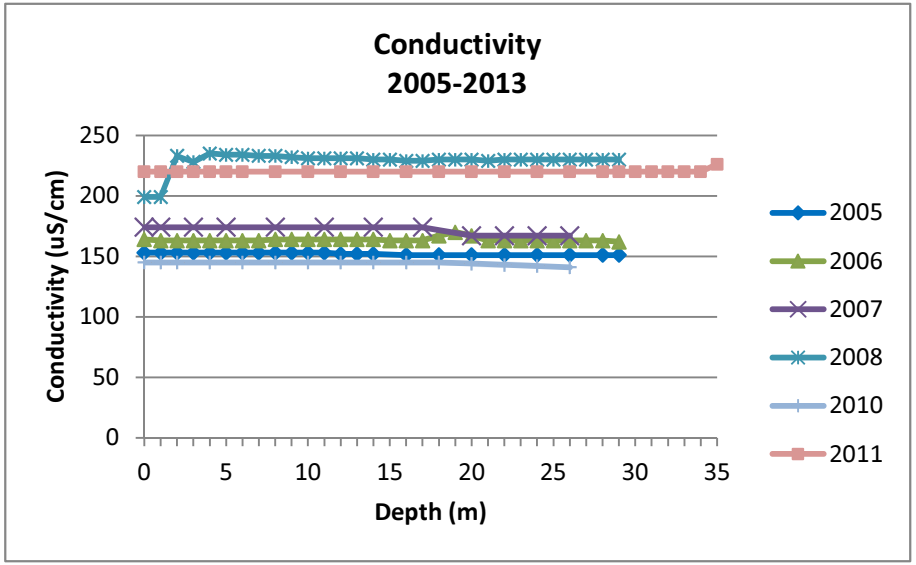



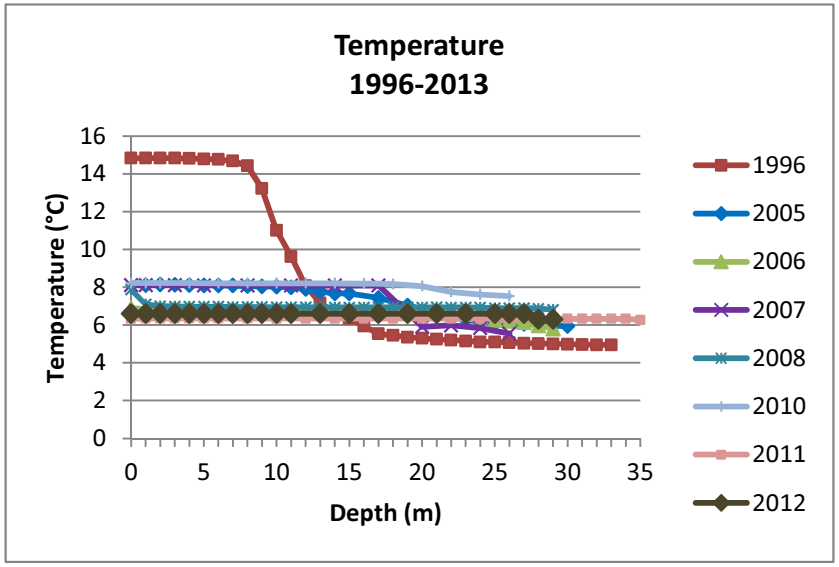



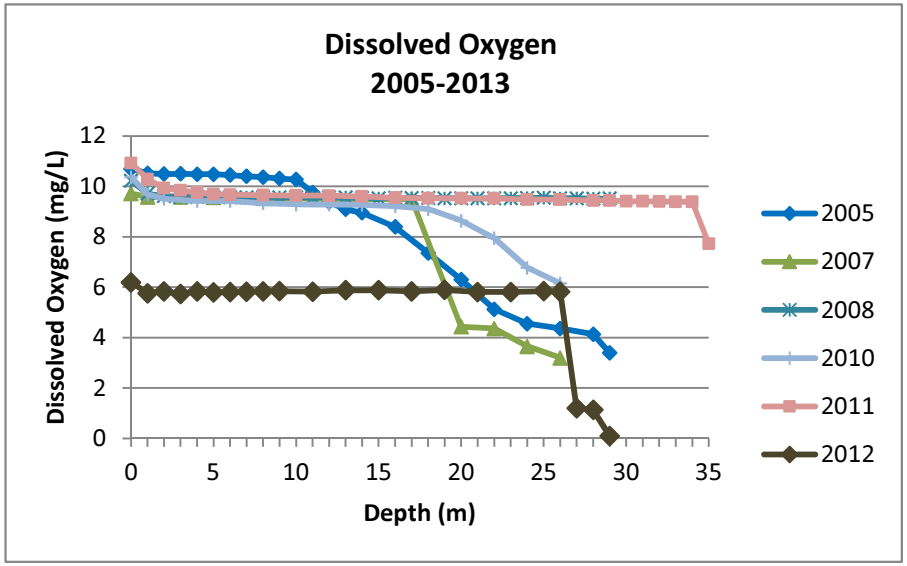



**MPMC**
**Polley Lake P1 Fall Lake Profiles**

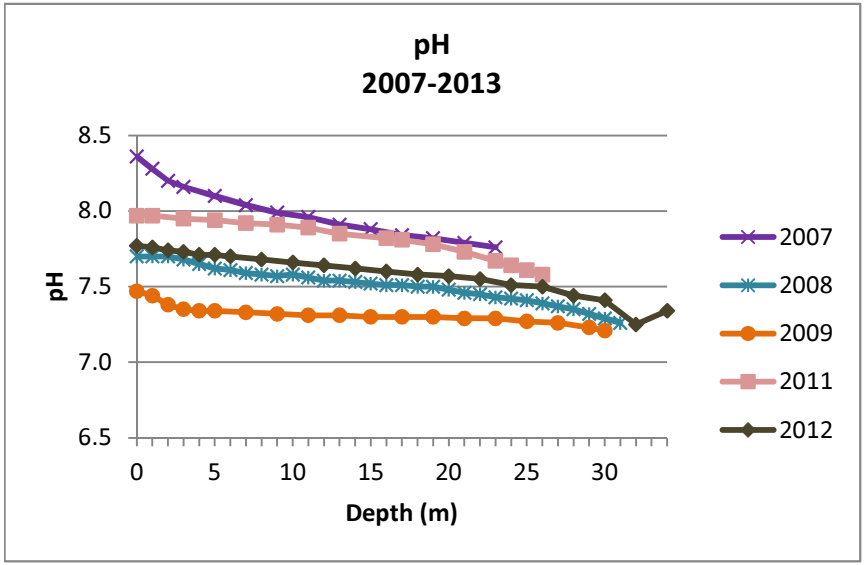


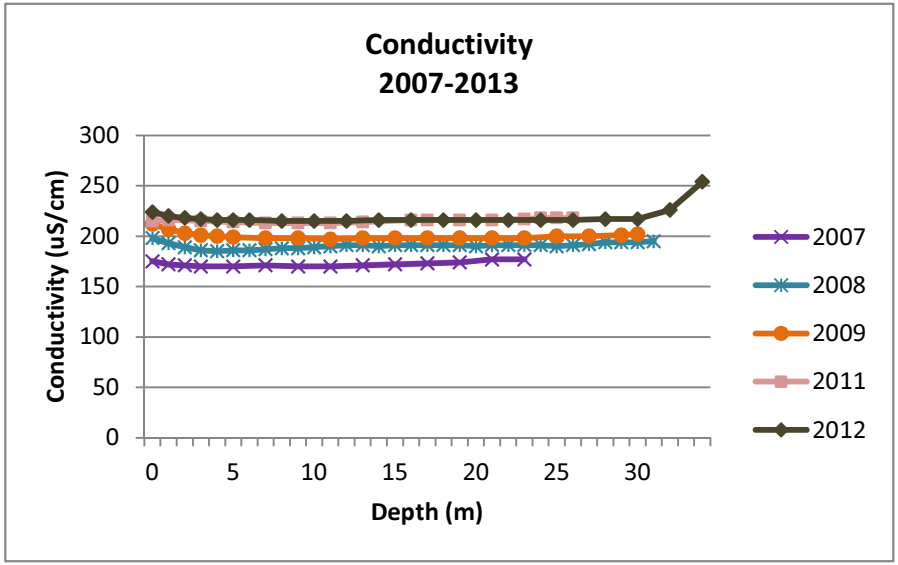



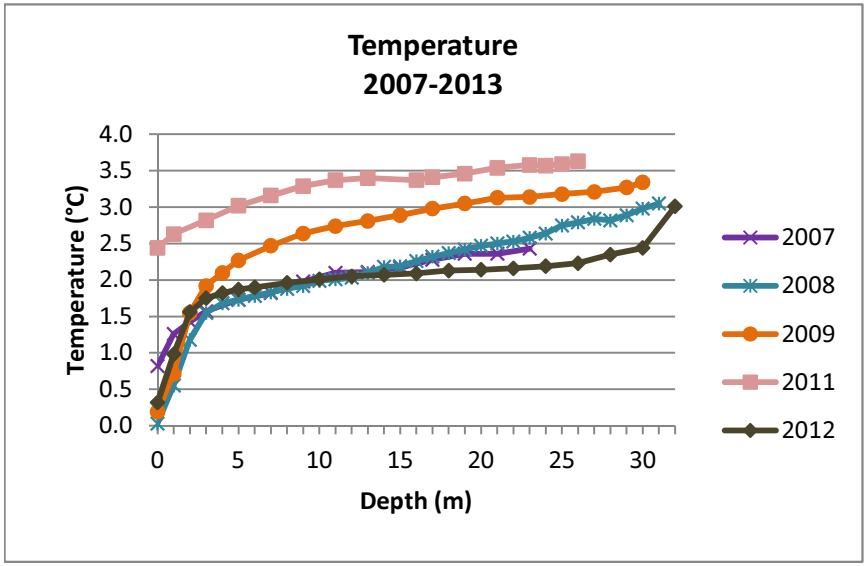



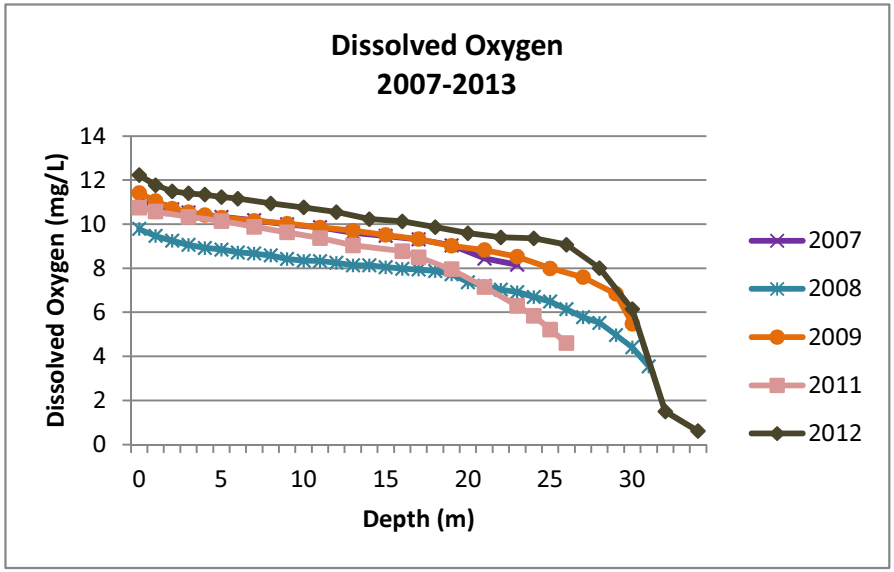



**MPMC**
**Polley Lake P2 Spring Lake Profiles**

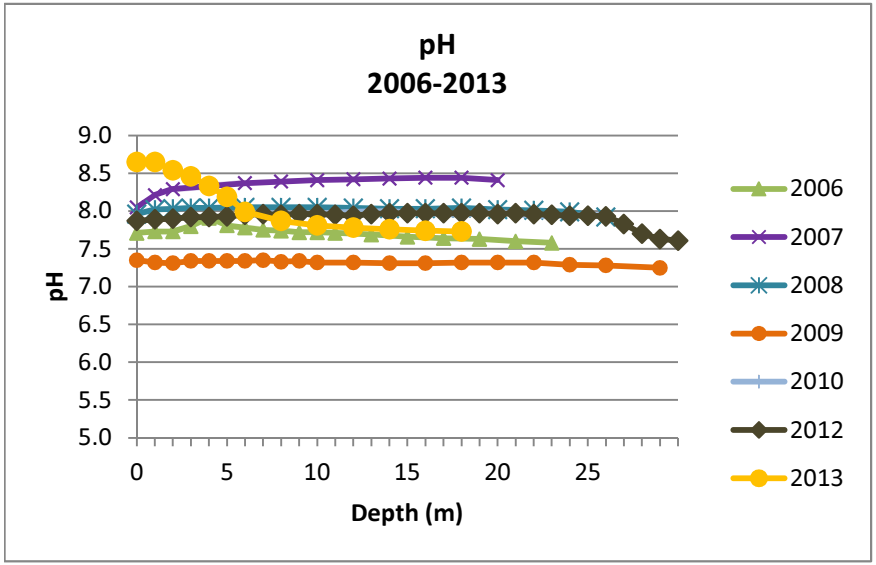


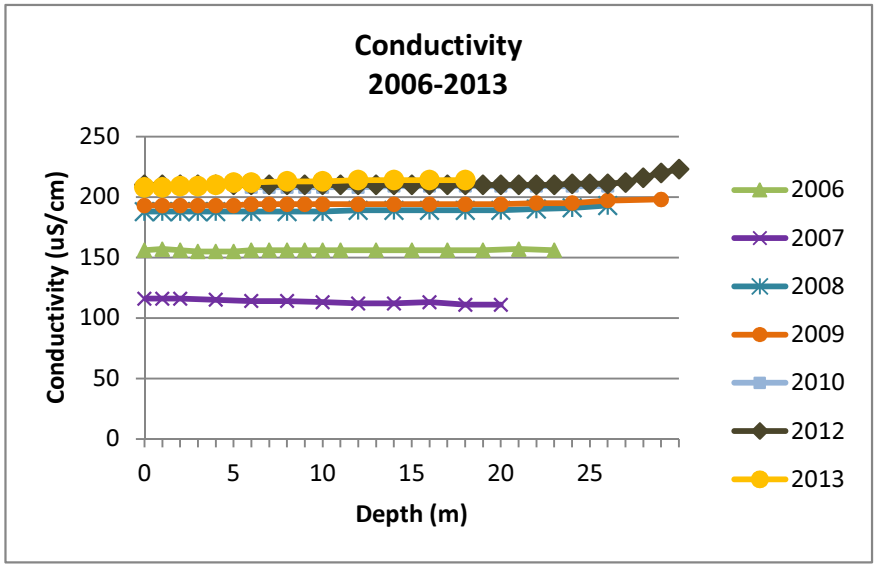



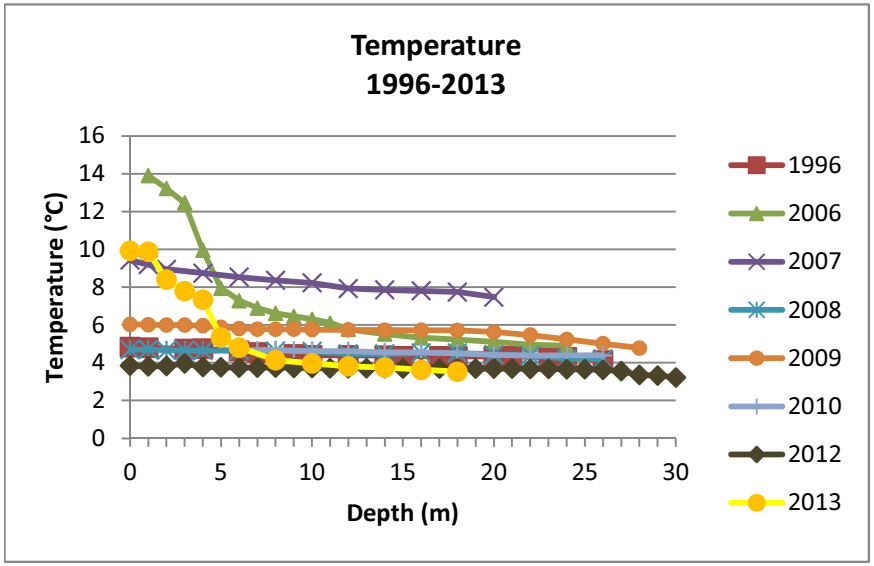



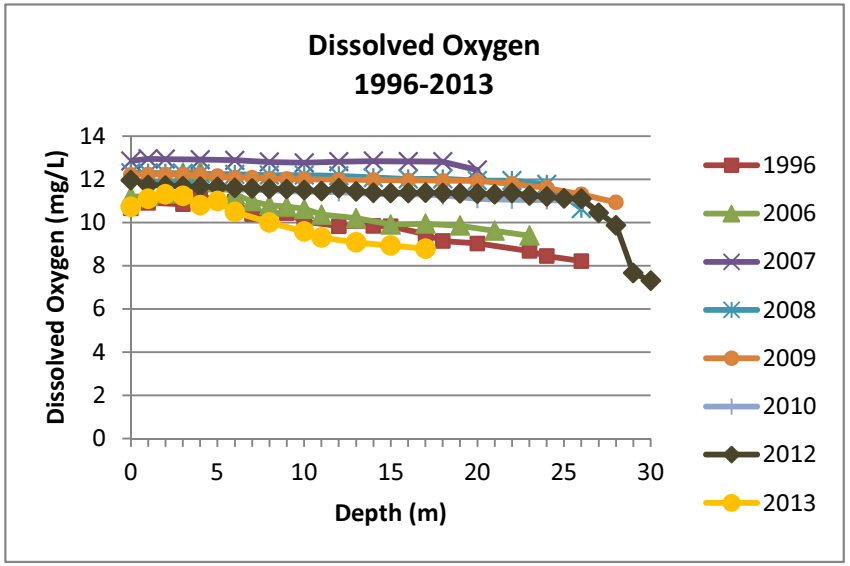



**MPMC**
**Polley Lake P2 Spring Lake Profiles**



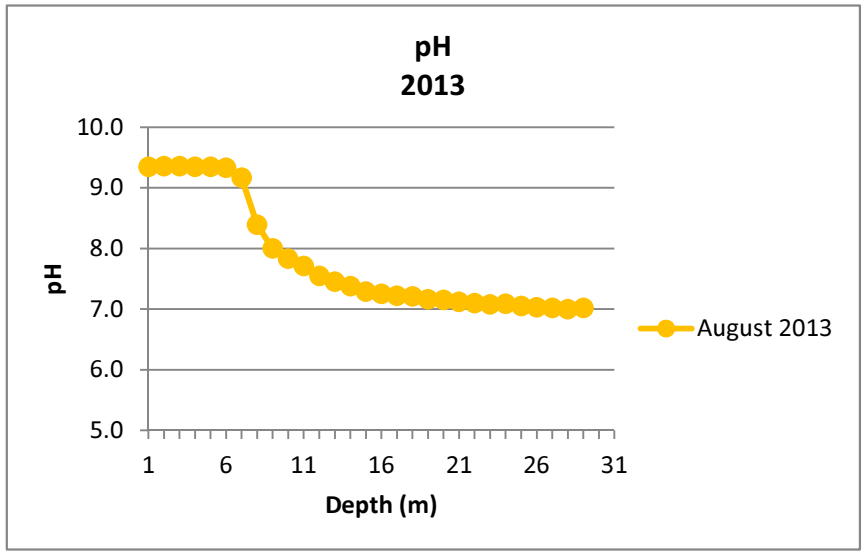



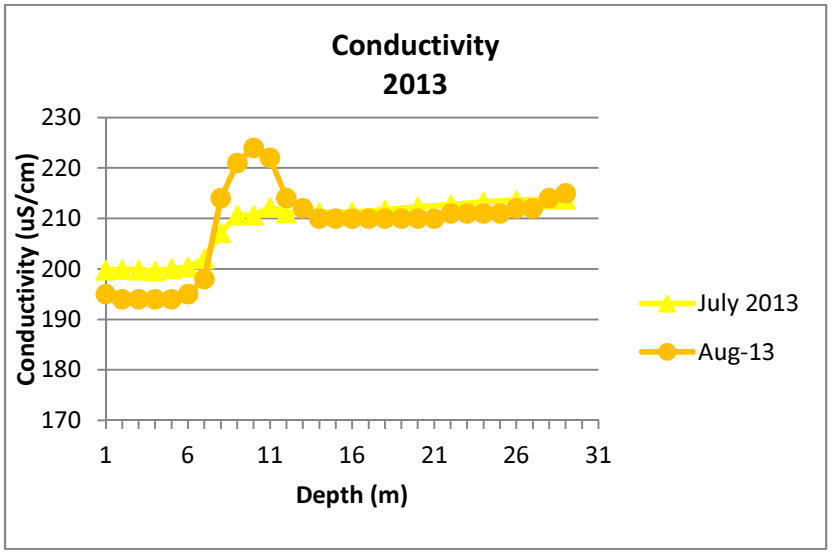



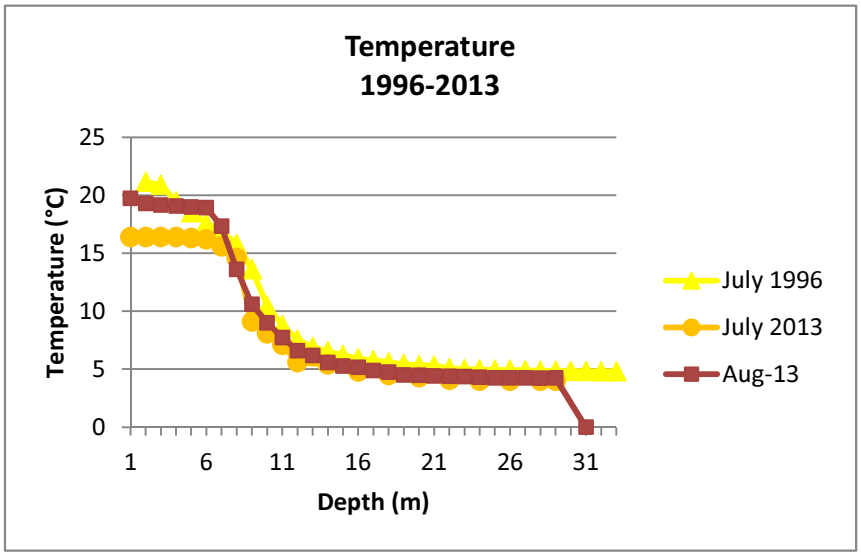



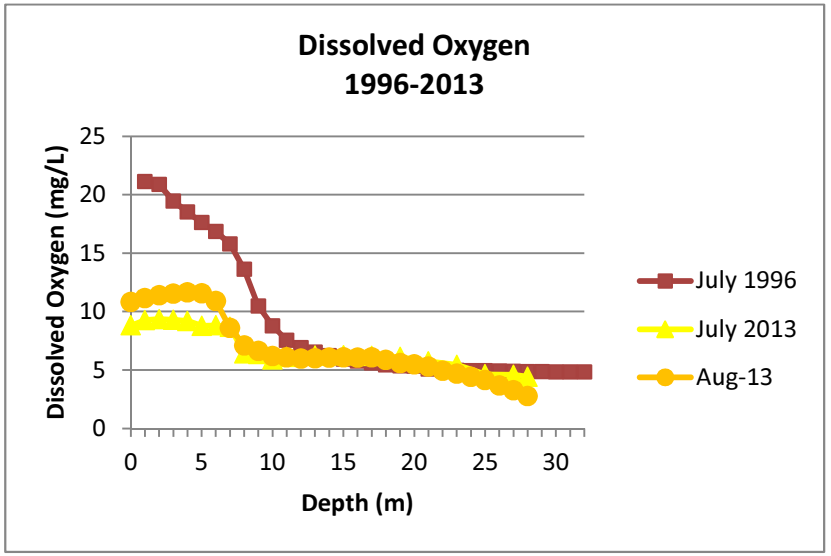
**MPMC**

**Polley Lake P2 Summer Lake Profiles**

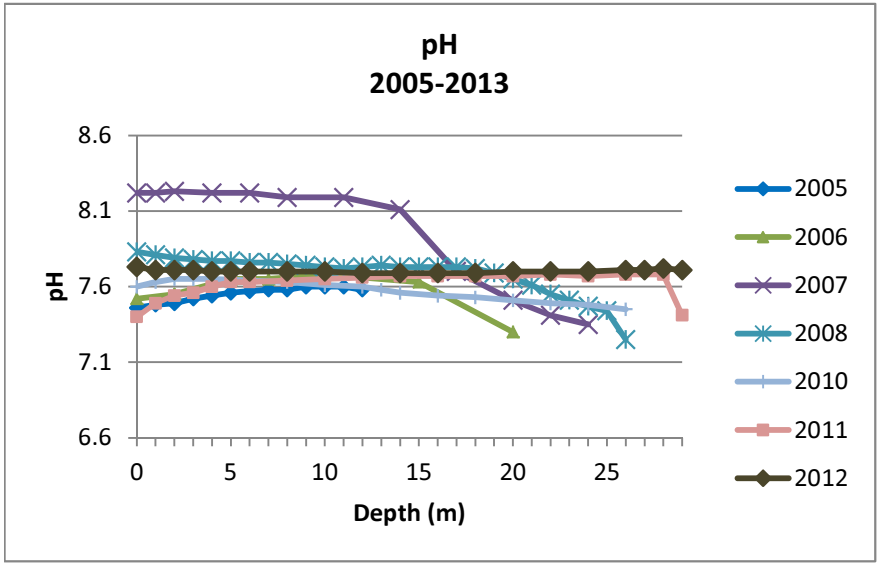


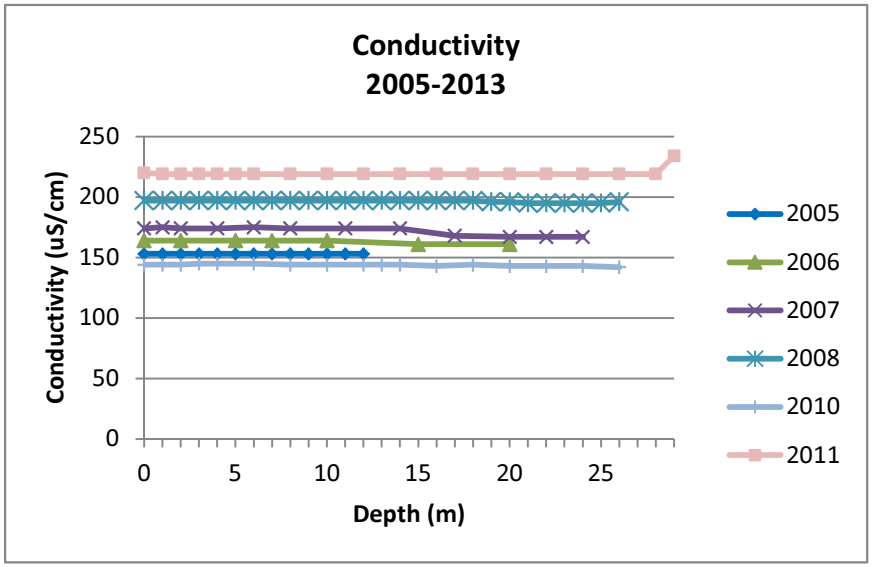



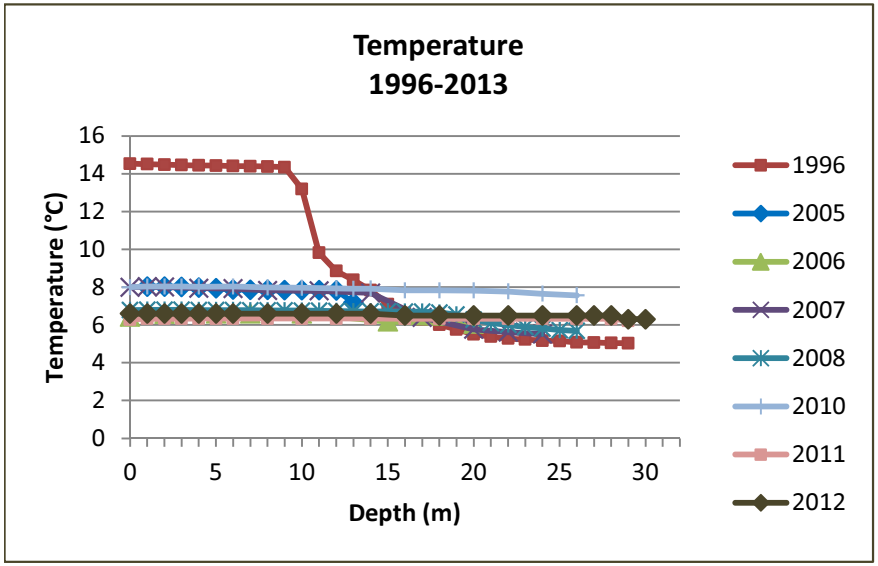



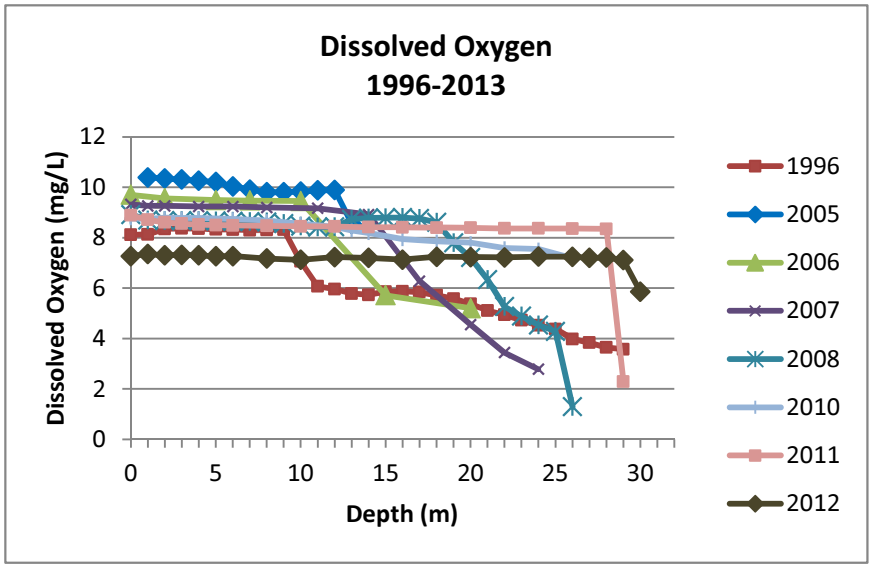



**MPMC**
**Polley Lake P2 Fall Lake Profiles**



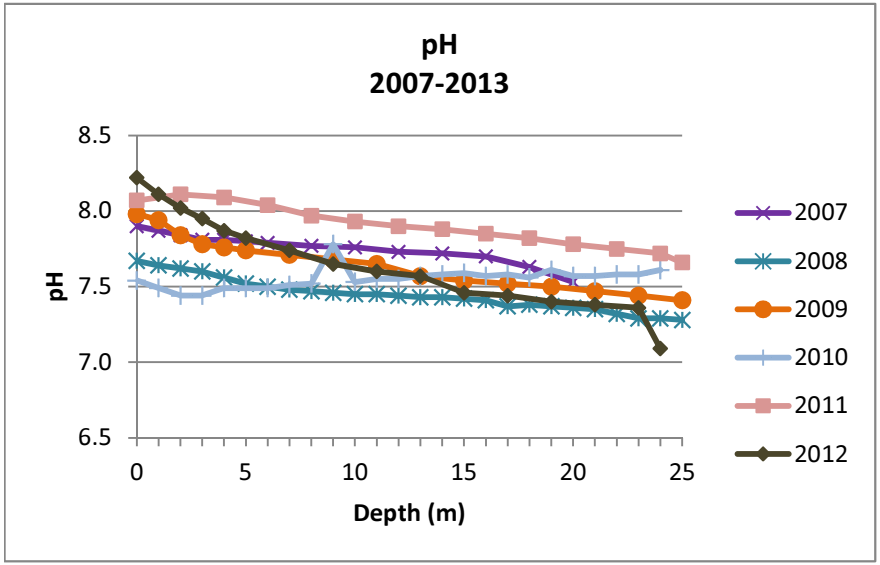



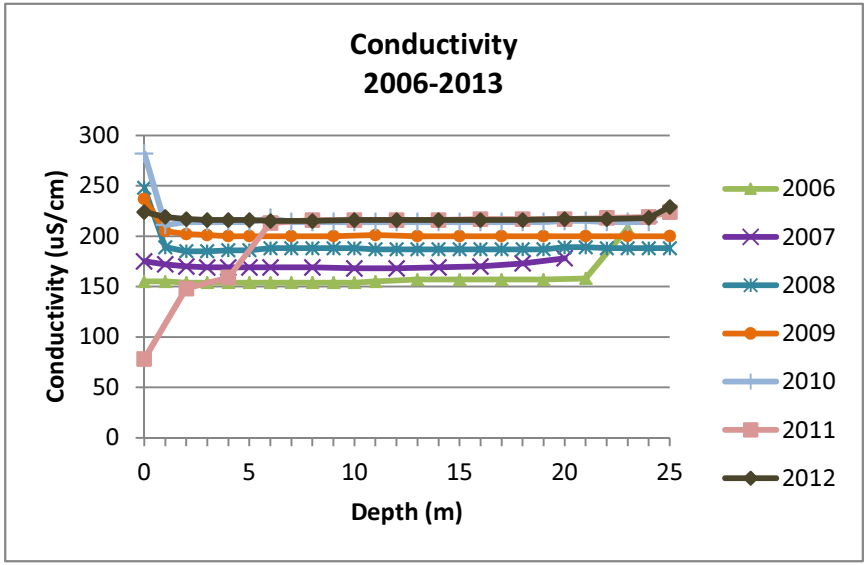



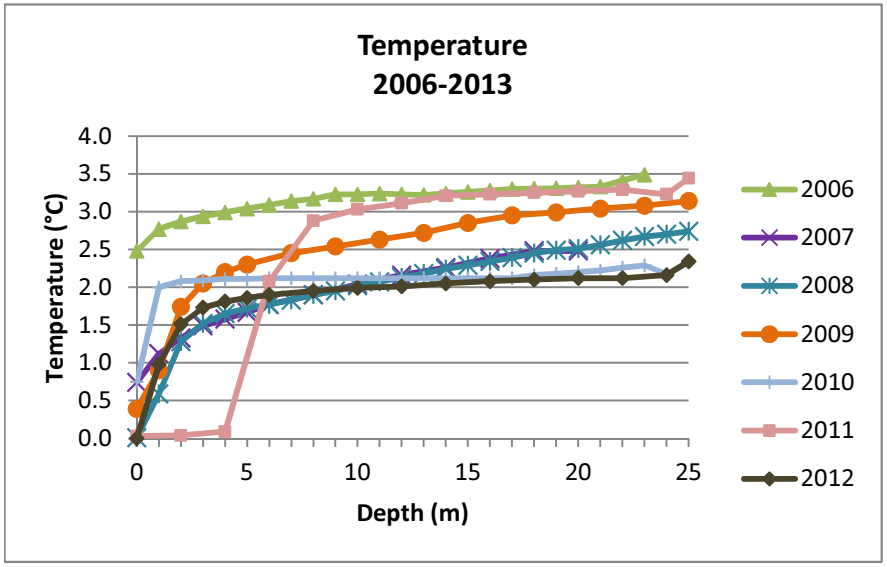



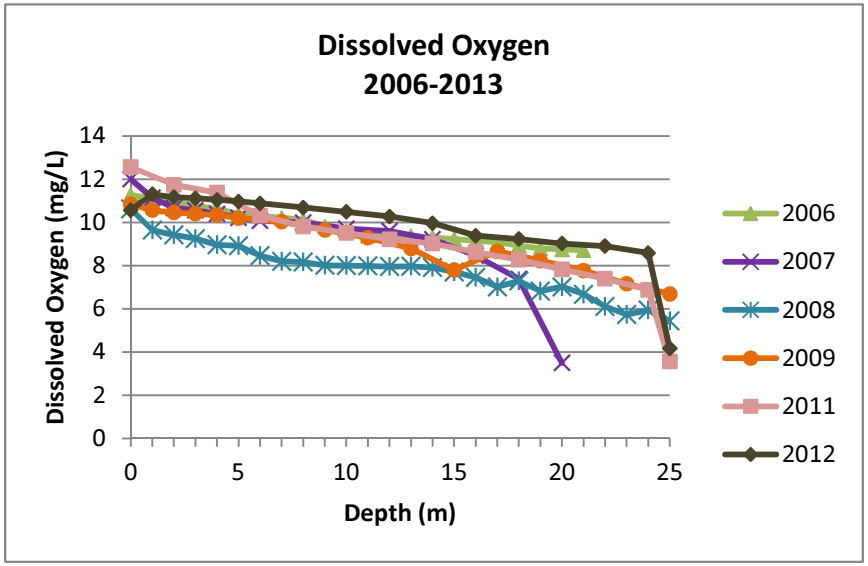
**MPMC**

**Polley Lake P2 Winter Lake Profiles**



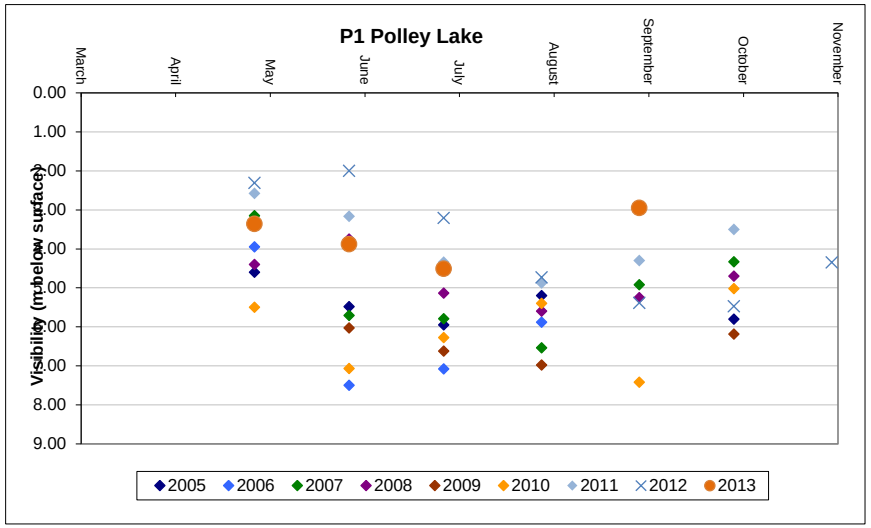
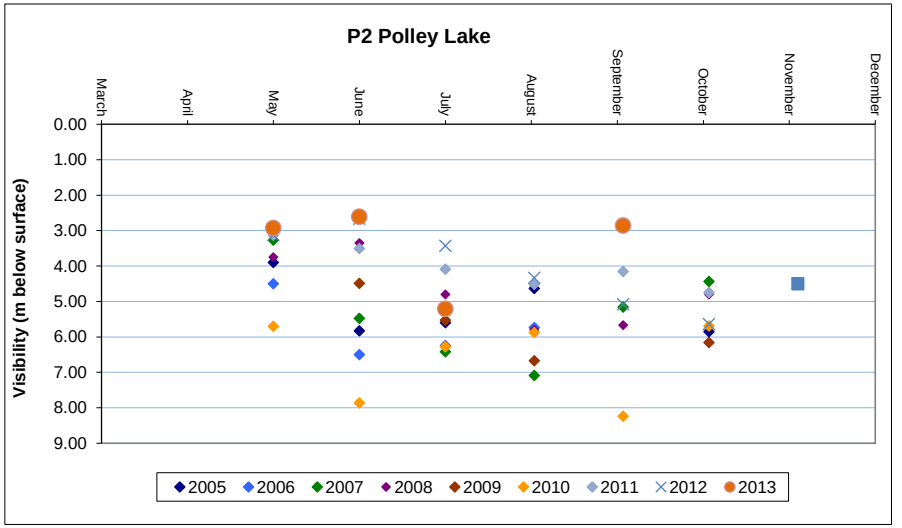
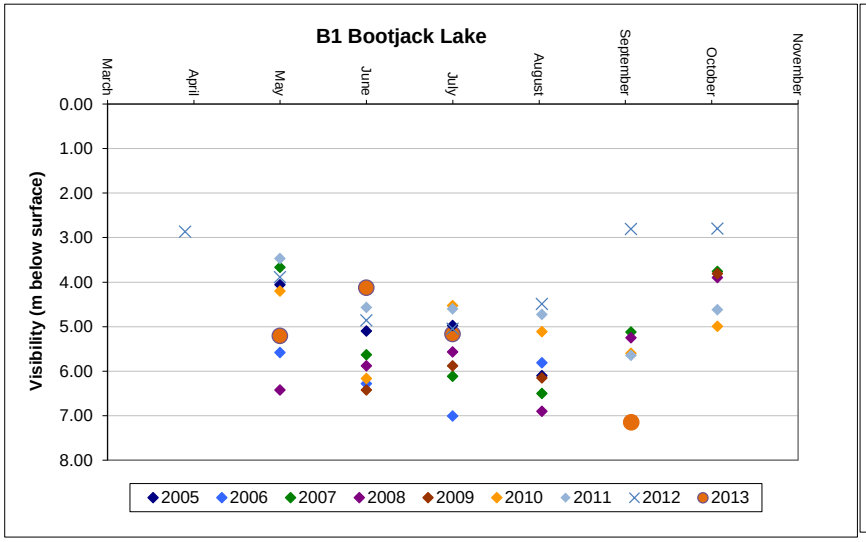
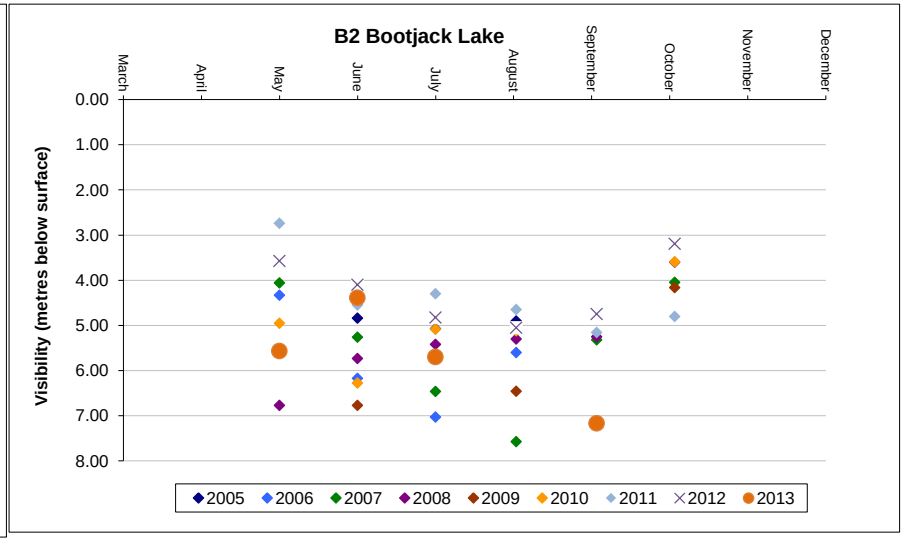



## Secchi Disk and Temperature Readings for Polley Lake and Bootjack Lake (2005 - 2013)

| Polley Lake | | | | | Bootjack Lake | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | P1 | | P2 | | Date | B1 | | B2 | |
| | Secchi Depth (m) | Temp. (°C) | Secchi Depth (m) | Temp. (°C) | | Secchi Depth (m) | Temp. (°C) | Secchi Depth (m) | Temp. (°C) |
| **2005** | | | | | | | | | |
| 2-May-05 | 4.60 | | 3.90 | | 2-May-05 | 4.06 | | 3.58 | |
| 15-Jun-05 | 5.23 | | 5.10 | | 15-Jun-05 | 4.60 | | 4.88 | |
| 29-Jun-05 | 5.73 | | 5.83 | | 29-Jun-05 | 5.60 | | 4.80 | |
| 11-Jul-05 | 5.10 | | 4.70 | | 11-Jul-05 | 5.35 | | 5.05 | |
| 21-Jul-05 | 6.80 | | 6.50 | | 20-Jul-05 | 4.60 | | 5.10 | |
| 8-Aug-05 | 5.80 | | 6.10 | | 19-Aug-05 | 6.10 | | 4.90 | |
| 24-Aug-05 | 4.60 | | 3.90 | | 10-Nov-05 | 3.20 | | 3.40 | |
| 30-Aug-05 | 4.20 | | 3.90 | | | | | | |
| 26-Oct-05 | 5.80 | | 5.85 | | | | | | |
| **2006** | | | | | | | | | |
| 18-May-06 | 3.95 | 11.42 | 4.50 | 13.91 | 23-May-06 | 5.58 | 14.1 | 4.33 | 11.76 |
| 13-Jun-06 | 7.50 | | 6.50 | | 13-Jun-06 | 6.28 | | 6.17 | |
| 4-Jul-06 | 7.71 | | 7.24 | | 4-Jul-06 | 6.93 | | 7.17 | |
| 19-Jul-06 | 6.45 | | 5.25 | | 20-Jul-06 | 7.08 | | 6.89 | |
| 2-Aug-06 | 6.00 | | 5.63 | | 2-Aug-06 | 5.82 | | 5.63 | |
| 11-Aug-06 | 5.76 | 18.07 | 5.85 | 19 | 22-Aug-06 | 5.80 | | 5.57 | |
| **2007** | | | | | | | | | |
| 23-May-07 | 3.15 | 9.6 | 3.27 | 9.43 | 23-May-07 | 3.67 | 10.7 | 4.06 | 10.78 |
| 20-Jun-07 | 5.71 | | 5.48 | | 20-Jun-07 | 5.63 | | 5.26 | |
| 5-Jul-07 | 6.79 | | 6.69 | | 5-Jul-07 | 6.94 | | 7.10 | |
| 17-Jul-07 | 4.71 | | 6.42 | | 17-Jul-07 | 5.95 | | 6.41 | |
| 31-Jul-07 | 5.88 | | 6.14 | | 31-Jul-07 | 5.45 | | 5.88 | |
| 15-Aug-07 | 6.54 | | 7.09 | | 15-Aug-07 | 6.50 | | 7.57 | |
| 7-Sep-07 | 4.92 | | 5.16 | | 24-Sep-07 | 5.12 | | 5.32 | |
| 16-Oct-07 | 4.34 | | 4.35 | | 16-Oct-07 | 4.02 | | 4.51 | |
| 23-Oct-07 | 4.32 | 8.11 | 4.52 | 8 | 23-Oct-07 | 3.50 | 6.74 | 3.58 | 7.18 |
| **2008** | | | | | | | | | |
| 21-May-08 | 4.40 | 4.56 | 3.75 | 4.69 | 21-May-08 | 3.40 | 6.78 | 3.37 | 6.94 |
| 10-Jun-08 | 3.75 | | 3.35 | | 10-Jun-08 | 3.25 | | 3.00 | |
| 2-Jul-08 | 5.80 | | 4.20 | | 2-Jul-08 | 6.50 | | 6.25 | |
| 17-Jul-08 | 4.80 | | 5.60 | | 17-Jul-08 | 5.00 | | 5.40 | |
| 31-Jul-08 | 4.80 | | 4.60 | | 31-Jul-08 | 5.20 | | 4.60 | |
| 14-Aug-08 | 5.60 | | 5.80 | | 14-Aug-08 | 6.90 | | 5.30 | |
| 2-Sep-08 | 5.05 | | 5.45 | | 2-Sep-08 | 5.55 | | 5.05 | |
| 11-Sep-08 | 5.80 | | 6.45 | | 11-Sep-08 | 4.30 | | 4.50 | |
| 29-Sep-08 | 4.90 | | 5.10 | | 29-Sep-08 | 5.90 | | 6.20 | |
| 8-Oct-08 | 4.70 | | 4.80 | | 8-Oct-08 | 3.90 | | 3.60 | |
| **2009** | | | | | | | | | |
| 16-Jun-09 | 6.03 | | 4.49 | | 16-Jun-09 | 6.42 | | 6.77 | |
| 15-Jul-09 | 6.62 | | 5.53 | | 15-Jul-09 | 5.88 | | 5.73 | |
| 12-Aug-09 | 6.20 | | 6.32 | | 12-Aug-09 | 6.15 | | 5.77 | |
| 26-Aug-09 | 7.76 | 17.8 | 7.03 | 18 | 26-Aug-09 | 6.15 | 18.2 | 7.14 | 18.4 |
| 1-Oct-09 | 7.17 | | 7.07 | | 1-Oct-09 | 4.32 | | 4.68 | |
| 18-Oct-09 | 5.20 | | 5.25 | | 18-Oct-09 | 3.30 | | 3.65 | |

## Secchi Disk and Temperature Readings for Polley Lake and Bootjack Lake (2005 - 2013)

| Polley Lake | | | | | Bootjack Lake | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | P1 | | P2 | | Date | B1 | | B2 | |
| | Secchi Depth (m) | Temp. (°C) | Secchi Depth (m) | Temp. (°C) | | Secchi Depth (m) | Temp. (°C) | Secchi Depth (m) | Temp. (°C) |
| **2010** | | | | | | | | | |
| 26-Apr-10 | 3.10 | | 3.00 | | 26-Apr-10 | 3.30 | | 3.30 | |
| 13-May-10 | 5.50 | | 5.70 | | 13-May-10 | 4.20 | | 4.95 | |
| 27-May-01 | - | | - | | 27-May-10 | - | | - | |
| 8-Jun-10 | 7.50 | | 7.33 | | 8-Jun-10 | 6.51 | | 6.00 | |
| 24-Jun-10 | 6.64 | | 8.40 | | 24-Jun-10 | 5.82 | | 6.55 | |
| 13-Jul-10 | 6.28 | | 5.95 | | 13-Jul-10 | 3.68 | | 3.67 | |
| 26-Jul-10 | 6.27 | | 6.61 | | 26-Jul-10 | 5.38 | | 6.50 | |
| 12-Aug-10 | 5.45 | | 5.40 | | 12-Aug | 4.94 | | 5.05 | |
| 24-Aug-10 | 5.35 | | 6.35 | | 24-Aug | 5.28 | | 5.19 | |
| 16-Sep-10 | 7.42 | | 8.24 | | 16-Sep-10 | 5.60 | | 7.13 | |
| 7-Oct-10 | 5.02 | | 5.69 | | 7-Oct-10 | 4.99 | | 3.59 | |
| 2-Nov-10 | 5.86 | | 5.30 | | 2-Nov-10 | 3.42 | | 2.83 | |
| **2011** | | | | | | | | | |
| 25-May-11 | 2.58 | 9.4 | 3.13 | 9.7 | 25-May-11 | 3.47 | 8.5 | 2.74 | 9.5 |
| 6-Jun-11 | 4.18 | 12.4 | 4.20 | 14.5 | 6-Jun-11 | 4.35 | | 4.60 | |
| 21-Jun-11 | 2.15 | 14.1 | 2.81 | 14.8 | 20-Jun-11 | 4.79 | 15.9 | 4.50 | 15.9 |
| 6-Jul-11 | 4.16 | 16.2 | 4.48 | 16.9 | 6-Jul-11 | 4.60 | 16.1 | 4.50 | 16.4 |
| 19-Jul-11 | 4.52 | 18.4 | 3.70 | 17.4 | 19-Jul-11 | 4.60 | 17.5 | 4.10 | 16.9 |
| 9-Aug-11 | 4.85 | 19.7 | 5.09 | 18.9 | 9-Aug-11 | 4.25 | 19.8 | 4.00 | 19.8 |
| 24-Aug-11 | 4.90 | 18.8 | 3.95 | 18.6 | 24-Aug-11 | 5.20 | 17.6 | 5.30 | 17.25 |
| 7-Sep-11 | 4.52 | 17.1 | 4.36 | 16.3 | 7-Sep-11 | 6.34 | 16.2 | 5.95 | 15.8 |
| 20-Sep-11 | 4.08 | 14.8 | 3.95 | 14.9 | 20-Sep-11 | 4.95 | 14.1 | 5.45 | 14.4 |
| 4-Oct-11 | 3.50 | 10.80 | 4.75 | 10.7 | 6-Oct-11 | 4.62 | 10.7 | 4.80 | 10.6 |
| **2012** | | | | | | | | | |
| 8-May-12 | 2.60 | 3.2 | 3.80 | 3.8 | 16-May-12 | | | 2.65 | 6.2 |
| 29-May-12 | | | 2.45 | 13.0 | 15-May-12 | 2.10 | 10.1 | | |
| 30-May-12 | 2.02 | 11.5 | | | 30-May-12 | 3.64 | 12.8 | 4.50 | 13.3 |
| 13-Jun-12 | 2.00 | 12.3 | 2.67 | 12.4 | 13-Jun-12 | 3.89 | 13.7 | 4.10 | 13.6 |
| 16-Jul-12 | 3.14 | 21.5 | 3.09 | 20.5 | 16-Jul-12 | 5.54 | 20.0 | 5.88 | 21.2 |
| 24-Jul-12 | 2.95 | 20.0 | 3.72 | 20.0 | 24-Jul-12 | 4.66 | 20.1 | 4.24 | 20.0 |
| 31-Jul-12 | 3.54 | 20.7 | 3.48 | 21.3 | 31-Jul-12 | 4.37 | 20.8 | 4.35 | 20.9 |
| 8-Aug-12 | 4.23 | 21.9 | 3.76 | 20.9 | 8-Aug-12 | 4.86 | 21.6 | 4.10 | 20.9 |
| 15-Aug-12 | 4.44 | 19.6 | 4.62 | 19.8 | 15-Aug-12 | 5.25 | 20.7 | 5.73 | 20.5 |
| 28-Aug-12 | 5.44 | 19.2 | 4.61 | 18.7 | 28-Aug-12 | 5.03 | 19.0 | 5.33 | 18.7 |
| 12-Sep-12 | 4.31 | 15.5 | 4.52 | 15.4 | 12-Sep-12 | 3.85 | 14.6 | 4.82 | 14.6 |
| 24-Sep-12 | 6.48 | 15.9 | 5.64 | 15.5 | 24-Sep-12 | 5.13 | 15.7 | 4.68 | 15.4 |
| 10-Oct-12 | 5.47 | 12.1 | 5.64 | 12.0 | 11-Oct-12 | 2.81 | 11.0 | 3.19 | 11.0 |
| 1-Nov-12 | 4.35 | 6.5 | 4.50 | 6.5 | 31-Oct-12 | 2.80 | 5.20 | 3.20 | 5.30 |
| **2013** | | | | | | | | | |
| 13-May-13 | | 11.5 | | 9.9 | 13-May-13 | | 11.6 | 11.90 | 10.0 |
| 29-May-13 | 3.36 | 13.1 | 2.93 | 12.6 | 29-May-13 | 5.21 | 13.6 | 5.57 | 12.8 |
| 20-Jun-13 | 3.88 | 15.7 | 2.61 | 16.4 | 19-Jun-13 | 4.13 | 17.2 | 4.39 | 16.4 |
| 4-Jul-13 | 4.68 | 20.0 | 5.21 | 20.9 | 4-Jul-13 | 5.25 | 20.2 | 5.99 | 20.6 |
| 17-Jul-13 | 4.34 | 19.7 | | | 17-Jul-13 | 5.08 | 18.9 | 5.41 | 19.2 |
| 10-Sep-13 | 2.95 | 18.2 | 2.86 | 19.0 | 10-Sep-13 | 7.15 | 18.2 | 7.17 | 18.5 |

Average Monthly Secchi Disk Reading Depths
at Polley and Bootjack Lakes